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THE CANADIAN MANUFACTURER AND INDUSTRIAL WORLD

DEVOTED TO

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VOL. 2.

TORONTO, APRIL 6, 1883.

No. 8.

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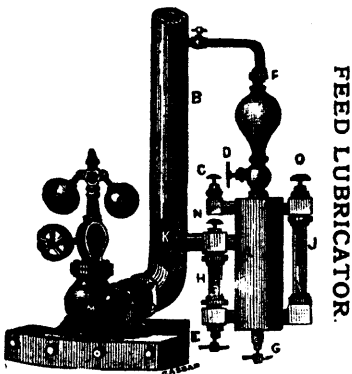
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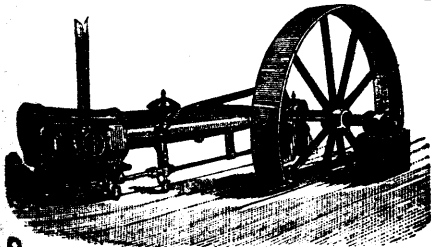
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DEVOTED TO HOME INDUSTRIES, COMMERCE, FINANCE, INSURANCE, RAILWAYS & MINING.

AND INDUSTRIAL WORLD.

Vol. II.

TORONTO, ONT., APRIL 6, 1883.

No. 8

TARIFF CHANGES.

In 1879 Canada adopted a protective tariff, which was declared to be an embodiment of National Policy. But every year since there has been more or less of "tariff-tinkering," and therefore, say some, the N. P. is a failure. If it be as near perfection as is claimed for it, why this need of amending it every year? This is not a very brilliant bit of argument, nor does it do much credit to the common sense of those who use it. In the first place it is not humanly possible for any man or set of men to frame a perfect customs tariff the first time of trying. A Minister of Finance to do this would require to be a "heaven-born statesman," indeed. In the next place, the spread of manufactures and the shifting of their centres, improvements, and the ever-varying currents of trade, are continually changing the situation, so that the rule that worked well a few years ago is found to work badly now, and has to be amended. Further the greater the progress in arts and manufactures is with the world in general, and with any one country in particular, the more frequently must the tariff of that particular country be amended to match the changed conditions. The more progressive any country actually is, the more frequently will its tariff require to be changed to suit the times. That is, of course, in details only, for the case we are supposing is that of a country which, like our own, has adopted protection as a principle. The details may have to be changed, in order more fully to carry out the principle upon which the whole system rests. And this is precisely what is aimed at in the schedule of tariff changes elsewhere printed. To make our protective tariff effective for its purpose, to make it work the way we want it, is what we are driving at. This may be accomplished, sometimes by increasing duties, and sometimes by reducing or abolishing them. On the face of this year's changes it is evident that, as far as they go, their effect must be to make the tariff more protective than it was before.

As one of the Ottawa correspondents remarks, Sir Leonard did not go as fully as on former occasions into the effect of the National Policy on the various industries of the country, acting on the sensible motive that the benefits of the policy are so manifest and so well understood that minute elucidation has become unnecessary; but he quoted some of the more salient evidences of the enlargement of home industries, such as the enormous increase in the import of raw material. On this point he said:—

In 1877-8 the quantity of wool imported into Canada for manufacturing purposes was 6,230,084 pounds, against 9,646,

684 pounds in 1881-2, an increase of 50 per cent, besides an increased consumption of our own wool. The raw cotton imported in 1877-78 amounted to 7,243,413 pounds, against 19,342,059 pounds, or an increase of over 175 per cent. Nothing can testify more accurately to the increased manufacture of cotton goods in the country than the extent of the imports of raw material, because we have none of it in the country. Then with reference to hides, in 1877-78 the value of the imports was \$1,207,300, while in 1881-82 the value was \$2,200,000, an increase of nearly one hundred per cent. Then the consumption of coal is a very good test of the extension of machinery driven by it. In 1877-78 the consumption of coal, not including British Columbia, was 1,665,401 tons, and in 1881-82, 2,525,297 tons, an increase of 859,896 tons. That gives some idea of the demand for the article that is necessary to drive the machinery of our various industries in Canada. Then we have another test. Go where you will, my experience has been that the manufacturers of machinery are full of orders, so full, in fact, that they are unable to supply their customers, who are therefore obliged to go to the United States. Wherever we go we find the manufacturers smiling and looking perfectly satisfied with what they have to do, and what is the fact? In 1877-78 the value of machinery imported into Canada was \$283,633, while in 1881-82 it was \$2,194,446, an increase of nearly seven hundred per cent., besides the greatly increased quantity of machinery manufactured in the country, which gives unmistakable proofs as to the increase of our manufacturing industries. As to our friends' fear about the prosperity or progress of our manufacturing industries, I think that fact ought to be sufficient to quiet them. It was also alleged that the tariff would increase the price of coal and would not promote the development of the coal beds in Canada. I think, in 1879, I stated that the opinion of the Government was that in four or five years the quantity of coal produced in the Dominion of Canada would increase 400,000 tons. Within four years it has increased between 500,000 and 600,000 tons.

With regard to the re establishment and great expansion of the sugar-refining industry under the N. P., and the extension of Canada's importation of the article direct from places of growth, he said:—

Then again, there was another industry the Government stated distinctly it was their policy to encourage—the re-establishment and development of the refining of sugar here, and our sugar trade with the countries where produced. We had lost our direct trade with the sugar producing countries to such an extent that in 1877-78 but six per cent. of the sugar consumed in the Dominion came direct from those countries. That has been changed, last year 87 per cent. of the quantity consumed came direct from the sugar-producing countries. That shows pretty clearly, I think, that we have re-established our trade with the West Indies. It was said, however, that this policy would put millions into the pockets of a few rich men, the sugar-refiners, and give employment to a limited number, but

would cost the people, in the increased price of sugar, so much money that it would be better for them to pay the board of the men who were to be engaged in those refineries rather than depart from the old system. Now, I have in my possession a carefully prepared statement of the value of refined sugar in New York and the Dominion at stated periods in every month during the last year, and, according to that statement, the consumers of Canada had their refined sugar (this table applies particularly to granulated sugar, but it is still stronger with reference to the other sugar), at a saving to them of 67 cents per 100 pounds during the past year. If that be the case, and if but 100,000,000 pounds of sugar were consumed in the Dominion, that would represent a saving of \$670,000. It may be quite true there was some deficit in the revenue as the result of this, but take a good half off the amount, and put the other half into the revenue, and you have still a very large and handsome sum saved by the people of Canada, in addition to the building up of this important industry, and the re-establishment of our trade with the sugar-producing countries, thus giving employment directly and indirectly to thousands of people and fostering an industry the Government and Parliament thought it was highly desirable should be restored. The results, in my opinion, are so satisfactory that the hon. gentlemen opposite who opposed this policy will have now to abandon their objections.

The duty of 15 per cent. on books has been a good deal discussed, and much pressure has been brought to bear on the Government for a reduction. We quote what the Finance Minister says of the concession which has been made, and of the reasons for refusing to concede any more:—

A very strong pressure has been brought to bear on the Government to admit free books for scientific institutions, for free libraries and for educational institutions. The proposition was that all books not made in Canada, nor likely to be made here, should be admitted free. The Government found it was not possible to adopt that proposition, because it could not be expected that the thousands of collectors all through the country, when books were introduced, should know whether they were made in the country, or likely to be made here, and it was impossible therefore to tax them with this duty, intelligent and capable men as they undoubtedly are. We could not say that all books should be admitted free, because the manufacture of books and the printing industry of the country are important interests. We stated distinctly, when we imposed a duty of 15 per cent. as against 5 per cent., that it was for the purpose of encouraging those industries in the Dominion, and, after giving the matter a good deal of consideration, we did not see that we could agree to the proposals made in some quarters. But it was a question with the Government how we could deal with the subject practically, in order that their views might be met in part, if not in whole. Under these circumstances we decided to submit the proposition which I shall have the honor to present to the House. Here was another difficulty standing in the way. Free libraries would have their books free, while individuals who did not live in the neighborhood of free libraries and had not the privilege of being taxed for that institution would, of course, feel it a great injustice, on calling at a book store in town, to be compelled to pay 15 per cent. duty. That would be an injustice. We felt that we could not make an exception, otherwise there would be a grievance. And therefore we propose, and it will involve perhaps \$50,000, that books bound, printed over seven years, or printed by any government or scientific association, and not for trade, shall be free. This will cover perhaps half the import of books, the duty collected last year being about \$100,000. It will cover books in the dead languages, reference books for libraries, a large portion of the books required for educational institutions; but when people wish to obtain the novels of the present day they will be required to pay 15 per cent., and this will remain in the hands of the book publishers of Canada the publication of such books

as they have been publishing. A gentleman said to me the other day, "If you lay down the principle that books not published in Canada shall be admitted free, what would I, an author in Montreal, do? I would go to the United States and have my books published there, and bring them in duty free. I would thereby have both markets, and there would be no inducement to me to have my books published in Canada, but, on the contrary, there would be an inducement to go to the United States and publish them there."

Hon. Mr. MACKENZIE—Did I understand the hon. gentleman to say that all educational books would be admitted free?
Sir LEONARD TILLEY—No; books of every description which have been printed over seven years.

Hon. Mr. MACKENZIE—I understood the hon. gentleman to say that books used in educational institutions would be admitted free.

Sir LEONARD TILLEY—No; that was the difficulty we had.

A change of very great importance to the country's manufacturing interests is the increase of duty on agricultural implements and carriages. As this particular change has called forth a good deal of hostile criticism from the free trade side, we quote here what the honorable gentleman said to justify it:—

Agricultural implements and machines, to pay a specific and *ad valorem* duty equal to 35 per cent., and upon portable machines, spades, hoes and forks the same duty will be imposed. A careful examination has been made of the value of these goods, and we come to the conclusion that a specific and *ad valorem* duty equivalent to 35 per cent. should be imposed. This is one of the articles to which I referred in my remarks with reference to the policy of the Government in changing the tariff. If you take up the list of the American houses in Winnipeg you will find that they offer their agricultural implements at precisely the same prices as our manufacturers have been selling them for, and in some cases men who are agents for our manufacturers in the Northwest have become agents for American manufacturers, and a fair inference is that they allow them larger margins than our own people allow them. The result is that unless some steps are taken the Americans will drive our people out of that market, and they will not reduce the price of the implements to the consumers, because our people show that their prices are as good as those of the United States, and we ask Parliament to say, inasmuch as the people of Canada, who manufacture these implements, can produce the article as cheap and sell them at from 10 to 15 per cent. less than in 1878, and are prepared to sell them as cheap as the Americans, that they will not be driven out of the country, and therefore we ask for this increase of the tariff. * * * Carriages, now 30 per cent. are to pay a specific and *ad valorem* duty equal to 35 per cent., on the same principle as that applied to agricultural implements (This includes children's carriages.)

Respecting some other changes worthy of special mention, and the reasons for them, the Minister of Finance says:—

Iron beams, sheets or plates and knees for iron or composite ships, free. We are now building in Canada, and we will probably build more extensively in the future, composite ships with iron frames, iron beams and sheathed with wood, and the iron that is imported for the purpose—because vessels so brought into the country would, if British vessels, under the Merchant Shipping Act, come in free—will be admitted free of duty. This is intended as an encouragement to the ship building industry, and it is proposed to extend the time over which such articles will be admitted free for a period of three years, because we believe the time is coming when we shall sufficiently develop our iron manufactures so as to produce our own beams, sheaths and knees for iron vessels. I may say, while speaking on this subject of iron, that it has been

one of the most difficult questions with which the Government has had to grapple, because iron to the larger portion of the manufacturers of the Dominion to-day is raw material, but the Government consider it so important an industry to develop that they are resolved to develop it if this can possibly be effected by any legislation or encouragement, inasmuch as the value of iron when manufactured is in its effect on the labor of the country. From the time of mining the ore, excavating the coal, burning the coal into coke, until the operations are completed, its value to a very large extent lies in the labour employed, and its claim to be considered an industry is of the greatest importance. Just at this time let me say that the Government will submit a resolution to the committee that on and after the 1st of July next, and for three years, \$1.50 per ton will be paid on all pig iron produced in Canada during those three years, and \$1 per ton during the next three years, as a bounty for the encouragement and development of this industry.

* * * * *

Steel—Railway bars or rails, fish plates, and in sheets, for the manufacture of saws, are all admitted free until the close of this session. But, as I have a proposition on this subject to submit further on, I need simply say now it is intended that from the close of the session, and afterwards, that steel railway bars or rails, fishplates and steel for the manufacture of saws, shall be free.

* * * * *

Steel in ingots, bars, sheets, coils, I propose shall pay \$5 per ton on and after the 1st July next, when steel will be manufactured in Canada.

A much needed change is that on woollen hosiery, which instead of 7½ cents per lb. and 20 per cent. *ad valorem*, will now pay 10 cents per lb. and 25 per cent. And another change is thus referred to :

Cotton printed or dyed, now 20 per cent., after the first of January next will pay 27½ per cent. There are establishments for the manufacture of these goods being built in Canada. When the tariff was changed in 1879 it was announced that, although upon that article we imposed only a revenue tariff duty, whenever capitalists were in a position to manufacture it in Canada, it would be placed on the same footing as other protected goods, but as they will not be ready to manufacture before the first of January, it is proposed that the new duty shall go into force on that date.

These are the principal changes of this year, and, whether by increase or by reduction of duties, they all tend towards the better protection of home manufactures. Other minor changes we may refer to on future occasions.

AGRICULTURAL IMPLEMENTS AND CARRIAGES.

The Minister of Finance deserves the special thanks of the country for having had the courage to propose at this time an increase of the duties on agricultural implements and on carriages, the latter including waggons, sleighs, and children's carriages. For these articles a new market of enormous capacity of absorption is now being opened up in the North-west; and, supposing the principle of keeping our own markets as much as possible for our own manufacturers to be carried out, the aggregate of employment secured for Canadian labour, and capital, and enterprise would be enormous in proportion. But these important interests of ours were threatened with very serious danger. American manufacturers as

well as our own have had their eyes upon this immense new market in the North-west, and have gone to work with all their might to capture it. They send heavy consignments of their machines to Winnipeg and other points, to be sold at all hazards and at almost any price, thinking that if they can once beat Canadian makers fairly out of the field, they will be able afterwards to charge their own prices. A favorite plan with them is, however, to sell at professedly the same as the Canadian prices, at the same time allowing to agents a much larger commission than is allowed by Canadian manufacturers. The result is that in some cases agents of the latter have thrown up their connections and accepted American agencies instead.

Instead of twenty-five per cent., as before, imported implements will now pay thirty-five per cent., and part of this is to take the form of specific duties, the details of which will be found on another page. It is well that this change has come now. It would have been still better had it come a year sooner. It would indeed have been a burning shame had the boundless market of the North-west, belonging of right to our own people, who are paying for its development, been recklessly handed over to the implement and waggon makers of Ohio, Michigan, Illinois, and Minnesota. But this is what would have been most certain to happen, only for the first increase of duties in 1879, and the further increase now. Elsewhere we quote what the Brantford *Conservator* has to say, in language fair and courteous enough, to those implement manufacturer here who continue politically opposed to the government which has done so much for the country's interests in general, and for their own in particular.

A BOUNTY ON PIG IRON.

That portion of the Budget Speech referring to the production of iron in Canada is worthy of special notice. We quote :

We are now building in Canada, and we will probably build more extensively in the future, composite ships with iron frames, iron beams, and sheathed with wood; and the iron that is imported for the purpose—because vessels so brought into the country would, if British vessels, under the Merchant Shipping Act, come in free—will be admitted free of duty. This is intended as an encouragement to the shipbuilding industry, and it is proposed to extend the time over which such articles will be admitted free for a period of three years, because we believe the time is coming when we shall sufficiently develop our iron manufactures so as to produce our own beams, sheaths and knees for iron vessels. I may say, while speaking on this subject of iron, that it has been one of the most difficult questions with which the Government has had to grapple, because iron in the larger portion of the manufactures of the Dominion to-day is a raw material, but the Government consider it so important an industry to develop, that they are resolved to develop it if this can possibly be effected by any legislation or encouragement, inasmuch as the value of iron when manufactured is in its effect on the labor of the country. From the time of mining the ore, excavating the coal, burning the coal into coke, until the operations are completed, its value, to a very large extent, lies in the labor employed, and it has a claim to be considered an industry of the greatest importance. Just at this time let me say that the Government will submit a resolution to the committee that on and after the 1st of July next and for three years, \$1.50 per ton will be paid on all pig iron produced in Canada during those three years, and \$1 per ton during the next three years, as a bounty for the encouragement and development of this industry.

In connection with all this, the *Belleville Intelligencer* speaks up briskly for its own district, as follows:—

By the people of this city, which is the natural seat of the iron manufacturing industry, and by the residents of the extensive region over which the deposits of iron ore are known to extend, this official announcement that the Government have come to our aid in so handsome a manner, will be received with enthusiasm. The contention of those who have engaged in the various schemes for the establishment of smelting works in this city has been that the duty of \$2 per ton which the present Government imposed on foreign iron was not sufficient to warrant their entering into the business; but the exceedingly liberal offer of a bounty of \$1.50 per ton on all the iron produced during the first three years after the 1st of July next, and of \$1 per ton on all produced during the next three years, ought to be sufficient to establish amongst us this most important of all industries. Belleville is, as we have said, the natural seat of iron manufacture, and we trust that the City Council will at once take some action to secure for the City, in such manner as shall to them seem most desirable, the full benefit of the Government's new and most liberal policy.

Something has been done for the development in Canada of that right arm of national strength and prosperity, the production of Iron. We are getting forward by degrees. But it is to be regretted that the Finance Minister did not see his way to the taking of still another step—the placing of a good round export duty on iron ore sent out of the country. However, public opinion is probably not enlightened enough yet to warrant the Government in doing this. The day is coming when it will be looked upon as a marvel of folly that any civilized nation should ever have permitted the export of a single ton of iron ore to any foreign country, on any consideration.

TENTATIVE PROTECTION.

How the Government is feeling its way in the matter of building up Canadian industries, and protecting them against unfair foreign competition, is thus set forth by the Minister of Finance in the Budget Speech:—

I desire to call the attention of the House, before I take up the expenditure of 1883, to the changes that are proposed in the tariff to be submitted in committee shortly. I may say that these propositions are submitted with the view in the first place of relieving the country of a million or a million and a quarter taxation, and in the second place they are submitted so as to give, wherever we can, what we felt we could not give in 1879, because it was an experiment. In 1879 an article that was raw material to a manufacturer in some cases was subject to a duty of 10 per cent., though it was not produced in the country. We did so because we were not quite sure that the operation of the tariff would be satisfactory, that it would give us all the revenue we desired, but now, finding that it gives us all the revenue we desire, and more than we desire, proposed last session, and now we continue that policy, to take off the articles that bore 10 per cent. duty, or duties analogous to that, and that are not manufactured in the country, and we give the raw material to the manufacturer free, in order that he may have the benefits and advantages of this. We would have taken that course in 1879 had we felt quite certain as to the effect to be produced. But, more than that, we found that our enterprising neighbors to the south of us have made up their minds, if such a thing is possible, that they will have for their manufactures the market of Canada at any price. *We find now that circulars are being distributed with reference*

to certain articles, and stating that if they could crush these manufactures out for a year or two they would have the market for themselves, and they are making an effort to get it. Therefore it is that, wherever we find from past experience that the competition is sufficient amongst our own manufacturers to give us an article as cheap or cheaper than it was before, we propose to ask Parliament that the market of commerce shall be retained to these manufactures. We have taken some time to consider certain cases, and we can afford to wait a year or two in order to ascertain the results with reference to some of the industries, and in regard to these we are not prepared to ask the House to make a change at present; but in others, where we are satisfied that we have produced an article in the past at a lower price, or at as low a price, as they were produced before this tariff came into operation, we propose to ask Parliament to protect these men.

TRADE WITH BRAZIL.

Mr. W. D. Bentley, Brazilian Consul for the Dominion, was in Ottawa this week pressing the Government for an increased subsidy to the line of steamships running between Canada and Brazil. The present grant is \$50,000, and there also appear in the estimates two grants of \$24,000 as subsidies from Antwerp and Bremen, respectively. Mr. Bentley proposes to amalgamate these services, running from German ports to Belgium and France, thence to Canada. On the line between this country and Brazil he wishes to obtain permission to make Boston a port of call, urging as a reason that present trade between the Dominion and Brazil is not sufficiently developed to make fortnightly trips remunerative. Those opposing this step do so on the ground that it will be tantamount to subsidizing an American line; but Mr. Bentley thinks that as the Allan line are allowed to call at American ports his line should receive a similar permission. From a letter of Mr. Bentley's recently published we take the following comparative table of figures, showing Canada's imports from Brazil for the years 1880-81 and 1881-82:—

	1881.	1882.
Tapioca.....	Nil.	6,591
Coffee, before duty taken off, lbs.....	410,134	352,929
Coffee, after duty taken off, lbs.....		\$11,666
Drugs, V.....	\$ Nil	\$81
Sugar, above No. 14, D.S., lbs.....	Nil	1,245
Do. 9 and not above 14 lbs.....	564,924	1,308,744
Do. below No. 9, lbs.....	23,035,951	35,295,288
Melado, lbs.....	Nil	269,955
Molasses, gals.....	Nil	473
Hides, No.....	Nil	2,377
Cotton, wool, lbs.....	Nil	8,133
Gutta Percha, lbs.....	Nil	263,142
Total value of imports from Brazil....	\$1,325,320	

Mr. Bentley writes:

"I must draw your attention to the fact that these returns are made up only to the 30th June, 1882, and practically give the six months' results of the benefits of direct communication, the first steamer arriving from Brazil on the 1st January, 1882. You will perceive that in coffee alone the increase has been about 180 per cent. In sugar, taking all grades, the increase has been 50 per cent., while such products as tapioca, drugs, melado, molasses, hides, cotton and gutta percha have been imported direct for the first time, and I may add that the importers are so satisfied with the articles and price that they have continued their orders.

EXPORTS TO BRAZIL FOR YEAR ENDING JUNE, 1882.

Produce of the Mines.....	\$ 700
" " Fisheries.....	414,146
" " Forest.....	27,041
Animals and their products.....	1,348
Agricultural products.....	19,967
Manufactures.....	29,583
Not products of Canada.....	761
	<hr/>
	\$493,549

"The above table shows the exports to Brazil direct. It is difficult to make a comparison with the preceding year, because in former returns the countries of Brazil, Uruguay, Argentine, Peru, Chili, were included under the head of 'South America'; but, even placing the returns of 1881-82 on the same basis, and including all these countries, there is an increase of the export to South America of \$174,147.

"Out of the 40 to 42 different countries with which Canada trades, Brazil stands seventh in the value of its imports and exports. This is surely a trade which ought to be cultivated and developed with more attention.

"I have done my best, as in duty bound, but it remains for the Government and people of Canada to do theirs, so that this trade, now so happily commenced, may not be allowed to fall back again into the hands of our American neighbors.

"There has been a continual cry for direct foreign trade: let us hope that those who have started this cry will put their shoulders to the wheel and practice what they preach. If they do not do so it is useless to expect the Government to assist them."

EDISON'S ELECTRIC LIGHT.

The Edison Electric Light Company, New York, is represented in Canada by Mr. Thomas Swinyard, formerly General Manager of the Great Western Railway, and more recently of the Dominion Telegraph Company, with headquarters at Hamilton. It is a result of the N. P. that the Edison Company finds it best to manufacture in Canada the lighting apparatus intended for this market, and Hamilton is fortunate enough to have been chosen for the location of this new branch of industry. Elsewhere we copy an account of the lighting up with this light of the weaving department of the Canada Cotton Manufacturing Company's large mill at Cornwall, where some 700 hands are employed. A large company of ladies and gentlemen from Ottawa, Montreal, and other places, were present on the occasion, and the renowned Edison was there himself, the lion of the hour.

THE AGRICULTURAL IMPLEMENT MANUFACTURE.

(From the Brampton Conservator)

A deputation of manufacturers of agricultural implements waited upon the Ministers of Finance and Customs on Tuesday, March 27, requesting a change of tariff so that the industry they represent would be better protected against foreign competition. The deputation was introduced by N. C. Wallace, M.P. and consisted of the following-named gentlemen:—John Abell, Woodbridge; R. Cochrane, Brampton; J. Elliott, of London; and Cockburn, of Hamilton. Mr. Abell desired a specific duty on implements sent from the United States into the Canadian northwest. Part of the deputation support the Government and are consistent in their efforts to get better protection. They vote as they act in this matter. We trust that our townsman, Mr. Cochrane, will in future support the Government that has given him protection in his business and from which he now asks still more protection.

Without protection in the agricultural implement manufacturing business, such firms as the Haggart Manfg. Co. might close up, or at least reduce their business to that of merely supplying a small local demand, and even that would be very small indeed. Our markets here and in the Northwest would be supplied to a large extent from across the border, and, as the *Conservator* has frequently shown, the thousands of workmen now employed in Canadian workshops and enlivening Canadian towns would be forced to seek employment and homes in Yankeeland. No man knows this better than the manager of the manufacturing company of this town, and yet he has repeatedly worked with all his might against the very men and Government that gave the protection so highly valued by the manufacturers. He endeavored in 1878 by his vote and influence to maintain a party in power which had resolutely opposed protection to our struggling industries, and again, in 1882, sought to overthrow the Government that gave us the National Policy and supplant that Government with men like Blake, Patterson, Cartwright, Charlton, Mackenzie, Ross, and other free traders who denounce the National Policy as a delusion and a snare. Surely Mr. Cochrane will see the folly and inconsistency of such a course of action, and will yet give a loyal support to the government and the party that has acted in exactly the way he now desires and petitions the Ministers of Finance and Customs to proceed. We know Mr. Cochrane means well, but strong attachment to his erring party has kept him on the wrong side. He should come out from them and leave them as Cowan, Gurney, Storey, Hay, Speight, Barber, Clark, and dozens of other prominent manufacturers and business men of Canada have done during the last six or seven years. We have yet hope for Mr. Cochrane.

PRESENT RESULTS OF THE OLD DEPRESSION.

(From the Montreal Shareholder.)

There is one feature, however, about this financial disturbance which has its redeeming quality, namely, that in a large proportion of these failures the difficulties have been in no way caused by any unsoundness of recent growth or by late overtrading. It will, we think, be found in the majority of these cases where the largest figures are involved that the suspensions of to-day are really but the final outcome of that devastating hurricane which effected such widespread ruin a few years ago. Of the failures announced this week the most important consist of firms which, as a matter of fact, were undermined during that great cyclone and have been tottering to their fall ever since, and have finally now openly succumbed, as they should have done years ago. This of course does not by any means apply to the whole, the ordinary proportion of the vicissitudes of trade having prevailed this season as in all others. That proportion, however, so far as our observation goes, does not justify the alarm which undoubtedly more or less prevails. It is certainly not greater than might have been anticipated from the brief fit of manifest overtrading which so undisguisedly set in some months ago, and which was certain to bear its due crop of bitter fruit. It is now, we believe, pretty generally expected that we have already seen the worst of this new "crisis," and that after the approaching April settlements, affairs generally will resume a more healthy channel, and the trading community be all the better as a whole for the late timely warnings and clearances.

SOME LARGE BELTS FOR MANITOBA.—Geo. F. Haworth agent in Toronto for H. L. Fairbrother's American Leather Belting, has just completed an order received from an Ontario firm, for some large Belts which have gone to Manitoba, among which are the following large double Belts—148 feet 24 inches, 120 feet 20 inches, 102 feet 16 inches, 138 feet 14 inches, 120 feet 12 inches, also a quantity of smaller sizes. This maker of Belting seems to have found much favor in this country.

Mechanics and Engineering.

ELEMENTARY PAPERS FOR YOUNG MECHANICS.

No. III.—ELEMENTS OF MECHANISM.

THE LEVER.—Continued.

As a practical and useful illustration of the principles explained in our last paper, we propose in this one to show how to calculate the load upon a safety valve of a steam boiler which is held down by a lever and weight.

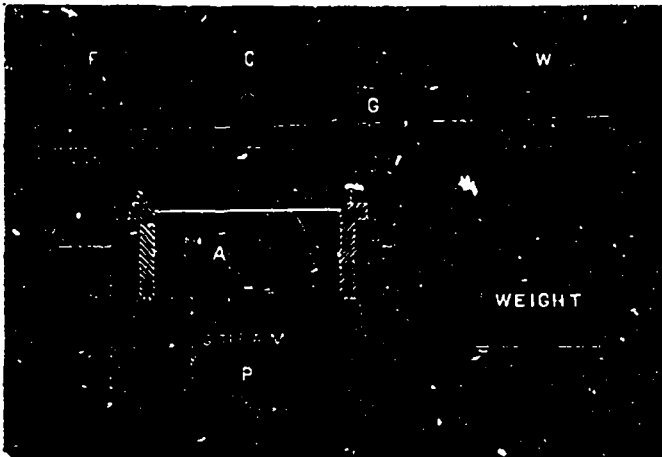
The common form of safety valve is really part of a cone, closely fitting and resting upon a seat of similar shape.

The surface of contact is bevelled, and usually forms an angle of about 45° with the line of the pipe through which the steam passes to come in contact with the valve. The result of this bevelling is that if the valve is a very exact fit to the seat when shut, there will be a smaller surface or area presented to the steam pressure than when the valve is partially open. One effect of this is that a valve may open say at 60 lb. pressure, and when once open will continue to allow steam to blow past till the pressure has fallen as low as 50 lb., and in some cases even lower. This is a very serious defect in the safety valve, as commonly made for factory boilers.

It is important that the bevelled seat should be broad enough to resist, without injury, the weight brought to bear upon it by the lever when steam is not in the boiler: but it is also of importance that the breadth should be no more than enough for this purpose.

Valves are frequently made with $\frac{3}{8}$ in. or even $\frac{1}{2}$ inch of bevelled bearing surface, whereas from $\frac{1}{8}$ inch to $\frac{3}{8}$ inch ought to be quite sufficient, if proper material be used. When the valve face is too broad it is more difficult to make a proper fit, and it is sometimes almost impossible to determine exactly at what part of the face the steam pressure will really bear.

With these preliminary hints we will now attempt to explain how to calculate the load on a safety valve similar to that shown in our illustration.



First. What is the power to be overcome or to be resisted by the lever and weight? It is the steam pressure under the valve, multiplied by the area of surface upon which the pressure acts.

The power presses upwards on the lever at C, and acting

through the short arm, CF, is resisted by the weight at W, acting through the long arm, Fw.

Hence, if the valve and the lever had no weight, the steam pressure multiplied by the valve area, and by the length of the arm CF, should balance the weight, multiplied by the length of the arm Fw.

Let A = area of valve (that is, its diameter squared, multiplied by .7854) in inches. P = pressure of steam per square inch. W = the weight in pounds, and let CF and Fw be measured in inches.

Then $P \times A \times CF = W \times Fw$, when the weight of the valve and of the lever are not taken into account.

But as it is very essential that they should be taken into account, we will explain how to do so.

The weight of the valve and small spindle above it has no leverage and acts as a direct resistance, and to find how much per square inch that will amount to, we simply divide the weight in pounds by the area of the valve in sq. inches.

The weight of the lever, however, has to be treated differently, as it does act with a leverage.

Having weighed the lever, find at what distance from F it will balance itself so that a point G is found with an equal weight, not length, of the lever on each side of it.

Then the pressure upon the centre of the valve produced by the weight of the lever is found by multiplying the weight of the lever by the distance FG, and dividing by the short arm CF.

That is $\frac{Y \times FG}{CF}$ = pressure in pounds upon centre of valve, where Y = weight of lever in pounds. We have found that the resistance to the steam pressure is made up of three elements:

1st. There is the direct weight of the valve and spindle above it. 2nd. There is the weight of the lever itself. 3rd. The pressure produced by the weight W. Another and incalculable resistance is sometimes produced by allowing the joints at F and C to become rusted, or by having the spindle pass through a cover of the valve chest, and to become rusted to it. These are points which require the constant care and attention of the actual attendant, and cannot be provided for in calculation.

We shall now sum up the various sources of resistance, and find formulæ taking all into account.

Let W be the weight suspended on the lever in pounds.

" Y = weight of valve and spindle in pounds.

" X = weight of lever.

" A = area of valve in square inches.

" P = pressure of steam in pounds per square inch.

Then in symbols:

$$PA = Y + \left(\frac{X \times FG}{CF} \right) + \left(\frac{W \times FW}{CF} \right)$$

That is,

The pressure of steam, multiplied by the area of the valve should balance the weight of valve and spindle added to, the weight of the lever, multiplied by the distance FG and divided by the short arm CF, added to, the weight multiplied by the long arm Fw, and divided by the short arm CF.

It will simplify the formula a little to add the two last items together before dividing by the length of the short arm.

To Mill Owners and Manufacturers.

USE

F. E. DIXON & CO.'S

PURE BARK-TANNED

Star Rivet Leather Belting!

**FIRST PRIZE FOR
LEATHER BELTING**

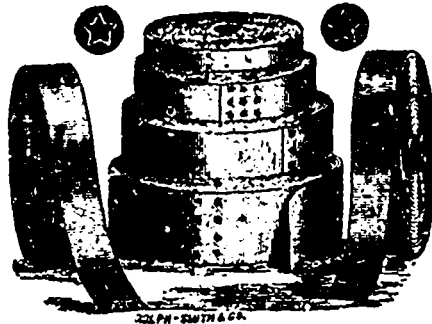
—AT—

Provincial Exhibition, Ottawa, - 1875.
 " " Hamilton, 1876.
 " " London, - 1877.
 Industrial Exhibition, Toronto. - 1879.
 " " Toronto 1880

**EXTRA PRIZE FOR
Genuine Oak Tanned Belting,**

—AT THE—

Provincial Exhibition, Hamiltu, 1876.



INTERNATIONAL MEDAL

—AT THE—

Centennial Exhibition,
PHILADELPHIA, 1876.

FIRST PRIZE FOR

BELTING LEATHER

AT THE

Industrial Exhibition, Toronto, 1879.
 " " " 1880.

Our Belting is **Short Lap**, and is warranted to run straight and even on the pulleys, and certainly cannot be surpassed in quality by any other Belting in the market at the same prices.

Our **Leather** is of **Pure Bark Tannage**, and consequently is much more durable than the chemical tanned leather of which most of the American Belting imported into Canada is made, though sold under the name of **Oak Belting**.

To accommodate those who desire to have a really genuine article of **Oak Belting**, we beg to say that we keep in stock a quantity of

Oak Leather of the Celebrated Tannage of J. B. HOYT & Co., of New York,

and as the duties on imported rough **Leather** are much less than on the manufactured **Belting**, we are thus enabled to sell the **Belting** made from this quality of **Leather** much cheaper than it can be imported.

LARGE DOUBLE BELTS A SPECIALTY.

Please note that our **Price List** averages **Twenty to Twenty-five per cent.** lower than the **American Price list** at which all **American Belting** is sold in **Canada**.

Lace **Leather** of the very best quality always on hand.

All Work Warranted.

Orders Solicited.

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MILL OWNERS

WHEN YOU BUY BELTING

Do you want Belting that is made from pure Leather?

Do you want Belting that will run straight and even?

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Do you want Belting that will run without stoppage of machinery to "take up," causing loss of men's time, etc.?

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We keep a larger stock of Leather and Rubber Belting on hand than any other Makers or Dealers in the Dominion of Canada.

ORDERS SOLICITED.

GEO. F. HAWORTH,

SOLE AGENT FOR DOMINION OF CANADA,

WAREHOUSE, 65 YONGE STREET, TORONTO.

The following formulæ will be sufficient to meet cases m o usually occurring in practice :

All the dimensions and weights being known, it is required to find P, the pressure in pounds per square inch, at which the valve will open.

$$P = \frac{P}{A} + \frac{(X \times FG) + (W \times Fw)}{CF \times A} \quad (\text{Rule I.})$$

All the dimensions and the pressure being known, it is required to find the weight which should be hung at w, to balance the given pressure of steam.

$$W = \frac{(P \times A \times CF) - y - (x \times FG)}{Fw} \quad (\text{Rule II.})$$

That is, multiply the pressure of steam by the area of the valve, and by the length of the short arm CF; from this subtract the weight of the valve and spindle, then subtract the weight of the lever multiplied by the distance FG, and divide the remainder by the length of the long arm Fw, the quotient will be the required weight.

The pressure of steam and the weight being known and all other dimensions except the distance Fw, it is required to find the distance from the fulcrum at which the weight must be hung in order to balance the given pressure of steam.

$$Fw = \frac{(P \times A \times CF) - Y - (X \times FG)}{W} \quad (\text{Rule III.})$$

That is,

Proceed as for Rule II., but the final division is to be by the weight, and the quotient will be the distance Fw, at which the weight should be hung. It should be carefully noted that the distance Fw is measured from the fulcrum of the lever and not from the centre of the valve.

Example.—A safety valve 3 inches diameter is to be loaded so that the steam pressure will not exceed 80 lbs. per square inch; the short arm, FC, is 2½ inches, the valve and spindle weigh 4 pounds, the lever weighs 6 pounds, and the point G is 7½ inches from the fulcrum, and the weight is to be hung 20 inches from the fulcrum—it is required to find the weight.

By Rule II.—(P) 80 × (A) 7.06 × (CF) 2½ - (y) 4 - (X × FG) 45 and result divided by (Fw) 20, will give the weight: $\frac{80 \times 7.06 \times 2\frac{1}{2} - 4 - 45}{20} = 68\frac{15}{100}$ lb. the required weight.

As an exercise to our readers, we ask them to solve the following:—

A valve with the same lever and weights as in above example is observed to open at 90 lb. pressure—what is the size of the valve?

FIRE-ESCAPE LADDERS AND OTHER MATTERS.

BY J. F. TALLANT.

Nothing seems to be more certain than the fact that as yet no efficient fire-escape has been adopted for general use that is certain to be used by the frightened victims in the upper stories of large burning buildings, or in which they have any confidence. The accompanying sketch of an unpatented small iron rod ladder is offered for public attention and criticism. Not being patented it will not cost any person anything to examine it, and, if approved, adopt it, except the publisher of *The Millstone*, to whose enterprise and public spirit I am indebted for making it known to the world.

This ladder is intended to be kept in the upper stories of large mills, factories, hotels, etc., to allow persons who may be caught in such places when the stairways are wrapped in flames, to descend in safety to the ground. It is intended to be made of small rod iron, not more than ½ or ¾ inches in diameter, according to the length to be used, which should be a little longer than the story of the building in which it is to be kept. The upper treads, or rungs, ought not to be more than six or seven inches long, large enough for a man to put his foot in easily. The hooks at the top ought to be large enough to go securely over the window sill of any building these ladders are made for. They ought to flare out as in the drawing, in order to be easily hooked or attached to the bottom of another ladder if occasion requires. For the same reason the foot of every ladder ought also to flare out, and be fully six inches wider than the upper end, so the hooks could be inserted easily and with facility. They also ought to be made in this peculiar manner, very narrow, not much wider than a man's foot, with top hooks and spreading foot, that they may be known as fire-ladders, and never be taken from the floor of the building to which they belong under the most severe penalties, as they are not intended for ordinary use at all.

With only one such ladder, almost any person not frightened out of their senses, could descend several stories from a burning building by going down a story, kicking in a window, and then attaching the ladder to that window so as to go down another floor. This may be done in less time than one can read about it. Or, a rescuing party might go up in the same way with only one ladder. Or, firemen, with a number of such ladders, could ascend to rescue women and children from an upper story without any interference from telegraph wires in the streets, which are now so much complained about by firemen. A series of four or five such ladders, hooked into each other from the top floor of a high mill or hotel, down to the ground, would be accessible to every floor or story, while the long ladders now used can only be reached from a single floor at a time.

It is indeed sickening to observe the awful sacrifice of human life at large fires in cities, while the firemen stand looking at the slaughter, helpless to do any good whatever. It is also astonishing to see how architects and builders will persist in perpetrating the same blunders and mistakes, one generation after another, without being in the least warned by experience.

The burning of the splendid office of the daily *Commercial Advertiser*, in Buffalo, occurred Dec. 21, 1882, about 4 o'clock p. m., while the building was filled with workmen. It was a new establishment, finished in April, 1882, and was well equipped with the outside iron fire-escapes, now largely used in some cities. Yet for all that, the printers on the fourth floor, eleven in number, found all chance for escape cut off except by creeping, at the worst possible risk of their lives, along a slippery, icy sheet-iron cornice which bent under them at every step. Though the building was so modern, with all the supposed improvements, and intended to be semi-fire-proof, the joists were built into the adjoining walls, so that when the floors were burned away the joists acted as pries, and broke up and cracked the walls of the next building enough to set it on fire also. Surely builders ought to know enough by this time never, under any circumstances, to fasten floor supports into the side walls of any large building. These ought always to be built with "corbels," so that if the floor does give way from fire or any other cause, the joists simply rest on the projecting bricks, and cannot pry out or

injure the adjoining walls on each or either side as they fall down or give way.

Such ladders as those suggested above ought to be made very cheap in large quantities, and sold at low prices, not more than a dollar or two each. They ought to be kept exclusively for fire-escape purposes, on the floor they are intended for, and their use ought to be strictly forbidden for any other purpose or under any other circumstances than to save human life.—*The Millstone.*

HOW TO ABUSE EMERY WHEELS.

The following hints of how not to do it are taken from the price list of the Hart Emery Wheel Company, Hamilton :

Never oil bearings. Let them heat, wear and rattle. Don't place the Grinder on a solid floor—vibration wears away the Wheels faster and helps to make noise.

Never true up the Wheels—an eccentric is a more elaborate figure than a simple circle. The fact that an Emery Wheel transformed into an eccentric is rather dangerous, is a mere incident, and need not interfere with indulgence in high art.

Never use collars, especially for thin Wheels. Using only one collar will answer the purpose as well.

Run Wheels at any gait that happens to be handy—slow as a grindstone, or double the speed recommended by makers.

When not in use, and off the mandrel, let them lie around anywhere ; on the floor under the grinder is a good place to break thin Wheels.

A steady adherence to any or all of the above recommendations will result in—bad work, used-up wheels and general disgruntling.

MANGANESE.—We are frequently asked to what uses is Manganese put? Briefly we would answer,—Many : notably among which, may be stated, in the *arts and manufactures*, and more recently as a *flux* for smelting the *tailings* that have accumulated at the Tombstone Company's Mills at Charleston, in which use it has proved a perfect success. The ores of Manganese,—fused with Borax or salt of Phosphorus enter into the production of the beautiful *violet-colored glass*. The finely powdered mineral, spread on Stone Ware as a paste will afford a permanent glazing which will have a *black* color, if laid on thick, and a deep violet blue, if quite thin. The Oxyd, heated with muriatic acid, gives off fumes of chlorine, and is employed for bleaching purposes. One of its ores also affords the gas *Oxygen* to the chemist. Manganese ores also receive a fine polish and are employed for *inlaid* work. Pulverized, it may be used for umber paint. The sulphate and chloride of manganese are used also in *calico printing*, the sulphate producing a fine chocolate brown.—*N. Y. Produce Exchange Bulletin.*

The *Ontario Gazette* announces letters patent, incorporating John P. McKinley, Thomas Schlenker, Charles Baker, and Charles E. Scane, of the town of Ridgetown, in the county of Kent, and William Penhale, of the city of St. Thomas, for the manufacture and sale of iron and glass and wooden burial cases and undertakers' furnishings, by the name of "The Ontario Casket Co. (Limited)," with a capital stock of sixty thousand dollars, divided into six hundred shares of one hundred dollars each.

The Oxford Furniture Company (Oxford, N. S.) is now some 5 years old. Starting with 20 hands, it now employs 40, and manufactures over \$40,000 worth of furniture. This is, as in the case of the Woollen Mills, a mutual affair, and the proprietors are Henry Treen, Rufus Wook, Henry Davis, Wm. H. McIntosh and J. H. Treen, Manager. There has just been completed a new ware-room 96x30, 3 stories, to enable the company to fill orders without crowding. The other buildings are, factory, 96x36; L on factory 46x40, office 50x30, all three stories.

INDUSTRIAL BOOK REVIEW.

See Advertisement of our *Mechanical, Engineering and Industrial Book Department*, on page 22A.

THE FIRE PROTECTION OF MILLS ; and Construction of Mill Floors : Containing tests of full-sized wood mill columns. By J. H. Woodbury, Member of New England Cotton Manufacturers' Association ; American Society of Mechanical Engineers ; Inspector Factory Mutual Fire Insurance Companies.

The author sets out with the remark that competition among underwriters has reduced insurance rates to very low figures, and that the expense of insurance cannot be lessened in any other manner than by diminishing the hazards of fire. The book is addressed to the manager and the builder, however, its relation to the subject of underwriting being entirely an indirect one. It treats of the most improved methods of extinguishing fire, precautions to be adopted with electric lighting, the effects of vibration upon machinery, sound principles of building pertaining to slow burning construction, etc. ; and all in a manner at once scientific and practical.

EXTRACTS FROM CHORDAL'S LETTERS : Comprising the choicest selections from the series of articles entitled, "Extracts from Chordal's Letters," which have been appearing for the past two years in the columns of the *American Machinist*. With steel portrait of the Author, and original illustrations. New and enlarged edition, with additional plates.

These letters present a combination of evident mechanical skill, hard practical common sense, and good literary execution of the characteristic American newspaper style, such as is perhaps scarcely to be matched elsewhere. The extracts being choice, and selected from a large number of letters, naturally take in the best points made by the author. There is in this book a fund of really valuable information, and all conveyed in a pleasant and entertaining manner.

WRINKLES AND RECIPES, Compiled from the *Scientific American*. A collection of practical suggestions, processes, and directions for the Mechanic, the Engineer, the Farmer, and the Housekeeper. Second Revised Edition. Fourteenth Thousand.

We need not wonder at the popularity of this useful little volume, the nature of which is sufficiently indicated above. The *Scientific American* having a reputation befitting its name, we may take it for granted that "wrinkles and recipes" of a "bogus" character have been pretty carefully excluded from this collection.

THE ART OF SAW-FILING, scientifically treated and explained on philosophical principles, with full and explicit directions for putting in order all kinds of saws, from a jeweller's saw to a steam saw-mill. Illustrated with 44 engravings. By H. W. Holly, author of "The Carpenter and Joiners' Handbook."

This handy little pocket manual needs no criticism, beyond saying that it appears to be the work of a thoroughly practical man, with a scientific basis maintained throughout.

Knitting Factory for Sale.

BLACKLOCK & CO., Manufacturers of the **HASTINGS SHIRTS AND DRAWERS**, offer their Mill at Axholme, near Colborne, for Sale. Can be seen in operation. Terms made known on application.—Address, **BLACKLOCK & Co.**, Colborne.

Civil Engineer.

SITUATION with, wanted by a Fourth Year Student in Engineering Faculty, McGill College. Either Field or Office Work.—Address, **J. W. MOFFAT**, Walkerton, Ont.

THE
Canadian Manufacturer
AND INDUSTRIAL WORLD.

Published fortnightly by the **CANADIAN MANUFACTURER PUBLISHING Co.**, (Limited).

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CARD OF ADVERTISING RATES ON APPLICATION.

FREDERIC NICHOLLS,
Managing Editor

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Editorial Notes.

The office of the **CANADIAN MANUFACTURER** has been removed to Room No. 5, Mechanics' Institute, corner of Church and Adelaide streets. One stair up, turn to the right.

In connection with our Book Review department we would invite attention to the advertisement, on another page, of Mechanical, Industrial, and Scientific Text-books, which we offer to supply at publishers' prices. The works we offer are not published in Canada, and parties buying from us will not only get them at the very lowest price, to begin with, but will also save the fifteen per cent. duty, which we pay ourselves. We are not looking for profit in this way, but merely towards the encouragement of those practical studies, connected with the industrial arts, the promotion of which in our own country is the special object of the **CANADIAN MANUFACTURER**. A fresh list appears in the advertisement for this issue.

This being our first number following the Budget Speech, we devote considerable space to the tariff changes of the year; the more important of which deserve the attention of the public in general, and of manufacturers in particular.

Galt's Canadian Diary, Note-Book and Time Table is a neat and handy pocket guide, and is issued monthly, price 5 cents. It contains travellers' route tables, cab tariffs, post

office information, and a great deal else very convenient to refer to when wanted. Sold by all booksellers and newsboys.

Elsewhere we copy from the *Montreal Witness* an interesting account of the industries of Gananoque—the little Canadian Birmingham, as it has been called. We put the whole under the head of iron manufactures, though some manufactures of wood are included, Gananoque being an iron-works town nearly all through.

The Grand Trunk report of the working of the combined lines from August 12 to December 31, 1882, shows on comparison with the same period in 1881, an increase of fourteen per cent. in gross receipts, along with a decrease of six per cent. in working expenses. To which we will add that future reports will probably show in a still more striking light how profitable a thing amalgamation is.

The *Lumberman's Gazette* says:—"Twelve years ago there were thirteen mills (sawmills, we take it to mean) in operation in Indianapolis. To-day there are but four. The mill men could not bear up under the heavy tax levied upon them by the railroads, so they removed to other parts of the state." Does it not seem as if it were giving too much power to railroad companies to allow them to dictate where a country's manufacturing establishments shall be located?

The *Montreal Shareholder*, elsewhere quoted, is of opinion that most of the recent failures are but remains of the hard times of a few years ago, to which they may be easily traced back. They are not really caused by the losses of to-day, but by those which were incurred during the depression period. Against old disasters and loss of prestige incident thereto some firms have struggled on ever since, but have at last had to succumb. That this is the truth in many cases will not be disputed by business men.

By the overwhelming adverse vote of 76 to 12, the Railway Committee of the House on Tuesday threw out Mr. McCarthy's Railway Commission Bill. The largest aggregate of depositions ever assembled in Ottawa to promote or to oppose any measure attended while the struggle was going on in Committee, the greater number being on the railway side of the question, "by a large majority." Sir Charles Tupper, speaking for the Government, declared the bill to be impracticable; and it was opposed also by Mr. Blake and Mr. Mackenzie.

The *Globe* has the following special cable despatch, under date of London, April 3:—"A rumor is current in railway and financial circles that an attempt is about to be made by interested parties to bring about more friendly relations between the Grand Trunk and the Canadian Pacific Railways. It is urged, by those who profess to know, that an agreement between the two rival railways whereby the railway service of the entire Dominion, almost, would be virtually united under one monopoly, would prove conducive to the interests of the shareholders of both concerns. Although the ultimate issue is yet in doubt, I am in a position to state that some attempt of the kind is in contemplation."

The account of an alleged "questionable transaction" which we copy on another page may have its interest for manufacturers and others purchasing imported iron. By some who ought to be well informed in the matter it is believed that, counting from the opening of the era of railway building in Canada thirty years ago, the aggregate of loss to this country from imports of inferior iron charged at full price must be something enormous. Especially has this been the case with supplies of rails brought over from England for first tracks on new roads, before steel rails came into general use. It is not at all unlikely that something of the kind is still going on in the heavy iron trade.

A cable despatch to the *Globe* says that on March 30 the London *Times* published a letter from Sir Alexander Galt to the Secretary of the British Association describing the arrangements contemplated at Montreal for the visit of the British Association next year. The *Times*, commenting editorially, adheres to its original opinion that the visit is inexpedient, but admits that now it is impossible to cancel the engagement, especially since great preparations have already been made. Everything possible should now be done by the Association to make the assembly a success. The *Times* therefore trusts that no pique on the part of members originally hostile to the visit will prevent them assenting cheerfully to the wishes of the majority, and carrying out thoroughly what the majority have undertaken.

We read of England getting part of her wheat supply from Australia, but we may well wonder what kind of a wheat-growing and wheat-exporting country the great island-continent can be, when we read of such a yield as is here described:—Late advices from South Australia say:—"A scanty wheat harvest has been in most cases gathered, and results were less than were anticipated. The returns vary from 1 to 2 bushels per acre average, and from nil to 5 bushels, the latter in only two or three cases. One farmer sold his whole crop of 400 acres for sixpence per acre to a neighboring citizen, who found out he got small value for his purchase; others have turned their stock in on finding their crops not worth stripping." This relates to South Australia only, and in a bad season, but it has to be added that five bushels per acre is about the average yield for all the Australian colonies.

Concerning the fire by which the Williams sewing machine factory in the St. Henri suburb was destroyed recently, "Inspector" writes to the *Montreal Witness* as follows:—"I was present at that fire, and can state that from the first it was impossible to save any portion of the main building, the hoist in particular acting (as they always do) like a huge flue to carry the flames to every portion of the building. Upward of 3,000 feet of hose were used, and had there been enough of pressure or tanks to supply steamers no doubt they would have been used. No firemen could have worked harder or have done more than the St. Henri and Ste. Cunegonde men, under their respective chiefs, and had there been more hydrants in the vicinity they, too, would have been ably seconded by the Montreal men, who are always ready and willing to come to

the assistance of their brother firemen in the municipalities outside the city." It is becoming known that a principal inducement to proprietors of manufacturing establishments to locate themselves in large cities like Montreal and Toronto, and even to remove thither from smaller places, is that of better protection against fire. But it seems that Montreal's suburbs, though commercially a part of the city, do in the matter of fire protection suffer somewhat because of their municipal independence.

SPECIAL NOTICE.

MESSRS. CROWTHER BROTHERS & CO'S EXHIBITION EXHIBIT

(Extract from the *Iron and Coal Trades Review*, 15th September, 1883.)

Messrs. Crowther Brothers & Co., of Stour Vale and Talling Sands Iron Works, Kidderminster, England, are exhibiting their tin, terne, galvanized, cold, rolled, and close annealed black sheets (iron and steel), and many articles stamped and manufactured therefrom, including several things probably never before made out of either iron or steel sheets. Amongst the most noticeable are the drinking cups, mugs, and tumblers, some in black iron, from three and a-half to four inches deep, by three inches diameter, showing the very extraordinary malleability of the metal, others of equal depth are gilded and plated. Another perfect novelty is a watch, made entirely—except the spring—of iron rolled at the Stour Vale Works. The specimens of very deep iron solid stamps include sauce pans, coffee cups, hip-baths, urns, &c. It is certainly surprising that such iron can be stamped into a vessel with straight sides over 7 inches deep and less than 5 inches diameter. Some of the stamped dish covers are nickel plated, others are tinned and highly finished. There are many other articles of tinned and enamel ware such as hot water bottles, baking dishes, and pans, kettles, and sauce-pans, jelly moulds, &c. In japanned goods there are trays and waiters, toilet sets, trunks, &c. There are also articles of galvanized hollow ware, enamelled sign boards, meat safes, despatch boxes, nails and tacks, machine made horse nails, and various other specimens of unfinished articles, all produced from the sheets rolled by the firm."

Messrs. Crowther Brothers & Co. are the manufacturers of the "Lion and Crown" brand tinned iron and tinned steel sheets, now so favorably known in Canada, also best, best, best, charcoal and steel stamping sheets, "S. V. Crown" brand galvanized iron, "C. B. Silver" brand, steel tinplates, also Canada plates. Prices and all information supplied importers by applying to George Kay (Late Hall, Kay & Co., Established 1864), 9 Corn Exchange Buildings, Montreal, Sole Agent for Canada and United States.

The Boston Lamina Wood company, Boston, Mass., are making tea and grocers' scoops on a new and interesting plan. They are made of three-ply wood, the middle stratum or layer being placed with the grain of the wood running at right angles to that of the two outer layers. They are finished with two heavy coats of orange shellac. These scoops will not curl up, like tin, when striking a nail, and they are free from rust. If there be anything in this could not some of our Canadian manufacturers try their hands at it?

Selections.

TARIFF CHANGES.

THE DIFERENT CHANGES OF DUTY INDICATED.

DUTIABLE BEFORE, NOW FREE.

The following articles, which were before charged with the amount of duty opposite each, are now placed on the free list:—

- Aniline dyes, in five pound packages or over, 10 per cent.
- Celluloid, in lumps or blocks, 20 per cent.
- Drills, 20 per cent.
- Colors, 20 per cent.
- Dyes, jet black, 10 per cent.
- Hatters' plush, 10 per cent.
- Kamite, 20 per cent.
- Salts, for fertilizers, 20 per cent.
- Greenwood and sawdust, 20 per cent.
- Mineral waters, natural, 20 per cent.
- Musical instruments, as settlers' effects, 25 per cent.
- Asphaltum, 10 per cent.
- Books, bound, and in print over seven years; also books issued by any Government or Association, not for purposes of trade Under other circumstances, the duty of 15 per cent., payable as before.
- Manuscripts, 20 per cent.
- Chronometers, 20 per cent.
- Copper, in sheets, 10 per cent.
- Iron and steel, old, \$1 per ton.
- Iron beams, 20 per cent.
- Iodine, 20 per cent.
- Marble blocks, 10 per cent.
- Otto of roses, \$1.90 per gallon and 30 per cent.
- Seeds, anise, coriander, fennel, fenugreek, 20 per cent.
- Spurs and stilts for earthenware makers, 20 per cent.
- Sausage skins, 20 per cent.
- Valerian root, 20 per cent.
- Wire, brass and copper, 10 per cent.
- Wire, iron or steel, flat or round, 15 per cent.
- Wire, galvanized or tinned, 15 per cent.
- Steel, railway bars or rails, 15 per cent.
- Steel, fish plates or in sheets, 17½ per cent.

INCREASES AND DECREASES.

The following articles show a decrease or increase, as indicated:—

- Button covers, from 20 to 10 per cent.
- Coal dust, hard coal, from 50 and 60 cents a ton to 20 per cent.
- Fruit, dried, from 25 to 20 per cent.
- Lamp black, from 20 to 10 per cent.
- Lead, nitrate and acetate, from 25 to 5 per cent.
- Leather, for glove manufacture, from 20 to 10 per cent.
- Kid, for gloves, from 20 to 15 per cent.
- Marble, under fifteen cubic feet, from 20 to 10 per cent.
- Marble slabs, sawn on two sides, from 20 to 10 per cent.
- Oil and enamelled cloth, for trunk makers, from 20 to 15 per cent.
- Paper union collar cloth, from 10 to 5 per cent.
- Precious stones, polished, from 20 to 10 per cent.
- Spices, except nutmeg and mace unground, from 20 to 10 per cent.
- Tobacco and snuff, from 25 cents per pound, and *ad val.* 12½ to 20 per cent.
- Spirits of turpentine, from 20 to 10 per cent.
- Bells (except for churches), various material, 10 to 30 per cent.
- Ether, sulphuric, from ½ cent per pound to 30 per cent.

- Ether, nitric, from 20 to 30 per cent.
- India rubber clothing, 35 per cent.
- Jellies and jams, from 3 cents per pound to 6 cents.
- Magic lanterns, from 20 to 25 per cent.
- Pocketbooks and purses, from 20 to 30 per cent.
- Vaseline, etc., from 20 to 5 cents in bottles, or 6 cents per pound.
- Woollen hosiery, from 7½ cents per pound, 20 per cent. *ad val.*, to 10 cents per pound, 25 *ad val.*
- Acetic acid, from 12 cents imperial gallon to 15 cents per gallon.
- Acids, other, from 20 to 25 per cent.
- Absinthe, from \$1.90 per gallon to \$2 per gallon.
- Aniline dyes (less than 5 lb. packages), from free to 10 per cent. In packages of 5 lbs. or over, free as before.
- Agricultural implements and machinery, formerly paying 25 per cent., now pay as follows:—Mowing machines, specific, \$1., *ad valorem*, 20 per cent.; self-binders, \$40 and 20 per cent.; harvesters without binders, \$25 and 20 per cent.; binding attachments, \$15 and 20 per cent.; reapers, \$18 and 20 per cent.; sulky ploughs, \$10 and 20 per cent.; walking ploughs, \$2 and 20 per cent.; parts of ploughs, 2 cents per pound and 20 per cent.; harrows, \$3 and 20 per cent.; scythes, \$1.50 per dozen and 20 per cent.; horse hayrakes, \$5 and 20 per cent.; garden rakes, 50 cents per dozen and 20 per cent.; grain seed drills, \$7 and 20 per cent.; spades and shovels, \$1.20 per dozen and 20 per cent.; hoes, all kinds, 80 cents per dozen and 15 per cent.; hay and straw forks, 60 cents per dozen and 20 per cent.; manure and spading forks, \$1 per dozen and 20 per cent.

- Boot and shoe laces, from 25 to 30 per cent.
- Braces and suspenders, from 25 to 30 per cent.
- Playing cards, from 30 per cent. to 6 cents a pack.
- Carriages, from 30 to 35 per cent.
- Cordage, from 10 per cent. and 20 per cent. to 20 per cent.
- Cotton, printed or dyed, from 20 to 27½ per cent.
- Cases, jewel, etc., from 20 to 30 per cent.
- Cane or rattan, from 20 to 25 per cent.
- Drain and sewer pipes, from 20 to 25 per cent.
- Fruit, in air-tight cans, from 2 to 3 per cent.
- Iron bedsteads, from 25 to 35 per cent.
- Show cases, from 35 per cent. to \$2 each and 35 per cent.
- Haircloth, 30 per cent.
- Carpeting, from 20 to 25 per cent.
- Matting and mats, from 20 to 25 per cent.
- Lamp wicks, from 20 to 30 per cent.
- Music, printed, from 6 cents per lb. to 10 cents per lb.
- Pumps, from 25 per cent. *ad val.*, to 25 per cent. *ad val.* and 50 per cent. specific.
- Steels, in ingots, bars, sheets, from 10 per cent. to \$5 per ton.
- Files, from 30 per cent., under 9 in. in length, to 5 cents; over 9 in., from 30 per cent. to 3 cents.
- Vinegar, from 12 cents imperial gallon to 15 cents per gallon.
- Vegetables, in cans, from 20 per cent. to 2 cents per one pound can.

EXCISE DUTIES.

On and after May 1st, 1883, tobacco and snuff to pay 12 cents per pound on foreign leaf, and 2 cents per pound on Canadian leaf; all packages of cigarettes or cut tobacco of less weight than one-twentieth of a pound, 20 cents per pound. Cigars, until July the 1st, 30 cents per pound for foreign leaf; 15 cents per pound if made from Canadian leaf. On and after July the 1st, on cigars, foreign leaf, \$3 per thousand; Canadian leaf, \$1.50 per thousand.

Two new industrial companies in Montreal are applying for incorporation. One is for mining and trading purposes, with \$50,000 capital, and other is the Montreal and Melbourne Slate Co., with \$100,000 capital.

A QUESTIONABLE TRANSACTION.

HOW ENGLISH HOUSES SOMETIMES TREAT CANADIAN CUSTOMERS.

[The following has appeared in the *Toronto Globe* and the *Hamilton Times*.]

In spite of the high commercial standing of English firms in general, occasionally an attempt is made to pass off on Canadian Customers goods that do not correspond with the description sent, or that are bad in quality.

About a year ago a very promising young merchant in Hamilton was imposed upon with a lot of rotten iron, and as he had paid for the iron before it arrived, he failed to get any satisfaction from the high-toned firm that sold it to him.

The same Liverpool firm has recently put upon a London House a like lot of bad iron, and a leading House in Montreal has been made to suffer a heavy loss with an unmerchantable lot of wire. The English business being done either on bank credit or drafts which are presented and accepted before the goods arrive, places buyers at a disadvantage in dealing with the sellers, who stultify themselves under the settlements they have got, on the assumption that it will not pay Canadians to go as far as England to seek redress on contracts. Our reporter on his rounds learned of a case that Mr. Livingstone has on hand with a Liverpool house, who sold him 300 tons of iron of a given quality and test, for which they made drafts as they shipped the iron, and in like good faith, as they were supposed to exercise to him by shipping only good merchantable iron according to contract, he accepted their bills when presented. Sometime thereafter, when the iron arrived it was found to be unmerchantable and unfit for use. They were duly notified and declined to do anything in the matter. After waiting some months the iron was surveyed by five practical men of Toronto, and by them unanimously condemned as unmerchantable. A copy of the survey was sent to the Liverpool firm, who acknowledged its receipt, saying it "did not concern them, as they had parted with the bills," which elicited from Mr. Livingstone the following very pointed letter :

DEAR SIRS,—I am in receipt of yours of the 10th acknowledging report of survey condemning iron as unmerchantable, respecting which you say, "But this does not concern us, as we have parted with the bills," which may be less pithily described by you as saying:—"We have succeeded in getting from you certain acceptances for about 300 tons of iron bought by you as merchantable, but delivered by us as unmerchantable rubbish, contrary to our promise, warranty, and your required conditions of quality. Having got these acceptances by fraud and misrepresentation on our part, and through trusting to our honor, we now care nothing for proof of the unmerchantable character of the iron, for we have parted with the bills that we may evade our responsibilities, and ask the Court, under the name of others, to help us to complete our swindle."

Mr. Livingstone's phrasing of their pithy answer hits them hard, but when it is considered that it is for the sake of gain rotten iron was sent out which was intended for railway spikes, and if used might have caused railway disasters and loss of life as well as goods, the language was none too strong. It is notorious and unfortunate that English merchants, or some of them, too often think they may send anything as good enough for Canada.

Mr. Livingstone now proposes that instead of going to England to sue these gentlemen, they shall come to Toronto and sue him, but in fear of the consequences of an action in their own name, they have adopted that of three others, whose names recently appeared as plaintiffs in the newspapers in respect to actions taken out, but for which no writs have been served, and this when tried will test an important question at law as to whether a party may set up the names of third parties to evade the consequences that attach to fraud, and whether such third parties may not be joined to the principals as aiders and abettors of fraud.

ELECTRIC LIGHT.

EDISON'S LIGHT IN OPERATION IN CANADA.—AN ENTIRE SUCCESS.

CORNWALL, April 3.—Yesterday evening the weaving room of the Cornwall factory of the Canada Cotton Manufacturing Company was illuminated with the Edison electric light, being the first introduction of this light into Canada. Visitors to the number of about 400, including many ladies and a number of M.P.'s from Montreal, Ottawa, and other places, arrived shortly after six o'clock by the Grand Trunk train from the East, and were at once driven to the factory, which is located about a mile and a half from the station. The factory consists of the older portion, four storeys in height, where spinning is carried on, and the new building to the west, devoted to weaving, in which latter Edison's light has been introduced. The factory occupies eleven acres of ground, is fitted up with 40,000 spindles, and employs upwards of 675 hands. The capital invested amounts to \$1,000,000, which pays a dividend of 10 per cent. The weaving room is an immense building 550 feet in length by 120 wide, with a capacity for 1,000 looms, 800 being about the number actually employed. The visitors, after being conducted through the factory and getting an insight into the various stages of manufacture, at about 7 o'clock assembled in the weaving room. The employees having taken their places at the looms, the light was turned on. At first the lamps showed like red points, twinkling through the dusk, but soon shone out bright and clear, a strong, steady light, without flame and flicker. The machinery was set in motion, and the throng of visitors had an opportunity of seeing the looms in actual operation by the electric light. The spectacle of the vast building brilliantly illuminated and resounding with a deafening whirr and clack of looms excited the wonder and admiration of those present, among whom was Prof. Edison, who had come to superintend the introduction of the light, and was of course the lion of the occasion. The lights are of sixteen candle power, which is the size most used, and equals the light produced by the consumption of eight cubic feet of gas for one hour. The current is of low tension, being only 110 volts arc of light, being sometimes as high as 2,000 volts. It is claimed to be perfectly safe, owing to the safety catch, which prevents danger to life or from fire. The apparatus used in the mill was all manufactured at Hamilton. The party returned to the station about 8 o'clock, and sat down to a substantial repast.—*Toronto Globe*.

The Campbellford *Herald* says that Messrs. J. Whyte & Co. are getting things into shape in their foundry in that village, and will soon be in the midst of a sprightly business. The first casting in the new premises was made on Tuesday, March 6th.

The engineers' staff of the Canadian Pacific Railway is just now busily engaged in perfecting the system immediately west of Montreal. Work is chiefly being directed to the projection of the Atlantic and North-West Railway, which will greatly improve the through connection with Toronto and the west. Mr. Peterson, Chief Engineer of the Company, with his full staff of surveyors, have been busily engaged with the preliminary survey, which, starting from St. Eustache, has already reached St. Andrews, Que. It has been decided to cross the river Ottawa at Carillon, and the road will then strike across the south-eastern peninsula of Ontario to Smiths Falls, where connection will be made with the Canada Central for Brockville and with the Ontario and Quebec Railway, now under construction, for Toronto. This route will be sixty miles shorter between Montreal and Toronto than any at present existing. The road will be pushed forward with all possible despatch, and it is hoped will be completed by next spring.

American Correspondence.

TEXTILES AND THE IRON TRADES—LETTERS FROM BOSTON, NEW YORK, PHILADELPHIA AND PITTSBURGH.

BOSTON.

(From Our Own Correspondent.)

BOSTON, MARCH 30TH, 1883.

Nearly all branches of trade are quiet. The commercial interests of New England are re-adapting themselves to the changed conditions. There is an improvement in wool and woollen goods. There is a decline of 12 per cent. in duties on these goods in heavy weights, and $7\frac{1}{2}$ per cent. on light weights. This is insignificant. The iron trade is without much activity, though there are numerous inquiries coming to hand for requirements for the coming month. Foreign iron has been in moderate demand in small lots at unchanged figures. The demand for manufactured boots and shoes is fair. Nearly all factories are well employed. Total shipments of boots and shoes from Boston to points outside of New England last week foot up 58,306 cases. The receipts of wool in Boston last week were 6,059 bales domestic, and 3,828 bales foreign. Total receipts since January 1st, 72,991 domestic, and 8,626 foreign. Total sold since January 1st, 35,083,400 pounds against 24,834,808 lbs. for same time last year, an increase of over 10,000,000 pounds.

The dry-goods market shows a better condition than last week, and the demand for foreign goods is slowly improving. More orders are coming to hand. There is a fair business with the west.

NEW YORK.

(From Our Own Correspondent.)

NEW YORK, MARCH 30TH, 1883.

Though New York is always a busy city, and immense transactions constantly taking place, yet the full vigor of the spring trade has not yet arrived, and probably will not until buyers throughout the country make known their wants with more confidence than they have done as yet. There is a stringency in the money market just at this time which is unfavorable to active business. Rates are high, banks are cautious, demand is heavy, and the financial system is being strained, as it has not been for several months. Money lenders are reaping a good harvest, and borrowers are confident that they will pass through the present crisis with safety. The volume of trade is slowly improving. Exports are large, and the inflow of gold is one of those favorable indications which is pleasant to the mercantile mind. The export of grain is increasing and the shipments of trunk lines show a very remarkable growth. The demand for American cereals in foreign markets is a matter of some uncertainty as yet, but the shipments are now sufficiently large to indicate to exporters that the price will be firmly maintained, and that it is high enough to attract heavy shipments from the interior.

The iron trade is creeping along very slowly. The Tariff Act has effected very slight reductions on the whole, and in a few weeks demand will assume its normal proportions. Both crude and refined iron are moving in small lots, mainly for immediate requirements. A few large transactions have taken place in cotton, copper, spelter, tin and tin plate, but buyers as a rule are covering only early needs. The speculative feeling is absent. The demand for hardware is improving, and favorable reports are heard from jobbers. Wool is in fair demand and at steady prices. The Anti-Monopoly League of this city is fighting a vigorous battle in favor of restricted powers of corporations, but the corporations are able to hold their own against a strong public sentiment.

PHILADELPHIA.

(From Our Own Correspondent.)

PHILADELPHIA, MARCH 29TH, 1883.

The iron, woollen, and lumber interests of Eastern Pennsylvania are beginning to feel the effects of a revival of trade. Buyers in all directions are providing for future requirements with a little more confidence than they have been doing for several weeks, and prices are a little firmer in several directions. The characteristic of the market is caution, and in the main only small lots for weekly requirements are being purchased. The iron industry is fairly active, and prices are well maintained, though at the bottom limits reached during February. The furnace out-put is large and the supply of merchandise is equal to the demand. Quotations for bars are 2 to $2\frac{1}{4}$. For foundry iron \$25. For mill iron \$21. Inquiries for steel rails are coming to hand. Large transactions will likely be placed in a few days. The scarcity of money is felt in this market and the banks are anxiously awaiting further arrivals of foreign gold. Large shipments are expected from California and Europe. The Government is not disposed to help. The railroads are doing a heavy business. Apart from the present stringency the general tone of the commercial element is satisfactory. Higher prices are not probable, but an active demand is looked for, as stocks of all kinds, and merchandise of every character, are in light supply in hands of consumers. The development of ore, coal, oil and timber regions is being prosecuted throughout Pennsylvania, and railway construction is performing its part in developing the latent resources of the state. The industries have passed their scare over tariff reductions, and it is quite evident that this old contest will be renewed again.

PITTSBURGH.

(From Our Own Correspondent.)

PITTSBURGH, MARCH 28TH, 1883.

The iron trade of this city has improved a little during the past few days, but prices are still low. Production is increasing, and in the effort to market all the out-put promptly prices have weakened in a few particulars. The increasing demand for pig iron has strengthened it, while the increase in supply of bar iron and other qualities has weakened the finished product. Two cents is the ruling rate and \$1.90 has been accepted for large lots. Forge iron is from \$20 to \$22, and foundry iron from \$22 to \$24. Ore consumers have in a few cases placed orders for lake ore at \$8 50 per ton, and it is probable that figures such as these will prevail for the season. Considerable anxiety is felt in regard to the action of the iron workers, who will hold a national convention on the 7th of April. Manufacturers feel that a reduction of wages is imperative in order to equalize wages with the present cost of iron. Wages are \$5.50 per ton, and are based upon iron supposed to be selling at $2\frac{1}{2}$ c. per pound. But as iron has declined 20 per cent. it is thought only fair that a like decline in wages should follow. Notwithstanding the high prices, our manufacturers here find very little trouble in underselling competitors in eastern and western markets, and their action is a ground for complaint, but the invariable laws of competition must prevail. The coal trade in the western portion of the State is active. New mines are being opened, the out-put is increasing and the market for soft coal is steadily increasing throughout the south and west. The oil business is in its usual uncertain state. A speculative spirit is in possession of the market, and there is no telling what a day may bring forth. The expanding markets for oil are, however, good, and there is an upward tendency. A great many shrewd buyers are loading up as heavily as they can.

Financial and Commercial.

TORONTO, Thursday, April 5, 1883.

The highly satisfactory manner in which commercial paper falling due on "the fourth" was met at the banks, both in Toronto and Montreal, is a leading topic of talk in business circles. It is, in fact, the event of the day, and is held to mark the end of a period during which considerable distrust of what might happen has prevailed. The whole situation looks a great deal better than it did a fortnight ago, or even a week ago only. It is a prevailing anticipation, that, having now reached the eve of the opening season, the activity incident to spring and summer will quickly work a great change for the better; and already the prospect is being freely discounted. Two weeks ago, referring to the rather gloomy anticipations of a contemporary, we said it was highly probable that the opening of navigation, the influx of immigrants, and the revival of summer activity in the North-west, would soon create an improved and more cheerful situation. And this is exactly what is coming to pass. The most cheerful view of all is presented by the *Mail*, which says, referring to the payments made on the fourth:—

If the promptness with which notes were met to-day (in Toronto), is any criterion, the prospect for the future is certainly brightening. Enquiry at a majority of the banks here show than an infinitesimal proportion went to protest, many of the officials reporting that their counters were clear at three o'clock. A similar enquiry among the wholesale houses revealed an equally satisfactory state of affairs, as with one or two exceptions they expressed themselves as entirely satisfied with past remittances. Still it is not at all improbable that for a week or ten days there will be a disinclination to force money on the stock-broking fraternity, but the tendency is at present decidedly towards an easier market. The influx of foreign money will tend to aid this, and as the coming tide of immigration promises to be as large as ever, as the amount of produce available for export is larger than last year, and as the amount of foreign money to be expended on the Canada Pacific will soon make itself felt, we may look for a return of cheaper money. Besides this there is a marked falling off in the value of our imports, and this will lessen the drain on our finances during the coming fall and winter.

The same paper has the following from Montreal:—

The great day of peril to commercial interests, and especially in the department of dry goods, which has been looked forward to with trembling anxiety, has gone over, and like Wiggins' storm has turned out a huge fraud, for not one single failure, as predicted, large or small, is announced up to a late hour to-night. . . . The aggregate amount of paper which was to be met to-day was immense, in fact, your correspondent was assured that it aggregated more than the combined sum falling due in February and March, great as the amounts in these months admittedly were. The business atmosphere in the afternoon outside the banks had a far more buoyant feeling about it than it has been observed here since the present year set in. It reminded one of the pleasant activity that every year precedes the opening of navigation, and which appears now to be so near at hand.

It is now known for a fact that recent reports of actual and expected suspensions, especially in Montreal, were greatly exaggerated. A large Toronto dry goods house felt it necessary to write to the papers to contradict rumors of its impending failure. That a good deal of embarrassment prevails among

storekeepers in the North-West is certain. But their eastern creditors are carrying good men out there through most liberally, the view taken being that the trouble lies mainly in a mere temporary overstock, which the inrush of settlers and the great expected expansion of business the ensuing summer will soon bring under control.

The following are closing quotations of the Toronto Stock Exchange for Wednesday, April 4, compared with those of the same day two weeks before:—

BANKS	March 21.		April 4.	
	Asked.	Bid.	Asked.	Bid.
Montreal	199½	199½	200	200
Ontario	111½	111	112½	112½
Molsons	182½	182	183½	183½
Toronto	122½	121½	124	123½
Merchants'	133½	133	133½	133½
Commerce	140	139½	140	139½
Imperial	159½	159	159	154½
Federal	200½	200	201	200½
Dominion	114½	114	114½	114
Standard	113	113	114	114
Hamilton				
MISCELLANEOUS.				
British America	118	115½		115
Western Assurance	153		150½	
Canada Life				
Confederation Life Association				
Consumers' Gas	151	149		
Dominion Telegraph	91			
Montreal Telegraph				
Lybster Cotton			110	
Globe Printing Co'y				
N. V. L. Co.	60s.	58s.	63s bid	63s
Ontario and Qu'Appello	200	197		194½

The following are the closing quotations of the Montreal Stock Exchange for Wednesday, April 4, compared with those of the same day two weeks before:—

BANKS.	March 21.		April 4.	
	Asked.	Bid.	Asked.	Bid.
Montreal	200	199½	200½	200½
Ontario	112	111	113	112½
People's	81	80½	81	79
Molsons	124	120½	125	120½
Toronto	182½	182	184	183
Jacques Cartier	110	108	108½	105
Merchants'	122	121½	124	123½
Quebec				
Union	90			
Commerce	133½	132½	134	133½
Exchange		158		155
Federal	159½	157	161	158
MISCELLANEOUS.				
Canadian Pacific	61	59		
North-West Land Co	60	50	66s.	62s.6d.
Montreal Telegraph	122½	122	120½	120
Dominion Telegraph				
Richelieu and Ontario Nav.	69½	69½	71½	71
City Passenger Railway	145	143	144½	143
Montreal Gas	181½	181½	166	165½
Canada Cotton	120	110		
Dundas Cotton	94½	93	90	88
Ontario Investment				
St. Paul M. & M.	153	151½	160	159½

The most remarkable feature in the stock market of late has been the advance in North-West Land. The following are Toronto quotations for this stock at the dates named, on eighty shillings sterling per share paid up:—

		Asked.	Bid.
1883.	February 21	57s.	55s.
	March 7	58s.	57s.6d.
	" 21	60s.	58s.
	April 4	63s.6d.	63s.

On January 24, with sixty shillings paid up, the quotations were 43s. asked, and 42s. 6d. bid.

On the Montreal Exchange St. Paul, Minneapolis & Manitoba has advanced from 133 bid on February 21, to 159½ bid on April 4.

Reports last week to *Bradstreet's* state that the iron market continues dull. Petroleum is excited over new wells and increased production in March as compared with February. Anthracite coal is fairly active, and ocean freights are dull, and shipments light. There were 3,189 failures in the United States reported to *Bradstreet's* in the past quarter, with \$23,763,828 assets and \$42,235,535 liabilities. During like quarter in 1882 and 1881 the total failures numbered 2,146 and 1,986 respectively. The corresponding assets and liabilities were as follows: In 1882, \$15,323,591 assets and \$29,010,944 liabilities; and in 1881, \$11,983,790 assets and \$24,167,730 liabilities. Canada had 409 failures in the past quarter, against 225 in first quarter of 1882 and 174 in like portion of 1881. The total assets of Canadian failures in the past quarter were \$2,891,660, and the liabilities \$5,952,692. In the first quarter of 1882 they were \$1,272,670 assets and \$2,594,004 liabilities, and in the first quarter of 1881 they were \$1,574,250 assets and \$2,754,800 liabilities.

John McIver, of McIver, dealer in general goods, is offering his creditors fifty cents on the dollar.

Angus McIntyre, dealer in groceries and liquors, Markdale, has assigned in trust. Liabilities, \$4,000.

The well-known dry goods house of A. B. Powell & Co., London, has dissolved, George Hayes retiring.

Blair & Larmour, wholesale and retail dry goods, Winnipeg, have assigned in trust. Liabilities \$75,000.

S. J. Burnstein, dealer in cigars, &c., Montreal and Quebec, has assigned in trust with liabilities of about \$10,500.

The estate of Wm. D. Bell, general dealer, of Colpoys Bay, is expected to pay 100 cents on the dollar. His failure was unexpected.

John Nay & Co., wholesale grocers, of St. Catharines, have effected a compromise at 50 cents on the dollar. The liabilities were \$40,000.

The contracting firm of J. & P. Lyons, Winnipeg, is in difficulties, and J. J. Radford, jeweller, of the same city, has assigned, owing about \$6,000.

Campbell, Taylor & Co., manufacturers knitted goods, Montreal, have assigned to Riddell & Stevenson. Liabilities are about \$3,000 and assets about \$5,000.

The creditors of F. X. Gougeon, hardware dealer, Montreal, are being asked to accept 60c. on the dollar, which they are likely to agree to. Liabilities are \$72,000.

Wood Bros. & Co., an old established dry goods house in Halifax, N.S., have assigned in trust, and Thomas McSweeney, in same line at Moncton, N.B., has failed.

After carrying on business a few months, R. Rutherford, of Joseph, has assigned with liabilities of \$6,500. He started business on borrowed capital, which is now a preference against the state.

George Lumby, an hotel keeper, but latterly a boot and shoe merchant in London, has assigned in trust with about \$5,000 liabilities. Charlesworth & Co. have a judgment against him for 2,000.

From Quebec the failures of Gibb, Laird & Co., wholesale grocers, C. & W. Wurtele, wholesale hardware, and Ovide Grenier, grocer, are announced. The former was a large concern and the liabilities are heavy.

A dry goods merchant—R. F. Hunter, of Ingersoll, is offering his creditors 80 cents on the dollar. He was formerly a commercial traveller and commenced business in Simcoe about four years ago. He removed to Ingersoll in 1881, which apparently has not been for the better.

Creditors of Wm. Damer, wholesale boots and shoes, Toronto, have agreed to accept 35c. on the dollar. His brother John, who became involved through endorsing, has also compromised at 50c. on the dollar. Both will resume business.

Ernest Kraft, harness manufacturer, of Hamilton, has again failed. His liabilities are about \$7,000, and his actual assets less than half. He has had the leniency of his creditors several times, and it is likely his estate will be wound up.

The liabilities of C. C. Snowdon & Co., wholesale hardware, of Montreal, will amount to about \$125,000. The firm was long established, but has not been regarded strong financially. They attribute their failure to losses made in Manitoba.

The Toronto Patent Wheel and Waggon Company (Limited), after a struggle of about a year has suspended operations. The stockholders will likely lose whatever they have invested, but with time the creditors may obtain their claims in full.

Lord & Munn, shipping and commission merchants, Montreal, assigned in trust on 29th ult. Their operations were of an extended character and their liabilities are stated at \$150,000. Some weeks ago it was rumored the firm was in difficulties, and notwithstanding the denial of the firm, their credit was seriously impaired in consequence.

H. P. Cook, general dealer, of Gravenhurst, who was arrested a short time ago for alleged arson, has compromised with his creditors at sixty cents on the dollar. The merchants of the same village threaten to "boycott" Cook's creditors for accepting composition, as they complain of the manner the business has been conducted, and Cook's disposition to cut prices.

George W. Pedlar, wholesale tinsmith, of Oshawa, assigned on the 3rd. inst. with liabilities of \$41,000. The Dominion Bank has a judgment against him for \$16,000, and are in possession of the estate, which will pay very little after the preferred claim is settled. The apparent assets are \$25,000. The assignment was unlooked for, and is due, it is said, to speculation.

John A. Wightman, of Port Perry, who has been trading under the style of Wightman Bros., has assigned with liabilities of \$25,000. He claims to have a surplus of \$30,000, but being unable to meet some heavy payments maturing this month he has taken his present course to prevent any creditors from taking advantage. He intends offering a compromise of 87½ cents on the dollar.

Nova Scotia potatoes and hay are commanding good prices in the West Indies. Sales are reported by last Demerara circular, Potatoes \$5.50 per bbl., no duty. Hay \$28.60 per ton, 2000 lbs, duty \$2.00 per ton. Demerara took 125,000 bushels potatoes last year. The S. S. 'Delta,' to leave Annapolis about 1st April for Martinique, Barbadoes and Demerara, offers a good chance to ship potatoes and hay with a certainty of them arriving in W. I. in good condition.

"The poverty of the South is very largely due to the credit system," says the St. Louis *Globe-Democrat* "Cotton is a cash crop, and farmers who cannot get rich producing cash crops can never get rich at all. The remedy, of course, lies in the adoption of better business habits, under which the farmers can save enough to have cash to pay for what they buy. Not a few are making heroic efforts to escape from the slough, but it will be a long wearisome task. For the improvident blacks the outlook is peculiarly discouraging."

Iron and Machinery.

GANANOQUE AND ITS INDUSTRIES.

The following description of Gananoque and its industries, which appeared recently, over the signature of T. W. C., is taken from the *Montreal Witness* :—

Gananoque, because of its many branches of iron manufacture, is often termed the Birmingham of Canada. Probably not another town in the Province of Ontario, if in all Canada, can boast of so large a variety of manufactures of various kinds in iron as this, and several of them are the largest of their kind in the Dominion. Its situation on the St. Lawrence River is excellent, and its distance above Montreal—about 150 miles—is not so great as to be much of a barrier to its business success, and the water power here is capital. The Gananoque River is but small, and not navigable at any point, but the quantity of water coming down it is large and regular, so that plenty of power is afforded at all times of the year. Just at its mouth, where the town is situated, the fall is good, though not high, and within probably a quarter of a mile or less, just here are situated, on both sides of the river, all the various mills to which Gananoque is so much indebted for its success, as well as for its very existence. There are over twenty different factories and mills here, every one of them, I believe, running the year round, or nearly so, and every one of them seems to be carried on with profit to the proprietors. The large and substantial mill buildings, and the fine residences of many of the manufacturers, are good indications that the time and labor of most of these business men have not been in vain, so far as the matter of fair profitable returns is concerned.

THE WATER POWER COMPANY.

The mill owners have formed themselves into the "Gananoque Water Power Company," for the improvement of the power of the river. There are 1,000 shares, and each member of the Company has a right to an amount of water proportionate to the number of shares he may possess, and each shareholder is subject to assessment and tax for the erection and maintenance of dams and other similar improvements. This season, in consequence of unusually low water, more than usual attention is being given to the improvement of this power. One scheme is for the erection of a dam at the head of the river, at the mouth of Charleston lake, over twenty miles distant, by which a rise of four feet on that lake can be obtained, to be let off when most needed. As this lake contains about twenty-one square miles of surface, the quantity of water that may be thus held back can be easily imagined. A deputation has also recently waited on the Ottawa Government in regard to improved communication with the Rideau river, by which increased power may also be obtained. There are several lakes, in the rear of considerable size, emptying into the Gananoque river, and by properly utilizing them the water supply may be made practically inexhaustible for all time to come.

ABBOTT'S FOUNDRY.

Near the mouth of the river is located the foundry and machine shop of Mi. E. E. Abbott, a large and substantial stone building, well provided with all the better kinds of machinery necessary to that line of business. The principal lines of manufacture here are heavy machinery, such as mill works, sawmill gearings, machinists' tools, presses, iron rolls, and the like; special attention being paid to getting out new and improved patterns of machinery. About thirty hands are in constant employment, and about 100 tons of iron and 50 tons of coal are used each year among the raw materials. Mr. Abbott came here in 1858 and was in business in connection with a brother who died not long after. In 1861 he began business in a small way on his own account, and being of temperate

and industrious habits he has continued to prosper, adding to his business from time to time until it is now the largest in this line in this section of country. While busily employed in promoting the business affairs of himself and the town, he has not been forgetful of the moral welfare of the place. Few men have been more zealous in the promotion of the temperance work here than he has been.

COLLARD'S WORKS.

In the same building with Mr. Abbott quite an extensive business in the manufacture of fancy iron fencings and crestings is conducted by Mr. Henry Collard. This work is principally carried on during the spring and summer months, when three or four hands are busy at work. The business is comparatively new and growing. I did not learn more particulars respecting it.

JONES AND CO.'S SHOVEL FACTORY.

Probably one of the best known and largest establishments of its kind in Eastern Ontario is the factory of forks, spades, shovels and the like of Messrs. D. F. Jones & Co. It was established in 1852, and has enjoyed a very high reputation for many years. The patterns of these implements are generally of the newest and best kinds, and care being used in their manufacture, they have become popular, and the sales are very extensive and widespread. About seventy-five hands are in constant employment, and between four thousand and five thousand dozens of implements are turned out each year. I did not get information in regard to the quantity of material used. Mr. Jones is well known, not only as a successful business man, but as an active politician. For years he represented this Riding in the House of Commons in the Conservative interest. His health has failed, however, and he is now compelled to leave home for a milder southern climate during the winter months.

THE NAIL WORKS.

Messrs. Cowan & Britton carry on here probably the largest nail works in this Province. They have been established since 1861, and, like many of their neighbors, began in a small way, but have kept on prospering and enlarging until they have very fine premises and costly machinery. Though they claim to have facilities for the manufacture of every article of their kind required in the Canadian market, their attention is now almost exclusively turned to the finer kinds of nails, such as wrought and finishing and wire nails. In regard to the common cut nails, they find it difficult to compete with the Montreal makers, who have rolling mills as well. They are now negotiating for the addition of rolling mills also, on this account, and then their business will be much extended. They also manufacture extensively hinges, butts, hasps, staples and the like. Their annual consumption of bar and sheet iron is about 1,000 tons, but they were not inclined to go into more business particulars.

Mr. Britton is also an active politician, and was the Reform candidate for the Riding in the last Dominion election, in which he was unsuccessful. Though one of the protected classes, he claims that the N.P. has been of little or no advantage to their business, as the increased duty on the raw material—coal and iron—is nearly as great as the increased protection on their manufactured goods, while the cost of production and labor has been materially increased.

THE SPRING WORKS.

The Gananoque Spring Company carry on a very large and important business. They own two commodious shops, located on each side of the river, and turn out probably a larger quantity of carriage and car springs than any other establishment in the Province. There are eighty men employed in this establishment, and the machinery is powerful and expensive. The manager, however, was not inclined to give any information in regard to the output, and so none can be furnished here. It is a joint stock company, of which Mr. McCammon is business manager.

THE AXLE WORKS.

Messrs. Byers & Bros. have been carrying on successfully carriage axle works here for twenty years, and now turn out from 35,000 to 40,000 sets of axles each year, of almost every variety, from the finest and neatest steel axles for trotting rigs to the heaviest truck waggon. They do all their own castings of the wheel boxes, and consume each year some 400 tons of wrought iron and steel and 200 tons of pig iron. About 80 hands are constantly employed. It may be of interest to remark here that in some of their best work they find our Canadian steel, manufactured at Londonderry, Nova Scotia, the best they can use. It is dearer than the English steel but of better quality.

SKINNER'S HAMES WORKS.

Among the pushing and successful firms are the Messrs. Skinner & Bro., who go extensively into the manufacture of hames of all kinds, snaiths, saw handles, wooden barley forks, pea harvesters and such like. They inherited the business and probably much of their ingenuity and enterprise from their father, who was for many years an active business man here. About seventy hands are employed in this establishment, and over \$50,000 worth of sales made during the year. The establishment can turn out 300 pairs of hames a day, and every kind is made, from the coarse heavy ox hames for the Manitoba market to the finest wrought iron, silver or nickel-plated ones, which have no superior anywhere. They have been making fine hames plating a specialty and have all the various galvanic batteries and other appliances necessary. They claim that they have no superiors in America in these lines of goods. Some of them are certainly the finest I have ever noticed anywhere. One noticeable feature in this establishment is the number of females employed and the number of lines of work to which they turn their attention, such as painting, light riveting, filing and finishing, besides the wrapping up and marking of goods. Some zealous advocate of "women's rights," anxious to open up new fields of industry for the sex, could get some valuable hints in connection with this establishment.

MESSRS. COLTON AND DOW.

This firm is extensively engaged in the manufacture of carriage bolts, and 30 mechanics are employed. There is a capacity for the manufacture of 70,000 bolts per day, principally carriage bolts, of various kinds. They are just now giving also special attention to the manufacture of a superior quality of steel harrows—the frame, teeth, and all being made of an excellent quality of Bessemer steel. It is much stronger and more durable than the iron harrow, and will probably become very popular when well introduced. A lot of about 600 is now under way, and for this purpose between 30 and 40 tons of bar steel are being used.

MR. GEORGE GILLIES.

Mr. Gillies has been established in business here for eight years, and has 44 hands employed. His special lines are carriage hardware, such as buggy circles, shaft couplings, bolts, clip ties and such things. For these he finds a market all over the Dominion and his work is well-known. Iron harrows are also extensively manufactured here and the best kinds of powerful labor-saving machinery are in use in this connection. The manufacture of steel harrows has also been commenced here, and it is probable that business in this particular line will be much increased. Some 2,200 harrows are being turned out this season, and the market and demand for them seems very wide spread, with rapidly increasing sales. Six car-loads recently have been sent to Nova Scotia, where they have become very popular, and quite a large number are sent to the United States, where, notwithstanding the heavy duty, they are profitably sold, in consequence of their superiority. From 250 to 275 tons of iron, and about 250 tons of coal are used in this establishment yearly.

PARMARTER & BULLOCK.

This firm are more extensively engaged in "notions," with more ingenious and complicated machinery than probably any other in Canada. Their specialities are rivets, wire nails, carpenters' braces, presses, and the like. In the manufacture of rivets especially, the skill and ingenuity displayed is truly astonishing, many new kinds having been introduced, which it would be impossible to attempt a description of in so limited a space. I may mention, however, a new tubular rivet, for leather manufacturers, which will make its own hole, and, with the aid of a self-feeding machine they manufacture, 12 or 15 can be placed while one of the old kind is being used. The business of this firm has been gradually worked up and owes its excellent success greatly to the skill and ingenuity of the proprietors, who are constantly devising something new and desirable. About 35 hands are employed, and about 200 tons of wire are required each year in the manufacture of rivets and small nails. They also consume yearly about 40 tons of Bessemer steel, 75 tons of sheet iron, 30 tons of copper wire, 15 tons of brass, and over 20 tons of malleable castings, principally nuts. Most of the malleable iron work is made at Smiths' Falls and Merrickville, at both of which places considerable is now done in that line.

MR. O. V. GOULETTE.

Over the door of this busy establishment could be appropriately placed the oft-repeated words, "all kinds of twisting and turning done here." Wood turning in all its various departments is carried on with a great degree of skill. Mr. Goulette has been twenty-two years established here in this line of business, and gives employment to ten hands. His lines of manufacture are "too numerous to mention." Among them are patent wheel heads, croquet sets, chisel handles, knobs and many other things required by cabinet makers, fanning mills, washboards, and wood turning to order. His sales are made almost exclusively through the hardware merchants, and some specimens of his handicraft may be found in almost any hardware store in Canada. At the Paris exhibition he was awarded a bronze medal for his superior display. Mr. Goulette also has a flouring mill with three runs of stone, in which attention is principally given to the gristing trade.

CLOTHES WRINGERS.

Mr. O. D. Cowan is conducting a growing trade in the manufacture of clothes wringers, at which from ten to twelve hands are at work, and 4,000 to 5,000 machines are turned out each year. This line of business has been carried on for fifteen years in Gananoque, and has become well established. Mr. Cowan has been the proprietor for the past three years. Now that the use of these important labor-saving implements has become so general nearly every hardware merchant keeps them in stock, and the market is not so hard to find.

TAYLOR'S CARRIAGE WORKS.

Probably the most extensive establishment in Eastern Ontario for the manufacture of carriages, gearings, hubs and spokes, is located here. It is conducted by Mr. C. W. Taylor, and has been established for two years. There are 36 hands employed, and they have to their aid the most improved kinds of machinery necessary. Mr. Taylor has a number of special patents in connection with carriages and waggons, and supplies these in gearings or other parts to local makers and dealers all over the country. From 500 to 1,000 carriages are turned out each year, and the supplies of spokes, wheels, and gearings are very extensive. Orders are being filled every day for leading points in Ontario and Quebec, and some work now stands ready for Manitoba. The patent truss skein for lumber waggons—a very important improvement—is receiving special attention. Some thousands of wheelbarrows are also turned out from here each year. Mr. G. Taylor, M.P. for this riding, is a member of this firm. In consequence of the largely increasing business, arrangements are being made this

year for the erection of new buildings on a very large scale. These works are an important factor in the industrial importance of the town.

OTHER INDUSTRIES.

Among the other manufacturing establishments, of which I have not now space to make particular note, may be mentioned the woollen mill of Messrs. E. Cook & Son, a nice two sett mill; the flouring mill of Mr. W. Brough, a pretty large establishment with four runs of stones, principally devoted to gristing trade; the sawmill of Mr. F. S. Moffatt; the cabinet works of Mr. W. Edwards, where six or seven hands are employed; the tannery of J. Carrington & Son, employing about fifteen to twenty hands; the saw mill and contractors shop of Messrs. McLellan Bro. & Reed; the cabinet shop of Mr. Wm. McKenzie, employing six or seven hands; and the Windermuch Spring Bed Company recently established and not yet in full operation.

Probably not another town in all Canada, with a population of about three thousand, can boast of anything like as large a number of manufacturing industries, conducted on so extensive and successful a manner.

GRANITE QUARRIES.

Ganonoque lies just front of the Thousand Islands, and in the country on every side abundance of granite rock may be found. It is probable that many important industries may spring up from these rocky beds. During the last few years it has been found that the rock obtained in several places is quite equal in grain and susceptible of as fine a polish as the celebrated Peterhead granite of Scotland. Mr. R. Forsyth, the extensive marble dealer of Montreal, has made purchases of quarries on an island within a mile of the town, and at that place work has been carried on for the past eight years. Some of the very fine monuments shown by him in Montreal and Toronto are from these quarries. The stone is said to be hard and consequently more difficult to dress and polish than the Scotch granite, but the color and polish are splendid. More recently Mr. Forsyth has also purchased quarries at Grindstone Island, about three miles south of this, where the supply appears practically inexhaustible. Two or three Chicago firms have also purchased there, and large quantities of stone are now being sent west from this Island.

I am informed that on the mainland not far north of the town, there are also fine beds, and a fine variety of colors of both red and green. Within a few miles of here are also some important beds of sandstone, excellent for building and ornamental purposes, and also well adapted to glass making.

THE RAILWAY.

Ganonoque lies immediately on the banks of the St. Lawrence, but between two and three miles from the Grand Trunk Railway, and the want of closer railway connection has been a great barrier to its business success. I am informed that over 8,000 tons of freight comes or goes from here every year, and how all that quantity can possibly be transported over such a horrible road as leads to the station is a mystery to one riding over it in these days. Some years ago a proposal was made to have a branch line established in connection with the Grand Trunk, and quite a large amount was expended by the town in procuring right of way and grading, but for some reason I do not understand it was never completed. Now negotiations are pending with the Messrs. Rathburn, of Desoronto, for the completion and running of a road, and it seems possible that before this year closes the connections by rail will be complete. The improvement will be a great boon to the travellers as well as to the business men. The wonder is that such an enterprising and wealthy community should have been so long content with such abominable travelling "accommodations."

T. W. C.

The Port Hope *Times* says that a malleable iron works is next on the *tapis*, and the proposed projectors of it will lay a proposition before the Council shortly for a bonus. At the special meeting of the Council, held here on Friday, the gentleman interested interviewed the Councilors personally, and received sufficient encouragement to formulate his scheme. The works will be on a small scale, and will have for its chief object the manufacture of staple articles in the harness trade. Although acquainted with the particulars of the proposed scheme we have been requested not to publish them till the scheme is more fully matured.

SOFT MERCHANT STEEL.—The South Chicago Steel plant has been making experiments in producing a special soft weldable steel to be rolled at the Bay View works into different styles for the use of agricultural implement men, carriage and blacksmiths. The experiments are entirely successful, and we noticed pieces of steel and steel and iron welded, and also bars and rods turned over cold without fracture. One of the great difficulties has been that steel would not weld, but this is now perfectly obviated. The steel is to be put upon the market at once, and the solution of the puddling problem may be considered solved.—*Chicago Journal of Commerce.*

The *Western Chronicle* (Kentville, N. S.) describes the iron works of McPherson & Co. at Oxford, in that district. Mr. McPherson, it says, has been doing a quiet machinist business for some time until about 9 months since, when he became associated with I. J. Hingley, Esq., and, purchasing the plant of the Pugwash iron foundry, they began the casting of all sorts of work, principally, however, mill machinery. The motive power is supplied from the River Philip, and represents about 8 horse power, and the present machinery consists of 1 lathe, 1 planer, one press for cutting bed fastenings, 1 drop press for saw teeth and other small machinery. Since the firm has been casting they have been rushed to their utmost capacity. They have contracted to supply the new railroad with twenty tons castings, 5 trolleys, 5 speedys, and 1 car for laying rails, in addition to which they have on hand orders for 4 new sawmills to be delivered before April. The superiority of their casting has satisfied the railway people, and it appears as if Mr. McPherson in the mechanical part and Mr. Hingley as business man were the right men in the right place. They contemplate with spring building a fine new foundry and machine shop 120x36 ft, the shop to be two storeys high and 18x36. They claim a speciality in saw mills and also in bed fastenings, large quantities of which are supplied to the Wooden Mills, and sent outside to other parts of the province. The new establishment will be located over the river from the present one, and will be quite adjacent to the station of the G. E. & N. A. Line Ry. They have just completed setting up 3 sawmills, all of their own production.

The St. John *Sun* says the city has leased to the Canada Rolling Stock Company, represented by Robert Marshall, Esq., for a term of years, the property lying between Charlotte and Sydney streets, and bounded on the south by the lands occupied as a deep water terminus for the Inter-Colonial Railway. The lot in question is about 400 feet square, and is one of the best sites for manufacturing purposes that could be selected, as it is close to a wharf and coal can be landed there by water at \$1.20 a ton freight from the mines, or \$1 by rail, and all other materials can be placed on the spot with equal facility. The capital of the Company will be \$80,000, as a commencement, with power to increase to \$900,000, as business warrants. The erection of the works will be commenced immediately, all the plans having already been prepared, and it is expected that the works will be in operation by August or September. The Company will manufacture all kinds of rolling stock, which are now in such great demand throughout Canada. The buildings will be extensive. They will all be constructed of brick, and will cost at least \$40,000. The foundry building will be at the south-east corner of the lot, and the planing mill and dry house at the south-west corner. Between these buildings a branch of the railway will enter the lot, extending to the three buildings which are to be erected for the manufacture of cars and other rolling stock. The warehouse will be on the Charlotte street front of the lot. Mr. G. Ernest Fairweather is the architect, and Mr. E. T. C. Knowles solicitor for the Company. The new establishment will employ at least fifty men at the beginning, and eventually a much larger number. It will add very largely to the taxable property of the city, and to the business activity of the district in which it is to be located.

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ENGLISH AND AMERICAN WOOLLEN FACTORIES
COMPARED.

From the New York Tribune.

LEEDS, England, Jan. 23.

In my letter from Halifax I presented a number of facts showing the decline of the trade of that town. I am now able to give the population of the two great woollen towns and the two great worsted towns of the Empire, for three periods during the nineteenth century, which figures bear out what was said in the Halifax letter. In 1831 Halifax was at its zenith, and it should be borne in mind that soon after this Bradford changed from all-wool goods to cotton warp and began its career of prosperity (see first letter from Bradford, No. 10), and increased its population from about 77,000 in 1831 to 183,000 in 1881. Here is the table:

	1801.	Rank.	1831.	Rank.	1881.	Rank.
Halifax.....	63,434	1	109,899	2	73,633	4
Leeds.....	53,162	2	123,393	1	309,126	1
Bradford.....	29,704	3	76,996	3	183,032	2
Huddersfield.....	14,848	4	34,041	4	81,825	3
Total.....	161,148		344,329		647,616	

At the opening of the present century Halifax had nearly ten thousand inhabitants more than Leeds; now Leeds has over four-fold the population of Halifax. In 1801 Bradford contained less than half the population of Halifax; to-day it has nearly three times the number. From the establishment of the woollen and worsted manufacture in the West Riding of Yorkshire the population gradually went up from 563,953 in 1801 to 976,400 in 1831, and 2,175,134 to-day. This shows an increase in the first three decades of the nineteenth century of 73 per cent; and in the last five decades of over 100 per cent. The aggregate population of the four cities above given shows an increase of over 100 per cent during the first period of thirty years; but during the second period of fifty years, of less than 100 per cent. Still I have shown that the population of the cloth country, taken as a whole, has increased more rapidly during the latter period, which may be attributed to the building of such places as Saltaire, Batley and other small but thriving towns which had no existence prior to the introduction of the factory system. Those towns have already been mentioned and their location given in my general description of the woollen district. The drifting of trade from one town to another is worth noting as we pass, because I shall attempt, in my closing letters, a history of the migration of industrial centres in Great Britain.

I regret to say that in a volume of 400 pages put in circulation by the State Department at Washington, a few days before I left New York, entitled "The Cotton and Woollen Mills of Europe," there are only a couple of pages of any value to either statistician or the public, as giving fresh or carefully prepared information on the great woollen districts of Yorkshire. The exception I refer to is a table of wages prepared by Consul Dockery, which, after he explained to me the methods he adopted in preparing them, I believe may be taken as a fair average of the wages here in the Leeds district, but not for Yorkshire, and certainly not for Bradford. In the volume referred to no similar facts are given for Bradford, but a report of ex-Consul Shepherd, made February 2, 1882

(see No. 18, Commercial Report), is reprinted. Since my stay in this city I have carefully gone over every page of the twenty-three volumes of the State Department Reports, containing, as they do, in the aggregate, about 5,000 closely printed pages, and am unable to find any article from any one of the consuls, of a general character, on the woollen manufacture of Great Britain, and yet one volume is called "The Woollen Mills of Europe"—strange that the most important region of the world is left out. And yet the annual report of Consul-General Merritt for 1882 shows that about \$94,000,000 worth of goods have in ten years gone to the United States from the Bradford district; over \$30,000,000 from the Leeds district; and nearly 69,000,000 from the Glasgow district, the greater portion of all of which was woollen and worsted goods. The twenty-three volumes and five thousand printed pages aforesaid, however, contain valuable information relating to the "sale of cheap American trunks in South Africa," of "the disposal of an English railway in Tunis"; the arrival of \$47,000 worth of woollen goods at Tripoli is duly chronicled pages teem with a glowing description of the customs and surroundings of Maracaibo; twenty pages suffice to give a description of the railway system of Scotland, which in its entirety equals, in miles, one-quarter of last year's increment in the United States; and there are pages on the industries of the Fiji Islands, the "Corset Trade of Wurtemberg," glowing account of "the Stuttgart Conservatory of Music," the "Ice Trade of Norway," the "Trade of Morocco with Timbuctoo," "How to Make Prime Butter," and a variety of other information, useful in its way, no doubt, but not calculated to elevate the tone of the documents of a great Department of a great country. Here in England these publications are very generally laughed at, and not altogether without cause. They absolutely contain nothing of value on the one industry which perhaps more than any other is sensitive to English competition, and which, as I shall hereafter show, is so widely spread throughout the several States of the Union.

To attempt an exact comparison of the woollen and worsted industries of Great Britain with those of the United States is a very difficult task, because no adequate statistics exist for such a comparison. In England industrial statistics are not collected as in the United States, by the Census Bureau, and the Board of Trade (the statistical department of the Government) makes no returns of this character, as English manufacturers have a decided dislike to disclosing anything about their business. The official returns under the factories and workshops acts will assist in the inquiry so far as the number of hands are concerned, but it would be folly to attempt a guess, for it would be nothing else, of the annual product, amount of capital invested, and the value of the material consumed. Indeed, *The Tribune*, in its issue of December 12, touched on this point and showed conclusively that both Professor Walker and his experts have taken care to call public attention to the fact that all reports of the value of products are apt to include freight to market, commissions, insurance, and many other charges, and cannot, therefore, be relied upon as representing the sum actually realized by manufacturers for products sold. Regardless of this caution, however, the more fanatical Free Traders here have divided the total amount of wages paid, as shown by the census, by the total number of hands returned as employed, and armed with the quotient, a Bradford gentleman attempted to prove to me the other evening, in the Union Club, that the American artisans were paid about the same as the English laborer, $5\frac{1}{2}d.$, or 11 cents an hour. These figures have gone the rounds of the English press, and I have no doubt will find their way into the speeches of English statesmen, and into the pages of the English reviews. No explanation is made of the fact that the divisor represents merely the greatest number employed at some one time during the year; that it represents people of all ages, and that the experts, who are compelled by law to make up these statistics, frankly say they are worthless for such comparisons. For these reasons I shall

make no attempt to compare amounts paid in wages, value of material consumed, or of product produced.

The most recent official figures at my command show that in the United Kingdom there are about 1,800 woollen factories, 125 shoddy mills and 700 worsted manufactories, making a total of 2,625. The classification of the United States Census is somewhat different, and no special enumeration is made of the shoddy mills. Broadly speaking, there are 1,990 woollen mills in the United States, and (including felt goods, carpets, hosiery, etc., under worsted goods) 696 worsted mills; total, 2,680—strangely enough exceeding the number in Great Britain by 61, though it must be remembered that the British mills are much larger institutions, established on a firmer basis and employing nearly double the number of hands. In the United States the woollen factories are scattered all over the country; in England I have already shown (see Letter IX) that the industry is practically concentrated in a radius of 22-1/2 miles, and to this remarkable concentration, as much as to the cheap labor, England owes her supremacy in the woollen trade. The United States census of 1880 shows that in the United States 161,489 persons are employed in this industry: 56,504 in the manufacture of woollen goods; 18,803 in the worsted branch; 20,371 in making carpets; 28,817 in the hosiery and knit goods division, and the remainder in manufacturing wool hats and felt goods. In Great Britain the woollen factories employ 66,717 males and 67,888 females; total 134,605; the shoddy mills 1,571 males and 1,860 females; total 3,431; and the worsted factories 57,050 males and 85,047 females; total 142,097; making a grand total in these three branches of 280,133. This does not include, as the American statistics do, the hosiery and miscellaneous factories which may be classified under the generic term, "woollen goods." Add hosiery and it increases the number of factories 556, and the number of hands employed 27,667, making the total employed in the Kingdom 307,800 against 161,489 in the United States, which, when one takes into consideration the difference in the methods of enumeration, means that Great Britain employs double the number of hands in this industry compared with the number employed in the States. This comparison will show the relative strength of the woollen industry in the two countries without carrying it further, which, owing to the imperfection of the statistics, might only lead into error. It may be useful to show the quantity and value of the imports of raw wool, woollen rags and woollen yarns for weaving, into Great Britain in 1880; together with the number of pounds and yards and the value of the exports from that country to foreign parts:

	Quantity, pounds.	Value
Sheep and lambs' wool.....	460,337,412	\$130,812,710
Alpaca, vicuna, llama.....	2,547,706	88,185
Goats' wool or hair.....	13,203,343	5,984,545
Woollen rags	32,279,040	4,896,355
Woollen yarn for weaving. . .	14,193,639	\$,568,835
Total.....	582,561,140	\$150,346,630

The exports were:

Sheep and lambs' wool, lbs....	17,177,260	\$5,927,530
Woollen and worsted yarns, lbs	26,154,300	16,720,140
Woollen cloth, yds.....	50,062,500	33,670,140
Woollen stuffs, yds.....	189,940,200	36,157,885
Total.....		\$92,475,695

(To be Continued.)

It was definitely settled at a recent meeting of the Hastings Council to offer a bonus of \$5,000 to any person or firm who would erect a factory which would employ from forty to sixty operatives. The offer was immediately taken up by Mr. Peters, who will, in the event of a by-law being passed to that effect, undertake to erect and operate a three-set mill.

The *Western Chronicle*, published at Kentville, N.S., gives an account of the industries carried on in the town of Oxford, which is on the line of the G.E. and N.A.S. Railway, and four miles from the Intercolonial. Among these are the mills of the Oxford Woollen Manufacturing Company. The power is secured by a Brown's automatic steam engine of 125 horse power manufactured by Thomson & Williams, Stratford, Ont. The buildings, which are lighted by gas, cover about half an acre of ground, and are three stories high. Four acres of ground are attached to the buildings. The machinery consists of 18 looms, 1,200 spindles, 3 manufacturing cards and 1 custom ditto—with pickers, dryers, fullers, shearers, gig-dryers, and all the latest improvements. The company boasts of the largest spinning jack or mule in Canada, being seventy-two feet and four hundred spindles; it certainly is a perfect piece of machinery. Something over one hundred different varieties of cloth are made, and over 150,000 lbs. of wool per annum are manufactured. The stockholders are William Oxley, Esq., Matilda Thompson, John Robb (Manager), and Geo. D. Hewson, owning seven eighths in equal parts, and John Wells owning the remaining one-eighth. The business at present done is about \$100,000 a year, employing over fifty hands, male and female.

Referring to the Quinte Knitting Works, the *Belleville Intelligencer* says:—The above named enterprise, which is owned and managed by Messrs. Henderson & Turley, was started in the month of November last and has been in continual operation since that time. Work was inaugurated with six machines and six hands, which were gradually increased to fourteen machines and twenty-two hands. The output of this establishment consists of ladies', men's, and children's hose and half-hose, and the quality of the goods manufactured compares very favorably with that of any other factory in the Dominion. The first sale was made by the firm to a local dealer and they shipped goods to Kingston, Toronto and intermediate ports. There is a good demand for the manufacture of this firm, and the works are kept busy all the time. Mr. Turley, who represents the firm on the road, is meeting with good success, and is favored with gratifying orders. The machines used are made by Wanzer & Pope, and are manufactured in Georgetown, Ont. They are considered the best obtainable, and combine all the newest and latest improvements. All the cotton yarn used is manufactured in Canada, as is also the woollen yarn, with the exception of the finest qualities, which is imported from England. The firm are doing an encouraging trade and are to be congratulated on the success that has attended their venture, which is a direct result of the N.P., the tariff favoring the industry without causing an advance in prices.

Jas. McNichol, dealer in boots and shoes, Brandon, Man., has failed. Liabilities \$7000.

A new gas engine for light work, of Glasgow manufacture, is being introduced into the United States.

Machinery for a foundry in Rapid City, brought in by Mr. J. Whelloms, has been sold to Mr. Ratchiff, who intends starting a foundry as soon as the railway coming to that point is assured.

Fifteen girls from Lewistown, Maine, arrived at Milltown this week to work in the St. Croix cotton mill. Large quantities of cotton for the mill are brought by every steamer from Boston.—*St. Stephen, N.B., Courier.*

On and after July 1st duties on pressed hay exported from Canada will be \$2.00 per ton, regardless of cost or quality. The *Cape Vincent Eagle* says, dealers generally are well satisfied with the change, as it will undoubtedly have a strong tendency to shut out inferior qualities, which in the past have been very damaging to them.

The English correspondent of the *American Manufacturer* says that a large girder bridge for Canada has just been completed by Messrs. Hawks, Crawshaw & Co., of Gateshead, to the order of the Canadian Pacific Railway Company, British Columbia. The largest span is 315 ft. long, and there are two smaller ones of about 105 each. The bridge is to cross the Fraser River 150 miles to the east of Port Moody.

The Valleyfield Cotton Mills, near Montreal, are now turning out the following classes of goods, which have hitherto not been made in this country:—Rolled and flat fold cambrics; permanent linings and pocketings; satcen and corset jeans, and rolled and flat fold silecias (beetled). These goods are having an extensive sale amongst the merchants in Toronto and other points throughout the Dominion, thereby showing that they are desirous of promoting native industries.—*Toronto Mail*.

There are several reasons why walnut lumber will probably decline in the future, but the greatest reason is that while the production has been facilitated by almost every conceivable means, including extensive additions for cutting and transporting, the erection of new mills and tramways, piercing hitherto inaccessible regions in quest of it, the demand is likely to perceptibly decrease, owing to the fact that fashion has decreed that walnut is for a period at least to be superseded.—*Lumberman's Gazette*.

The Montreal correspondent of the *Globe* says:—It is safe to affirm that since the depression of several years ago, known as the "hard times," there has not been such close scrutiny of business paper at the banks as is given just at present. Merchants, too, are exceedingly careful, and the inquiries at "the agencies" are multifarious. "In fact," said one high official in one of them, "we have had a greater number of inquiries from customers concerning business houses than we had at any time during the hard times."



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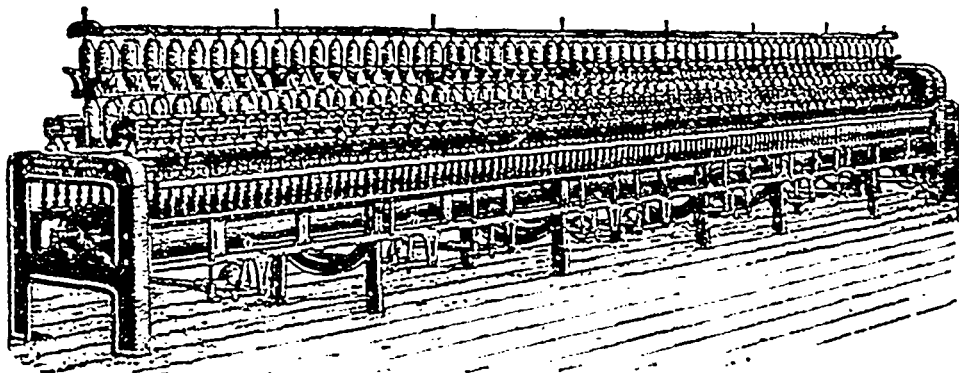
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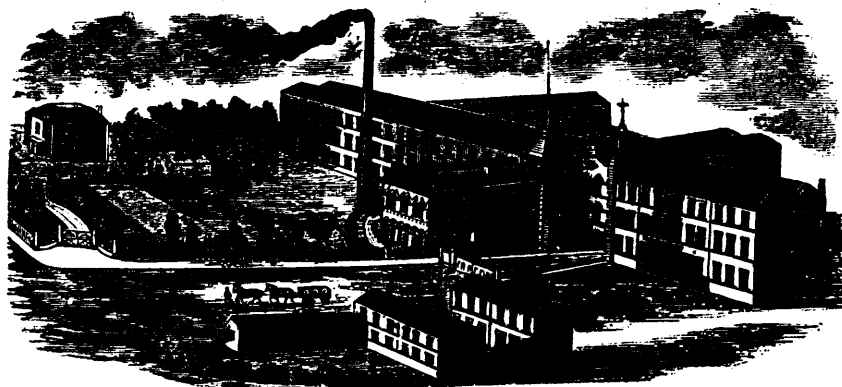
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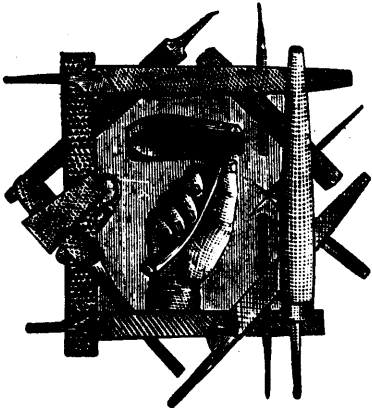
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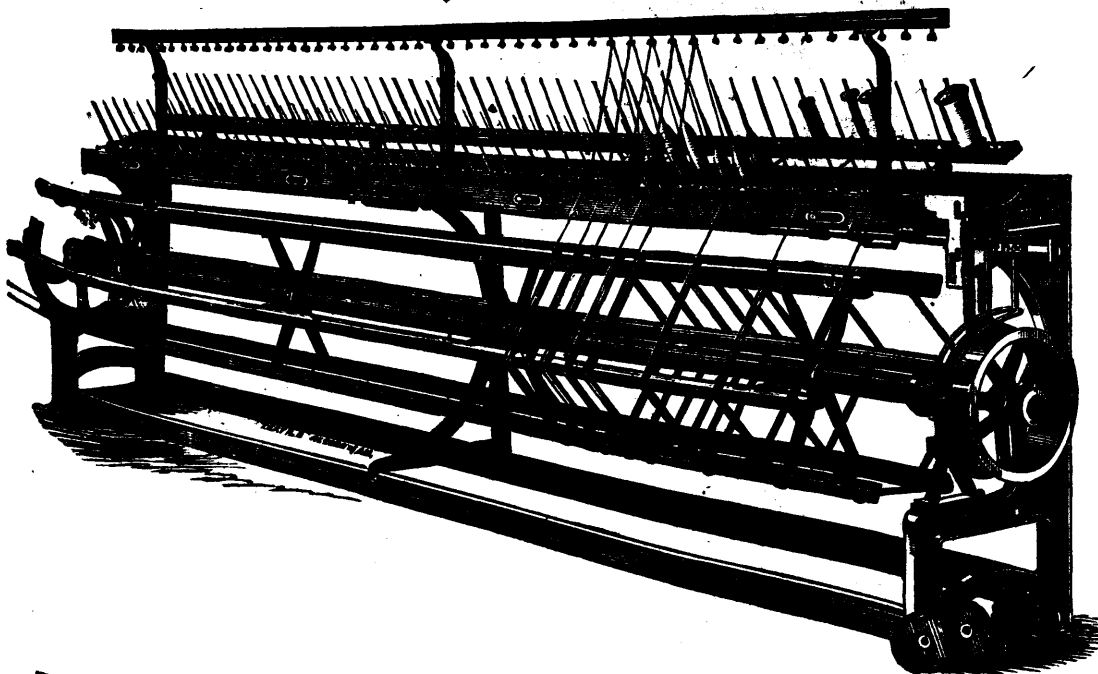
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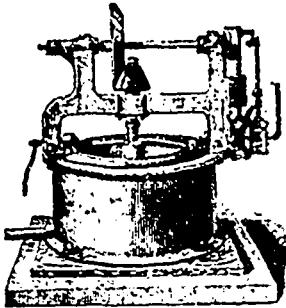
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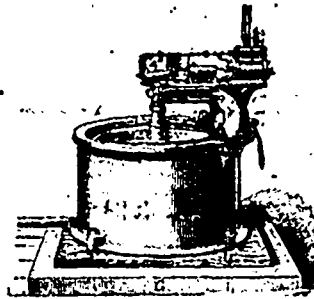
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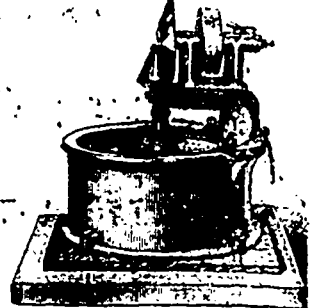
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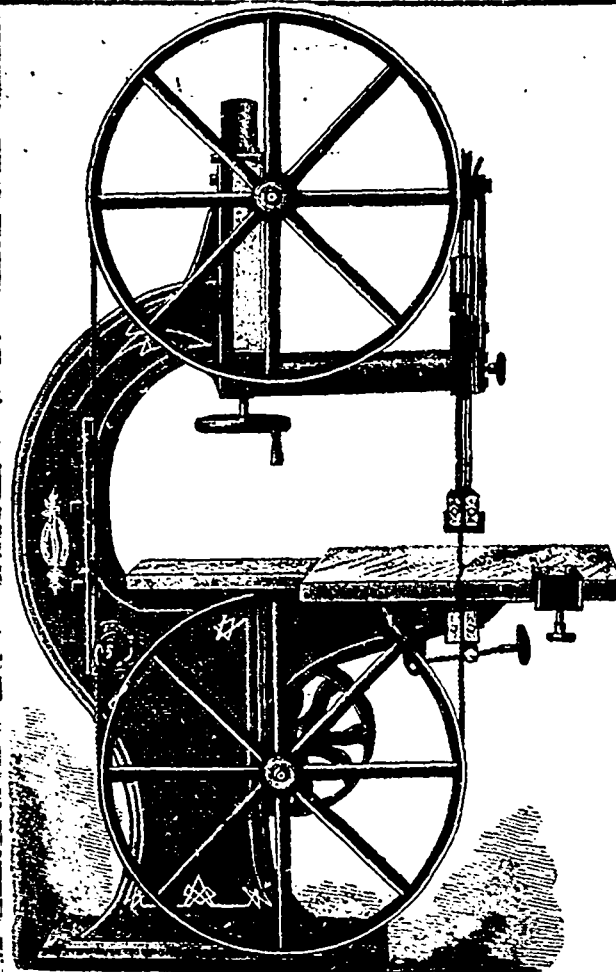
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We have had our attention repeatedly called to this subject, and it has been suggested by practical manufacturers, that having teasels agreeing as to thickness, while saving labor in placing upon the "gig," will require less experience in the "gigging" to avoid *streaked cloths*, and assure more uniform work generally.

The "gig" makers have, to some extent, obviated this difficulty, by making the "gig" cylinder "vibrate," which prevents teasels of uneven thickness striking the cloth every turn of the cylinder at the same point: but this has only been a makeshift, as zig-zag streaks are often traced upon the surface of faced goods finished upon a vibrating cylinder gig.

As teasels were assorted, viz: 1 to 1 1-2 inches, 1 1-4 to 1 3-4 inches, 1 1-2 to 2 inches, 1 3-4 to 2 1-4 inches, 2 to 2 1-2 inches, 2 1-2 to 3 inches, sized as to *length only*, streaks in goods more or less could not be prevented.

In the above classification teasels will be found of the *same diameter* in each of the six sizes, although differing in length. Such assorting is very faulty, as the *diameter* of the tassel should regulate its grade, and this is what our invention does. In some of the best regulated mills skilled labor is employed in selecting from such a diversity of sizes, those that will answer for the work to be performed, *accuracy* being out of the question, and more or less imperfections in the finishing are sure to follow even with the best of help and with the greatest care.

The saving made by using gauged teasels, both from rejected teasels on account of some being uncommonly thick or thin, and in the labor of selecting these suitable to set, is fully equal to their first cost, and an equal gain is made in the perfection of cloths, thus saving twice the cost of the teasels, besides having the satisfaction of making perfect goods, and no claims for damages or tender cloths.

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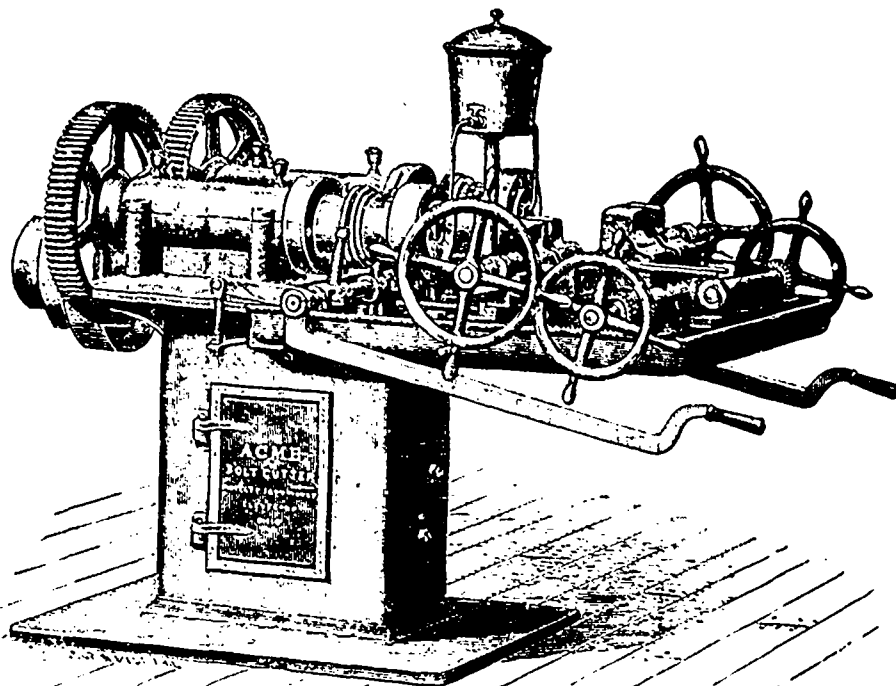
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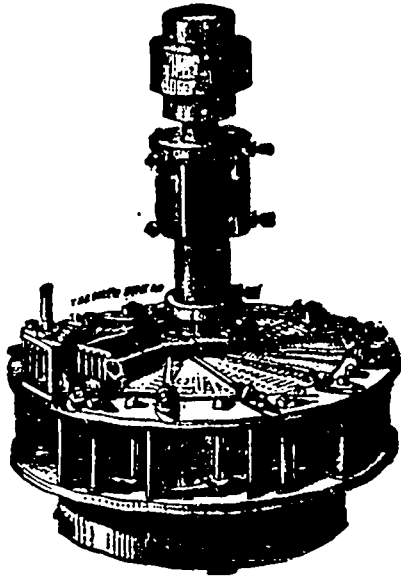
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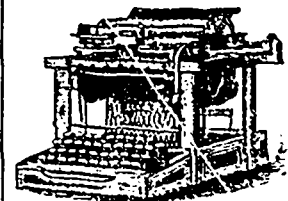
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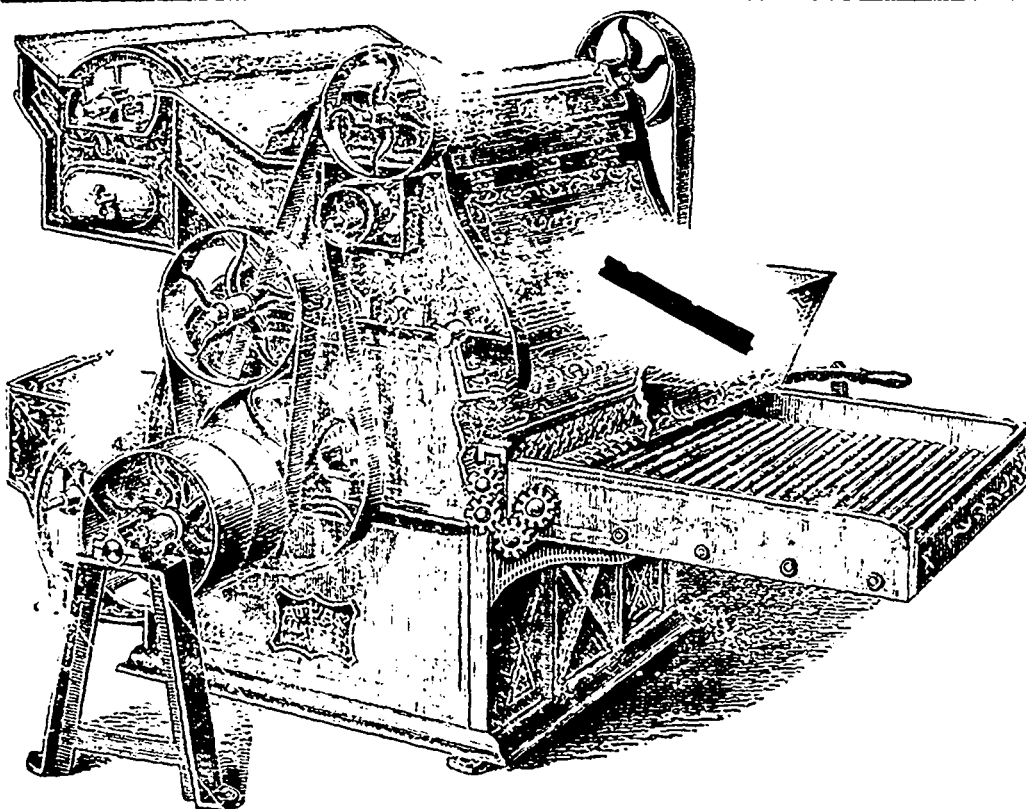
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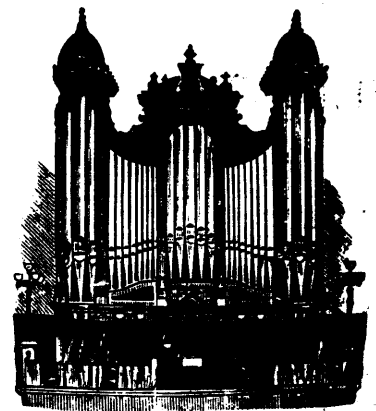
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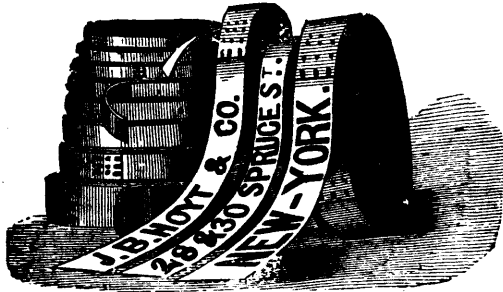


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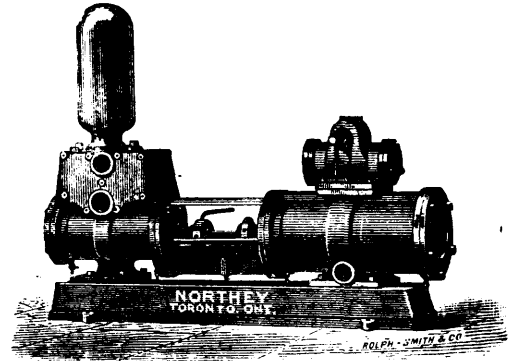
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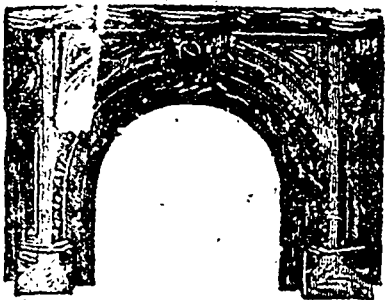
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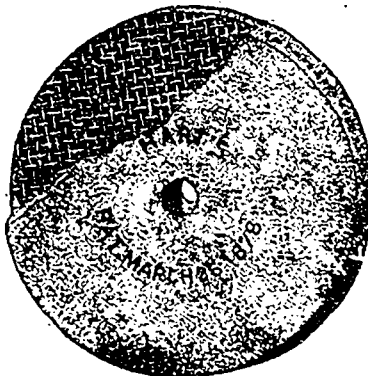
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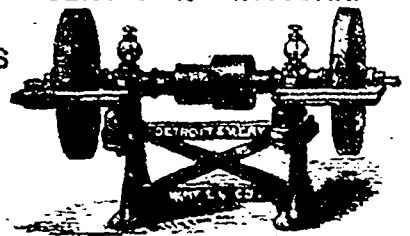
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