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Vol. 21. TORONTO, DECEMBER 4, 1891. No. 11.

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ESTABLISHED IN 1880.

Published on the First and Third Fridays of each Month

BY THE

Canadian Manufacturer Publishing Co.

(LIMITED)

Room 66 Canada Life Building, King St. West, Toronto.

FREDERIC NICHOLLS,
Managing Director.

J. J. CASSIDEY,
Editor.

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STEEL RAILS.

The *Toronto Globe* in one of its chronic whines against the N.P. asks:—

Will the brethren be good enough to explain why, despite Sir Leonard's promise of a free trade cheapness, such fundamental articles as iron and steel, coal, coal oil, sugar, barbed wire, cottons, etc., are dearer in Canada to-day than they are in the States, though the States is not a free trade country.

This is supposed to be an argument in favor of unrestricted reciprocity, the idea being to show that the N.P. had not effected the cheapening of these articles to the American standard, and was not likely to do so, and therefore, cheapness being desirable, the best thing to be done to effect it would be unrestricted reciprocity. Of course the answer to this is, that the means by which this cheapness was attained in the United States would also bring it about in Canada, and if Canadian protection has not yet done as much as American protection in cheapening manufactures, it can only be that the quality or extent of our protection is not equal to that in the United States. In the case of iron and steel, alluded to by the *Globe*, and also in a great many other cases, we know that under the higher American duties these industries have flourished and

developed to a wonderful extent, while at the same time the prices of them have been lowered to a point which causes the *Globe* to call attention to their cheapness. Protection has done this in the United States, and would do it in Canada if we had just that sort of protection. But we have not got it. It is true some of the articles alluded to by the *Globe* are upon the dutiable list, but references to the tariff schedules of the two countries shows that in about all of them the American duties are much higher than the Canadian duties; and it is therefore clear that if we hope and expect to cheapen these articles manufactured in Canada to the American standard, we must approximate our tariff to the American standard.

While our American friends, irrespective of party, unanimously declared that protection has been the means of building up and developing the manufacturing industries of their country, and that the competition evolved out of this development has brought the cost of production to a minimum, the *Globe* sees proper to ignore that influence; for in the very same article from which we quote, and within ten lines of the above quotation it says:—

Here we are in the closing days of 1891, face to face with the McKinley tariff, of its kind the most cruel instrument of torture ever devised.

There does not seem to be a doubt that the McKinley tariff has come to stay; and if it is the cruel instrument of torture the *Globe* represents it to be, why, pray, is that journal so anxious for Canada to be brought under the operations of it? We know that the *Globe* professes to be an ardent advocate of free trade, and that it has often used its seductive arguments in that direction; and the only reasonable explanation of its present position is, that it would rather have unrestricted reciprocity, including that cruel instrument of torture—the McKinley tariff—than the more moderate protection afforded by the N.P., and the maintenance of our present political connection with Great Britain.

There is another feature of this question which should be well considered. The *Globe* speaks approvingly of unrestricted reciprocity because of the great cheapness of iron and steel in the United States. In other issues of this journal we have shown that the importations of manufactures of iron and steel into Canada amount to over 600,000 tons annually, and that a very large portion of these come from the United States, the "country where that most cruel instrument of torture"—the McKinley tariff—has full sway; and that if we desire to manufacture such articles in Canada, we can only hope to do it by proper protection. There is one item in this list, however, which has never been protected by the tariff, and, according to the *Globe's* arguments, this article should now be produced in large quantities in Canada. We allude to steel rails. In formulating protection regard was had for the fact that there were then no steel works in the country, that the production of pig iron was exceedingly limited; and that as our railway system was then only in course of development, it would be better to defer imposing any duty upon steel rails. This argument appeared to be sufficient to shape and influence legislation at the time. Steel rails have always been on the free list, and no steel rail was ever manufactured in Canada, nor is it probable there will ever be under the circumstances. But Canada is a large consumer of steel rails, and the manu-

facture of them for us gives large employment to capital and labor to strangers in a far off land ; not to Canadians. Would it not have been well if the fathers of the N.P., had placed a heavy duty on steel rails? It might be said that doing so would have handicapped and retarded the construction of the Canadian Pacific Railway, but an answer to this objection is that that railway was built largely by the Government, and that plenty of capital was ever ready to be invested in iron furnaces and rail mill plants if the Government had guaranteed the stability of the duty, or its equivalent, for a sufficient length of time, say twenty or twenty-five years. If this had been done at the time of Confederation, we would now be making all the steel rails we require, and all the pig iron as well ; and this means that of the 600,000 tons of manufactures of iron and steel we now import, most, or perhaps all of it would be made here in Canada. There are about 2,000,000 tons of rails now in use in Canada, the importations last year, duty free, being 199,575,264 pounds, or 100,000 tons, valued at \$2,204 085. What would protection have done for Canada in this matter? Consider the millions of tons of iron ore which would have been dug out of Canadian mines, the limestone, and coal, and the other things which would have been necessary in the manufacture of iron, the thousands of men who would have been employed in the industry, the increased business of railroads in hauling raw materials and finished products and the millions and millions of dollars which would have been expended at home instead of going abroad. As we have shown, last year we sent over \$2,000,000 to England to pay for steel rails which, if we had had proper protection, would have been made in Canada.

If Canada is ever to become industrially independent she must first insure the permanent establishment of her iron industries, for upon these much of her independence and greatness depends. Protection alone will do this. The *Globe* sneers at Sir Leonard's promise of a free trade cheapness in such fundamental articles as iron and steel. Sir Leonard promised these on condition that proper and sufficient protection should be thrown around them. No doubt the framers of the tariff thought they had afforded this protection, but events and time have shown that the duties upon them were not and never have been high enough. If protection was wrong *per se*, and if it is chargeable to protection the failure of the iron industry, as promised by Sir Leonard, to what policy is chargeable the failure of the steel rail industry to materialize? Certainly not to protection.

AS TO STATISTICS.

IN a recent issue, in discussing the necessity of a Department of Manufactures as a separate branch of the Government, allusion was made to the fact that while other large interests of the country were looked after by special and appropriate departments, the manufacturing interests had no such special representative, and that other departments looked after them and that only in a perfunctory manner. It was stated that the only information ever collected and published regarding our manufacturing interests was that given out every ten years by the Census Bureau, and that the necessity for a Department of Manufactures was emphasized by what

seemed to be the lack of grasp of the subject displayed by the Bureau charged with compiling the census statistics.

An officer of this bureau seems to misunderstand our position in this matter. He regards our remarks as an attack upon his bureau, and is slightly sarcastic in his remarks concerning what we said about "lack of grasp" of the subject displayed in compiling census returns. We have this to say in the matter. Any one who studies the statistical blue books issued from time to time by the Dominion Government, cannot but be impressed with the fact that they are the result of a vast amount of research and study, and a most careful and judicious arrangements of such facts as may be attainable. If these statistics are not always as complete and comprehensive as might be desired, the lack cannot in justice be attributed to carelessness or lack of interest on the part of the statistician, and we cheerfully corroborate the general opinion that he is the right man in the right place.

But however excellently the work of the statistician may be done, it does not follow that it is as satisfactory as it might be, and as far as the manufacturing interests of the country are concerned this work can never be entirely satisfactory under existing methods. We are aware that the compilation of this branch of the census returns is one of the most difficult of all the compilations connected with the census. We know that imperfect returns require correspondence involving delays, and that these make the task both slow and toilsome. We know that under the present system under which the compilation of manufacturing returns is necessarily carried on, it is absolutely impossible for these returns to be made as satisfactory as the manufacturers and the statistician himself might desire. But there is no reason why this condition of things should not be changed, and our desire to have a Department of Manufactures was, that under the operation of it all the important details of the manufacturing industries of the country, always fresh, comprehensive and reliable, would be always available for statistical and census purposes. If the census bureau or any other bureau, or any department of the Government had ever succeeded in gaining satisfactory information in this direction there might not be as great necessity for the desired department as now appears to us. As it is, there is no department specially charged with this business, and the fact that the statistical bureau nor the census bureau have ever yet succeeded in gaining the information desired, emphasizes the necessity for a more satisfactory arrangement.

The Government seem to have had some conception of the desirability of a new department to be charged in some special manner with looking after the manufacturing interests, for several years ago an act was passed authorizing the establishment of a Department of Trade and Commerce, but the plan has never eventuated. It only remains for the Government to put the machinery of this new department in motion, and if, in the organization of it, it includes all that would be desirable in a Department of Manufactures, there would be no necessity for the establishment of this latter. But it is to be supposed that a Department of Trade and Commerce, framed on the lines indicated in the act authorizing its organization, is not just what the Government now deem desirable, and it is to be hoped that if this department is not to be organized at an

early day, and if it is not to be especially charged with looking after the manufacturing interests of the country, the suggestion regarding a Department of Manufactures will receive the consideration at the hands of the Government it certainly deserves.

Under existing arrangements at Ottawa the census bureau is a bureau of the Department of Agriculture. There is no objection to its being there, but it is the system which keeps it there, and in a condition of greater or less efficiency which is objected to. Objections similar to what we are facing in Canada are now raised in the United States much discussion being given to the subject. The demand, there is either for a Census Department of the Government, which many manufacturers favor, or a Permanent Census Bureau in connection with the department now charged with the census business. As with us, much dissatisfaction exists with the census returns, because of their unavoidable inaccuracy and great inefficiency. Senator Morgan, of Alabama, discussing the question, says :

Under the present system of taking the census it is like trying to gather an army within twenty-four hours to fight a great battle—that is, an army of undrilled raw recruits. In every department in Washington there is the nucleus for permanent statistical work. There is a statistical branch in each department which has a cabinet officer at its head. For instance, the enumeration of population and all that pertains directly to that enumeration might be taken decennially. Other statistics relating to industries and all such as that should be taken every year. This could be done at one-half the expense of taking them with the census decennially. A permanent bureau ought to be a responsible bureau of statistics, called the census bureau or what you please, under good control and constant, exacting accuracy. It would be a great convenience to the facilitation of legislation. Members of Congress are constantly calling on the departments for statistical information. At the decennial period the rapid summarizing of things might be done with the trained machinery all ready for the work. The importance of the idea becomes to me a matter for solemn consideration, as the representative branch of Congress—the popular branch—the House of Representatives, is dependent upon this enumeration for the ascertainment of a correct and fair basis of representation.

Similar facts obtain in Canada. Each department of our Government possesses the facilities for obtaining such statistics as it may require, but the gathering of statistics for census purposes, while performed probably as well as possible under the circumstances, is carried on not by or through the different departments, but by a bureau which is organized when the emergency of the census arises, and which falls into disuse after the census returns are all published. The facts regarding the manufacturing and all other interests of the country are of too great importance not to be gathered, collated and revised in the very best manner possible, for if the work is worth doing at all it is worth doing thoroughly and satisfactorily. If the desired facts can best be obtained through the independent instrumentality of the different departments, well and good but this is not to be hoped for any more in Canada than in the United States. The time has come when the inefficient methods of the past must be abandoned, and those adopted which will supply all the information desired regarding our manufacturing and other industries, and keep the world thoroughly and correctly posted on the material greatness of this Canada of ours.

This can only be accomplished under different methods than those now prevailing. There should be some permanent department of the Government to which should be entrusted the gathering of social statistics, and the machinery of this department should always be in active operation. The work of this department would include all census work, of course, and it should also include the gathering of facts and statistics, not only of manufactures, but those regarding our mines, our forests, our fisheries, our agricultural interests, our transportation, our trade and commerce, both domestic and foreign, the labor problem and whatever else that might appear to be of importance.

THE CLOTHING TRADE.

DURING 1890 the importations of ready-made woolen clothing into Canada were as follows :

	Pounds.	Value.	Duty Paid.
Women's and Children's apparel ..	514,752	\$722,425	\$232,122,94
Men's and boys' apparel.....	127,425	140,953	47,963,21
Total.....	642,204	\$863,404	\$280,086,15

These goods consisted of outside garments, and the duties upon them were 10 cents per pound and 25 per cent. *ad valorem*.

The importations of woolen dress goods in the piece in the same year were as follows :

	Pounds.	Value.	Duty Paid.
Cassimeres.....	70,415	\$60,532	\$17,771,38
Cloths.....	1,927,606	1,578,044	466,761,67
Coatings.....	1,220,013	768,906	250,764,11
Doeskins and Meltons.....	34,978	19,350	6,581,59
Overcoatings.....	31,569	28,840	8,190,29
Tweeds.....	1,457,057	1,154,739	345,920,99
Total.....	4,741,638	\$3,610,411	\$1,095,990,03

These goods were imported to be manufactured into outside garments chiefly, and the duties upon them were 10 cents per pound and 20 per cent. *ad valorem*.

The average cost of the ready-made clothing was about \$1.34 per pound, and of the piece goods 86 cents per pound, and the difference—48 cents per pound—represents the cost of manufacture. According to this it cost \$508,258 to manufacture the ready-made clothing imported into Canada last year. Who received this more than half-a-million dollars? Certainly no one in Canada, neither the manufacturer who invests his money in factories and machinery, nor the working men and women who do such work. Who, then? This ready-made clothing came chiefly from England and Germany, and this \$500,000 represents the money the manufacturers and working people in those countries were paid for their services. Why was this work not done in Canada? Simply because the tariff does not properly protect the industry. Why not?

We illustrate by taking the cost of a suit of clothes weighing 8 pounds. The average cost of such a suit, imported from Britain or Germany, would be, at \$1.34 per pound, \$10.72, the cloth representing a cost, at 86 cents per pound, of \$6.88, making, at 48 cents per pound, \$3.84; and the duty at 44 cents per pound, \$3.52, a total of \$14.24 for a suit of imported clothes. Allowing 20 per cent. for waste in making up, the cloth for manufacturing a similar suit in Canada would weigh 9.6 pounds at 86 cents per pound, \$8.25, and duty upon the

same at 23 cents per pound, \$2.20, a total of \$10.45 for material, without the labor of making. The difference between these totals—\$3.79—represents the allowance for making in Canada. But we have shown that the allowance for making abroad is \$3.84, and this is just five cents more than the Canadian allowance. This is not according to the ethics of protection. It should be remembered that the importer of ready-made clothing pays no duty upon the waste incurred in manufacturing the goods, while the Canadian manufacturer has that burden to bear. According to the facts herein given the duty upon ready-made clothing averages 44 cents per pound, and upon piece goods 23 cents; but the waste in manufacturing increases this duty to 27.6 cents per pound.

It may not be desirable to increase the duty upon piece goods, but the ethics of protection demand that the duty upon ready-made clothing should be considerably increased. As it is, the thousands of Canadian women and girls employed in clothing factories are forced by the inequality of the tariff to compete with the sweating establishments of England and Germany, where human beings are worked to death almost, and entirely unable to earn decent and honorable living.

THE BEET SUGAR INDUSTRY.

For a long time past this journal has advocated such measures by the Dominion Government as would result in the growing of sugar beets in Canada and the manufacture of it into sugar upon a scale which would make us practically or largely independent of the rest of the world for our supplies of sugar. Having investigated the matter with some thoroughness, and having obtained the opinions of some of the best posted men in the country and out of it, regarding it, our conclusion was that it would be a good thing for Canada to engage in the business. That our conclusions were correct is evidenced by the fact that they were quoted by members of Parliament during debates in the House: and it gave us some pleasure to record the fact at the time that the Dominion Government had extended some measure of encouragement to the industry. This encouragement could not reach very far, it is true, the extent of it being that the manufacturers were to be bonused to the extent of the old duty upon imported sugar of like grade, and that only for two years. The Government, in the meantime, however, have been having extensive experiments and investigations made in this direction, and the impression now prevails that at the next session of Parliament the House of Commons will be asked to endorse a system by which the bonus for the production of sugar in Canada from home-grown beets will be guaranteed for a long term of years. This is just as it should be, and it is to be hoped that the bonus will be the same as that offered for a like purpose in the United States, and for quite as long period. And it should go further and do as the Americans also do—permit the machinery for manufacturing the sugar—such of it as is not now made in this country—to be imported free of duty for a few years, and until Canadian enterprise, seeing that the industry is being firmly established, could engage in the manufacture of such machinery.

This has been and is the only trade journal published in Canada to advocate this course and demand its adoption: and until only a few days ago there were no prominent daily newspapers found to lend their influence to it. The Opposition papers declined to advocate it because it was a natural outgrowth of the National Policy, which they always oppose; and the Government papers seemed to look upon it as they would a hot potato—something very nice to have, but which they did not care to handle—until they received an approving nod from Ottawa. But be that as it may, we are pleased to observe that the *Montreal Gazette* is now advocating the measure. It shows that the farming enterprise in connection with it in the vicinity of Farnham, Quebec, produced some 14,000 tons of beets the past season, almost as much as the factory in that town can consume, and that the profit to the farmer is greater than that from any other crop which he could grow there. In fact, the testimony of one farmer is to the effect that his sugar beet crop gave him a return of \$100 per acre.

There is an object lesson in this sugar beet and beet sugar business. With the exception of what might be called some experimental tests, no sugar of this sort has ever been produced in Canada. But Canada is a large consumer of sugar, our imports being valued at about \$15,000,000 annually. This fact implies a most valuable home market for a farm product which can be grown to advantage in almost every county in Canada from Nova Scotia to British Columbia. What would it cost Canada to produce \$15,000,000 worth of sugar? Minister of Finance Foster in his budget speech, speaking of the removal of the duties from sugar, said that these duties had amounted to about \$3,500,000 per annum. Of course this sum was taken from the pockets of the people and placed in the Dominion treasury, but the sugar itself was made in far off lands, and the \$15,000,000 to pay for it was also paid by the people. Why not, then, enable Canadian farmers to grow the beets, and Canadian manufacturers to convert them into sugar, thus saving this \$15,000,000 to the country? It can be done by paying over to them the \$3,500,000 which heretofore was paid as customs duties. The country can stand it, for the vast amount which now goes to strangers will go to home folks, and the country can well pay the bounty for a few years if it enables the industry to supply us with all the sugar we need.

The *Gazette* says that the industry will have to encounter opposition and to overcome prejudice, and that it will for a time tax the resources of the Government. The prejudice will be more easily overcome than the opposition. A very large proportion of all the sugar now consumed in Canada is made from the sugar beet, and no consumer stops to enquire whether it is beet sugar or cane sugar—there is no prejudice whatever against the article. The opposition it will encounter will come from the few refiners who now control and virtually own the Canadian market; for they seem to have a hold upon the Government which no amount of argument and demands from the people is sufficient to loosen. Of course we think that the refining industry should receive tariff protection, and it does, too, much more than should be accorded to it; but the selfishness of the refiners will be the source from which will come the greatest opposition to bonusing the beet sugar industry. But even this opposition will be of no avail if the Government

determine to follow the policy of the United States in the matter. We hope it will do so. If it does it will be one of the greatest blessings it could possibly bestow upon the farmers.

By all means let us have the beet sugar industry.

THE POOR MAN'S BACK.

A WRITER in *La Justice* points out once more how unjust the N.P. is to the poor man. He takes the case of woolen goods, viz., blankets and flannels, cloths, tweeds, coatings, overcoatings, felt cloths, etc. The duty is 10 cents per pound specific and 20 per cent. *ad valorem*. Pilot and president cloths, which belong to this category, cost in Britain all the way from two to twelve shillings according to quality. Hence the *ad val.* duty on a two-shilling or fifty-cent cloth is 10 cents and the specific 15 cents, a yard weighing 24 ounces, while the *ad val.* duty on a twelve-shilling or three dollar cloth is 60 cents and the specific 15. That is, the fifty-cent stuff pays in all a tax of 25 cents, which is equal to 50 per cent. *ad val.*, while the three dollar stuff gets off with a tax of 75 cents, or only 25 per cent. *ad val.* And so it goes, specific duties on the weight of cloth pressing severely in all cases upon the poor man's back.—*Toronto Globe*.

In the same issue in which this editorial expression appeared, in an article on Mr. Laurier's Boston speech, in pleading for unrestricted reciprocity, the *Globe* said :

To secure free trade with the United States, for no limited measure is available under existing circumstances, it will be necessary for us to discriminate against British goods.

There are some propositions which are so supremely absurd and ridiculous that even the *Globe*, which seems to have capacity to swallow almost anything, cannot gulp them down; and therefore it parades the sayings of some unnamed writer in an almost equally obscure French newspaper, to show how "the poor man" in Canada suffers because of the duty imposed upon British woolens. The fact is, the woolen schedule of our tariff is remarkably low, and no complaint is ever heard against the increased cost of woolens because of the tariff except it be from those who know little or nothing of the facts, and whose opinions are reproduced in such papers as the *Globe* for political effect. At the same time that the *Globe* is found pointing out the fact that "the poor man" in Canada has to pay a specific duty of 10 cents per pound upon his British made woolen clothing, and also an *ad valorem* duty of 20 per cent., in shrieking for unrestricted reciprocity with the United States it tells us that to secure this boon "it will be necessary for us to discriminate against British goods." Let us see how the *Globe's* scheme would work.

The *Globe* acknowledges that unrestricted reciprocity with the United States means discrimination against Great Britain. In what way are we to discriminate? It is certain that if we have unrestricted reciprocity we will have to adopt the American tariff. In other words, we would as in the case of woolen goods, have to abandon our duty of 10 cents per pound and 20 per cent. *ad valorem* and adopt the McKinley duty. What is that duty? It is this :

On blankets, hats of wool, and flannels for underwear, composed wholly or in part of wool, the hair of the camel, goat, alpaca, or other animals, valued at not more than 30 cents per

pound, the duty per pound shall be the same as the duty imposed by this act on 1½ pounds of unwashed wool of the first class, and in addition thereto 30 per cent *ad valorem*; valued at more than 30 and not more than 40 cents per pound, the duty per pound shall be twice the duty imposed on a pound of unwashed wool of the first class; valued at more than 40 cents and not more than 50 cents per pound the duty per pound shall be three times the duty imposed on a pound of unwashed wool of the first class; and in addition thereto upon all the above named articles 35 per cent. *ad valorem*. On blankets and hats of wool composed wholly or in part of wool, the hair of the camel, goat, alpaca or other animal, valued at more than 50 cents per pound; the duty per pound shall be 3½ times the duty imposed on a pound of unwashed wool of first class, and in addition thereto 40 per cent. *ad valorem*.

Under the American tariff all wools, hair of the camel, goat, alpaca and other like animals, for the purpose of fixing the duties, are divided into three classes. Class 1 includes merino wools; class 2 Leicester and other combing wools, and class 3 South American wools. The duty on washed wools of the 1st class is twice the amount of the duty if imported unwashed; and on scoured wools three times the duty. The duty on wools of the 1st class is 11 cents per pound; of the 2nd class 12 cents. On wools of the 3rd class, where the value is 13 cents or less per pound, the duty is 32 per cent. *ad valorem*—if the value is in excess of 13 cents per pound the duty is 50 per cent.

The *Globe* illustrates its contention by alluding to the fact that woolen cloth weighing 24 ounces, or 1½ pounds to the square yard, is worth 50 cents per yard in Britain, which cost is increased to 75 cents in Canada because of the tariff. "The poor man" would find it very different under unrestricted reciprocity. Following up the *Globe's* illustration, under the McKinley tariff the cost in Canada of a yard of woolen cloth weighing 1½ pounds and costing 50 cents in Britain would be twice the duty per pound imposed on unwashed wool of the first-class—16½ cents—and 35 per cent. *ad valorem*—17½ cents—or 34 cents duty, which, with first cost—50 cents—would bring the article up to 84 cents, or 12 per cent. higher than under the present Canadian duty. The Canadian duty would be 25 cents—the McKinley duty 34 cents, or 36 per cent. higher.

It is a fact that the McKinley tariff has produced consternation in the British textile trade, and British woolens are almost entirely excluded from the American market. It would be the same in Canada under unrestricted reciprocity, and "the poor man" would be the sufferer in every article manufactured in whole or in part of wool which he had use for. Take, for instance, a suit of men's clothes weighing eight pounds and costing \$10 in England. The Canadian duty upon ready made woolen clothing is 10 cents per pound and 25 per cent. *ad valorem*. The American duty is 4½ times the duty imposed upon unwashed wool and 60 per cent. *ad valorem*. The Canadian duty upon this suit would be 80 cents specific and \$2.50 *ad valorem*, a total of \$3.30. The American duty would be \$3.74 specific and \$6 *ad valorem*, a total of \$9.74. In other words, "the poor man" who now imports such a suit of clothes from England finds they cost him laid down here duty paid but \$13.30, while under restricted reciprocity the cost would be \$19.74. The difference in the duty is about 200 per cent.

CANADA'S EXPORT TRADE.

THE exports from Canada for the month of October were \$639,604 in excess of those for September. Of this amount \$136,647 was in the produce of Canada and \$502,947 in that of other countries, the latter being chiefly of grain from the Western States passing through the St. Lawrence canal. The following are the official figures:—

October, 1891.	Produce of Canada.	Produce of other countries.	Total.
Produce of the mine.....	\$575,112	\$34,362	\$609,474
Produce of the fisheries...	913,812	6,381	920,193
Produce of the forest.....	2,143,396	102,018	2,245,414
Animals and their produce...	3,865,423	169,761	4,035,184
Agricultural products....	2,502,124	1,754,334	4,256,458
Manufactures.....	650,927	60,913	711,840
Miscellaneous articles....	27,062	18,590	45,652
Totals.....	\$10,677,856	\$2,146,359	\$12,824,215
Bullion.....	26,620		26,620
Coin.....		14,365	14,365
Grand Total.....	\$10,704,476	\$2,160,724	\$12,865,200

An excellent feature in the statement is the large increase in agricultural products which amounts to \$2,222,972, of which \$1,553,643 was in the produce of Canada, the remainder, \$639,329, being in the produce of other countries. In the produce of the mine there was an increase of \$44,823, but \$42,397 of that was in the produce of this country and \$2,426 was in that of other countries. Produce of the fisheries fell off by \$814,979, nearly the whole of these exports being the produce of Canada. In the produce of the forest there was a shrinkage of \$877,727 of which \$856,644 was in the produce of Canada and \$21,083 in that of other countries. Animals and their produce were increased by \$32,298, but in the produce of Canada there was an increase of \$74,665, while there was a decrease of \$42,367 in that of other countries. Manufactures were increased by \$45,929, but Canada had an increase of \$100,817, there being a decrease of \$54,888 in the produce of other countries. In miscellaneous there was an increase of \$15,622, of which \$10,061 was in the produce of Canada and \$5,561 in that of other countries. Exports of bullion, all of which were Canada's produce, amounted to \$26,620. Coin, which was all the produce of other countries, fell off by \$25,954. The statement for September was as follows:—

September, 1891.	Produce of Canada.	Produce of other countries.	Total.
Produce of the mine.....	\$532,715	\$31,936	\$564,651
Produce of the fisheries...	1,728,721	6,448	1,735,172
Produce of the forest.....	3,000,040	123,101	3,123,141
Animals and their produce...	3,790,758	212,128	4,002,886
Agricultural products....	948,481	1,115,005	2,063,486
Manufactures.....	550,110	115,801	665,911
Miscellaneous articles....	17,001	13,020	30,030
Totals.....	\$10,567,829	\$1,617,448	\$12,185,277
Coin and Bullion.....		40,319	40,319
Grand Total.....	\$10,567,829	\$1,657,767	\$12,225,596

Compared with October, 1890, the exports of the same month this year show an expansion of \$826,779, arising out of an increase in agricultural produce of other countries. The October, 1890, statement of exports was as follows:—

October, 1890.	Produce of Canada.	Produce of other countries.	Total.
Produce of the mine.....	\$700,377	\$24,178	\$724,555
Produce of the fisheries...	967,680	18,998	986,678
Produce of the forest.....	2,936,230	100,112	3,066,342
Animals and their produce...	3,778,571	108,288	3,886,859
Agricultural products....	2,027,596	651,459	2,679,055
Manufactures.....	59,898	95,966	688,864
Miscellaneous articles....	24,444	4,920	29,364
Totals.....	\$11,027,796	\$1,003,921	\$12,031,717
Coin and Bullion.....		6,704	6,704
Grand Total.....	\$11,027,796	\$1,010,625	\$12,038,421

The exports for the four months of the current fiscal year compare with those of last year as follows:—

1891.	Produce of Canada.	Produce of other countries.	Total.
July.....	\$10,416,637	\$1,364,487	\$11,781,124
August.....	8,544,133	1,466,159	10,010,292
September.....	10,567,829	1,657,767	12,225,596
October.....	10,704,476	2,168,724	12,865,200
Totals.....	\$40,233,074	\$6,649,137	\$46,882,212
1890.			
July.....	\$10,378,469	\$1,644,462	\$12,022,931
August.....	9,360,508	1,167,561	10,528,069
September.....	11,216,332	1,433,196	12,649,528
October.....	11,027,796	1,010,625	12,038,421
Totals.....	\$41,983,105	\$5,255,844	\$47,238,949

Coin and bullion exports for the four months of the current fiscal year amounted to \$145,315, of which \$41,675 was bullion, the produce of Canada, and \$103,639 was coin, the produce of other countries. The exports of coin and bullion for the four corresponding months of last year were \$80,623, all the produce of other countries.

THE PRICE OF IT.

THE London *Advertiser* has been delivered of the following brilliant idea:

THE CANADIAN MANUFACTURER gives the following, which it calls "A Pointer to Farmers":

"The wider the home market the better the prices for farm products. Where the home market is small prices for farm products are also small."

This is a splendid argument in favor of freedom of trade between Canada and the United States. Take the farmers of Kent, Essex and Lambton as examples. Their best home market for perishable produce would be Detroit. The farmers of Elgin could find a partial outlet for the same class of produce in Cleveland. The farmers of Haldimand and Welland would profit if they had the market of Buffalo open to them as well as the market to be found in Toronto, London and Hamilton. And so on along the whole line. The home market idea is good; but it is absurd to carry it to the length of preventing Canadians from engaging in profitable trade with their nearest neighbors. "But would it be profitable?" we are sometimes asked. Without a doubt. No trade takes place unless there are two parties to it, and the exchange is effected because each party believes there is a profit in it. That is all there is in international commerce.

The home market which we alluded to means the Canadian market, and the idea of enlarging it implied the greater consumption in Canada, not in other countries. The United States market is not nor can it be a home market for Canadian products. We say it cannot be because, being a foreign mar-

ket, we cannot gain access to it except upon such terms as the foreigners may dictate. No doubt it would be pleasant if we were privileged to send our produce there duty free, but the foreigners will not allow us that privilege unless we make concessions to them which will injure us more than the privilege will benefit us. And this is just the way to measure the value of reciprocity. A large home market would benefit us immensely, but the privilege of selling in the American market might not benefit us as the *Advertiser* seems to think. There is nothing that Canadian farmers produce, whom the *Advertiser* says would be benefitted by access to the markets of Detroit, Cleveland and Buffalo, which is not produced by American farmers near these cities. Being foreigners to them, and desiring to protect their own home market, the Americans decline to allow Canadian produce to be brought into competition with American produce unless we pay well for the privilege. What are we to pay for that privilege? At present we have to pay whatever the McKinley tariff demands. The *Advertiser* proposes that we avoid that tariff by obtaining unrestricted reciprocity. It always takes two to make a bargain, and even were Canada agreeable—which she certainly is not—we are not certain that the United States would be also agreeable. But if it were, unrestricted reciprocity would mean the dwindling away of the Canadian home market for the sake of access to the American foreign market. Our home market would decrease because under our present conditions of development our manufacturing industries are not in the same condition of development as American manufacturing industries; and under unrestricted reciprocity the over-production of American manufacturers would be slaughtered in the Canadian market. Of course this would quickly give the quietus to Canadian manufacturers; and if their works were shut up where would be the home market for Canadian farmers? The *Advertiser* fires over the heads of such Canadian manufacturing centres as Toronto, Hamilton and London, aiming rather at the farther off American manufacturing centres as Detroit, Cleveland and Buffalo; but why should Canadian farmers cater for these foreign markets when by proper encouragement these home markets would consume all they could produce?

The *Advertiser's* attitude is that of a suppliant going on bended knees and bowed head, hat in hand, cringing and begging that our American neighbors will kindly do us the favor to let us trade freely with them. What does it offer for this great boon? It offers the Americans our vast stores of natural wealth free. Our nickel, which they cannot possibly do without—for they have no adequate supply with which to armor their ships of war; our timber, for their forests are fast being depleted, and even now their saw mills would be idle were it not for Canadian logs. All the offering are in the line of natural products which the Americans must have at any cost; and the only remuneration we are to have will be the privilege of selling our farm produce in the American market, when we have a better and more profitable market on this side the line. Seeing the undignified and ridiculous advances these whiners for unrestricted reciprocity make, it would be surprising if our American friends did not dally and coquette with the question, demanding even greater sacrifices on our part. Of course they conceal the fact that their necessities demand our natural products, and of course they magnify the so-called advantages

which we are so anxious to obtain. They tell us, which is a fact, that if Canadian farmers have eggs, barley and horses to sell American farmers produce just such things, and that it would be an injustice to these latter to allow the unrestricted competition of foreigners—unless for a price. Free access to our natural products might be a part of that price, and throwing open the Canadian market to American manufacturers in which to slaughter their surplus products might be another part of the price, but there is something else which they include in the price, and which they will have if unrestricted reciprocity is granted, and that is that the British flag, which now floats over us and which is the joy and hope of so many millions of free men, shall be hauled down, folded up and stowed away in some hidden place, there to become a reminiscence of the past, and its place taken by the Stars and Stripes. The *Advertiser* may sneer at and ridicule this idea, but that is just the price Canada would have to pay for what the *Advertiser* desires. Are we prepared to pay the price?

EDITORIAL NOTES.

MEMBERS of the Canadian Manufacturers' Association and all others who may have business with Mr. J. J. Cassidy, Secretary of the Association, will find him at the office of the Association, Room 66, Canada Life Building, King Street West.

GOVERNOR RUSSELL, of Massachusetts, declared immediately after the recent elections in that state that the result meant that the people were earnestly in favor of tariff reform on the line of free raw materials. What, pray, are "raw materials"? Ore and coal at the mouth of the mine are the finished products of the miner. Refined gold is the raw material of the jeweler.

A CUSTOMS inspector of Washington has informed the Treasury Department of the seizure of several lots of clothing, valued at \$401, which has been smuggled into Troy, N.Y., from Canada. His report shows a systematic method of smuggling on the part of certain Canadian tailors having customers in Troy and other cities in New York. He says an agent of the foreign tailors visits this country for the purpose of taking orders, and then smuggles in the clothing.

KINGSTON has gone into the tax-exemption business as regards manufactories. When they have had as much of it as Toronto they will see the error of their ways. A city of the size and progressive spirit of Kingston has no use for a business that cannot exist without the aid of tax exemption.—*Empire*.

If Kingston and Toronto and all Canada would suppress the exemption from taxation of all real estate the manufacturers would have no necessity to ask favor in that direction. The exemption from taxation upon real estate in Toronto amounts to \$20,000,000.

THE *Empire* speaking of the McKinley tariff says: "It is, of course, questionable whether the United States has not reached a period when less protection would be desirable." Is this view taken from a Canadian standpoint? If it is Canada might agree in the view that less "protection" on eggs, horses and barley would be desirable. Is the view taken from the

Democratic standpoint? If it is the answer is that in the last presidential election when the issue was clearly defined between Mr. Cleveland representing the party which contended that "less protection would be desirable," and Mr. Harrison, representing the McKinley high tariff party, the country at large chose the latter. Who then, is to say that the time has come when less protection in the United States would be desirable? Neither Canada nor the *Empire* seem to have much influence in shaping American tariff laws, and the American people seem to like the laws they have well enough.

It is a rather queer thing that not one of the many newspapers writers who delight in making unfavorable comparisons between Canada and the United States has ever thought of suggesting that the Canadian tariff be made as high as the American tariff.—*Ottawa Journal*.

It does not require that a newspaper writer in suggesting that the Canadian tariff should be made as high as the American tariff should make unfavorable comparisons between the two countries. This journal has long advocated such a change. Our contemporary might bear in mind that in one thing at least the Dominion Government have exceeded this very thing. The American tariff places a duty of \$10 per ton upon refined sugar, while our duty is \$16 per ton. There are many things which we import from the United States upon which it would be well to measure the height of our tariff by that of Mr. McKinley.

MR. LAURIER, in his recent Boston speech, advocated free trade between Canada and the United States. In commenting upon this speech the *Empire*, in showing that the farmers, the manufacturers, the workingmen, the protectionists and even the free traders object to Mr. Laurier's scheme, says:

The free traders object to it because it would join us in differential chains to the most highly protected community in the world, where, in fact protection is done to death.

The *Empire* professes to be an upholder of the N.P.—of Canada's policy of protection to Canadian industries. The fiscal policy of the United States has this identical object in view for that country, the only difference between the policies of the two countries being in the details. Is protection done to death in the United States? The McKinley tariff imposes a duty of only \$10 per ton on refined sugar, while in Canada the duty is \$16 per ton. The *Empire* is a good witness for the other party.

THE free traders object to it (unrestricted reciprocity with the United States), because it would join us in differential chains to the most highly protected community in the world, where, in fact, protection is done to death.—*Toronto Empire*.

Here we are, in the closing days of 1891, face to face with the McKinley tariff, of its kind the most cruel instrument of torture ever devised.—*Toronto Globe*.

By a remarkable concatenation of events, these items were published simultaneously; and they illustrate how the overworked brains of these two opposing journals unconsciously flow in parallel streams. The *Empire*, which poses as the advocate of Canada's National Policy of protection, tells us that under the McKinley tariff in the United States protection is done to death; and the *Globe*, which desires Canada to adopt the McKinley tariff, as would be the case

under unrestricted reciprocity, speaks of it as the most cruel instrument of torture ever devised. We do not observe that the shirt-bosoms of either of these illustrious journals are ornamented and decorated with the jewel of consistency.

SOME Canadian newspapers, and some Democratic newspapers in the United States also, are sneering at the new American cruiser *Philadelphia*, saying that she lacks stability, and that she would likely become immediately disabled if she should ever become engaged in a combat with an enemy's ship. It is to be doubted that this is a fact: but if it is, it reflects but very little credit upon the administration of the late President Cleveland, who, like other un-American Americans, affected to believe that there were none in the United States who could design such ships, and therefore the designs of the *Philadelphia* were procured from Sir William Armstrong & Sons, the eminent shipbuilders of England. If the *Philadelphia* is a failure the blame lies first with the late Secretary of the Navy, Mr. Whitney, who bought the designs, and second, with the English architects who made them. We notice that the Republican administration of Mr. Harrison are not ordering designs for American war-ships from English shipbuilders.

In the United States they look upon a flag more seriously than we do in Canada. The supposed Anarchists who unfurled the red flag in Chicago were compelled to haul it down and substitute the Stars and Stripes. An exhibition of the old Confederate banner has called forth the expression that it must be relegated to curiosity collections, and not displayed in public. Yet the tricolor floats to the breeze on every public occasion in Quebec, and the young are taught to say it is the flag of Canada. Is it that we value our institutions less than the American prize theirs, or that we have not yet so fully realized the danger of encouraging aspirations that can never be realized.—*Toronto Mail*.

The *Mail* is one of those so-called Canadian journals which is always employing itself in pulling down the Canadian flag and elevating the flag of a foreign country. It is constantly telling that our flag is not what we need, and trying to make others believe that our prosperity depends upon our adopting another flag. Canadians do not value their institutions less than the Americans do theirs, but the *Mail* does not seem to fully realize the danger it is inviting by encouraging aspirations (?) in the direction of annexation which it is certain can never be realized.

THE secretary of the United States navy, and for the matter of that every other citizen of the republic, went into a fluster some time ago about the need of new cruisers to protect the coast. They hastened to commence building the ships, but being inexperienced hands at the work, they had not succeeded very well. The new cruiser *Philadelphia* has been built top heavy, and it is feared that if launched she may roll over on the side or turn bottom upwards. The experts have no remedy to suggest. However, the building of a new ship in her stead may be conducted with more success. The McKinley industry in this case is a costly affair.—*Toronto Empire*.

In this instance this is not a McKinley affair. It is the result of the illiberality always characteristic of the tariff for revenue-only party of the United States. The *Philadelphia* is a specimen of what might be expected when one goes away from home to obtain what might better be obtained at home.

Mr. Cleveland's Government, pretending to doubt the ability of American architects to plan a successful war vessel, bought the plans for this ship from the Armstrongs, in England. She was constructed upon these plans with the result alluded to by the *Empire*. Other new ships of the American navy, McKinley affairs from inception to completion, and the result of home talent and home work, bear most favorable comparison with the ships of any other nation.

"READJUSTMENT" is the word now used by protectionists bosses for a "reduction" in wages. John C. Dueber, the Canton, O., watch manufacturer, a firm believer in a high tariff to increase the wages of the workmen, has given his employees the benefit of a twenty per cent. "readjustment in wages from their pockets into his own a few days ago.—*Hamilton Times*.

The trouble with Dueber was this: Until recently he was a member of an association of watch manufacturers who had agreed among themselves that they would not sell watches below a living profit, and as long as this arrangement was observed all went well. But he became very greedy. He wanted to sell more watches than there was a demand for in the market, and so he began cutting prices. When he did this he was ejected from the association. Then his efforts to sell his goods became quite frantic and they were slaughtered at far below their real value; and to enable him to do this he resorted to the mean expedient of reducing the wages of his workmen. Dueber, the *Times* says, was a firm believer in a high tariff. His theory might be in that direction, but his actions indicate not only a free trader but we were going to say a freebooter. If it had not been for his foolish greediness to sell goods, he would have remained in the association. Remaining there meant fair prices for his goods, and this in turn meant fair pay to his workmen.

A DEPUTATION of gentlemen interested in the beet sugar industry at Farnham, Que., waited upon the Dominion Government a few days ago requesting that the Government give a guarantee that the bounty should be bestowed upon the manufacture of beet sugar in Canada for a term of twenty years after the expiration of the present bounty arrangement, which occurs next July. They ask the Government to follow the example set in the McKinley tariff by which a bounty of two cents per pound is guaranteed for a long term of years upon the production of beet sugar in that country. This matter has so frequently been brought to the attention of the Government, and in such forcible manner, that it is reasonable to suppose that at the next session of Parliament something will be done which will result in the cultivation of the sugar beet on a large scale and its manufacture into sugar. This can be done by guaranteeing a bounty say of two cents per pound upon all beet sugar manufactured in Canada, and admitting duty free for a term of years all such machinery necessary in the business as is not made in the country. This is just what the McKinley tariff does. It is understood that Prof. Saunders, of the Government Experimental Farm at Ottawa, is investigating the matter very thoroughly, and his report will be received and read with a great deal of interest.

It is of interest to Canadians who are interested in the development of our nickel resources that the Navy Department of the United States has concluded to use nickel-steel in

the manufacture of all armor hereafter for vessels of war, and a notification of this decision has been sent to Carnegie, Phipps & Co. and the Bethlehem Iron works, with which firms there are existing contracts of several years' standing for the furnishing of armor plate. The details of the process and treatment have not been determined upon, and will await the results of the pending trial of 10-inch armor, made at the Carnegie and Bethlehem works.—*Toronto Mail*.

The use of nickel steel in the manufacture of armor for warships involves the investment of millions of dollars in mills and plants, and the employment of thousands of workmen in them. It is of interest to Canadians who are interested in the development of our nickel resources to know that Canada furnishes the raw materials and that the other advantages are developed in other countries. We have the holes in the ground from which the ore is taken, and the other countries have the nickel-steel works and the workmen. The McKinley duty upon refined nickel is \$200 per ton, but ore and matte go in free. If Canada imposed an export duty of \$200 per ton upon nickel contained in ore and matte, we would either have refining works in Canada or a large increase in treasury receipts. Impose the duty.

In one of his Ohio campaign speeches, Mr. McKinley told his hearers that "a revenue tariff encourages the foreign shop and the foreign laborer, and discourages the domestic shop and the domestic laborer; a revenue tariff never built a fire in a furnace in the United States, but has more than once extinguished the fires which had been built in the furnaces under a protective tariff." The men who work in Canadian sugar refineries will appreciate the force of the latter remark. The McKenzie-Laurier free trade revenue tariff extinguished the fires which had been built in the furnaces of the Canadian sugar refineries, not to be relighted till protection was restored. And sugar under the free trade revenue tariff was about twice the price it is under the protective tariff.—*Montreal Gazette*.

The men who work in Canadian sugar refineries number all told only about 600. The capitalists who own and operate these refineries number probably a dozen. The Canadian duty of \$16 per ton upon refined sugar is \$6 per ton higher than the McKinley duty of \$10 per ton. The difference in favor of the Canadian refiners above the protection afforded the American refiners is over \$700,000 per year, and this is the measure of the unnecessary and superfluous protection afforded the Canadian refiners. The McKinley duty is high enough, and this excess is squeezed out of the pockets of the people of Canada. The Canadian duty upon refined sugar should be reduced.

THAT the Canadian consumer is getting the benefit of the Government's free sugar policy is apparent from the revenue returns. The duty collected during the past four months on imports is \$1,863,716 less than during the similar period last year. That money reposes in the vest pockets of the people, because it was a revenue tax on raw material. When did the Grit party take off taxation when they were in office? Echo answers "When?"—*Toronto Empire*.

Let us see if this sugar tax "reposes in the pockets of the people." Last year the quantity of sugar imported into Canada amounted to 174,045,720 pounds, valued at \$5,186,158, upon which \$2,851,547 duties were paid. The duty upon refining sugar has been removed but not that upon refined sugars, or sugar above No. 14 Dutch standard. The duty

upon these latter sugars is \$16 per ton, while the McKinley duty upon refined sugar, and sugar above No. 16 Dutch standard is only \$10 per ton. Sugar not above No. 14 Dutch standard, otherwise known as refining sugar, is not fit for food until refined; and the difference between the duty—\$16 per ton—and the actual cost of refining allowing a fair profit to the refiner for his investment of capital and cost of operating his works, represents the excess of duty which is now given him over and above what he should receive. We are accustomed to regard the McKinley tariff as the acme of protection. Under that tariff American refiners are protected to the extent of \$10 per ton; and we know that while refined sugar is cheaper in the United States than in Canada, we also know that American refined sugar is sold in Great Britain much cheaper than it is in New York. This shows that the duty of \$10 per ton is unnecessarily high; and if \$10 per ton is unnecessarily high, certainly the Canadian duty of \$16 per ton is—well, unnecessarily high also.

THE miners of West Kootenay are awake to the fact that the mere establishment of local smelters does not create a market for lead ores, and they are looking around for a means that will. They are of opinion that until the Dominion Government increases the present duty on pig, bar and sheet lead from \$8 to \$12 a ton, to a uniform duty of \$30 a ton, the local smelter owners will be unable to either run their plants continuously or at a profit, and unless another market than Canada is opened, the output of their mines will be restricted to just enough to supply the home demand, which is not large. The market hoped for is the United States; but until the Canadian duty is as high as that levied by the United States, the latter country is not likely to favor any reciprocal arrangement. The Canadian Government, if it would see the mining industry of this province flourish, should raise the present duty on lead so as to make it equal to that levied by the United States, then its commissioners to the Washington conference would be in a position to talk reciprocity on an equal footing. Petitions embodying these views have been numerous signed by the miners and mine owners of the various camps in the district, and forwarded to Premier Abbott, with a request that he present them to the Governor-General for consideration.—*Hot Springs News.*

The importations into Canada last year were 11,334,064 pounds scrap and pig lead, valued at \$283,096, upon which \$40,478.37 duty was paid, the rate of duty being .4 cent per pound. Of bars, blocks, and sheets there were 2,137,296 pounds, valued at \$59,484, upon which \$11,450.93 duty was paid, the rate of duty being .6 cents per pound. Of pipe there was 133,455 pounds, valued at \$5,794 upon which \$1,693 duty was paid, and of shot 108,706 pounds, valued at \$4,095, upon which \$1,371.75 duty was paid, the rate of duty upon pipe and shot being 1½ cents per pound. The American duty upon these articles are as follows: upon lead ore 1½ cents per pound; pig, bar, scrap, block, and sheet, 2 cents per pound, and upon sheet, pipe, and shot 2½ cents per pound. But a considerable portion of our importations of lead products come from the United States; and that country would probably require what lead ores we could produce were it not for its high duty of 1½ cents per pound upon the lead contained in them. The only visible method of inducing it to remove this prohibitory duty would be by imposing very much higher duties than those we now have upon finished lead products of countries which tax our ores so heavily.

SPECIAL ADVERTISEMENTS.

Advertisements will be accepted for this location at the rate of two cents a word for the first insertion, and one cent for each subsequent insertion. Subscription \$1.

“TRIUMPH OF THE AGE.” Attention is called to the advertisement of The Eno Steam Generator Company, Limited, on page 359 of this issue. This Generator is being adopted by the leading manufacturers in Canada and the United States. Every steam user should investigate its merits.

J. L. O. VIDAL & SON, City of Quebec, are agents to sell and handle on commission all sorts of new and second-hand machinery, engines, boilers, pumps, agricultural implements belting, hose, safes, saws, files, bolts, machines and tools for shoe factories, etc. Consignments solicited. Best references given.

THE HEESON IMPROVED SHAKING FURNACE GRATE has no equal for all kinds of furnaces, round or square, boilers heating furnaces, ovens and stoves. It is the only grate that will clean fires without opening fire doors. It is the strongest bar known, having the most air space, thus securing better combustion. These bars are saving more fuel and generating more steam and will last longer than any other bars on the market. Ten per cent. saving in fuel guaranteed or no sale. References on application. HEESON GRATE BAR CO., 38 King St. East, Toronto.

FOR SALE, A VALUABLE CANADIAN PATENT.—The Trenholm Improved Perpetual Hay Press, patented 1882, has been manufactured in New Brunswick for nine years, and stands without a rival in the Maritime Provinces. As it has not been introduced in the Upper Provinces, the purchaser can, if he manufactures there, get practically a complete control of the business in Canada, as this machine is cheaper, stronger, easier running and more durable than any other Press of its class, and is well protected by patent. Full investigation invited. Terms easy. Write for particulars to A. J. TRENHOLM, Sussex, N.B.

MISS MAMIE DICKENS, who was always known as the favorite daughter of Charles Dickens, has written, for the Christmas number of *The Ladies' Home Journal*, her first story. It is a semi-ghost tale of the romance of an old English manor. Miss Dickens's only piece of literary work previous to this story was the editing of her father's letters for publication. She is said to possess true literary talent.

HON. ROBERT P. PORTER, superintendent of the census, has sent us a pamphlet copy of an address delivered by him in Boston, Oct. 16th last, before the American Statistical Association upon “The Eleventh Census of the United States. This census was the most comprehensive ever taken in that country, and covered about every subject which was considered of sufficient importance to demand such recognition. This census has not yet been fully tabulated and arranged for publication, but the American Government have caused many bulletins of it to be issued, and these cover a large number of most important subjects. Of course, Mr. Porter, in his address, could do no more than allude to the more interesting features of the great enterprise which was carried on under his direction; but the information which he gave was of the most valuable character.

“WINTER Evenings and How to Spend Them,” suggests to W. I. Lincoln Adams in *Outing* for December some useful observations. He says: “In the old days it was considered necessary to employ a very expensive foreign lantern for projecting photographic slides

upon the screen, and as a consequence very few amateurs could indulge in this most fascinating manner of exhibiting their work. More recently it has been found that an instrument costing, say, \$30 answers every purpose for the parlor or small lyceum. Of course, with such an instrument ordinary petroleum oil is used in place of the calcium light employed with the large expensive lantern. But the yellow light from the petroleum oil is not only very agreeable to the eyes of the beholder, but is entirely satisfactory for most purposes. The introduction of these cheap lanterns has undoubtedly had much to do with the widespread adoption of lantern slides as a means of reproducing negatives."

ONE of the popular paintings at the New York Academy of Design was a yard-long panel of roses. A crowd was always before it. One art critic exclaimed, "Such a bit of nature should belong to all the people, it is too beautiful for one man to hide away." *The Youth's Companion*, of Boston, seized the idea, and spent \$20,000 to reproduce the painting. The result has been a triumph of artistic delicacy and color. *The Companion* makes an autumn gift of this copy of the painting to each of its 500,000 subscribers. Any others who may subscribe now for the first time, and request it, will receive "The Yard of Roses" without extra charge while the edition lasts. Besides the gift of this beautiful picture all new subscribers will receive *The Companion* free from the time the subscription is received till January 1st, including the Thanksgiving and Christmas double numbers, and for a full year from that date. The price of *The Companion* is \$1.75 a year. Every family should take this brightest and best of illustrated literary papers in addition to the local paper.

THE announcement by the publishers of *The Dominion Illustrated* that they would this year issue a Christmas number more beautiful and valuable than even their own last year's issue has been followed by a rush of orders from every portion of the Dominion. This number will be a purely Canadian work in the fullest sense, and as a souvenir to send to absent friends will not be surpassed; while its literary merit and artistic beauty, combined with its magnificent special supplements, will render it a welcome and a charming visitor in every home from the Atlantic to the Pacific. It is the purpose of the publishers of this most valuable journal to issue a special Toronto number, dealing exclusively with the interests of the Queen City, which has met with a hearty response, and the work is steadily progressing. It will be published in March, and will be a large and comprehensive work, dealing with the history, commercial importance and general interests and advantages of the city. It will be the most exhaustive and valuable work of the kind yet issued, and profuse illustrations in the highest style of photogravure art will render its pages doubly attractive, as well as a fine pictorial presentation of the beauties of Toronto.

THE useful applications of science are especially prominent in *The Popular Science Monthly* for December. First comes a copiously illustrated paper by Edwin A. Barber, on "The Rise of the Pottery Industry," in the series on American Industries. In this are described the undertakings of the early American potters, with figures of some of their ware, and of the apparatus used in making it. Mr. P. D. Ross contributes a description of the type-casting machines just coming into use, which bid fair to revolutionize the printing trade. Cuts of the two rival machines are given. Prof. G. L. Goodale's address on "The Possibilities of Economic Botany" is concluded, the topics considered being fruits, timbers, fibers, fodder-plants, etc. There is an able essay by Prof. E. P. Evans on "Progress and Perfectibility in the Lower Animals," while Dr. Wesley Mills has a practical article in the same field on "The Training of Dogs," which is illustrated with pictures of a number of champion hunting dogs. Rev. J. W. Quinby gives a striking exhortation to breathe pure air. The last of Prof. Frederick Starr's illustrated dress articles, dealing with religious dress, is published this month. In "The Lost Volcanoes of Connecticut" Prof. W. M. Davis gives the evidence of former fiery outbreaks that he has found between Hartford and New Haven, with drawings showing the nature of disturbances that they caused. J. B. Mann has a sensible article on "Silk Dresses and Eight Hours' Work" that the champions of the workingmen should ponder over. The paper on "Dust," by J. G. McPherson, shows how much is brought out by study of an insignificant subject. The portrait and sketch represent the Russian Mendeleef, a chemist whose name is one of those most widely known at the present day. The editorials deal with the decline of popular heroes, political justice, and modern charities. New York: D. Appleton & Company. Fifty cents a number; \$5 a year.

THE heart of a woman must be pleased when she sees such a magazine prepared for her special pleasure as is the Christmas *Ladies' Home Journal*. In every respect is this a model issue. Under a

beautiful new cover, printed in a deep red on a background of rich gray, is given a wonderful wealth of good material. Mamie Dickens, the favorite daughter of the great novelist, contributes the first story ever written by her, and this has an interest all its own. Amelia E. Barr has a delightful article on "When I was a Girl"; Mrs. Burton Harrison, author of "The Anglomaniacs," treats at length and most interestingly "Social Life in New York" as only she, as one of Gotham's foremost social leaders, could do; "Christmas on an Old Plantation" is told by Rebecca Cameron, and illustrated by E. W. Kemble; Adelina Patti, Edna Lyall, Mamie Dickens, Lady Mackenzie, Mrs. Kendal write Christmas greetings to American women 'cross the sea; "The Girl Who Loves to Sing" is told how to train her voice, build it up and preserve it by such eminent singers as Campanini, Clementine De Vere, Minnie Hauk, Marie Roze, Clara Poole and Louise Natali; Hezekiah Butterworth has a long Christmas poem superbly illustrated by W. L. Taylor; the Princess Bismarck is sketched in "Unknown Wives of Well-Known Men," while Miss Winnie Davis, daughter of Jefferson Davis, is photographed and sketched under "Clever Daughters of Clever Men"; there is a sweet Christmas story entitled "A Christmas Girl". Palmer Cox makes his famous "Brownies" have a glorious Christmas tree; Mrs. Henry Ward Beecher continues her glimpses of "Mr. Beecher as I Knew Him," while Dr. Talmage, Maria Parloa, Margaret Bottomo, Isabel Mallon and all the sixteen editors of the *Journal* crowd their departments with the brightest and most readable matter. There is practically no end to the delight in such a magazine as this, and when its price of ten cents is considered, the marvel increases. Twelve such *Journals* are given for \$1 a year by The Curtis Publishing Company of Philadelphia.

THE Christmas *Wide Awake* is as gay as old Santa Claus himself, and it is a big pack of holiday delights. Its exquisite frontispiece, in color, is from the terra cotta bas-relief "Day and Night," by Caroline Hunt Rimmer, daughter of Dr. Rimmer, the late famous Art-Anatomist. Rarely has anything more beautiful been given in a magazine. Perhaps the story that will attract the most attention is the first one of the "Fair Harvard" series, "Such Stuff as Dreams are Made Of," by John Mead Howells, the son of W. D. Howells, a good proof that there is something in heredity. The opening story is as delicious and fresh: "How Christmas Came in the Little Black Tent," by Mrs. Charlotte M. Vaile, with two illustrations by Irving R. Wiles. "Christmas with 'Ole Sherman'" is an incident of the war, from the rebel standpoint, in which General Sherman figures genially. In her story, "The Fairy 'Content,'" Mrs. Jessie Benton Fremont is at her brightest and best. "Queen Margaret's Needles," by Susan Coolidge, is an historical ballad of Norway. Another fine ballad is "The Fourth Little Boy," by Mary E. Wilkins, with seven pictures by Childe Hassam. Still another is "Santa's Reproof," by Emilie Poulsson. "The War of the Schools," by Captain C. A. Curtis, U.S.A., is a splendid snow-balling story. "Captain Joe" is a particularly bright and fresh war story by a new southern writer, Helen Keene. "In Arctic Pack-Ice" is a thrilling story by Lieut-Col. Thorndike, the first in the series of "One Man's Adventures." The illustrated papers are interesting: "A Roumanian Princess," by Eleanor Lewis, and "How I Became a Seneca Indian," by Mrs. Harriett Maxwell Converse. The serials open well: "Jack Brereton's Three Month's Service," a war story by Mrs. Maria McIntosh Cox; "The Lance of Kanana," a historical Arabian story by Abd el Ardavan; "The Writings-Down of Dorothy Holcomb," some quaint New England village work. There are the departments, "Men and Things," Tangles, and Post-Office, besides many bright pictures and poems—among the latter a particularly noticeable one, "The Bad Little Coo-Bird," by Charlotte Perkins Stetson. *Wide Awake* is \$2.40 a year. D. Lothrop Company, Boston.

WHEN the Countess of Aberdeen was in Ottawa last she was greatly pleased with the beauty and variety of the collection of gems and precious stones cut from Canadian material in the lapidary establishment of C. P. Willimott & Co., and before she left she ordered a handsome necklace of Quartz-Asteria and a smaller one of Amazon-stones. Those of our readers who are ignorant of the resources of the Dominion in gem material should read Mr. C. W. Willimott's excellent review of the subject in a paper just printed by the Ottawa Field Naturalist Club. Mr. Willimott points out that the idea that our crude material may be sold by the ton or hundredweight instead of by the carat, as Oriental or European gems are, is entirely erroneous; for while some of our semi-gems, such as Agate, Jasper, Amazon-stones, etc., might be so obtained owing to the abundance of material, many of our stones possess a high value and are sold by the carat on account of their scarcity.—*Mining Review*.

MR. CHARLES MYLES, of Hamilton, Ont., has a scheme to form a company to build an electric railway from the eastern terminus of the Hamilton and Dundas Railway to Grimsby camp, touching at Bartonville, Stony Cteek, Winona and Grimsby. The estimated cost of the line is \$175,000. The projector expects to get a bonus of \$25,000 from the city and one-half of the remaining \$150,000 has been subscribed. The intention is to run the road with electricity brought from a plant situated at the waste weirs of the Welland canal. The electric car will be on the Trolley system, such as those used in Ottawa and Buffalo, and about twelve trains a day will be run. Four fruit trains will probably be run direct to the Toronto boats during the fruit season.

A SIMPLE yet very interesting process is that of constructing a barrel or cask from the tree direct, and which possesses but one stave. The tree stem is first sawn into the requisite lengths for the cask, and these lengths are then boiled for three hours in hot water, through which an electrical current has been passed. This renders the wood soft and practically flexible. The log, after the hot water process, is then fastened as in a lathe to a cutting machine. A long knife blade attached to the machine automatically approaches the log, cutting therefrom a long continuous sheet, which passes out through a sort of opening in the frame at the edge of the blade. As the sheet of wood comes from the machine it is taken in hand by attendants and cut into lengths suitable for the diameter of the barrel required. These lengths are grooved on opposite sides by another machine, to allow of a head and bottom being fastened. Another machine cuts long, narrow gussets out of the edges at intervals, thus giving the essential taper to the ends of the cask. The sheet of wood is then formed into the barrel shape, and the first two hoops put on by machinery.

ALMOST all the spools now made are produced from birch-wood, and the machinery used in their manufacture has been brought to such a degree of perfection as to reduce their cost to the lowest possible figure. The wood is first sawed into sticks four or five feet long and seven-eighths of an inch to three inches square, according to the intended size of the spool. These sticks are thoroughly seasoned, sawed into short blocks, and dried in a hot-air kiln at the time they are sawed, holes being bored perpendicularly through each block, which is set on end under a rapidly revolving long-shaped auger. At this stage one whirl of each little block against some small knives that are turning at lightning speed fashions it into a spool after the manner of the pattern provided, and this, too, at the rate of one a second for each set of knives. A row of small boys feed the spool-making machines by simply placing the blocks in a spout, selecting the best, and throwing out the knotty and defective stock. The machine is automatic, excepting the operation performed by the boys. After turning, the spools are placed in a large drum and revolved rapidly till polished.

CYCLE manufacturers in Birmingham, Coventry and Wolverhampton, England, are greatly exercised by the decision of the French Chamber of Deputies to raise the tariff on all cycles imported into France nearly 100 per cent. The bill only requires the assent of the Senate to become law. A very extensive trade has been acquired in France by British cycle manufacturers, the total exports of cycles from that country to France amounting to about £175,000 a year. An addition of duty from 120 francs to 220 francs per 100 kilogrammes, equal to £4 increase, is certain to seriously check trade with the Republic even if French prices should advance correspondingly. It is also feared that in order to avoid the loss of the French market some enterprising English manufacturer or manufacturers will establish a cycle factory in France, and thereby cut out all their English competitors not only in the French market but all the continental markets. Some of the cycle manufacturers are calling out for State assistance to save the trade from ruin, but in what form the Government can interfere, except in the way of reprisals, is by no means clear, and the British public would never submit to be taxed for an export bounty on cycles.

THE H. C. Frick Coal & Coke Company of Pittsburg, has completed arrangements for the illumination of its mines by electricity. The contract for the work has been awarded to the Westinghouse Electric and Manufacturing Company. The first two mines to be lighted were Leisenring No. 1 and Leisenring No. 2. The mines of the company are situated in Westmoreland and Cambria counties, Pa., and a number are shaft mines, varying in depth from one hundred to nearly one thousand feet. Owing to fire damp and gas in many of these mines the lighting has been a grave problem, because almost every known method of illumination included danger from fire. This led to electric lighting. The Frick Company has adopted the method of lighting each mine independently, and at

every mine is installed a Westinghouse direct current apparatus of sufficient capacity to light up the mine below, and the buildings above ground. The lamps are distributed underground throughout the main walks leading to the shaft. The engine house and other surface buildings are also lighted. The lamps range from 16 to 50 candle power. Electric light plants are now being put up at Leisenring No. 3, Trotter and Standard mine, but it will probably be a year before the plants for all the mines are installed.

SEVERAL of the English technical journals state that a large steel producing plant is now on its way to China, after being constructed at the Tees Side Iron and Engine Works Company, Limited, of Middlesborough. It is a complete Bessemer plant, including two 5-ton converters, with cupolas, together with blowing engines, cranes and other pieces of machinery. There is likewise the entire machinery for a large rail mill, as well as for a plate and bar mill, together with about twenty puddling furnaces. Two large blast furnaces of the Cleveland type, capable of producing 100 tons of pig iron daily, with all the necessary appliances, are in course of construction on the slope of the Hamyang Hills, opposite the city of Hankow. A foreign technical staff has been secured, and in the course of a few months it is anticipated that there will be produced in China plates and bars, steel rails, soft steel for ship plates, special plates, special metal for small arms, and other classes of steel and iron. The works will cover some twenty acres, and the execution of the whole undertaking in all its details has been entrusted to the above-named Middlesborough firm. An order for 2,000 tons of rails and sleepers was obtained in England some time back, and this is now stated to have been lately increased to 12,000 tons.

THE manufacture of artificial coffee beans has apparently assumed some importance in the United States. Specimens of these spurious beans have been obliging communicated to the Museums of Economic Botany at Kew by Dr. Brown Goode, Assistant Secretary of the Smithsonian Institution at Washington, D.C. The idea of preparing artificial coffee beans for the purpose of mixing with genuine beans for sale in the unground state is, however, not entirely new. In April, 1860, the late Dr. Lindley, F.R.S., presented to the Kew Museums some very carefully modelled beans, believed to be made from finely powdered chicory. There is no indication as to the country whence these were obtained. The American beans are supposed to be composed of rye flour, glucose and water. They are prepared to resemble in size and color a moderately good sample of roasted coffee beans. By the introduction of a few genuine beans they are made to possess the aroma of true coffee. The modelling is sufficiently good to deceive the ordinary public, but if the beans are at all critically examined it is noticed that the groove on the flat surface is broad and shallow, and it does not extend into the heart of the bean by a narrow long slit as in the natural product. Also there is no trace of the silver skin at the mouth of the slit. In other respects the artificial beans very closely resemble true coffee. They are made to vary slightly in size and color, some are frayed or broken at the edge, and the general characteristics are those of a fair coffee with small and somewhat broken beans. These bogus beans can be made at a cost of \$30 per 1,000 pounds, and when mixed with fifty pounds of pure coffee the whole 1,000 pounds cost \$37.50, or $3\frac{1}{4}$ cents per pound, so that a profit of nearly 100 per cent. is the result. —*British Trade Review.*

FOG SIGNALS.

At a recent Board of Trade inquiry it was stated that a master of a ship, having fallen in with a fog, and not hearing a fog signal when expected, "lost his head." This observation was meant to express the fact that the master had got bewildered and lost his head figuratively, but his figurehead remained fast on his shoulders. This frequent assertion that powerful foghorns or sirens are not heard has been discredited by magistrates and nautical assessors who preside over enquiries relating to casualties. If, however, these worthy representatives of justice, and experts, would take the trouble to pursue the voluminous Parliamentary returns with respect to fog signals, they would learn that these warnings to mariners cannot or should not be implicitly relied upon in any kind of weather. Professor Tyndall and the elder brethren of the Trinity house, who were on board a yacht off the South Foreland when many experiments were entered upon, were surprised at the deviation and loss of sound. One day, in fine, clear weather, the noisy siren on the Foreland was scarcely distinguishable, Professor Tyndall and other talented men attribute this distraction to acoustic clouds which are not perceptible to vision. Experiments

made in the Baltic supported the same idea in distant signals. The Canadian Government appointed a staff of naval officers and meteorologists to determine whether, in foggy weather, there is any defect in the system of fog signals on the coast, and, if so, the cause. After a long series of trials and inspections, the specialists have made a report which bears out previous tests, and the conclusions arrived at by that examining committee have induced the Canadian Government to issue a warning to ship masters in which it is mentioned that no dependence must be placed on fog signals as they are no guides to distance, but only to locality. Complaints had been made that the fog signals in the Gulf of St. Lawrence were negligently worked, and could not be discerned; in other words, the fog signals were declared to be misleading. The Minister of Marine met these protests by a thorough and exhaustive enquiry. The committee of experts were requested to ascertain the merits of horns against whistles, and guns against bombs. The experts have discovered that even under the most favorable conditions, that is when placed on high, outlying points, with nothing to interfere with the passage of the sound, all fog signals are unreliable. Two reports of guns fired under apparently similar circumstances gave very different results, and a weak signal has been heard further than a stronger one. Shallow water, again, by causing unequal heating of the atmosphere, lessens the value of the signals. Save as regards cost, the whistle is held to be superior to the horn, and either is better than powder, but it is only in comparatively few places that the cost and inconvenience of a steam signal would be warranted. The minor lighthouses in Canada will be supplied with bombs. We have given the gist of the report, and the Canadian Government, which does not levy light dues, is to be credited with a desire to make the coast lights and fog signals as effective as possible. The Gulf of St. Lawrence is noted for fogs, and therefore, it is important to have the best of light and fog warners. The Canadian Government have also been the means of corroborating previous investigations. We ask those who may have to express opinions on the causes leading to the stranding of ships to cast aside their dogmatic notions, and to make allowance for that which is beyond their comprehension. Masters who denied that they had heard foghorns were considered to be untruthful, and awful slingers of the hatchet. Evidence has been invited to explain the make of horns and sirens, and to tell presidents of courts of enquiry that the signals should be heard for miles, but not quite so far as from England to China. Because these fog signals are constructed to send forth dismal noises, the gentlemen of England, who sit at home at ease, air their ignorance by saying that masters are, in common parlance, liars. We have done our share in showing that all sounds are more or less uncertain when sent forth from ships or towers. If masters would remember this instruction they would, as usual, listen for fog signals, but at the same time be sceptics.—*Liverpool Journal of Commerce.*

CAN AUSTRALIA MAKE NICKEL STEEL?

THE recent government tests of armor plate, which demonstrate that in the future nickel steel will be very largely used for such purposes, makes interesting this article from the *Australian Mining Standard*:

"An article which recently appeared in a Sydney newspaper calls attention to the enormous nickel deposits existing in Canada, and points out that in consequence of the discovery that a small percentage of nickel mixed with steel is in every way advantageous for shipbuilding, that Canada with her ability to produce 1,000,000 tons of metal per annum, must eventually monopolize the ship-building industry of the world. The statement that all other nickel-producing countries of the world cannot produce sufficient metal to keep one ship-building yard on the Clyde at work must be accepted with a certain amount of caution. The nickel-producing area of Canada is situated in a very cold region, and can only be worked six months in the year. To carry on gigantic ship-building industries successfully, many facilities are required, of which nickel is only one—cheap coal, cheap labor, and cheap iron ore are the principal, and a good harbor not frozen-in half the year somewhat of a necessity. That Canada may be able to influence the market price of nickel must be admitted, but before this gigantic industry is entirely abandoned in favor of Canada, Australia may take advantage of her facilities to at least have a say in the question of building her own ships. In Australia we have all the facilities necessary: good harbors, splendidly situated, plenty of coal and iron even cheaper than in England, and we are close to New Caledonia, which, at present, at any rate, is the greatest nickel-producing country in the world. Close to the nickel deposits of New Caledo-

nia are situated some of the finest iron deposits known, which recent assays have proved to be equal, if not better than the best Swedish or Spanish ores—iron ores that are of just the requisite character for fluxing with Australian ores. No country in the world is to-day in a better position to mine nickel or iron than New Caledonia. With her beautiful harbors she can offer every convenience to shipping, and with her cheap labor both minerals can be put on board ship at the lowest possible figure. And where are there other deposits of this nature within such easy and cheap freighting distance of coalfields like those of Newcastle or Illawarra? It can be demonstrated that iron ores from New Caledonia may be landed at the coal pit's mouth in Australia for a much less figure than iron ores from Sweden or Spain to English ports.

At the present moment New Caledonia could without difficulty produce 100,000 tons of 8 per cent. nickel, but actually the Nickel Company are shipping 60,000 tons per annum. Calculating on the above at 8 per cent., we have an output of 4,800 tons of nickel, and allowing 5 per cent. of mixing with steel for ship-building purposes we could account for 96,000 tons of shipping. It must be understood that the nickel mines are yet in their infancy, and if ore of a lower grade can be utilized, say, as low as 4 per cent., the output of New Caledonia can be made practically unlimited. The want of coal in New Caledonia will necessitate all or most of her mineral trade coming to the coal fields of Australia, and those who are first in the field and in a position to utilize the iron and nickel deposits of that country, may find the French Government willing to assist them in many ways. At any rate, let us hope that before long Australia will be in the field, and that by combining with her rich coal and iron deposits the inexhaustible resources of New Caledonia, we will be able to obviate the necessity of applying to Canada or England for our iron ships or manufactured iron of any description.

FRANCE'S CANAL POLICY.

FRANCE has 5,050 miles of navigable canals and improved rivers which are free of duty. Since the Franco-Prussian war of 1870 she has expended \$73,000,000 upon canals alone, and her political economists claim that even these free canals pay 5 per cent. in economizing the national wealth by the reduced cost of transportation. The total amount spent by France on her canals and rivers for the seventy-fourth year prior to 1887 was—

For improvement of rivers	\$188,333,200
For construction of canals.....	199,097,830
Total	\$387,430,600

Or nearly three times the amount expended in the United States upon rivers and harbors together. In 1852 the success of the railroads gave rise to a public opinion very unfavorable to inland navigation, but the experience of 1860 produced a reaction which was hailed as an indispensable check on the monopoly of the railroads, and the administration assisted the water ways in maintaining a legitimate opposition to the iron roads. The so called subscription tariffs, by which the railroads offered a rebate on condition of subscribing an obligation to use no other means of transportation, were suppressed, and the State bought up many of the water ways and chartered others, at the same time reducing the tolls, and ultimately (February 19, 1880) abolished them entirely. The great recuperative power of the French people, and their ability to pay their heavy war indemnity, may be attributed in large part to her admirable system of cheap internal transportation, as well as to the policy of protection.—*Philadelphia Manufacturer.*

THE WHALEBACK VESSELS.

A. D. THOMSON of the American Steel Barge Company has been interviewed by the Chicago *Inter-Ocean* and makes a number of very interesting statements outlining the policy of that company, and showing the immensity of the operations they contemplate. He says:

"Within a year we shall expend some \$3,000,000 in pushing the enterprise, and we shall manufacture boats just as rapidly as they are needed. We shall make them for our own use, to be under our own control, and shall also sell them. Among the earliest of our lines we shall establish one between New York and San Francisco by way of the Cape. The *Wetmore*, which made our first transatlantic voyage, has returned from Liverpool, and is now ten days out from New York carrying material for our docks and shops on the Pacific Coast. At Everett, on Puget Sound, we shall manufacture boats for the trade with Australia, China and Japan. A

similar manufactory will also be established on the Atlantic Coast. We shall also establish a line from Chicago to run northward on the great lakes. It is proposed to construct the first boat for this line on an elaborate scale, and to have it running during the World's Fair. This line will be for passenger service. In time all the transatlantic boats will be whalebacks. Newspaper despatches stated this week that the North German Lloyd had already contracted for them, but as yet we have heard nothing of it. That and everything else will come in time, however, for the whaleback is the most economical in construction and in operation. A whaleback of 850 horse-power, carrying 3,000 tons, will equal in speed an ordinary boat of the same tonnage and with 1,800 horse-power.

SUGAR BEETS IN CANADA.

AMPLE proof has been had that, in the province of Quebec and in the other provinces of the Dominion as well, sugar beets can be grown which compare most favorably with the best produced in the European states, where the industry has been pursued. The beet sugar factory at Farnham, P.Q., has this year 14,000 tons of beets, almost as much as its capacity will allow. These have been grown in the vicinity and in places easily accessible by rail. The factory pays \$4.50 per ton, delivered on the premises or on the cars. In addition to this amount, the provincial Government pays 50 cents per ton, and demands from each producer a sworn reply to several detailed enquiries regarding expense of cultivation, amount of land employed, and quantity produced per acre. The replies, on the whole, are of the most satisfactory and encouraging nature. One producer admits a profit per acre of \$100. And all the producers on the island of Montreal are perfectly content. This is the more remarkable, owing to the neighborhood of a great city, and the market there is for all kinds of vegetables and farm produce. Even with the competition of such a market, probably the best in the Dominion, the sugar beet may be grown for the factory, and prove itself the most profitable of root crops. At Ste. Theresa, a few miles north-west of the city of Montreal, the Abbe Labonte, of the seminary of that parish, last year placed thirty acres under beet cultivation. This year, convinced of the profitable nature of the enterprise, he extended the cultivation to thirty-five acres, and his expectations have been abundantly realized.

There seems to be little doubt that, as an agricultural enterprise, the intelligent production of the sugar beet, in large quantities especially, is an assured success.

In Canada to-day we annually import sugar to the value of over \$15,000,000. For this gold has to be paid. Sugar disappears on its use, and when consumed there is nothing to show for this large expenditure. And year by year this drain upon our resources continues. Suppose that, instead of sending abroad these fifteen millions for the purchase of foreign sugar, we were ourselves to supply the demand from our own resources, and by our own industry. We can do this. Our climate and soil are well adapted to the production of sugar beets of the very best quality. And were the industry taken up heartily and intelligently, it might be reasonably expected that we, in the course of a few years, would be independent of foreign supplies of sugar. And with fifteen millions expended annually among our farming and laboring classes, and in the process of the manufacture of sugar, there would not only be the retention of this vast amount in our own country, but great encouragement would also be given to the development of our national prosperity in every direction.

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But it will be a great work to accomplish this. The industry will have to encounter its usual opposition, and to overcome many a prejudice. It must necessarily tax for a time the resources of the Dominion Government, and of every provincial government as well, which will find itself possessed of the ability to undertake the industry, in the United States, at the present movement. Everything is being done by the Central Government, and by several of the states where the industry is possible, to encourage its establishment. And it is certain that large foreign capital will be invested in the undertaking. Canada should not be behind hand. We have everything in our favor and need fear no competition with our friends south of us. But we will have to put forth all our energy. Our governments must do all they can to foster the industry by wise legislation and liberal encouragement. Let this be done. Let the work be undertaken well, intelligently and heartily, and a very few years will be sufficient to manifest the wisdom of such action, and to prove that, as it has been in the countries of Europe, where the industry is firmly established, so, also, in Canada, an assured prosperity will attend upon the introduction of the industry among ourselves.—*Montreal Gazette.*

Manufacturing.

This department of the "Canadian Manufacturer" is considered of special value to our readers because of the information contained therein. With a view to sustaining its interesting features, friends are invited to contribute any items of information coming to their knowledge regarding any Canadian manufacturing enterprises. Be concise and explicit. State facts clearly, giving correct name and address of person or firm alluded to, and nature of business. Subscription \$1.

MR. W. E. LOSEE is building a large shingle mill in Victoria, B.C.

THE large sawmill of Mr. F. Tremblay at Montreal was destroyed by fire November 28th, loss about \$33,000.

MR. JAMES WHITE is building a new carriage factory in Galt, Ont. It will be 51 x 34 feet, two stories high.

MR. J. C. RISTEEN, late of Boston, Mass., is erecting two mills near Chatham, N.B., for the manufacture of spools and bobbins.

THE Canadian Locomotive and Engine Company, Kingston, Ont., are building ten locomotives for the Canadian Pacific Railway Company.

THE box shoo mill and electric light works of Messrs. D. Clark & Sons at St. John, N.B., were destroyed by fire Nov. 19th. Loss about \$15,000.

THE Kerr Vegetable Evaporating Company, Kentville, N.S., are filling an order for the British Navy for 16,000 pounds of evaporated vegetables.

THE Corticelli Silk Company, with headquarters at St. Johns, Que., is being incorporated, with a capital stock of \$60,000, to manufacture silk thread, etc.

W. A. MORRISON, of Brownsburg, Que., is rebuilding the woolen mills at that place recently destroyed by fire, and will manufacture tweeds, flannels and yarns.

THE Reid & Co. Iron Works Company, of Westminster, B.C., were the purchasers of the plant and machinery of the late Fraser River Gold Gravel Syndicate, of Yale, B.C.

THE Toronto Carpet Manufacturing Company are getting in their machinery. They will run twenty-two power looms on ingrain and carpets, both three ply and union goods.

A PORTION of the St. John Nut and Bolt Works, St. John, N.B., was destroyed by fire Nov. 20th. The works were fitted with the best machinery to be procured. The loss is heavy.

THE vestibule trains of the Canadian Pacific Railway Company, running between Toronto and Montreal, between Toronto and Chicago, between Montreal and Boston, are now heated by steam.

THE McClary Manufacturing Company, London, Ont., have let tenders for an addition to their stove department, and also to convert the Cousins House, recently purchased by them, into a head office and show room.

LA FONDERIE DE DRUMMONDVILLE (The Drummondville Foundry), Drummondville, Que., is being incorporated with a capital stock of \$24,000 for the purpose of manufacturing iron castings, mill work machinery, etc.

THE McClary Manufacturing Company, London, Ont., have let tenders for an addition to their stove department in that city, and also to convert the Cousins House, recently purchased by them, into a head office and show-room.

MESSRS. DUNSMUIR, of Victoria, B.C., will build a boat for the Comox trade to take the place of the steamer *Isabelle*. W. J. Stephens and Wm. Turpell have the contract. The Albion Iron Works, that city, will build the engines.

THE Economy Slugging Machine Company is being incorporated with a capital stock of \$75,000, with headquarters and works at the City of Quebec, to manufacture an improved nailing and slugging machine for use in the manufacture of boots and shoes.

A BOSTON man is erecting two spool mills in Northumberland County, N.B., one in the Sugary and the other on Ox Brook. The Chatham *Advance* says he has contracts for 7,000 cords of white birch, or, as he expressed it, several miles of a wood pile.

THE York woolen mill, at Harvey Station, N.B., has passed into new hands, Mr. John Taylor having sold out to Messrs. Robinson & Moore. This mill was established in 1868, and runs five looms on homespuns, tweeds and blankets. Some new machinery will be added by the incoming proprietors, who are Americans.

THE asbestos belt of the Province of Quebec is proving to be the greatest in the world, both in extent and quality of fibre, and each year some new field is being opened up. A mine has just been discovered in the parish of Cleveland, from which fibre an inch and a half long is taken, and the product is valued at \$260 a ton.

A COMPANY has been formed in Digby, N.S., for the purpose of operating a wood-working factory. Mr. Sydney Wood is at the head of the company. The large building at south end known as Quirk's tannery has been purchased, and is receiving extensive alterations, preparatory to the putting in of a five thousand dollar plant of the latest improvement.

THE Beauharnois woolen mill has passed into the hands of a company composed of Messrs. W. H. Robert, E. A. Robert, J. A. Robert, Geo. McKinnon and R. M. Liddell, the first-named being manager of the mill. It will be known as the Dominion Blanket Co. Mr. Joseph B. Robert, who for so many years was head of the mill, has retired from active work in favor of his sons.

A SPECIAL train of seven frost-proof cars left the I.C.R. yard at St. John yesterday afternoon. The cars were just from the shops of Messrs. Jas. Harris & Co., and were for the Temiscouata Railway Co. All were painted blue, with red trimmings, and looked very fine. In workmanship and finish the cars are understood to be equal to any on the largest roads.—Moncton, N.B., *Times*.

MR. GEG. S. WILSON, brother of Mr. J. C. Wilson, proprietor of the extensive paper mills at Lachute, is now in London, Eng., where he recently went to establish a factory in Gray's Inn Road, for the manufacture of quilted goods. The manufacture of quilted goods by special machinery is, it appears, a novelty in England, Mr. Wilson's factory being the first of its kind there. It is creditable to our country that a Canadian is found introducing a new line of manufacture in the capital of the world.

THE beet sugar factory at Farnham, Que., is at work, and a good deal of sugar has been made and sold. The beets have yielded fairly, and the farmers who have raised them are, with very few exceptions, satisfied, and find the cultivation remunerative. The correspondent of the *St. John's News* says that the resident superintendent, Baron Seillier, has just gone to New York on business connected with the factory. "There is some idea of running the factory throughout the year, using it as a refinery in the summer."

THE Albion Iron Works Company have contracted with the E. & N. Railway Company to deliver a new and thoroughly first-class steamer for the Comox route by July 1st next. This boat, upon the frame of which work has already been commenced, will be by far the largest and most powerful ever built in British Columbia. The dimensions of the new steamer are in brief: Length over all, 180 feet; breadth of beam, 30 feet; depth of hold, 12 feet. She will derive her motive power from twin screw propellers, and will be very similar in appearance to the *City of Kingston*.—Victoria, B.C., *Colonist*.

MESSRS. SCURRY AND MATHEW, Vancouver, B.C., patentees of a subaqueous mining machine, are having a full-sized working model manufactured at one of the foundries in that city. It may be briefly described as a submerged flume with a series of steel brush attachments to brush the bottom of a river. When the flume is filled it is hoisted on deck. It will work in from forty to fifty feet of water. When this machine is finished it is proposed to try it on the Fraser River, where good paying dirt has been found at low water for years. If this machine can sweep up the accumulation of ages from the bottom of the Fraser River, the inventor, Mr. H. T. Scurry, will reap a well-deserved reward for his perseverance.

THE Torontc Lithographing Company, Toronto, have sent us quite a large number of specimens of finely colored lithographic work manufactured by them. They embrace a variety of subjects, any one of which is a gem in its way, and of which any recipient might feel proud, considering that it was a fair specimen of Canadian handiwork. It is claimed that the works of this company are the most extensive in Canada. We have occasion to know that the equipment of them is first-class in every particular and absolutely complete. Specimens from this establishment are to be seen throughout Canada, for the work is adapted to any and all branches of trade and business; and a specialty is made of reproducing photos of machinery, mills, factories, animals, etc. Further information regarding such work will be cheerfully given by the company upon application.

THOMAS TRAHEY is pushing work rapidly on Capt. D. S. Howard's new vessel, which is to be the largest schooner in the Dominion. The ceiling is already completed, the upper deck is laid and partly caulked, and three or four streaks of planking have been put on. The remainder of the planking will be finished before the winter.

The deck houses are in course of construction. Capt. John Fitzgerald, of Frazerville, has his new schooner of seventy-two tons register completed, and expects to launch her the first of next week. As soon as this vessel is off, Capt. Fitzgerald will commence retopping the schooner *G. G. King*. Messrs. H. Elderkin & Co., of Port Greville, are getting out frames for two new vessels, in addition to the one now in the stocks. Capt. George E. Bently, of the same place, is getting out the frame of a new schooner of 115 feet keel.—Parrsboro, N.S., *Leader*.

THE Waterous Engine Works Company, Brantford, Ont., have sent us their illustrated descriptive catalogue and price list, having reference to the patent friction grip pulleys, steel rim pulleys, friction cut-off couplings, machine moulded pulleys, hangers, couplings, boxes, shafting, etc., manufactured by them. This catalogue is a most convenient book which not only describes the article alluded to, but contains a large amount of miscellaneous information which cannot but be of great value to all users of machinery. We are informed that in addition to this friction grip catalogue they have others on hand relating to link belting, grist mills and chopping mills, wood-working machinery, fire-proof Champion farm engines, sawmill machinery, mill and factory supplies, band saw-mills, steam fire engines, automatic engines, boilers, burners and tanks, etc. Any who may be interested in any of these lines can obtain these catalogues by requesting the same of the Waterous Engine Works Company, Brantford, Canada.

MR. WESLEY MORROW, of Millbrook, was in town on Friday and had with him a model of a potato digger which he has invented and for which he is procuring a patent. The machine is arranged to be drawn by horses. A guard in the front removes the stalks and a nose digs up the potatoes. The tubers are forced up until caught by carriers, which convey them back and drop them on another carrier at the end which deposits them in a row at the side. As the potatoes are carried back the earth is shaken off and drops to the ground. The machine is five feet long and has handles similar to those on a plough for guiding it. The nose or scoop is adjustable to any depth required. The machine is one that could be easily used and should be a success. Mr. Morrow has also procured a patent for a flax-puller. This is intended to be attached to a reaper or mower and by it five to eight acres a day could be harvested. This machine will remove the great drawback to flax-growing.—Peterboro, Ont., *Review*.

FOLLOWING are the decisions of the Dominion Customs Department made during the months of August and September last:—

Article.	Rate of Duty.
Brass curtain pole ends, rings and brackets.....	30 p.c.
Chemically prepared photographic paper n.e.s....	35 p.c.
Pads of writing paper.....	35 p.c.
Paper, muslin backed.....	35 p.c.
Paper lamp shades.....	30 p.c.
Powdered liquorice root.....	20 p.c.
Perforted sheet zinc.....	25 p.c.
Phenacatine, (a patented medicine).....	25 p.c.
Rubber carriage rugs, lined.....	10c. lb. & 25 p.c.
Soldering coppers.....	35 p.c.
Stockinette, rubberized, (in the piece)....	5c. sq. yd. & 15 p.c.
Tailors' shears.....	35 p.c.
Wollen sealette, cotton back.....	27½ p.c.

A REPRESENTATIVE of the Victoria, B.C., *Commercial Journal* has been shown over the extensive machine shops of Mr. J. C. Whyte at that place. The works have just started up, and are now employing thirty men. An electric light plant is being put in, and then the works will run night and day and give steady employment to fifty men. The latest and most efficient labor and time-saving appliances have been supplied. The big hydraulic accumulator has a pressure of 1,000 pounds to the square inch, and carries a cargo of lead twenty-five tons in weight. It drives the three riveters as fast as a boy at each can pick up the rivets and put them in position. The shops are planned with a view to moving the material systematically from start to finish. In the storehouse are 1,000 tons of plates and four million rivets. The pipe is made up in 25-foot lengths. There are fifteen miles of main steel pipe to lay, 14 inches diameter on the line and one mile of 22-inch steel pipe in the city in Mr. MacGillivray's contract, and nineteen miles in the contract of Messrs. McQuarrie in the system of city distribution. It is expected to take from five to six months' time, working day and night, to fill this contract. An important feature of this establishment is that it is a permanent institution, and not a temporary factory for the contract now in hand. Every detail of the establishment is put in with a view to the permanent operation of the works.

We note with pleasure the proposal of Col. Hespeler to establish a firearms factory here. Few have any idea of the extent of the trade in guns, rifles, revolvers, etc., and how steadily it is growing, and there is little thought that every one of such firearms is made out of the country and imported. To give an idea we may say that the trade and navigation returns for the year ending June 30, 1890, show importations of \$140,000, the duty collected exceeding \$28,000. The manufacture of such weapons in the States, England and Belgium has been brought to great perfection, and they are now placed upon the market at prices which years ago seemed an impossibility; but any firm establishing here has all the advantages of securing the newest machinery and the newest inventions in either of the arms, so that it will start on equal grounds with its outside competitors, save the fact of attacking an occupied market. There is one point peculiarly noticeable, and that is the immense sale of sporting rifles, principally Winchesters and Marlins, but the day is close at hand when the last invention of Mr. Lee will drive all those rifles out of the field, it having so much lower a trajectory, only eight inches in 500 yards, much greater range and being so much more rapid in firing, besides having the peculiarity that the action of the re-charging does not require the arm to be taken from the shoulder. The "Colt" is the only one at all approaching in rapidity, and it is a gun firing a weak charge and does not well stand continued usage.—Galt, Ont., Reporter.

THE Canadian Pacific railroad has spent over \$1,000,000 in the protection of its line against snow slides. The greatest danger of delays from this source is found among the Selkirk mountains, through which the railroad runs for a score of miles, with mountains on either side towering thousands of feet above the track. It is now known where the dangers of snow slides are likely to occur, and such ample provision has been made that trains are not at all delayed. There are miles of sheds, or, more properly, tunnels, made of massive timbers. These sheds are built of heavy, squared cedar logs, dovetailed and bolted together, backed with rock and fitted into the mountain sides in such a manner as to bid defiance to the most terrific avalanche. Sometimes the snow slips down the mountain side in enormous quantities and shoots right over the top of these sheds, lodging down the valley. In some places where the view is particularly fine, a track has been built outside the sheds for summer use, so that tourists during the season need not lose the grandeur of the scenery while passing through these long cedar tunnels. It is very interesting also to observe here and there the bulwarks that have been built on the mountains for the purpose of diverting the course of a snow avalanche, which would otherwise reach the track. These bulwarks are also massive constructions of solid timber, with a flat, smooth top, slanting in one direction or another, and having the effect, when a snow-slide strikes it, to turn it aside, probably down an adjacent valley. Otherwise it would precipitate itself upon the track.

THE MICA MINES.

It has been for a long time known that mines of mica of a superior grade existed somewhere in British Columbia to the north of the Canadian Pacific Railway. The evidence of this is found in the sand benches along the rivers which flow southward—the Fraser, the South Thompson and the Columbia. The sand is mixed with small flecks of mica along all these rivers, in quality pure and transparent, and when shone upon by the sun, makes the sand appear luminous and bright with the reflected sunlight. This effect is more noticeable at Revelstoke, on the Columbia, than at any other place where we have taken observations. The banks of the river, thirty to forty feet deep in places, formed by the action of the water in the lapse of centuries, are all composed of this admixture of sand and mica. The source, or at least one of the sources, whence the mica comes has been found, and was located by Louis Victor Bennett, of Kamloops, during the past summer. The discovery was made last fall, but the depth of the snow prevented tracing the ledge. Two of these ledges have been discovered, the one first found being one and a-half miles from the Canoe River, and about 100 miles from its mouth. The second one is nearly forty miles further north-westerly, and about seven miles from the Fraser. Mr. Bennett has altogether something more than thirty claims located by himself and purchased from other locators; in fact, he controls the entire discovery so far as it has yet been made. The locations have been made and recorded in the Cariboo district, in which the property lies, but work has been discontinued for this year, snow having already fallen in that section. He states that his investment so far is between \$9,000 and \$10,000. Some beautiful looking samples

were brought in last week by train, about 1,000 lbs. in all. The ledges have not yet been thoroughly explored, but are believed to be 100 to 150 feet wide, the mica being found in pockets in a formation of light brown or cream-colored quartz, which is smooth and hard, almost like flint, but brittle, and breaking easily.

The distance to the mines from Kamloops, by way of the North Thompson, is something like 250 to 270 miles, the trail crossing the divide between the North Thompson and Canoe Rivers. About \$1,000 expended on the trail would make it passable for packing down the North River. The mine is about 235 miles from Revelstoke, by way of the Columbia and Canoe Rivers, but if boats were constructed on the ground to transport the product, they could be used only once, as they could not be taken back to the starting point, owing to rocks and rapids in the rivers, and at some places in the Columbia the down trip would be difficult, and even dangerous. It is understood that Mr. Bennett has received an offer of all that the property has cost him for a half interest, but that he declined to accept it.—Inland, B.C., *Sentinel*.

NEW ANILINE AND ALIZARINE COLORS.

Acid Violet 5/B (Patented). This new color has just been placed on the market by the Farbenfabriken, vorm. Friedr. Bayer & Co., and differs from 6/B Acid Violet also manufactured and patented by this firm, and well known to all dyers, by dyeing a more reddish tint and brighter in shade. The bath is well exhausted, and although the same strength as the 6/B, the price is considerably cheaper. The fastness to light and scouring of this useful class of colors is already known. The 5/B shade is specially recommended for dyeing Navy-blue.

For further particulars address the Dominion Dyewood & Chemical Co., Toronto, sole agents for Canada.

Brilliant-Azurine 5/G (Patented). This new color, which is also manufactured by the Farbenfabriken, has been lately reduced in price, so that it can be more freely used for dyeing wool and cotton. It is the brightest shade of the Benzidine group of Blue dyestuffs, and when properly dyed is faster to light than Indigo for either cotton or wool.

The Dominion Dyewood & Chemical Co., who are the sole Agents for this color, will be pleased to answer any enquiries for further information.

Victoria-Black B. This color has been lately reduced in price, which will, no doubt, further increase the already large demand among woolen dyers. It is manufactured by the Farbenfabriken; The Dominion Dyewood & Chemical Co. are sole agents for Canada.

Benzo-Brown N/B/R, which is also manufactured and controlled by the Farbenfabriken, is a new brown of a dark shade, which will dye both cotton and wool in one bath and is perfectly fast to scouring. Owing to the cheapness and convenience of dyeing in one bath, it has a great advantage over Cutch, besides leaving the goods in a much softer state.

Color and dyed samples with further particulars freely given by the Dominion Dyewood & Chemical Co., Toronto, sole agents for Canada.

Alizarine-Cyanine 3/R. This new Alizarine product has just been placed on the market by the Farbenfabriken, and is very useful for dyeing full Navy-blues, and is cheaper to use than the ordinary Alizarine blues. Shade cards, etc., supplied by the Dominion Dyewood & Chemical Co., Toronto.

Fluorochrome (Patented). This new Mordant, which is now manufactured by the Farbenfabriken, is supplying a long-felt want among Canadian dyers. It has the property of fixing Alizarines to wool fibre in one bath, even in light tints. This saves the expense and trouble which is usual in the old process. Sole agents for Canada, the Dominion Dyewood & Chemical Co., Toronto.

Diamond Flavine. This new yellow dyestuff is rapidly taking the place of Fustic Extract, Flavine and Quercitron Extract, etc., which have long been used in quantities by Canadian dyers. Diamond Flavine, besides being cheaper, has the advantage of dyeing more uniform than Fustic or other old-fashioned yellow dyestuffs. If prepared with a Chrome mordant it will combine with Alizarine products. Manufactured only by the Farbenfabriken, vorm. Friedr. Bayer & Co.; Dominion Dyewood & Chemical Co., Sole agents for Canada.

We are informed that most satisfactory reports are being received from different Canadian dyers and manufacturers in regard to their fast Victoria-Black B, the only aniline color yet discovered, it is claimed, which can successfully replace logwood for dyeing wool.

A NEW WAY TO MAKE STEEL.

INTERESTING experiments in a test of a new steel-making process were made yesterday afternoon at the iron foundry of Stuart R. Carr & Co., 34 to 40 South Front Street. A number of capitalists and experts were present, and they generally expressed themselves as pleased with the result. The experiment was conducted by Mr. J. B. Hastings, of Parkersburg, W. Va., the patentee, assisted by Mr. John J. Smith, the foundry boss. The process appeared to be a very simple one. Certain chemicals, wrapped in paper, were placed in the bottom of the ladle which received the molten pig iron, such as the regular foundry blast is made with, and the molten iron was run in upon these chemicals. After a few minutes this iron was run into a mould of the usual foundry kind. Several blocks of the steel was thus formed. Mr. Smith tested this as soon as it was cooled in water with a cold chisel. He reported that the outer surface was thoroughly chilled—so much so that it battered the chisel. The interior worked like steel, and he supposed it was that article. Mr. Hastings explained that these samples would be worked up into various steel tools and articles as the best way to prove the value of the invention. He exhibited a steel mandril and an iron-turning tool made of his process steel; also a steel plow-point and other articles of manufacture. He has a United States patent on the process, and claims that by its adoption he can dephosphorize the low grade Southern ores, and from them make a superior grade of costly machinery steel. The chemicals are supposed to act direct upon the pig iron, eliminating from it all impurities and at the same time carbonizing the iron, and thus forming steel. The grade of iron used yesterday was a mixture of Alabama Nos. 2 and 3 pig and Pittsburg pig. The samples of steel exhibited by Mr. Hastings were made for No. 2 Pulaski (Va.) pig, and from similar grades. One specimen was made in Moses Parker's foundry, at Toronto, Canada.

The steel made yesterday was tested side by side with samples of castings made in the regular daily run of the cupola. The steel showed a rather finer grain and a decidedly lighter and more steel-like color than the iron castings. Mr. Hastings claims that he can use phosphorous iron, or low grade pig, such as is unsuitable for car wheels, in that branch of foundry work, and he explained how this iron will chill.

Some of the parties present at the test are interested in the development of the great iron ore beds near Covington, on the Chesapeake and Ohio railroad; others are interested in the manufacture of the new harbor defence turret, and others in the transportation lines. Among others present were Messrs. M. V. Richards, of the Baltimore and Ohio railroad; Max Landsburgh, L. D. Fassano, Bart Johnson, Isadore Schonberg, W. H. Spooner, of Boston; J. M. Buck, of Covington, W. Va., and others. The full value of yesterday's experiment can only be known after the castings are worked into tools, etc. Mr. Hastings claims that, while it costs \$6.50 to convert pig iron into Bessemer steel, by this process it can be done at a cost of \$1.25 per ton.—*Baltimore American*.

FOR THE AUSTRALIAN TRADE.

THE barque *Kathleen Hilda*, recently launched from W. P. Cameron's shipyard at South Maitland, N.S., is 520 tons, fitted with all modern improvements, and classed twelve years in Bureau Veritas. She was launched with sails bent, and ballast and crew all aboard, and immediately proceeded to New York to load for Australia. The *Kathleen Hilda* was specially built for Donald Ross, of Auckland, New Zealand, brother of Hon. William Ross, of Halifax, and is the tenth Nova Scotia vessel specially built for or sold to that enterprising gentleman—extending over a number of years—for the Australian intercolonial trade, the fleet being:

- Barque *Caterfeigh*, built by Carmichael.
- Brigantine *Osceola*, built by Bigelow.
- Barque *Wenona*, built by Bigelow.
- Brig *Stanley*, built at Parrsboro.
- Barque *Eilean Donan*, built by Coffins.
- Barque *Stag*, bought from Robt. Boak.
- Brigantine *Ransom*, built by Bigelow.
- Brigantine *Jas. Stewart*, bought from Boak.
- A brigantine bought from Wm. Muir.
- Barque *Kathleen Hilda*, built by Cameron.

These vessels were all built under the supervision of, or purchased by Hon. William Ross. The price paid for the *Kathleen Hilda* was \$25,000. Captain George Davis, who has had nineteen years' experience in the business, came on from New Zealand to take the vessel out there.

A FLOATING LOGGING CAMP.

THERE has just been turned out what may be considered a novel and useful craft, by the British Columbia Iron Works Company, Vancouver. It is a complete floating logging outfit and camp. They were first used in San Francisco about two years ago, and have given such satisfaction to the lumbermen that there is now 150 of them in use north of Bay City. Mr. J. M. Stewart, hearing of the work they were reported to be able to do, and the great saving over present methods, sent a man down the Sound to investigate and see them at work. The advantages were so great over the present system of handling logs that he decided at once to get one, and placed his order with the British Columbia Iron Works Company. The work has just been completed, and may be briefly described as follows: A 20x50 foot scow is used. The forward part is covered in and fitted up as a cabin, with bunks for fifteen men, kitchen, etc. The rest of the deck holds the machinery, which consists of a boiler (an upright one) and a 10-horse power engine and capstan, geared to 80-horse power, and a coil of steel cable. The scow is fitted with side paddles, and the shafting can be changed to propel her at a speed of from five to six miles an hour. A trial trip was made across the Inlet, and she worked satisfactorily. She was then anchored near shore and 700 feet of cable taken ashore and attached to a 4,000 foot log, and hauled down to the water's edge, through rough gravel and boulders, quite easily. With this logging outfit, a strip of 1,000 feet along a stream can be cleared up at a trifle of what it cost under the old system of having to buy oxen, pay for transportation and feed, and build stables for them and houses for the men. Now when a patch is cleared up, they can move from place to place without any expense. The whole cost, including boat, boiler, engine and capstan, cables, etc., does not exceed \$3,500. The outfit has left to work at Secret Cove. If she proves as satisfactory in general work as she did on her trial trip, it will not be long until they drive the old style of logging outfits to the wall.—*Victoria, B.C., Commercial Journal*.

AN IMPORTANT INDUSTRY.

THE Fredericton, N.B., *Gleaner* has the following to say regarding an important industry near that city: "Some time ago an enterprising lumbering company composed of Mr. Gilpatrick, H.A. Bennett and Frank Gilman, of Maine, and Harvey Lawrence, of Keswick, purchased from the New Brunswick and Nova Scotia Land Company, 60,000 acres of land on the Keswick stream, in this county, some twelve or fourteen miles above the city, for the purpose of getting out its product of hemlock lumber and bark and shipping it to the States. They began operations this summer peeling and getting out the bark. Over 100 men were employed and about 3,000 cords of bark was got out. The company have now large crews at work cutting and getting out trees from which the bark was taken, which will yield about 2,600,000 feet. They will content themselves this winter with getting out this quantity, but next year and in future they purpose considerably extending both their bark and lumber operations. The lumber, it is their intention to have sawed into dimension boards, planed and made all ready for use, right on the ground, and for this purpose a contract has been made with Mr. Lewis Brewer, who owns a mill at Stone Ridge in that neighbourhood, and who is now fitting it up for the work. Besides this bark and lumber industry Mr. Gilpatrick is opening a last block industry on the same ground, and will utilize in this manufacture the rock maple which is to be got in large quantities within the area purchased by the company. He starts this winter by employing about eighty men and thirty horses. The last blocks will be prepared in the rough, that is, merely shaped. Two drying sheds, one 700 and the other 500 feet long, have been built at Upper Keswick station. Some sidings have also been constructed for the shipment of the bark, lumber and last blocks, and the enterprise will prove profitable at least to the C.P.R., for everything is to be shipped by railway to the States. The lumber will go principally to Massachusetts, and the last blocks to all parts of the States. This winter, with the crew mentioned, Mr. Gilpatrick will get out about 200 carloads of last blocks, and will ship about forty carloads during the winter months. The remainder he will keep till next autumn for shipment. The lumber is all of an unusually excellent quality. The two enterprises have caused a great boom in that section, the influence of which will be felt all about here. Between the lumber, bark and last blocks, it is estimated that the shipments each year will amount to over 1,000 carloads.

C. G. CLEVELAND.C. F. CLEVELAND.

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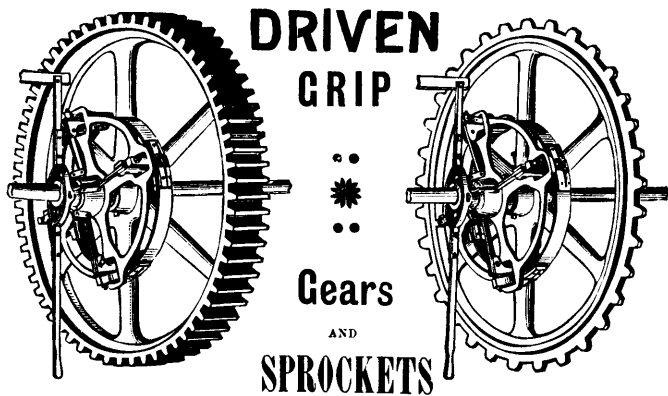
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As no agents are employed and the company deals only with the principals of the establishments insured by it, conditions and exceptions which are so apt to mislead the insured and promote controversy and litigation in the settlement of losses will thus be avoided.

The most perfect method of insurance must, in the nature of things, be one in which the self-interest of the insured and the underwriters are identical, and this has been the object aimed at by the organizers of this company.

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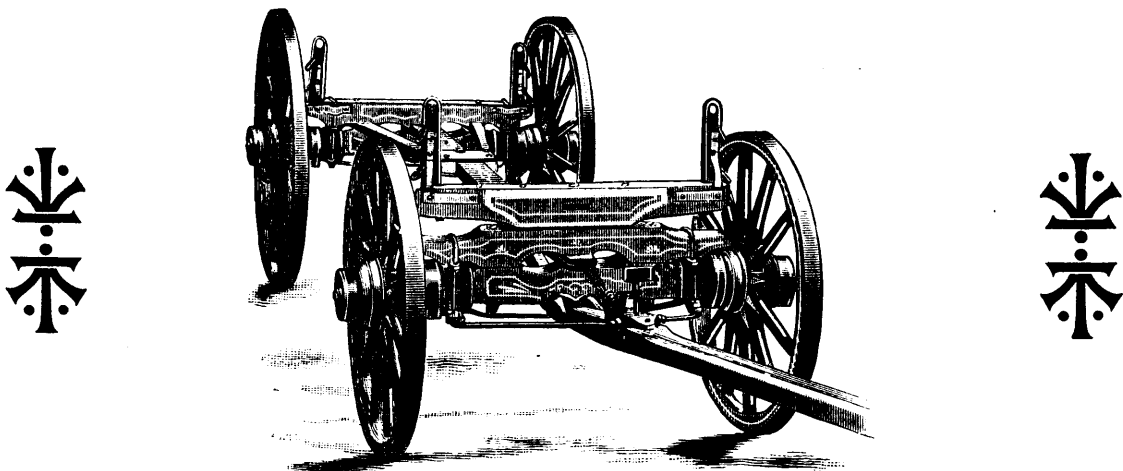
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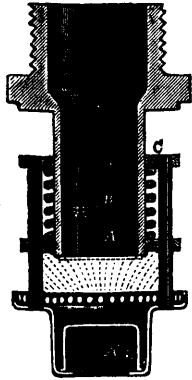
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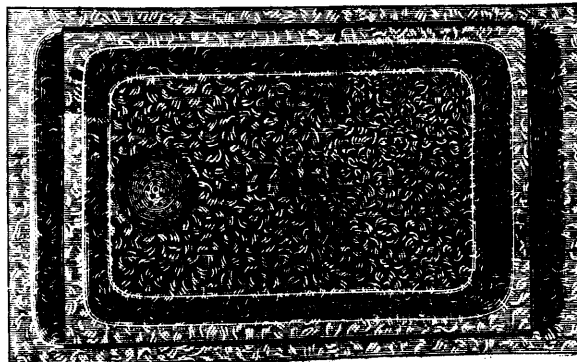
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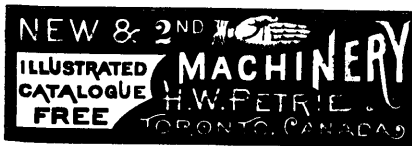
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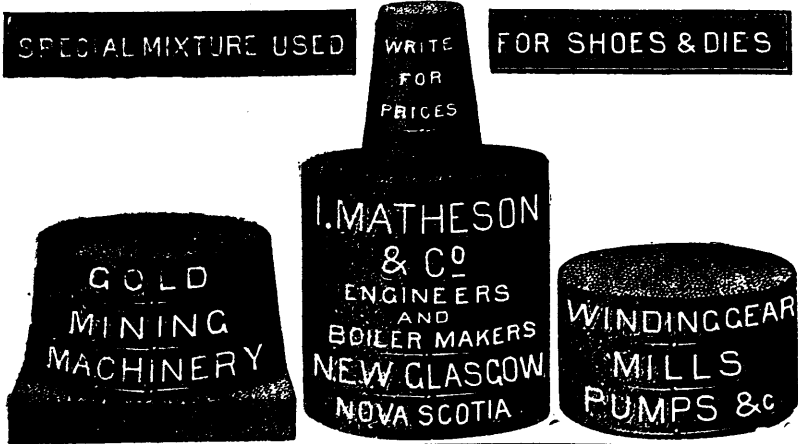
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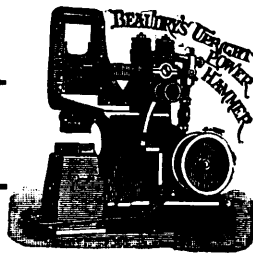
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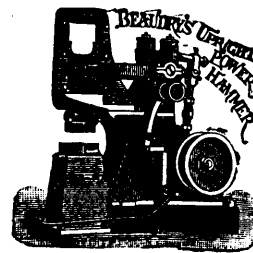
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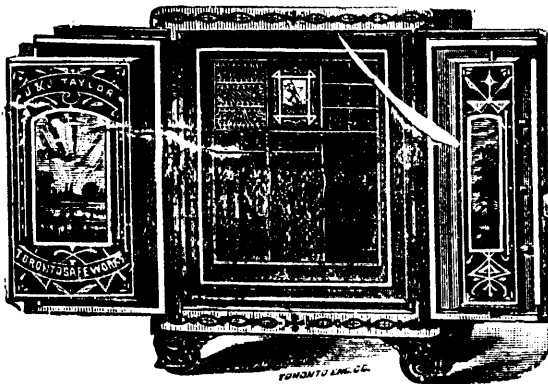


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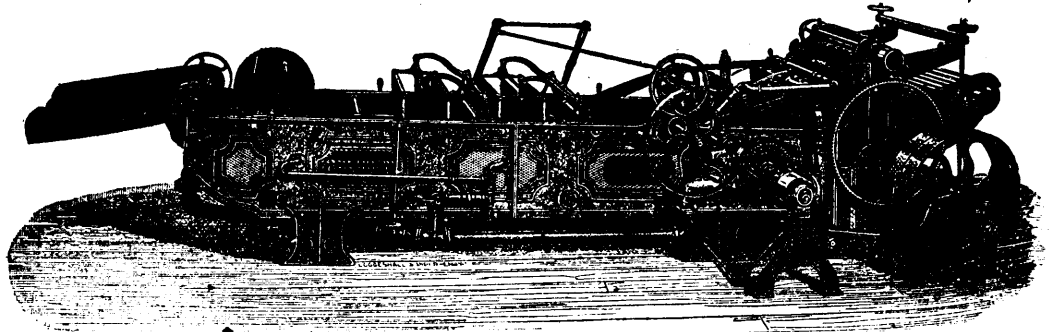
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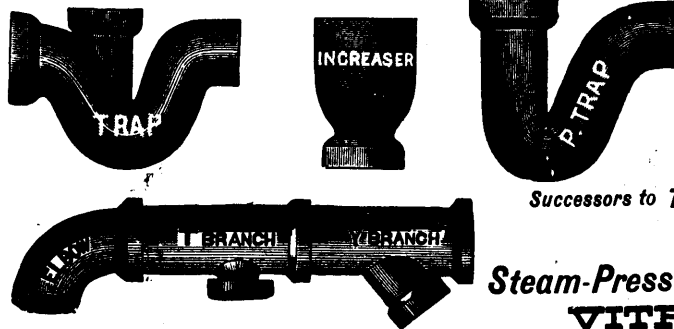
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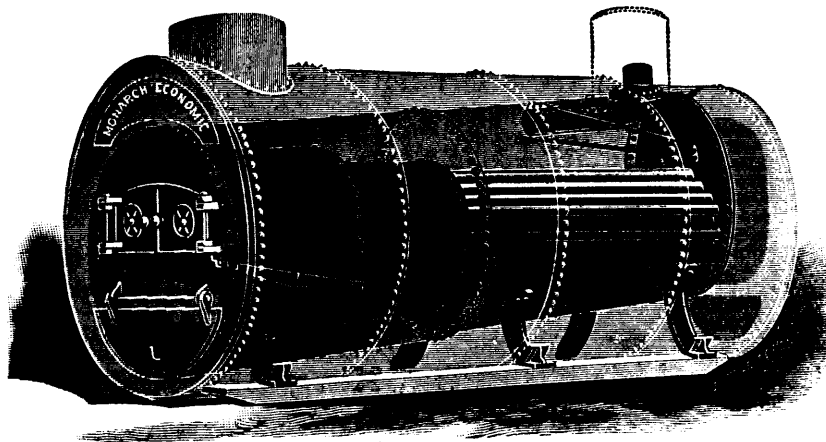
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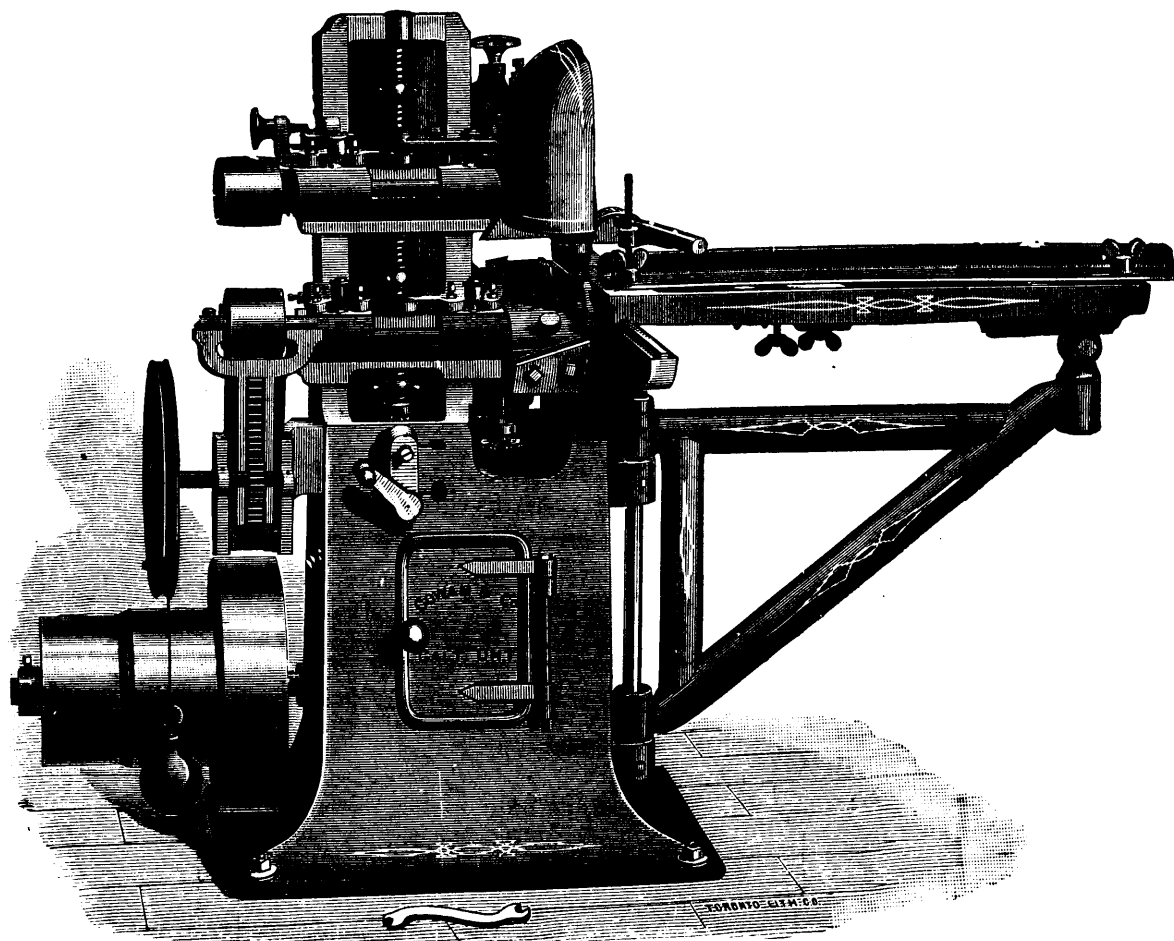
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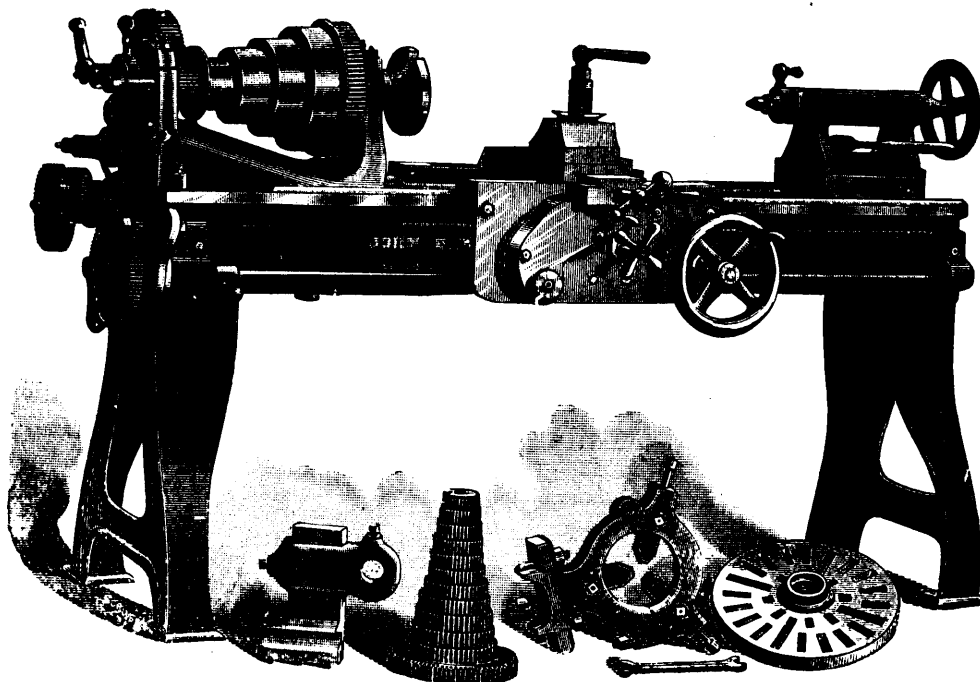
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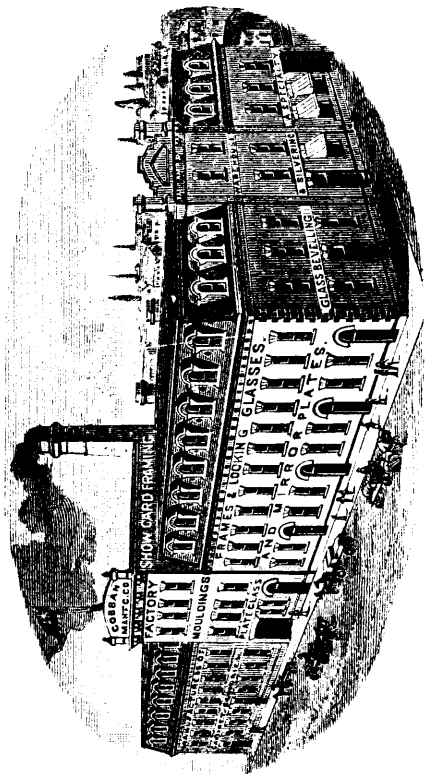
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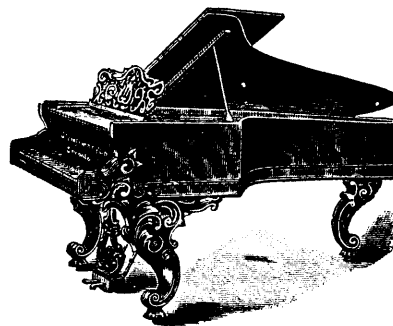


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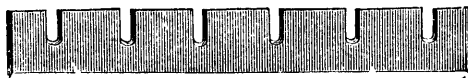
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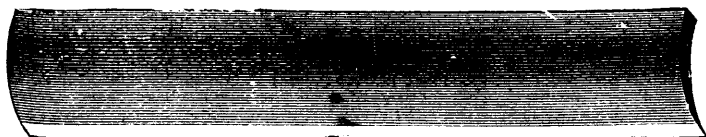
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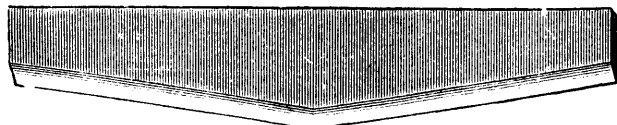
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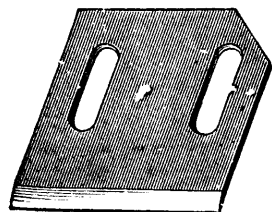


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