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NO. 22.

OBSERVATIONS OF MR. PHIPPS

CHICAGO, Oct. 20.—Here on the wide, flat prairie, over which the winds blow with an intensity unknown in many parts of Canada, the value of the protection given by trees is acutely realized. "It is hard," says a wealthy proprietor, "to have taken all the trouble to plant an orchard and, take care of it for some years, and then have it all killed by the frost." "Is it," I asked, "the intensity of the frost or the additional keenness of the wind?" "Oh, undoubtedly the wind. Those who have planted wind-breaks of other trees, or allowed the Osage orange hedge to grow up to trees along the exposed sides of their orchards, have not lost their apple trees. But of those who did not take this precaution, many, last winter being very cold, lost valuable trees. I lost nearly the whole of my young orchard. But the fact is that, though a good many forest trees are planted here, we do not plant one in every hundred we should." The same may be said in Ontario.

The prairie is, however, gradually becoming dotted with interesting groves, though it is plain that much remains to be done. Valuable as such protection is to field and orchard in Canada, it is still more so here, for the Canadian diversified heights and valleys—their succession of hill and dale—allow no such uninterrupted sweep as does the level prairie land. One of these groves is remarkable, and I travelled some distance to see it. It is in Douglas county, not 200 miles from Chicago, and consists between two and three thousand large walnut trees, planted in the nut thirty years ago, and now eighty feet in height, and some of them eighteen inches through. This grove, tall, extensive, its high pillar-like stems, evenly rising in regular rows of columns; its level, broad, table-like summit of autumn foliage is a picturesque object seen far across the prairies, and affords one of the best instances in America by which to judge of the possibilities of walnut culture.

The method pursued in planting has been to set the nuts ten feet apart, and gradually thin till the trees are about twenty feet distant from each other, trimming off some of the lower limbs of those left standing, so as to procure tall, straight timber. Some of these are forty-five feet from the ground to the first branch. These trees were for the first four or five years cultivated with crops of corn, but after eight years they cast such shade that nothing else would grow. After about twenty years the ground was, and is now, covered with short, wild grass.

But, though this grove will apparently in another twenty years yield timber worth many thousands of dollars and yet leave much standing which will in another twenty be worth hundreds of thousands of dollars more, yet there are points to be regretted in the method of its management, and some from which we may learn a useful lesson in Ontario. The grove needs a care now it has not lately had, or its ex-

tence is in danger. The owner is a man busy with many objects. His herd of thoroughbred and halfbred cattle here are large and very valuable. Cattle, splendid of coat and massive of form, were shown me, for which eight and ten thousand dollars each had been refused. He is a busy man on the Chicago Exchange. He has other great farms—acres by the thousands—in Minnesota. Amid these and many other occupations this walnut grove—a plan and hope of his earlier life—has somewhat faded out of view, and the cattle on this home farm have been allowed to use it for shade and shelter. The result is what happens to all assemblages of trees, grove or forest, when cattle are allowed free scope therein.

What we should aim to preserve is perpetuating and increasing a piece of woods is a similar forest bed to that which nature prepares beneath the branches. It is a covering of rich, soft, porous soil below, which perpetually feeds the small rootlets that underlie the ground as far as the tree top spreads, and above this soil, and feeding it in turn, a decomposing covering of last year's leaves. But when cattle in numbers are allowed entrance this is impossible of attainment. Their trampling beats the ground hard, a dense, short, and not very nutritious grass overspreads it and takes to its own purposes the benefit of the decomposing leaves, which falling on the ground should nourish the trees. In this valuable grove in question, the ground is hardened by trampling throughout the whole extent of many acres, and not only has this injury been inflicted, but every tree has been used by cattle as a rubbing post, so that the bark has been polished and thinned to their standing height. Above that, a glance at their bark shows a rougher and much more healthy covering. The process of injury to the grove has not yet resulted in the death of any of the trees therein; but coming into a path across the farm, which is bordered by over 150 large walnuts, we arrive at a place where the tramping and rubbing had entirely killed twenty-five of these trees, and it needs no forethought that the same process continued in the grove will be in time eventually effective in injury. The farmer in charge, a relative of the owner, stated that they were aware that the trees were injured by the cattle, and were about planning means to give them shelter elsewhere. In the meantime, it appears to me that had they always been excluded, the trees would have now been ten years' growth the better. The best thing now would be, in addition to keeping cattle out, to lightly cultivate the whole soil, so as to destroy the grass, soften the soil, and give the roots their chance of obtaining nourishment.

Here are trees which, with fair treatment, should in some years' time yield at least \$50 per tree, or the vast sum of \$75,000. Yet the desire to improve his cattle has led the owner to allow their injury and even risk their loss. The same

unfortunate mistake is made in many parts of Canada. Fine pieces of woods which might have continued to supply timber in good quantity yearly for ever, have been allowed, in order to make pasture for a few cattle, to become utterly destroyed in forest value, their saplings killed, their soil hardened and grass covered, and the whole woodland brought into such a state that the owner in a few years cuts down what is left and ploughs the land. The greatest forest authority in the United States has lately written that all that fire has done, all that the axe has done, has not equalled the injury inflicted by our own browsing animals. This, at first sight, would appear over strained, but to those who have considered what the forest value really was and is, how important it is that certain portions of it should be preserved, and that it is those very portions which are being, thus destroyed, it bears a different aspect.

There is a way now being practised here of obtaining a much more immediate return in planting groves, which I will describe in my next letter.

R. W. PHIPPS.

LOGS FOR THE SAGINAW MILLS.

Notices of projects of bringing pine from the Georgian Bay lumber region to the Michigan mills have from time to time been given in these columns, one last week referred to the operations of Alpeno lumbermen in that direction. They were in fact the first to turn their attention to that locality as a source of supply. One of the first of the Michigan lumbermen to make a practical entry into the Georgian Bay pine were Folsom & Arnold of Bay City, who have built a saw mill on Spanish river, on which river they own large limits. Other men have from time to time secured interests in the same direction, and the suggestion that the logs might be brought to the Saginaw river to be cut has finally ripened into projects for bringing them here. Among those who have acquired limits in the Georgian Bay district are Emory Bros of East Tawas and the Saginaw Salt and Lumber Company, and the past week they have made a contract with reliable parties in this city for the transportation of 200,000,000 feet to this district to be cut by the mills at Tawas and on the Saginaw river. There is to be built steam barges capable of carrying 600,000 feet and making a trip a week, bringing over 15,000,000 next season. Other owners of mills on the Saginaw river are said to be dipping into the Canadian pine and attend the sales at Toronto for the purpose of purchasing limits. Their idea is to secure pine to supply the Saginaw river mills when the near-by timber shall have been so much reduced so as to be no longer adequate. It is an important matter to attend to and if the cost of towing the logs across does not prove too great the scheme will be of great

benefit to the river cities. The lumber industry is their main reliance and to take it away would give them a drop in importance. There are some seventy saw mills of the larger class here and they are well equipped. If they can be kept supplied with logs for 15 or 20 years longer they can earn a good deal of money for their owners and the Saginaw river cities will reach a development that will know no cessation in the future. This is a lumber mart and the advantage of bringing logs here to cut over removing the mills to scattered localities to cut the logs is obvious. There is hardly a doubt that the logs can be profitably brought here, since they can be brought in rafts surrounded by duplex boom sticks, if the eager plan should not prove profitable, although the risk would be greater. There seems no reason why bringing them over in barges may not be as successful and profitable as carrying lumber to Buffalo and Tonawanda, since the same plan can be followed of one steam barge towing a half a dozen rafts.

Logs are not to come along from the Georgian Bay region, however, but the upper peninsula is to be placed under tribute. Hill Bros. are putting in 25,000,000 feet in the upper peninsula which are to come to Saginaw to be cut and sold. W. J. & F. McGaw is mentioned as another who has secured pine in that region to be cut here. There is here every convenience and appliance for cutting and handling lumber, and the concentration of the manufacture is an advantage, as purchasers are drawn to this point by the certainty that they can find what they want. Then the transportation facilities from the river cities are excellent, and everything conspires to make the Saginaw valley a better point than any other at which to conduct large manufacturing and distributing operations. The plan of bringing logs here promises to very materially extend the period of the supremacy of the Saginaw valley as a lumber producing district.—*Lumberman's Gazette.*

The Alpena and Saginaw valley mill owners are about demonstrating the feasibility of bringing logs to their mills from distant forests in the Lake Superior region and that section of Canada lying north of Georgian bay. They will transport logs in great barges, towed by powerful steam tugs. This method of floating the piners to the mills, as it were, over wide reaches of water, often too tumultuous to admit of rafting, is nothing new, for it has been practiced for years by the Oconto and Sturgeon Bay manufacturers who have thus conveyed logs on Green bay. The method is perfectly safe and reliable, and is bound to come into extensive practice on the great lakes as the forests recede from the mills.—*Northwestern Lumberman.*

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ENGLISH TIMBER TRADE.

In the course of a long article on the question "Is trade in England really improving?" the Timber Trades Journal says:—Liverpool, last week, was rejoicing in a check to the importation of timber, and for why? Because the reports from Manchester are couched in the same doleful strain they have so long worn, and which really appears to have become chronic in that neighborhood"—though the Oldham strike among the operatives had terminated.

In contradistinction to Liverpool, the east coast ports were flooded with wood goods during the same period—plenty to do in the landing and piling department. But remarks Hartlepool—a central emporium of trade—"There is a very little to be said on the subject of demand, which is more than usually quiet." But in particular Newcastle was rather discomfited by an influx beyond either its expectations or its wishes. It was thought a month ago that Newcastle had pretty well got in its timber harvest for this year. A few straggling cargoes might still come forward, but the bulk of the supply was already to hand. Against this anticipation 41 cargoes, all told, made their appearance last week, and we learn that the stocks are heavier than they have been for some years past, "and at no time was it more difficult to effect sales at the smallest possible margin of profit." And the same sentence, with a slight variation, would appear to apply to the northern ports generally. Everywhere there is an expectation that things will mend; but few can point to any external evidence of an improvement in prices.

We find the following in an American paper as late as October 14th:

"Business generally is said to be improving, but go into what line of business you may, you will find bitter complaint about no profits, no inducements, and theories for the betterment of things."

Notwithstanding this cry, which the writer does not altogether believe in, we are told that "architects and builders are still doing quite a business; a good deal of new work is coming up (at Bay City). The country lumber yards are stocked up, and the retailers are visiting wholesale yards for a good deal of stuff of one kind or another." And then he goes on to say: "The iron trade men are beginning to see the end of the little boom. The coal men are having a very active demand for everything they can mine. The makers of machinery are all busy. This demand is due largely to the fact that old machinery is being replaced by new machinery which can do more work at less cost. There is a good deal of saw mill machinery coming out, and wood working machinery was never in more active demand." So that it would appear that there is a basis for the trade improvement spoken of, and much of the under current of discontent is merely a mode of expression which has become habitual, and is only meant to signify that the speaker wishes it to be understood that he has the means of doing a great deal more business than his actual trade amounts to. There is no doubt much trade doing here too, but very few think they have their due share of it, and the profit is generally understood to bear no comparison with the amount of money that is turned over in wholesale transactions.

In a computation having reference to the trade of these realms there is an important influence which has been a good deal overlooked. The decline of our trade has come upon us at a time when money was obtainable at a smaller rate of interest, we believe, than at any period of our commercial history heretofore. Bills have been discounted, we were told in the money articles of the dailies, very recently, at the rate of less than 1 per cent per annum, though the kind of bill alluded to is not exactly defined. We presume that ordinary trade acceptances for goods sold, and bearing on them only the signatures of the drawer and acceptor do not find quite so favorable a market. But the bank rate has been unusually low during the period of our foreign trade decay, which is as much as to say that a state of things conducive to financial prosperity has not been able to arrest the downward tendency of our great industries, most of which are said to

be working at little or no profit, and to be only kept from collapsing by reducing the wages of their operatives.

Now an impression is gaining ground that money will be dearer, and if so, instead of improving, trade is likely to be further put back by that circumstance. Already there is a stiffening in the rate of discount. But that is not material, if the usual banking facilities continue as ample as they have been before. An advance of 1 per cent. is of small account. But when a rise begins it is generally the signal for a curtailment of discounts, and a closer scrutiny of the paper presented for that important accommodation. Nothing checks trade like a stringency in the money market. The man who does a large business by drawing on his customers at easy dates begins to get nervous when he finds his banker indisposed to place the bills to his credit quite so freely as usual. So he stays his hand on buying so largely, and the seller to him, finding that his goods are not wanted to the same extent as before, and having his own engagements to meet, endeavours to entice his reluctant buyer by reducing his prices. And thus from one end of the country to the other a sort of paralysis, nobody knows why, seems to fall upon their business. Fortunately this ordeal British trade has not yet had to face in its decadence, and if the political horizon continues as clear as it is now supposed to be in the stock and share market, the tightness may be only temporary.

On Tuesday the rate of discount in the open market touched 1 1/2 per cent., and it was said that the banks obtained from 1 1/2 to two per cent. from Stock Exchange borrowers. But there is no harm done yet, and money remains wonderfully easy under the circumstances, and the remote contingency of the Burmese war is not likely to affect it appreciably, whichever way it goes. Nor need we anticipate that the supply of teak from Rangoon will be thereby interrupted. In fact, it is likely to remove all the impediments to trade which still exist in the Irrawaddy, and to increase considerably our trade with those regions.

We are always on the outlook for favourable omens to the trade, but we must not ignore those that tell in an opposite direction. And though hopeful that the general impression of improving trade will be verified ere long, it is difficult to discern, as yet, any confirmatory evidences of its speedy advancement here.

THE GOOD MACHINE HANDS.

Sometimes we get a mill hand who does more work and does it better than any of the comrades. Perhaps he is an ordinary looking sort of man, but every motion he makes seems to amount to something. He is never in a hurry, but he is rolling up a big pile of work and gets a job done before his neighbors are well started. What is there about this man that makes him so extraordinary? The fact is this man knows how to think. He has studied principles and when he sees a certain result he is in the habit of studying out the cause of that. He has fallen into the habit of doing work in the most economical manner and avoids all extra movements. He never turns a board over twice when only once is necessary, and he doesn't machine a piece three times when twice will do the work. He has studied his tool. He knows just how much he can force that machine and have it do good work. He always keeps the machine working to its full capacity and when on duty he keeps his brains, as well as his hands, upon his work.

Such a man will not stand over a machine and feed it with one hand while he takes a chew of tobacco with the other, and all the time he is thinking of a glass of beer and a base ball match. No, sir! When our man was hired by the boss he nired out his brains as well as his hands. He is conscientious and gives the worth of the money he receives. The beer man employs his brains in finding out Sam or Abe is getting 60 cents more than he does, and 90 cents more than he (Scatterbrains) really earns. When he ascertains this fact, he does all the thinking he is capable of to devise some way to get Sam bounced or get as much pay as Abe. Failing in this, this poor shop hand will turn attention towards getting up a strike. Then he

his his fellow workman a great benefit as he stirs up discord among them.

Don't tell your chum what you are getting per day. It is none of his business. That question belongs only to you and your employe. Not two men are worth the same money. One will do more and better work than his neighbor and that one should have more pay. If the inferior man hears of it, he gets himself and all concerned into discord at once. Fix your pay at what you are worth. If you don't know that point, you are not worth having.—Cabinet-Maker.

LUMBER DRYERS.

We have had occasion to discuss from time to time the subject of overproduction, and are met on every hand with difficulties apparently insurmountable. The improvements in machinery, the dispositions of men, the apparent cessation of the growth of the demand of lumber as compared with the growth of supply, and a thousand other difficulties that are naturally associated with the subject, and that can not be specifically considered in an article of this character, present themselves continually.

But there is one remedy for the removal of a large volume of the lumber now in the market. That there are orders on the books of nearly all the manufacturers for dry lumber, that cannot be filled from stock is known to every one who has any knowledge of the wants of the trade. Now, we hold that the large stocks to be seen throughout the Northwest could be put on the market at less cost and greater profit, if every manufacturer would build and operate a practical dryer. There is but one argument against the construction of lumber dryers. "We can't afford it." This we undertake to deny positively, and assert that every man engaged in saw milling, cutting 10,000 feet of lumber a day, can afford to build a dryer, and make money on the investment besides.

Ten thousand feet of white pine, green is supposed to weigh 40,000 lbs. Dry 28,000 lbs.

A difference of..... 12,000 lbs.

Let us calculate a low average of freight, and say you can put your lumber into market for ten cents per hundred pounds, your daily gain in freight alone would amount to the very handsome profit of \$12; and as there are 226 working days in a year, let us deduct twenty-six days or a full working month, and your net profit for one year on the simple item of freight would amount to \$2,400. But is this the only advantage gained by the use of lumber dryers.

It goes without any argument, that if a man disposes of his stock every sixty days at the nominal profit of about two per cent., his net profit for the year is greater than if he only disposed of it at once at a profit of ten per cent. And there is yet another advantage. The man who turns his capital over every sixty days at a profit of two per cent. is able to do the same volume of business on about one-sixth the capital invested, and realize a greater net profit on the entire business of the year than his competitor who carries a much larger stock and sells at a proportionally larger profit.

But there is yet another and still greater advantage to be gained by the man who has the small capital, and the facilities of turning it quickly, in his ability to supply his trade at any time within a few days, not to exceed ten at the furthest, with dry stock, even though it be of some unusual size, and by this means not only realize a profit on the sale itself but please and retains his customer, and have his capital again in his hands ready for another turn.

He not only is able to make quick returns from his capital invested, but receives on pine from \$2 to \$4 per thousand more for seasoned lumber than for green, and on hard woods all the way from \$4 to \$10 per thousand.

His expenses for drying lumber by any of the processes in common use is no greater than that incurred in hauling and stacking it in the yard.

His possible losses from fire are reduced to the minimum because of his ability to do a large volume of business with a comparatively small stock.

He gains another advantage in the amount of his taxes, and still another on the item of

insurance. If he is so fortunate as to have a surplus capital equal in amount to the entire capital invested by his competitor, or even less, he has the advantage over him, in being able to make investments on the outside that will yield a profit, therefore enjoying double the benefits from his capital that are realized by his competitor.

He will be able to undersell the man who turns his stock less frequently, to serve his trade better, and hold it longer; his possibility of losses on accumulated stock is not great. In short the advantages are innumerable, the disadvantages few.

We are not advocating the claims of any particular patent or device for drying lumber. There are a number of lumber dryers on the market that are practical in their operation, that have already established their claims for public favor, many of which are capable of producing the desired results, and we cannot but wonder that their use has not become more general in the great lumber producing sections of the country.—Lumber Trades Journal.

THE FORESTS OF SIBERIA.

The Russian Journal of Finance Minister has published a long article on the forests of Eastern Siberia, of which the following are the principal passages:—

"The immense forests of pines, larches, cedars, birches, aspens and limes which form almost the exclusive wealth of this region belong for the greater part to the State. During a great number of years this source of wealth was almost entirely unproductive. It is only since 1869 that a more or less regular administration of forests has been established, and at the present time the extent of the forests in Eastern Siberia is estimated at 72,335,230 deciatines (about 11 square yards each.) These are divided between Tobolsk, Tomsk, Semipalatinsk, and Akmolinsk. Of these forests, 21,355,760 deciatines have been accurately surveyed and 50,979,570 have been valued very approximately. One hundred and five forests have been conceded to the peasants, and they have an extent of 7,068,240 deciatines. In comparison with their enormous extent the forests of Eastern Siberia give at the present time but an insignificant revenue. The want of means of communication and an insufficient population greatly hinder its development. Still, the revenue is increasing; for in 1876 it was only 40,000 roubles, and in 1885 it was more than 111,000. The chief centre of the trade is in the town of Tomsk, and then Tumen, which is the point of departure for the river traffic.

AN INTERESTING POINT.

With regard to the amount of growth to allow before cutting timber there is this to be observed: There is a proper time to cut a tree as there is a proper time to harvest a crop of corn or grass. If any one in cutting an aged tree, will observe the concentric rings or grains, he will usually notice that there has been a period of rapid growth succeeded by a period of very slow growth, and, in the case of a very aged tree, it often happens that, for the last score or more of years, growth has come almost to a standstill, the grains being so fine as to show that the tree had but little more than held its own for a long time. Now, for all purposes requiring strength this fine-grained timber on the exterior of the tree—the growth of 20 or 30 years, perhaps—is about as nearly worthless as anything could well be. And when we consider that the interior of the tree, which 20 or 30 years ago was vigorous and strong, has been waiting all this time to be put to use, until its vigor is exhausted and its strength decayed, it will be seen that it would have been better to cut the tree and obtain the benefit of its good qualities years ago. Much good ink has been wasted in deploring the destruction of our "primeval forests," but there are acres upon acres of trees in Connecticut that have been allowed to stand until their usefulness has been greatly impaired, sometimes destroyed, because we have not given sufficient attention to the proper time to harvest the crop after we have got it raised. Our hope of a future timber supply does not lie in the direction of preserving the old, which cannot be preserved beyond certain limits, but in producing the new.—E.

NOTE

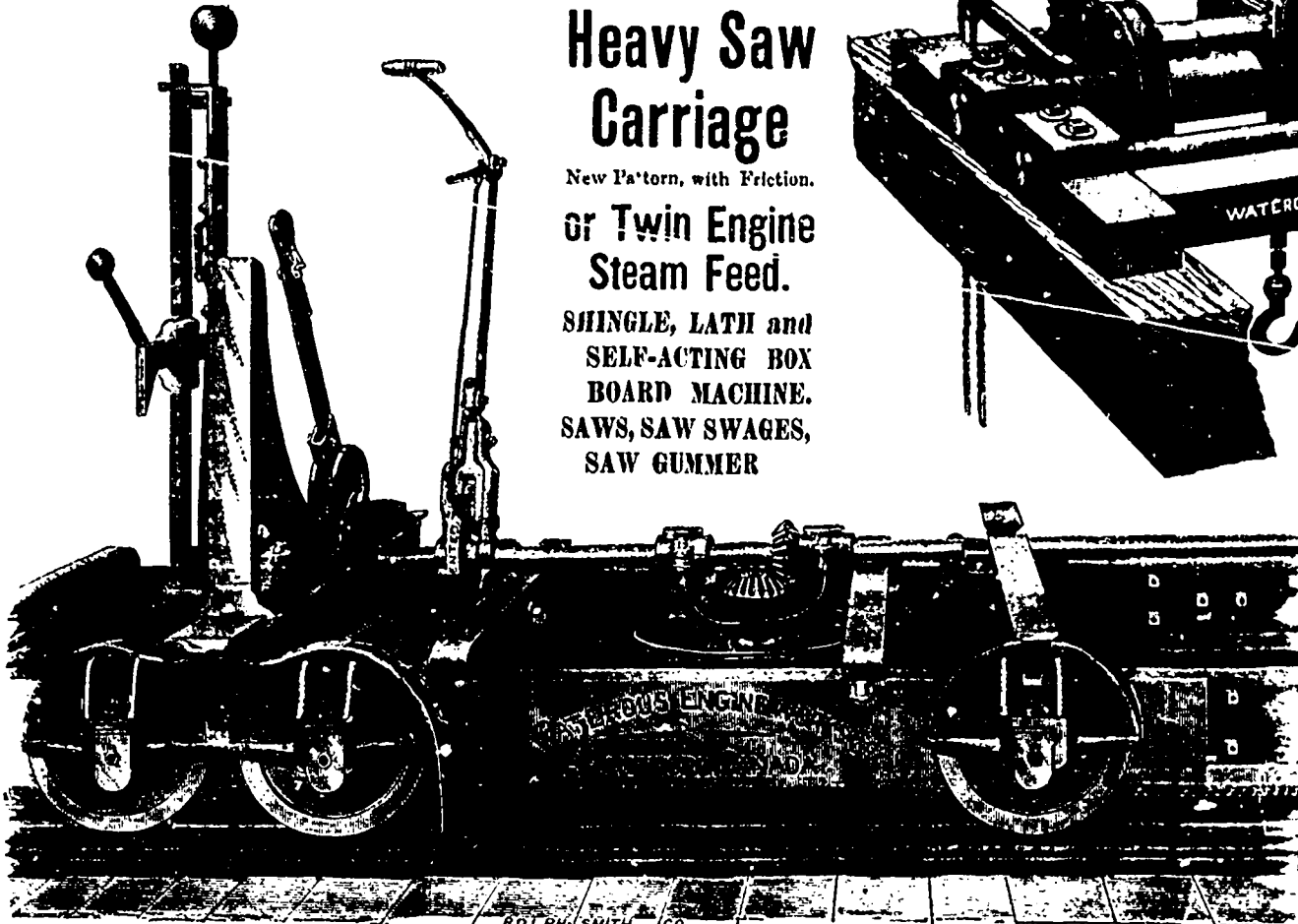
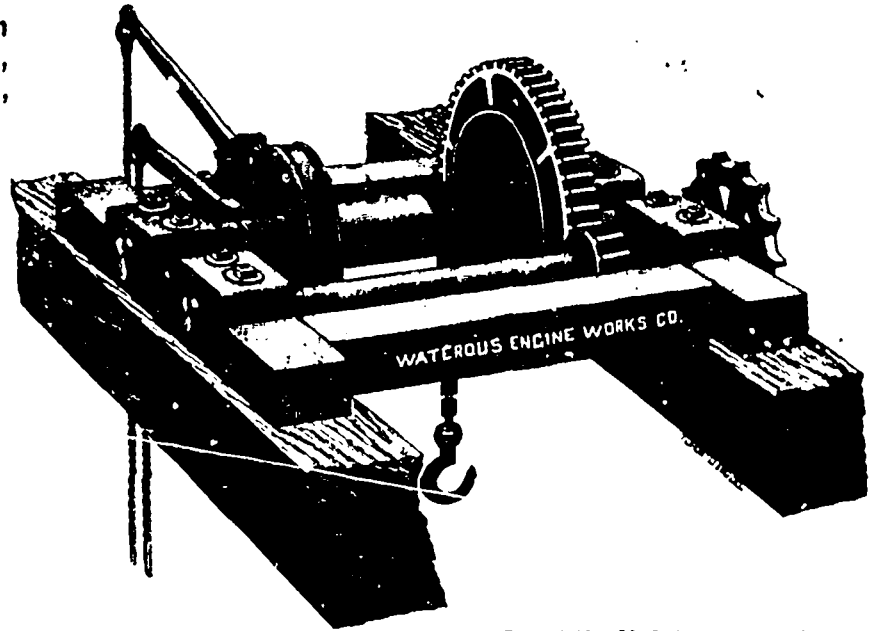
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A STRANGE LIST OF JURYMEN.

The following curious list of the names of a jury empanelled at the Assizes held at Huntingdon, Eng., before Judge Dodderel, in the month of July, 1619, is taken from the London Magazine, for 1733. "Now one would think," says that paper, "that the whole country must have been picked on purpose to find out names to range in this whimsical order. But that as it was, is most certain truth, several copies of them being to be seen hung up in divers families there at this day; and it is self-evident that a comma placed after either the Christian or surname of these men gives a very different idea of their person:—Maximilian King, of Tozeland; George Duke, of Summersham; Edmund Earl, of Hartford; Stephen Pope, of Newton; Humphrey Bishop, of Boglen; Robert Knight, of Winwick; Robert Baron, of St. Neots; John Archdeacon, of Paxton; Edward Fryer, of Ellington; George Gentleman, of Spaldwick; Richard Deacon, of Cotworth; Henry Prince, of Godmauchester; William Marquis, of Stukley; Richard Baron, of Byborne; Stephen Cardinal, of Kimbolton

Robert Lord, of Wazely; William Abbott, of Stuckley; William Dean, of Old Weston; Peter Squire, of Eaton; Henry Monk, of Stukley; George Priest, of Grasham; Thomas Yeoman, of Barham.

RUNNING ENGINES WITH WATER WHEELS.

Whenever more power is needed, either constantly or at seasons of low water, or when variable work is being done, a steam engine may be attached to the line shaft which leads from the water-wheel by means of its main-band passing over a pulley on side line shaft (situated as near the wheel as practicable), said pulley to have such diameter as will permit both the engine and the water-wheel to make each its own regular speed. The effect of this is as follows: When the supply of water is ample for the work, the governor of the engine will shut off its supply of steam, or nearly so and the steam retained in the boiler, little fuel being consumed. But when the supply of water fails, or the work is greater, for longer or shorter intervals of time the speed of the water-wheel is decreased, then

this governor instantly opens the steam upon the engine, which in turn supplies just the amount of power needed to supplement and maintain the requisite speed of the line shaft, so that, as long as the power from the water wheel is sufficient to overcome its own friction and that of the line-shafting, so long will its own water be utilized, even when it would be insufficient alone to accomplish any work at all beyond, overcoming said friction. *Saw Mill Gazette.*

To Prevent its Bursting.

An old lady read a paragraph in one of the papers the other day describing how a grindstone burst in a saw mill and killed four men. She happened to remember that there was a small grindstone down in the cellar, leaning against the wall; so she went out and got an accident insurance policy, and then, summoning her servant, and holding a pie board in front of her face so that if the thing exploded her face would not be injured, had the stone taken out into the road, where twenty-four pales of water were thrown over it, and a stick was stuck in

the hole bearing a placard marked "dangerous." She says it is a mercy the whole house was not blown to pieces before this *Wood and Iron.*

Brisk Work.

Since the Messrs. Rathbun began operations here a few weeks ago, their workmen have turned out 25,000 railroad ties besides large quantities of lumber and lath. The ties will be sold to the Grand Trunk Company to assist in supplying the never-ceasing demand for new material on that great line. Estimating the distance between the ties at three feet, the great pile now waiting shipment which has been sawn in so short a time, is sufficient to cover over fourteen miles of track. The mill will be shut down for the winter, shortly, and next year it will loom up double, or perhaps triple, its present size, and employ probably a force of men twice as large as that now employed.—*Campbellford Herald.*

THE Doran saw mill at Sharbot Lake, was burned Oct. 28th,

THE SOURCES OF NATURAL GAS.

This a vital question with the entire western coal and iron districts, says *Bradstreet*, and especially with the country now adapting all its industries, as well as all its domestic requirements, to the use of gas as fuel. The western slope of the Alleghenias is the great natural gas field, but in addition to the coal formations proper, a vast area of shale and of limestone and salt-yielding formations is found to yield abundantly the natural gas, as the product apparently of chemical action constantly going on. Nearly all the land surface of Central and Western New York is at least interruptedly, if not connectedly, charged with valuable deposits of gas-generating strata. It appears that the late geological formations are all penetrated by hydro-carbon compounds in some form, and that the presence of the gaseous forms is the result of continuous chemical action of the decomposition of other mineral forms, and therefore is now as free in its yield of gas as at any time since the existence of gas springs or wells was known.

Now that four-fifths of the iron and steel works of Pittsburg have prepared for the exclusive use of gas as their reliance for fuel, it is a business necessity to reduce this scientific question to the most practical form. All the cities and large towns of the coal and iron regions west of the Alleghenias, or north of them, as may be more appropriately said of western New York, are preparing for gas as fuel, as well as for purposes of illumination. The plant of piping already laid down is not unlike that of the earlier pipe lines for the transit of oil, and it is probable that the Pittsburg region may send a gas pipe line quite to the seaboard. Such a line is already projected, but it would be a serious business disappointment of the prolific gas wells of Butler county should in a year or two run dry.

Geological searches have been ordered into the probabilities of gas supply throughout the western counties of Pennsylvania, and some partial report has been made indicating a belief in the permanency of some degree or undefined measure of supply, but not on the point of continued and unfailing fullness. This is, however, the central question in the case: Can these wells be piped and tubed as far as the gas may be made to flow without the risk of early exhaustion? In answer to this question it may be safely assumed that the petroleum formations will yield gas even longer than they will oil. The strata permeated with oil will yield more gas, rather than less, by the drain which permits some air to enter the cavities, or rather permits the evolution of hydrogen from the water with the oil. Any movement of these retained fluids brings new surface in contact to work the oxygenation and hydrogenation of the carbon of the oil-bearing strata. And as all the shales are carboniferous, if not oil bearing, these shales yield gas when they do not yield oil. Such is the case in many parts of western New York and Canada, as well as in Ohio, although there are few of the deep shales west of the New York line.

The best scientific view of the case, avoiding scientific technicalities, is that this gas is continuously formed by the common presence of the hydro-carbon oils and water, and this without limit of quantity or prospective exhaustion. The whole body of these carboniferous stratas abound in free oils, and in hydro-carbons, which constantly change their forms by further hydrogenation or oxygenation, or both. The dense liquid form becomes thinner, and if exposed to the air it changes rapidly to the volatile or gaseous hydro-carbon. If this change goes on in the presence of water the resulting gas is carbonic oxide, which is the best form for illumination. And the change to this form is increasingly favored by the boring and extracting of petroleum. It is in part generated when the pressure on the subterranean oil is relieved when a great new "gusher" is struck in boring.

The general conclusion is in favor of permanency in the productive capacity of the gas even more than the oil. It is probable that atmospheric air would be deprived of its nitrogen, and would acquire hydrogen and carbon by contact with these formations beneath the surface could this contact be brought about.

The force with which the out-flowing gas is thrown indicates constant accretion of like matter. There would be more gas if there was room for more.

A change of stupendous magnitude has already taken place in the year elapsing since the notice of the hydro-carbon fuels were written in *Bradstreet's* of July 5th, 1884. What was then speculatively stated as being possible has become more than practical reality. The timid, who thought it might possibly be utilized, have become the most confident investors in the costly plant of piping for transportation of gas to great distances. And, as before stated, four-fifths of the iron and steel works of Pittsburg and Allegheny are now actually making their product by the use of gas fuel alone. If this should prove an only temporary reliance, and if the gas wells should soon exhaust the supply, the consequence would be singularly disastrous. They will not become exhausted, however, because the laboratory of nature is even more actively in progress to create this form of matter as the earth's surface is pierced to liberate it from the submerged strata. It will continue to be generated in the expressive language employed to describe the perpetual peace insured by the early treaties with the Indians, "as long as fire burns or water runs."

STRAIGHTENING SAW ARBORS.

What is the matter with the circular saw? Something is wrong with that machine. Listen to the peculiar noise it makes. When it starts and stops it sounds as though the saw was bent so that it struck against the saw bench. You have examined the saw very closely and find it nearly true and perfectly round. The trouble is not in the saw itself; but where is it? That is the question. The boxes are in good condition, well fitting and fit the arbor. There is no trouble there, and we are beat again. Do you give it up? Well, then, the trouble is in the arbor itself; it is "sprung." In plain English, the saw-arbor is bent just back of the collars. Here is a nice job for us. We will take that arbor to our "engine" lathe, and after thoroughly cleaning out the centres of said arbor, we will put it into the lathe and revolve it by hand, at the same time holding a piece of chalk against that portion of the arbor which runs out most, or in other words, shows the greatest degree to wobble. A nice and delicate method of doing this is to put a crayon into the tool post and bring it up to the desired spot by means of feed and cross feed.

By all means determine the exact point where the eccentric movement is the greatest. Mark this point and then take the arbor from the lathe and get a pressure upon the marked spot of greatest eccentricity. A screw press is the best method of doing so, but by placing the arbor upon two solid bearings equi-distant from the marked spot, a hammer blow delivered upon said spot will spring the arbor.

Care must be taken not to strike too hard or the arbor will get sprung too much. It will "run out" on the opposite side, and you will "laugh out of the other side of your mouth." Continue testing and bending the arbor until you can detect no error in its running. Then you can put it in place with confidence that the saw will run true.

The arbor can also be straightened without removing it from the lathe, but it is a barbarous method. It causes the lathe to suffer, and a true mechanic will not do it. The way it is done is to mark as before, turn the marked place uppermost, and by means of a block of wood and a lever, to pry up exactly underneath the mark and then strike upon the mark with a hammer. A semi-circular set to fit the arbor will prevent hammer marks. The man who uses this method will get a straight arbor every time, and get it very quickly, but the same man will be lazy enough to sit on the door step and smoke a T D pipe while his wife chops firewood enough to cook his dinner.

We have straightened saw-arbors without either lathe, press or lever. It is a "rule of thumb" method, however, and like the quack M. D.'s medicine, it is sure to "kill or cure," and kills every time if you do not guess right. We marked the arbor while running in its bearings, made the mark permanent by means of a centre punch, heated the arbor in a stove and

got a pressure on the bent part by means of an iron bench vise. We guessed just right. bent the arbor just enough, and when the saw was started again it ran perfectly true. Never try this method if you have tools to do it the right way. If you have no tools and your neighbor has a machine shop full, then send the job there by all means, and not run the risk of spoiling it through trying a "by-guess" method.—*Cabinet Maker.*

THE PRESERVATION OF TIMBER.

A writer in the "W. T. I.," a journal published by the students of the Worcester Technical Institute, contributes the following interesting article on the preservation of timber, a subject which is of growing importance when it is considered that the sources of supply are growing less and less every year:

"The last census gave many unpleasant revelations concerning the proximate extinction of many of the forests, which have hitherto been so bountifully productive. These revelations make it apparent that the time cannot be far distant when our people will have to stop the waste of timber which has been going on, and resort for many purposes to the artificial preservation of wood from decay. Although iron and steel are being more and more extensively employed, yet the amount of wood which is used in our mechanical structures at the present time and which will without doubt continue to be so used for a long time, is surprisingly great. Consider, for example, the enormous draught made upon our forests to supply the ties requisite for one hundred and twenty-two thousand miles of railway in this country, allotting to each mile twenty-eight hundred ties. The average life of a tie is not far from six years, and at twenty cents a tie, the value of those laid yearly foot up \$11,386,636. It will be readily seen, therefore, that any process or processes, practical and economical, which applied would prolong the life of a tie ten or a dozen years, would effect a saving of millions of dollars.

"In the thesis, of which this is an abstract, the writer made use of the following classification of conditions, to which timber is ordinarily subjected: Timber in dry situations, timber in fresh water, timber in salt water, timber in damp situations, timber alternately wet and dry.

"A careful study of the above conditions gave the effects produced in timber, and also certain of the causes of these effects. For the determination of the remaining causes, the germ theory of decomposition, as advanced by Pasteur and Tyndall, furnished a ready means. This theory, in brief, is that the phenomena or organic decomposition are caused by the presence and action of living germs. Examine a crack or wound in the trunk of a living fir tree. It will be found that, by a natural process, a resinous substance exudes, which closes the wound against the agents of destruction. The bodies of mammoths preserved in ice through countless ages; the trees of primeval forests, excluded from the air, beneath thick deposits of peat, the fragments of wooden piles, which have endured undecayed for centuries, when driven deeply below the surface of water, all confirm the belief of Pasteur and Tyndall, and prove that the exclusion of germs prevents putrefaction. The writer made no attempt to draw the dividing line between the decomposing action of germs and the action of ordination. It was sufficient to submit that all influences which either destroy or exclude germs, will prevent decay, only permanent effects must not be expected from agents which are not themselves permanent and abiding.

"The germ theory then becomes a salutary test in choosing antiseptics for the treatment of timber. Such treatment is of little value unless its effects will endure for long periods. Reliance must not be placed upon those germicides, however potent, which will readily volatilize or dissolve in water. The substances to be employed should by preference be antiseptics in a double sense; they should be both germicides and germ excluders. From all research and experience, it would appear that the best antiseptics for timber are to be found among oils and bitumens, preference being given given to those that contain germicides. Of all processes, looking toward the preservation of timber, no one called

creosoting has unquestionably given the best results, and it has practically forced all its rivals into obscurity by a species of 'survival of the fittest. As the name of the process implies, creosote is the preserving agent, and is obtained by distilling coal tar. But first let us see what the term 'creosote' implies. This is important, seeing that it does not imply any compound of fixed chemical composition. It is in fact a composite liquid, made up of a variety of chemical bodies in differing proportions; the quality depending first, upon the kind of coal from which the tar is obtained: second, upon the details of the distillation and treatment. Broadly speaking, it is that portion of the distillate which comes over when the temperature is three hundred degrees Fahrenheit. It may be taken that about one-third the bulk of coal tar consists of creosote, or, as it is commonly called, 'dead oil.' It contains, first, germicides in the shape of carbolic and cresylic acids; second, germ excluders in the shape of certain bituminous bodies which solidify within the pores of the wood.

"The method of treatment which is generally considered to be the most thorough, practical, and rational is, that which involves, first, the subjection of the timber in close vessels to the action of high pressure steam for a sufficient length of time to enable the steam to penetrate all the cells of the wood, and to vaporize the liquids contained therein, these being afterwards removed by a vacuum pump. After this preparatory treatment, the creosote is forced into the cells of the wood under powerful pressure, the quantity of this substance being regulated according to the use for which the timber is destined. If simply to be used for bridges or other elevated structures, the quantity of creosote required is less than for ties; if for piles exposed to the attacks of the Liredo, the largest amount which can be forced into the wood becomes necessary. A railroad tie, skillfully and conscientiously treated with creosote, will endure, undecayed, until it is actually destroyed by the mechanical action of the rail, a period varying from twelve to twenty-four years.

"In many localities the cost of timber is still so low as to preclude any treatment of this kind, but there are many others in which its cost has already increased beyond that point where creosoting may be profitably employed. The area of such localities is continually increasing, hence no prophet is required to foresee that in the near future the adoption of some preservative process for timber will become imperative."

BRITISH COLUMBIAS BIG TREES.

Speaking at Winnipeg, the Governor-General (Lord Lansdowne) thus referred to the timber of British Columbia, from which Province he had just returned:—

I shall always consider myself fortunate in having been compelled to ride on horseback by easy stages over this most interesting section of the line. New wonders are revealed at every turn of the road. Snow capped pinnacles of vast height and fantastic shape, great glaciers, precipitous cliffs, raging torrents, tranquil lakes, while almost throughout the whole length of the journey there rise on all sides trees the like of which I had never seen nor dreamed of. I shall never forget the spot in which our camp was pitched on the evening of one of the two days which we spent in traversing the gap. Our tents stood in a narrow glade surrounded on every side by cedars, not the cedars which we are used to in old Canada, but the variety to which the botanists have very properly given the name of *Gigantea*, and which tower 200 feet and more towards the sky. By the light of our camp fire it was possible to see these huge grey stems stretching upwards till they lost themselves in the darkness, reaching, for all we knew, to the stars which twinkled down upon us from the vault above, and this grove, the trees of which were probably nine or ten feet in diameter, was only a fair sample of the forest which, composed partly of these and partly of the beautiful Douglas fir and hemlock, clothed the hillsides for miles on either side of us.

LIFE AND CHARACTERISTICS OF FOREST TREES.

Eloven years ago I examined the stumps of two white oaks and the grave of the third, which told this singular story by circumstantial evidence so strong that it could not be doubted. In the year 1502 an acorn fell about one half miles from where I am now writing, (Rockville, Ind.) and by favorable chance sprouted and grew into an oak. In 1594 another acorn sprouted about 20 feet distant from it. It may have grown on the tree mentioned, as it was then 92 years old. In 1731 a tornado from the northwest blew down a still older oak, which in its fall struck against and greatly damaged the top of the one born in 1502. There is to-day the well-marked grave of the fallen giant, the dirt piled upon the southeast side of the hole, and a long depression in the ground where the trunk fell and rotted till not a vestige of its wood can be seen to-day (though some traces of the bark of the roots can). This depression points to the stump of the damaged oak. The two younger had been freshly cut down when I examined them. Their stumps were about four feet across and there was not over an inch difference between their diameters, though 92 years difference in their ages. The younger had a large, healthy top, no broken or dead limbs, and it had put on rings of growth from the beginning of more than average size. The older one had been injured in its branches by the fall of the still older one before mentioned (in 1731) and for 57 years had put on very small rings of growth (about 25 to 30 years to the inch instead of twelve to fifteen, as it should), when a new set of branches developed to take the place of the damaged ones, and the rings began to increase in size and gradually attained to the average. I examined their tops, which coincided with what has gone before. There were the peculiar knots in the top of the older one where the dead limbs had rotted off and were healed over. (Any expert timberman will readily recognize them.) During this delay the younger oak caught up with the older one in size. The size of a tree is a very uncertain indication of its age.

In all the cases of the hundred I have examined of the oaks (the oldest trees of the forest I think), I never saw but one that was here when Columbus discovered America. That one was by far the largest I ever saw, and was over 600 years old, about twice the age of the other largest ones. I could not get its exact age, as it was so decayed near the heart I could not distinguish the rings. It was between six and seven feet in diameter, and forked about sixty feet up, and each fork was as large as the other largest trees. It was not sound enough to make good lumber, being what in this region is called "doughty," a state between soundness and rottenness. It had been down a year before I examined it (being out of the country when it cut), so that it was very difficult to examine it. I have mislaid my memorandum of it, but it would be about as follows: At the age of 200 years it had some ill-fortune which caused it to form about 100 small rings. It then regained its health and formed normal rings for 140 years, when another mishap caused small rings till within the last fifty years, when it was putting on fair growths again. This tree was, about one and a half miles from Rockville, Ind., and was noted among hunters and woodsmen. It was a disagreeable, showery day when I examined it, and for that reason I did not examine its top to see if dead and lost and healed over limbs coincided with the small rings, but I have often done so in other cases and found them to coincide.

Last May (1884) I examined a sycamore and water elm in the Wabash River bottom, the former six feet in diameter, and the latter five, each 180 years. They stood about 150 feet apart. They were standing on the upper end of a newly made bottom (I mean new as compared with the higher and older bottoms a little more inland from the other, say 200 years old.) This was the largest sycamore I ever saw that was sound to the heart. I have seen hollow ones nearly eight feet in diameter. This tree seems never to have met with any mishap till the log man came along, as the rings of growth are unusually large.

These trees very probably sprouted twelve to fifteen feet below the present surface of the bottom. They generally begin life on the lower end of river sand bars, and as sedimentation builds up the surface, they put out new surface roots at every two or three feet of elevation. Such trees, with their several sets of surface root, are often seen in drift piles, and also still standing on the verge of a deep river bank, where one side is exposed by the erosion of the river. Their roots are often hollow, like their trunks, the hollow (and root too) decreasing in diameter downward until it terminates in a point, like a cone standing on its point. In the southwest corner of this county is a hollow cottonwood stump on what is now a high bottom of the Wabash, in which the hollow extends downward twelve feet. Mr. Joseph J. Daniels an intelligent, observing man, on whose land it stands, told me so. Such silting up over the surface roots would kill most of the upland trees, or those that grow from the high bottoms.—Naturalist.

VALUABLE FARMS FOR SALE.

PARCEL 1
BREYDON FARM.—South Quarter, Lot No. 20, Concession 5, Eully. Fifty acres more or less; 40 acres cleared. Soil clay loam, land rolling. Well fenced with cedar rails, in good repair. The buildings consist of a log shanty and a 16g barn. Ten miles from Peterborough and five miles miles from Omameo.

PARCEL 2.
SHEA FARM.—Lot No. 23, Concession 10, Smith. 200 acres more or less. Soil, part clay loam and part sandy loam. About 150 acres cleared, remainder timbered with mixed wood. Land rolling, watered by a good creek. Ten acres of fall wheat and a large quantity of fall ploughing done. Buildings consist of frame rough-cast house, one storey and a half high, with stone foundation and collar well finished. New "Bank" barn with stone foundation, 65 feet by 30 feet, and 12 foot lean-to. 10 miles from Peterborough and 2 miles from Lakefield.

PARCEL III.
RUNNING FARM.—East half of Lot 29 and South East Quarter Lot 30, Concession 10, Otonabee. 150 acres more or less. Soil clay loam. 130 acres cleared and in good state of cultivation, considerable portion the drained. Machinery can be used on 100 acres. Well watered. Buildings consist of log and frame house with suitable sheds and outbuildings. One frame barn, 60 feet x 30 feet, in good repair, with sheds and stables attached. One new "Bank" barn, 60 feet x 30 feet, with large stone cellar. There is a large and valuable Orchard. Three miles from Peterborough. Communication by Norwood Road.

PARCEL IV.
KELLY LOT.—Lot 16, Concession 6, Douro; 200 acres more or less. 80 acres cleared and fenced; new land, only one crop having been taken off it. Remainder timbered with hard and soft wood. Soil, clay loam, extra good. Watered by a never-falling spring. A large quantity of ploughing done. One mile from Lakefield.

PARCEL V.
DUNBAR FARM.—Lots 6 and 7, Concession 10, and lots 7 and 8, Concession 10, Verulam, 600 acres more or less, all contiguous soil. Part clay loam and part sandy loam. Lots 7 and 8 Con 10, front of Pidgeon Lake. Between 300 and 400 acres cleared. Machinery can be used on over 200 acres. All well fenced. Buildings consist of a large new two storey brick house, well finished; large frame barn, frame stables and sheds, all in a good state of repair. About 4 miles from Bobcaygeon, and 20 miles from Peterborough. This property is exceptionally well suited for both grain and stock.

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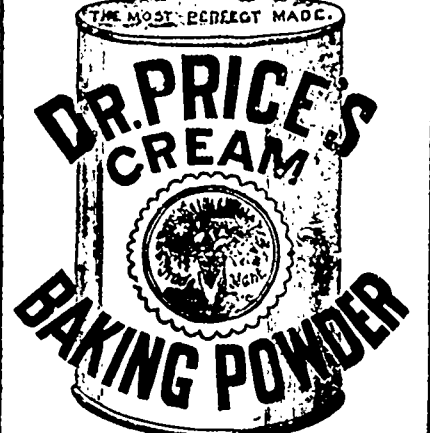


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THE CANADA LUMBERMAN is sold at the Offices of Messrs. SAMUEL DRAGON & Co., 154 Lead-hall Street, London, England, who also receive advertisements and subscriptions for this paper.

PETERBOROUGH, Ont., NOV. 16, 1885.

THE Maine lumber operators, with one or two exceptions, have agreed to employ no men in the woods the coming winter unless they have recently been vaccinated.

THE Brunette sawmill, British Columbia, received a log one day last month which measured 110 feet in length and 52 inches in diameter at the small end. It was straight and free from knots the whole length.

MESSRS. Mack, Howes & Belts, of Winnipeg, have established a mill for silver quartz crushing and a saw mill at Otter Tail, N. W. T., near the Rockies. They will begin the regular manufacture of lumber next spring.

THE depression which has existed for some time in the shipbuilding trade of the Clyde is increasing in severity. There are so many men out of employment that the relief committee find great difficulty in supplying aid to them. There was forty-seven stow-aways discovered in the hold of a vessel which was about to sail for America.

A NEW fuel, or an old fuel in a new form, is being manufactured at Cow Bay, Cape Breton, by Messrs. Archibald & Co. It is the slack coal pressed into the shape of bricks. In this way a good deal of coal dust that has been selling for from nothing up fifty cents per ton at the mine is utilized in this solid form, especially for steamship use and in the shape of bricks realize \$2 per ton.

AT their convention last summer the lumbermen of the northwestern States decided that it was necessary, in the interest of trade, that the production should be largely curtailed. It is now reported that the output next season gives promise of being fully up to the average. It would appear from this that many of the lumbermen must have attempted to take advantage of the decision to make a curtailment and prepared to have a large supply, to reap the fuller advantage from the comparative scarcity, and thus forced others into preparing to make a large cut.

THE value of the produce of the forest exported from Canada during the month of September was \$3,667,603, of which \$3,232,252 was the produce of Canada. The total value of the goods exported during the month was \$9,451,130.

THE extensive saw mill including shingle mill, etc., belonging to Mr. Roy, at Emiloiville, Que., was totally destroyed by fire on Nov. 5th. The loss is a public one, as besides the loss of the saw mill, the dam has been temporarily rendered useless and stopped the flour mills and other machinery on that section of the Black river. The loss to the owners runs well up into the thousands. Origin of the fire not known.

THE London Timber Trades Journal of Oct. 24th, says:—We understand that Messrs. Bryant, Powis & Bryant have purchased the whole of the Chaudiere spruce, this season's cutting. These goods are pretty well known to London buyers, through the medium of the said firm, as the Breaky spruce, several large cargoes coming in the early part of the present year to their account. The mills on the Chaudiere River near its juncture with the St. Lawrence, opposite Quebec, have greatly extended their operations the last ten years.

WOOD-WORKING PATENTS.

The following list of patents relating to the wood-working interests, granted by the United States Patent Office, October 27th, 1885, is specially reported by Franklyn H. Hough, solicitor of American and Foreign patents, 925 F. Street, N. W., Washington, D. C.

328,966.—Boring machine—L. C. McKnight & H. C. Knowlton, Gardener, Mass.

329,381.—Lathe—R. C. Fay, Hopdale, Mass.

329,105.—Lathe, automatic—H. Voigt, Wurzburg, Germany.

328,954.—Sawing machine—D. M. Maxon, Bay City, Mich.

329,002.—Sawing machine, portable—E. Beghtel, Huntington, Pa.

PATENTS ISSUED NOV. 3.

329,704.—Logs on wagons, device for loading—J. T. Bond, Little Lot Tenn.

329,669.—Lumber drier—A. S. Nichols, Chicago, Ill.

329,823.—Planing and matching machine—W. M. Dwight, Detroit, Mich.

329,531.—Saw, drag—A. P. Boston, Eureka, Tex.

320,554.—Sawing machine, tree and log—W. E. Hill, Kalamazoo, Mich.

A NEW BAND SAW.

THE Wm. Hamilton Manufacturing Company will, in a few days, have completed a new style of band saw, which, it is altogether likely, will revolutionize the lumber cutting in large Canadian mills.

Milne Bros., two Scotchmen, from whose designs the company are manufacturing the new saw, are now at the company's foundry personally superintending the construction of the machine. The ordinary band saw is an old invention, they having been in extensive use in England and France many years ago and in the United States for the last five years. But over the ordinary band saw the one now being made by the Hamilton Company possesses an overwhelming advantage. In the ordinary saw the carriage is tilted back at every cut. This effects a great loss of time and the backward action scarifies one side of the board. The way this band saw works is this: The log comes up the gang way, is rolled along the skid to one of three carriages. These carriages are detached, and each one holds a log, dogged at the end. The carriage passes along and the saw passes through the log. But while its successor is going through the same process the log on number one carriage is switched off to a set of back carriages and by the time number three carriage is approaching the saw number one is again ready. And this is the great advantage. It is the invention of Milne Bros. A continuous cutting is effected, the boards are clean and not the least scarified, and lastly there is an economy effected in the band saws themselves for

one of these will last just as long while cutting through a log as it will by running idly on the pulleys. The carriages may be all joined so that long timber may be cut.

The pulleys on which the band saw runs are five feet in diameter and five inches thick. They are faced with birch and are re-faced with rubber. These revolve one directly above the other. One pulley sits under the floor, while the other, supported by a heavy iron column, thirty inches square at the base and fifteen inches square at the apex. On these pulleys the band saw runs like a common leather belt, the top pulley being adjustable, so as to give tension or slacken the tightness. The size of cut is also under the easy control of the Sawyer, who, by touching a lever, can set the saw for cutting thin or thick boards as the case may require.

In regard to the quality of workmanship which has been done by the Hamilton Company Mr. D. F. Milne, who is a canny Scotchman, and one from whom no one would expect to hear overdues praise, said, "It's as guid as I've seen done in America." This is the first band saw that has been made in Canada.

As the timber supply is now rapidly on the decrease, the question of economy is much more closely looked into than in former times. The band saw has, in this respect, an unquestionable advantage over circulars. The latter takes a cut of about a quarter of an inch, while the former, even when widely set, takes a cut of less than an eighth of an inch. It will be seen, then, that a saving of about 20 per cent. is made.

THE SAFE SIDE.

The natural and commendable desire to be on the safe side in making a calculation may be, and often is carried to an extreme which leads into a greater error than that which it is sought to avoid. A man is going to put in an engine; he has often heard and read of the wastefulness of too small a motor, and so to be on the safe side he orders an engine is correctly proportioned for about four times the load which it will be run under, reasoning that a big horse can drag a little load, but a little horse cannot drag a big load. There is this difference between the horse and the engine, that while the big horse might not cost any more to buy or to keep, both the selling price and the cost of running an engine increases with its size, owing not only to the increased friction of the larger machine, but to the fact that in order to keep it from exerting its greater power it must be run with low steam, a high grade of expansion, and at a very low speed. The owner finds, in consequence, that he has paid a number of hundred dollars more than he needed to for a machine which is less economical than the smaller and cheaper would have been, in order to be on the safe side.

It is quite possible, though not so frequent in occurrence, that the boiler power may be too great as it is too little, and as for the boiler material the government authorities are obliged, in the interest of safety, to restrict the fire sheets to a given thickness.

Many superintendents and managers will, to be on the safe side, fit their boiler room up with all manner of patented traps and get it where it will almost run itself, or so that "anybody can run it," and then to be on the safe side of the ledger they put any "thing" to run it. Any "thing" depends upon the safety automatic machinery to look out for everything—he does not even look after the machinery itself, and when it slips up at some critical moment with more or less damage who is to blame? Any "thing," the automatic safety appliance, or the man who substituted it for brains, to be on the safe side.—*London Journal of Commerce.*

THE ECONOMY OF FUEL.

D.K. Clark in his work upon the economy of fuel says, "that only two methods present themselves, by which the supply of air and the wants of the furnace can be made to correspond—either both must be made constant and regular or the fluctuations of one must be made to coincide with those of the other," and he proposes to achieve the desideratum sought by admitting an increased supply of air at the periods of coal-burn by throwing open a sliding valve in the face of the door which immediately commences closing

slowly and automatically, and affords a greatly diminished supply of air to the furnace in harmony with the greatly diminished requirements of the fuel. The area valve, and the period of time throughout which the act of closing is to be prolonged being adjusted according to the nature of the coal and the average quantity supplied at one time. The outer furnace should be double and the air should pass into the furnace through a series of perforations in the inner plate.

TIMBER AND LUMBER IN BRITAIN.

The imports of wood by Great Britain and Ireland during September last, says the *Monetary Times*, were nearly 20 per cent. greater than in September of 1884, but taking the calendar year thus far there is a decrease in imports. The quantity of hewn timber which entered the port of the United Kingdom during the nine months ended with September last was 1,521,146 loads, that of sawn 3,122,273 loads, making in all, 4,643,418 loads. The quantities imported by Great Britain and Ireland during the like period of the previous year were very nearly the same, there is not two per cent. difference in the aggregate. Nine months, 1884, the figures are: hewn, 1,571,416 loads, sawn, 3,143,810 loads; making a total of 4,714,226, being some 70,000 loads more than this year. The *Timber Trades Journal* tabulates the imports at 118 ports, being 74 in England and Wales, 26 in Scotland and 18 in Ireland. First comes London, which gets a fourth of all the wood that comes in. That port has this year had 22,000 loads of timber less, and 130,000 loads of lumber less than last. Liverpool, while showing a lessened import of sawn (289,000 against 325,000), received considerable more hewn. The figures of Hull are much the same as the previous year. Cardiff, which is the great importer of hewn timber, shows, this year, a decreased import of 41,000 loads, equal to 20 per cent. Leading Irish and Scotch ports, with the single exception of Grangemouth, have taken less this year than last. We append comparisons:—

	Nine Mos. 1885.	Nine Mos. 1884.
	Loads.	Loads.
London.....	972,166	1,064,904
Liverpool.....	433,356	461,955
Hull.....	335,463	335,447
Cardiff.....	276,465	325,776
Hartlepool, West.....	228,698	247,296
Grimaby.....	233,134	167,421
Newport, Mon.....	134,976	147,503
Bristol.....	100,578	104,992
Grangemouth.....	146,950	103,745
Sunderland.....	107,324	101,436
Newcastle.....	105,203	90,059
Gloucester.....	102,082	73,568
Greenock.....	85,679	78,114
Leith.....	66,846	60,092
Glasgow.....	45,890	53,200
Dundee.....	41,395	43,663
Dublin.....	65,793	67,672
Belfast.....	58,017	60,517

THE HOOK OF A CHAIN.

Here is another place where the working mechanic, in trying to forge out a hook for a chain, weakens the material, distorts the fiber, and abuses the strength of the iron by the strains left within the hook when finished. It is the only portion of a chain that must endure the breaking, bending, and stretching tendency of a load at an off-hand disadvantage; every strain must be taken to one side to allow the chain to be unhooked from the other, and has every tendency to disturb the curative of that graceful reversing curve that forms the back of the hook of a chain. If a hook could be so proportioned that even an expert would find it difficult to decide where it would break first, it might answer for many purposes, but there are places where this theoretical hook would be treacherous. A flattened hook is the stiffest, and where it is left the thinnest in the back edge, gives the most strength for a given amount of material it breaks without warning. What a workman needs, where life is in danger, is a hook that will give some indication of being overloaded before it breaks. It is a desirable feature in every structure to have some of the working parts so constructed as to give the workmen notice of an impending break down. The foundrymen, with their glowing material, would prefer to see the opening in the hook of their



THE TANITE COMPANY

STROUDSBURG,

MUNRO COUNTY PENNSYLVANIA, U. S.

MANUFACTURERS OF

SOLID EMERY WHEELS

AND SHARPENING MACHINERY.

The products of the Manufacture of the Tanite Company have, for almost 18 years, enjoyed a great reputation, and have been recognized for a long while, in all the countries of the world as a type of excellence in this class of work. In order to increase in Canada their already widely extended use, the Co'y has recently added to the liberality of its terms and conditions, and has chosen the following Houses, so extensively known, to be its Agents:

BEAUDET & CHINIC	} QUEBEC.	MONTREAL SAW WORKS	} MONTREAL
F. H. ANDREWS & SON		MACHINERY SUPPLY ASSOCIATION	
G. A. PONTBRIANT	SOREL.	R. H. BUCHANAN & CO.	
A. R. WILLIAMS,		TORONTO.	

chain spread out a little, far enough to attract attention, than to create a disturbance that would be detrimental to their own welfare by the break of a chain.—Boston Journal of Commerce.

LIVERPOOL.

The Timber Trades Journal of Oct. 31st says:—There is still no improvement in the state of business in Lancashire and Yorkshire; the anticipated liveliness which was expected to be shown after the termination of the strike in the Oldham district has so far not shown it, self.

We are now so far advanced in the year that the probability of any better time being experienced in 1885 becomes every day more remote for when the excitement of the municipal and Parliamentary elections is over, which will as usual greatly interrupt business, we shall then be closely approaching the end of the year, when, of course, the consumption is limited to what we may term hand to mouth dealings.

The arrival of timber vessels continues to be of moderate proportions only, though there is an accumulation of vessels lying in the river at present, which have been unable to dock owing to the recent gales and the heavy sea running in the river. These comprise one cargo of pitch pine, one of Quebec goods, and two of timber from Quebec, whilst the deal cargoes are represented by two cargoes of St. John N. B., eight cargoes of Lower Port, and one cargo of Baltic deals, so that when the gale subsides, of which there is every appearance now, these vessels will get into dock; and even if there be no great amount of delivery going on the discharge of this number of vessels will at any rate give some show of animation to the dock, which at present is lacking.

The announcement of a reduction in railway rates on timber from Liverpool to Manchester, and the immediate district, will be a source of gratification to the dealers and consumers in that neighborhood.

The London and North-Western, the Lancashire and Yorkshire, and the Cheshire Lines

Committee have agreed on and after the 2nd November the station to station rate for timber and deals between Liverpool and Birkenhead to Manchester shall be reduced from 7s. 7d. per ton to 6s. 3d. per ton.

How far the various railway companies have been influenced by the proposed Manchester Ship Canal cannot be said, but the general opinion is, that had it not been for the agitation set up by the promoters of this scheme, these concessions would not have been made.

LIVERPOOL TIMBER SALES.

On Friday last Messrs. Farnworth & Jardine sold by auction, on the quay of the Canada Dock, about 50,000 cubic feet of St. John, N. B., birch, &c., timber, which sold well considering the heavy imports of this wood with the market has been laden recently.

Messrs. A. F. & D. Mackay's sale on Thursday last attracted a moderate attendance of buyers, and taken all sound poices obtained for the goods sold were quite as good as could have been anticipated. The small parcel of spruce deals ex nnie brought higher prices than have ruled hitherto, especially for 11 in., which are comparatively scarce. As the Fanny Atkinson, from Miramichi, had not arrived, the pine timber mentioned in the catalogue was withdrawn, likewise the birch and spruce lgs, with the exception of two lots of the former. For the stored woods per Camperdown and Kate Cam there was no bid.

GLASGOW.

The Timber Trades Journal of Oct. 31st says:—The public sales to note here within the past week have been confined to those of mahogany and walnut.

Parcels of deals continue to arrive pretty freely per steam liners from Quebec and Montreal, the quantity for the week amounting to 45,303 pieces. Other imports to Glasgow during the past week have been a cargo of birch timber from Guysborough, N. S., and various parcels of staves, &c., per steamers from New York. Since the beginning of this year there has been a total import of 628,730 pieces of Staves staves to

Clyde, which is about the same quantity as at corresponding date last year

At Greenock the imports for the week comprise two cargoes of Rangoon teak, besides of Quebec timber. The year's import of teak, to date, amounts to 12 cargoes aggregate register tonnage 9 255 tons, showing an increase as compared with last year.

At the Dean of Guild Court several linings have been taken off lately, and house builders generally appear to be fairly well employed at present; we notice too, from report of heritable property sales on 28th inst., that three sales were effected at an advance on the upset prices.

On 27th. inst., at Queen's Dock, Glasgow, Messrs. Farnworth & Jardine held an auction sale of mahogany and walnut. The mahogany consisted of a cargo from Santo Ana just landed, and comprised 404 logs, 132,000 sale feet. Prices obtained were from 25d., to 10d., averaging 4 1/2d. per foot; two lots went at 25d.; 3 logs cedar brought 25d. and 3d. per foot, and 9 log ends mahogany (large squares) 6d. per foot, 2 log ends 3d. per foot. The entire cargo was sold.

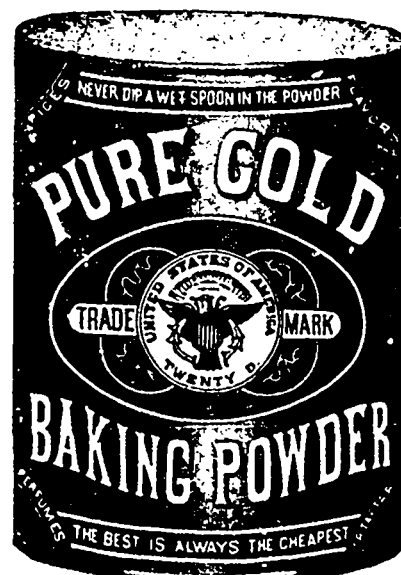
Catarrh—A New Treatment.

Perhaps the most extraordinary that success has been achieved in modern science has been attained by the Dixon treatment for Catarrh. Out of 2,000 patients treated during the past six months, fully ninety per cent. have been cured of this stubborn malady. This is none the less startling when it is remembered that not five per cent. of the patients presenting themselves to the regular practitioner are benefited, while the patent medicines and other advertised cures never record a cure at all. Starting with the claim now generally believed by the most scientific men that the disease is due to the presence of living parasites in the tissues, Mr. Dixon at once adapted his cure to their extermination; this accomplished the Catarrh is practically cured, and the permanency is unquestioned, as cures effected by him four years ago are cures still. No one else has ever attempted to cure Catarrh in this manner, and no other treatment has ever cured Catarrh. The application of the remedy is simple and can be done at home, and the present season of the year is the most favorable for a speedy and permanent cure, the majority of cases being cured at one treatment. Sufferers should correspond with Messrs. A. H. DIXON & SON, 305 King street west, Toronto, Canada, and enclose a stamp for their treatise on Catarrh.—Montreal Star. 17122.

Advice to Mothers.

Are you disturbed at night and broken of your rest by a sick child suffering and crying with pain and cutting teeth? If so, send at once and get a bottle of Mrs. Winslow's Soothing Syrup for children teething. Its value is incalculable. It will relieve the poor little sufferer immediately. Depend upon it, mothers, there is no mistake about it. It cures dysentery and diarrhoea, regulates the stomach and bowels, cures wind, colic, softens the gums, reduces inflammation, and gives tone and energy to the whole system. Mrs. Winslow's Soothing Syrup for children teething is pleasant to the taste, and is the prescription of one of the oldest and best female nurses and physicians in the United States, and is for sale by all druggists throughout the world. Price 25 cents a bottle.

TRY



For PURITY,
WHOLESAOMENESS,
And STRENGTH
It stands without a Rival!
Pure Gold Manufacturing Co.
AIRPORT, N. Y., and TORONTO, ONT.
17122

ROOFS OF PAPER.

A roof superior to that of slate, because of its lightness and other advantages, is now made of any fibrous pulp. From this material tiles of any shape desired are formed by pressure under machinery, or by any other method which may suggest itself. Pressed into the designs wished for, the pulp tiles are partially dried, previous to being subjected to waterproof solution. Thoroughly impregnated with the preparation to resist moisture, they are baked to harden them in the waterproof mixture. After the baking the tiles are treated to a mixture imparting enameled surface; to this is added a coating of sand, whereby the pulp is rendered proof against the action of heat or flame. By the use of different colored sands a variety of tints may be imparted to the tiles, which, after the application of the enamelling mixture and sand are baked a second time, after which they are ready for use.

Besides the inherent lightness of pulp tiles, which obviates the necessity of a heavy frame to support a weighty roof, the pulp tile, being tough and not brittle like slate, is far less liable to be broken from blows, stones thrown upon them or human footsteps. Again slate tiles cannot be laid compactly together on a roof on account of their brittleness, which prevents their being drawn tightly together by nails. Through the fibrous pulp nails may be driven as close home as in shingles, thereby binding them closely to the bed and together without any possibility of lateral movement, or be blown away in a high wind, as slate loosely fastened on roofs so frequently are. Nails penetrate the pulp tiles more easily than shingles, and they lie closer together, being more elastic than wood. Another great recommendation is the cheapness of the pulp tiles as compared with slate in every way—original cost and expense of transportation—the one being heavy and liable to breakage, the other light and of an elasticity rendering fracture exceedingly difficult. Pulp tiles may be used for other than roofing purposes; they can be adapted to the decoration of interior walls or for mantels. Capable of being ornamented in any style desired, the pulp tiles can be made to take the place of the heavier and far more expensive tiling now in general use. For employment in interiors of houses, the lightness is again a great advantage. When designed for decorative purposes the sand is omitted, then the enamel is of an exceedingly lustrous surface, comparing favorably in appearance with the ornamental tiles, notwithstanding their great weight, cost and liability to damage, if not entire destruction.—Ex.

THE HORSE POWER OF ENGINES.

The manufacturers of the smaller prime-movers such as gas, hot-air and vapor engines, wind mills and water motors, do not hesitate, as a class, to over-rate the performance of their products in the matter of horse-power. There are exceptions, but they are in the small minority, and even manufacturers of standard prime-movers of this class fail in this respect, probably forced to the over-rating course by the competition of the many new concerns which are continually bringing their new—often undeveloped—designs into the market. This over-rating of these smaller prime-movers is a constant source of annoyance, gives rise to much difficulty, and is the main cause of any unpopularity which attaches to them as a class. The rating of horse power given is usually the theoretical maximum performance, no allowance for waste of heat and power, for loss by friction, and the like being considered. The purchaser, however, wants to know the daily average effective actual horse-power, as available from the driving shaft of the motor. This is what he must base his calculations on, and this horse-power is all that is of use to him, as far as the motor is concerned. The manufacturers of steam-engines, and of all the motors of large horse-power, had long realized the need of correct statements on this head, and live up to them. But with few exceptions, the manufacturers of the above mentioned motors of small power have not yet awakened to the necessity of accurate representation of the actual horse-power developed. This information will be of value to those engineers, who have not had ex-

perience with the small motors, and who are suddenly called upon to provide them. We should certainly advise them as a guiding rule, in procuring this class of motor, to order a rated horse-power, twice as great as that actually needed, for though in that case they may possibly in a few exceptional instances, secure a motor of slightly greater horse-power than they need or have figured on, as a general thing, the actual horse-power developed will be just what they want, and by no means too large. This, at least, has been our experience in a great number of instances, and accords with that of a number of engineers of our acquaintance.—*The Engineer*.

USE WHAT YOU HAVE.

Every little while the columns of the daily press blazon forth the birth of a "new and valuable invention" which is to save from 20 to 100 per cent of all the fuel which is now consumed, and a little stir is excited by a sniff of bisulphide of carbon, would be money makers are heated to the boiling point over somebody or others new furnace, and speculation is estimated by the introduction of a little alcohol into steam boilers for purposes of economy. Now while so much time and thought and money is expended in endeavoring to effect a saving of fuel by some hitherto unknown means by the introduction of some new principle, or by the use of somebody's patent, would it not be well for those who are anxious to effect a saving in their fuel bill to consider how well they are doing with what is already at their hand. Do you know how nearly it is possible to approach to the actual value of coal in heat units transferred to water or steam in an ordinary boiler over a good plain, honest everyday setting; and do you know how nearly you are approaching that limit of possibility in everyday practice? Are you sure that your boilers are built and set with the proper proportion of grate and heating surface, and that the rate of combustion which you practice is that which will secure the most efficient results? It is a favorite statement of these inventors, or boomers, that only ten per cent of the value of coal is utilized, but this statement is made without any regard to the second law of thermodynamics, and oft the fact that a heat engine can only work through a limited range of temperature. Would it not be better to settle down in a rational way and undertake to get the most that can be got out of the material at our hands than to be continually running a wild goose chase after the unattainable, and being gulled by hairbrained schemes which look perfectly feasible only to those who know nothing of physical laws or of the principles of steam engineering?—*Boston Journal of Commerce*.

FIRE.

An idea, as to the origin of fires in saw mills, planing mill's and other wood-working establishments, that seems to be general in insurance circles, is, to say the least of it, odd, if not wholly erroneous as far as its application to small mills in the country is concerned. That it is quite difficult to secure insurance on mill property lying idle in some remote district is well known, insurance companies assuming that because it is out of use it is in greater danger from fire than when in operation, therefore the risk is greater. The logic of their position has never yet clearly presented itself to us.

That a saw mill in the back woods, unused, unguarded, away from the thoroughfares of the country, no habitation of man within possibly a mile, save perhaps the isolated shanty of the sawyer, is more liable to be burned than one in daily use, is certainly hard to understand.

Its location in most cases is such that it seldom becomes the lodging place of tramps, and an occasional hunter may seek shelter beneath its lonely roof. Who else or save some enemy on mischief bent would ever find it?

"Ah, but," says the insurance man, "it is likely to be fired from spontaneous combustion in some old waste or refuse matter." Indeed, let us ask, who ever saw an accumulation of such matter around an abandoned saw mill property in quantities sufficient to fire it from such cause. Rather we would say the amount of waste grease, &c., is more conspicuous because of its scarcity than otherwise, as it is an undisputed fact that the average saw mill

man is poorly provided with such material.

The claims are not without foundation, in the case of an abandoned woolen mill, or similar enterprise, because of the fact that the very nature of the material worked (when in operation), is of such character that every crack, crevice, or hole in the building, and every journal box, and hanger, is saturated, filled full of it and liable to kindle at any moment. The building is tight, dust, instead of being blown away as in an open saw mill building, settles down over all this combustible matter, heat is created, and in an hour least expected the flame of destruction starts on its ruinous way.

Let us for a moment contemplate the dangers incident to the country mill in operation being fired by slabs, and if a planing mill is in use the shavings are also used. Sparks are treacherous things and liable to settle down under the roof on the framing timber, are easily blown under some loose dry board of the roof, or steal unnoticed into some lumber pile that the warm winds of summer has fanned, until it is as dry as was the pathway of the children of Israel when the waters were parted by the hand of God that they might cross to the other side. Or some careless fireman may leave the "smouldering embers on the hearth," all of which could be easily blown into a blaze. A thousand ways indeed to fire a country mill by accident, even when the employers are at hand, and when once thoroughly kindled all the limited powers at hand cannot arrest the fire until it has licked up with its forked tongues of flame, all that is within its reach. It may be that some insurance man may be able to controvert these facts and enlighten the public as to the basis of their claims, and we are quite certain their arguments will be received with favorable consideration.—*Lumber Trade Journal*.

RUNNING ENGINES WITH WATER-WHEELS.

Whenever more power is needed, either constantly or at seasons of low water, or when variable work is being done, a steam engine may be attached to the line shaft which leads from the water-wheel by means of its main-band passing over a pulley on side line shaft (situated as near the wheel as practicable), said pulley to have such diameter as will permit both the engine and the water-wheel to make each its own regular speed. The effect of this is as follows: When the supply of water is ample for the work, the governor of the engine will shut off its supply of steam, or nearly so, and the steam retained in the boiler, little fuel being consumed. But when the supply of water fails, or the work is greater, for longer or shorter intervals of time the speed of the water-wheel is decreased, then this governor instantly opens the steam upon the engine, which in turn supplies just the amount of power needed to supplement and maintain the requisite speed of the line-shaft, so that, as long as the power from the water-wheel is sufficient to overcome its own friction and that of the line shafting, so long will its own water be utilized, even when it would be insufficient alone to accomplish any work at all beyond overcoming said friction.—*Saw Mill Gazette*.

EFFECTS OF A BOOM.

There are those who conclude that a revival of business and speculation to the extent of an actual boom will tend to reduce the lumber demand, rather than stimulate it. They base their conclusion on the proposition that active trade and speculation will employ the capital that in dull times is forced into real estate investment and business enterprises. Hence, they say, as soon as the boom is under full headway, building will measurably cease. This may be so, to some extent, in the cities. But when trade, manufacturing and speculation are active and profitable, the farming class obtain good prices for their products, and naturally buy lumber and make improvements. This condition would be the reverse of that which has prevailed for the past two or three years. So we see that the loss of demand in the cities would be made up in the country. Besides times of active business and speculation, coupled with the prosperity of the farmers, induces railroad construction and car building. This, in case of

a boom to come, would be another additional cause of demand. It can be said still further, that in flush times with the railroads, the merchants and the manufacturers, the laborers in cities are well employed. When the middle classes and the laborers are thrifty, they build homes for themselves. The large cities in this country have all reached that stage of development when nothing can stop their suburban growth. The overflowing thousands must have houses, largely outside the city limits. For this reason metropolitan populations will continue to build and do it the more when times are good and earning constant. There may be less heavy building for investment during a boom, but a large aggregate, nevertheless, for the reasons stated.—*Northwestern Lumberman*.

WHAT CONSTITUTES A MANUFACTURE.

In a recent decision in the case of the *Evening Journal Association* against the State Board of Assessors, the Supreme Court of New Jersey held that a company printing and publishing a newspaper is not a manufacturer. The decision is based upon the lexicographer's definition of "manufacture" as "the process of making anything by art or reducing materials into a form fit for use by the hand or by machinery;" upon the ordinary and general use of the word "manufacture;" and upon the view that a manufacturer is one who by his skill and labor adds to the intrinsic value of the materials used, which gives them a merchantable value in the market as merchandise. "A newspaper," the judges say, "has intrinsically no value above that of the unprinted sheet, but has less value intrinsically as a mere article of merchandise. Its value to its subscribers arises in the information it contains, and its profit to the publisher is derived in a great measure from the advertising patronage it obtains by reason of the circulation of the paper induced by the enterprise and ability by which it is conducted." A person carrying on the business of book-binding and making blank books is a manufacturer; and a gas company is held to be a manufacturing company, because illuminating gas is an artificial and not a natural product, produced by the modification of natural substances by art and industry. An aqueduct or a mining company is not a manufacturer; nor is the painter or the sculptor, although he employs manual labor. In the case of the painter and the sculptor the opinion of the judges is evidently based upon the popular definition of the word manufacturer. To take such definition in the construction of legislative acts is, as they say, the cardinal rule.

A MARKET FOR LUMBER.

The "staked plain" of northwestern Texas is a treeless area once considered a veritable Sahara for barrenness, says the *Northwestern Lumberman*. The vast stretch of territory has no timber but the mesquite, a scraggy bush, that seldom grows to much size. There is occasionally a spring that affords necessary water for stock, and water is easily obtained by sinking wells. The stock raisers who have a monopolized the staked plain as grazing ground have always contended that it was unfitted for agriculture. But latterly this has been disproved, and settlement along the lines of railroad has been rapid. Midland county, in the heart of the plains, is thirty miles square, and is described by Wisconsin man as a beautifully rolling prairie, with a soil from one to fifty feet deep, with a few living springs scattered here and there. The fact that there is land enough in the panhandle of Texas to make a large state, all susceptible of farming, but devoid of timber, opens out possibilities for the lumber merchant that are fairly bewildering. Texas, as a whole, is destined to afford a vast lumber market in process of time.

Work has been resumed on the Regina and Long Lake Railway. The grading is finished to Long Lake and track laying is being pushed forward at the rate of a mile a day. A working staff of seventy men and twenty teams is employed at present, and it is expected that the road to Long Lake will be completed within ten days.

Chips.

THE country east and south of Ashland, Wis., was recently covered with snow for several days.

THOMSON & BAKER's mill at Gravenhurst, cut during the season 3,000,000 feet of lumber, 2,500,000 shingles, and 1,000,000 lath.

LETTERS patent have been issued to N. Boyd, J. D. Carscaddon, Jno. Peck, G. R. Crowe and J. J. Burrows as The Selkirk Lumber Company.

AT Shoal Lake on the M. and N. W. R'y building lots are being rapidly disposed of, and large quantities of lumber are being received for building purposes.

ARCHIE BROWN'S CAMP, on Chubb creek, 13 miles from Otsego lake, Mich., was destroyed by fire recently. Many of the men lost everything by the few clothes on their backs.

FOREST fires lately did considerable damage in Bayfield county and along the lines of the Wisconsin Central and Milwaukee, Lake Shore and Western railroads, in the Lake Superior region.

MR. JAS. CROSSEN of Cobourg, is making a large addition to his carpenter and cabinet shop, and he will put in six or seven new machines. This is rendered necessary for the turning out of sleeping cars.

ACCORDING to a French scientist, the world's annual output of paper is 1,500,000 tons, worth \$200,000,000, of which the note paper represents a bulk of 120,000 tons and a value of \$32,000,000. The steel pen bill is placed at \$1,000,000 a year.

HENRY GOSLIN, while rolling a log on the carriage in O'Callahan's mill, at Norway, Mich., let the hand spike he was using strike the circular saw. The bar struck him on the nose, breaking it, as well as the cheek bone, and otherwise injuring him about the head.

THE pine in the Lake of the Woods region is harder than that further south. On this account the manufacturers at Rat Portage brought in 10,000,000 feet of Minnesota logs this season, so as to have soft lumber enough to supply special demands. It is said that next season one of the mill concerns at that point will build a sash, blind and door factory. There will be more logs cut in the district the coming winter than last, but not as many as in 1883-84.

THE Chatham, N. B., World contains a description of the pulp and paper mill to be erected in that town. The mill "will be the largest in Canada," it is declared. The buildings of which there are to be three, will form the letter H, the dimensions being 254x49 feet, 268x69 ft., and 84x114 feet, the first two to be two stories and the latter three. They will be of brick with foundations of freestone masonry. The mill is to be completed next summer. Over two million brick will be required for it, of which nearly one-third have been manufactured in Miramichi.

THE British colonies include the richest and largest forests in the world, extending over millions of square acres. In India alone about 60,000 square miles are afforested, and the forests of Canada, Australia, New Zealand, and Cape Colony are second to none in size and the variety and value of their productions. But there is no knowledge of forestry and no school of the art in France and Germany. Consequently the acreage under timber there and in Great Britain is small and constantly decreasing. Of the 20,000,000 square acres of Scotland, only about 700,000 to 800,000 acres are woodland.

THE SANDAL WOOD OF JAPAN.

A correspondent of the Chicago Times says that one may see, in passing the shops of Tokio, cords of this wood cut into small blocks. This, one learns, is nothing short of shoe timber. These cords of wood will speedily be converted into shoes of various sizes, at prices ranging all the way from four to twenty cents. One feels quite exalted in a pair of twenty cent shoes. The wood is called kiri, and is very light. The clogs are still further lightened by hollowing out the centre. So, in point of fact,

there is little truth in calling the shoes heavy, although they appear so to the inexperienced observer. It must be admitted though that they are unreasonably clumsy. Sometimes the shoes worn by the ladies are lacquered, and are fastened by a velvet band passing from either side over the lower part of the instep, and between the first and second toes. With this same kind of wood bureaux are made, provided with strong iron handles, and the whole box is adjustable in horizontal sections, one piled above another. Owing to the lightness of the wood these boxes may be filled with clothing and carried off by coolies in cases of fires, which so often vex Tokio.

TO DEADEN SOUND

In order to deaden the sound of a circular saw, says the *Western Manufacturer*, the frame should be fixed on a brick or stone bed, and the shaft or bearings kept clear of the wall, so that the sound is not carried by contact into the wall. If the wall is not built we recommend a hollow wall with iron ties, and the space filled in with sawdust, no opening of any kind being made. If the wall is built, and of single brick, line it with another single brick wall, inserting sawdust between, or a layer of hair felt. If the wall is of wood quartering, lath and plaster it on both sides, and fill it between with sawdust, or coat over the studding with hair felt, and lath and plaster over the face of it. In fixing the quartering, if attached to wood at the top or bottom, bed the attaching points, or parts in hair felt. Sound will travel with air, therefore exclude all connection of air. Sound will travel through glass, wood, or stone, except it be of great thickness, therefore intercept it with sawdust or hair felt, which are non-conductors. If you have a circular saw on one side of a wall, and you want a point of silence on the other, you must prevent all direct communication, and cause the sound laden air to travel in long and circuitous routes, and give out its vibrations before it reaches that point.

GRATEFUL-COMFORTING.

EPPS'S COCOA

BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavored beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—*Civil Service Gazette*.

Made simply with boiling water or milk. Sold only in packets by Grocers, labelled thus:

JAMES EPPS & Co., Homœopathic Chemists,
1, 2, 31-33, 47 London, England.
Sole Agent for Canada: C. E. Colson, Montreal.

BOOKS

—IN—

Fine Bindings!

Full Calf. Full Alligator.

Half Alligator. Half Calf.

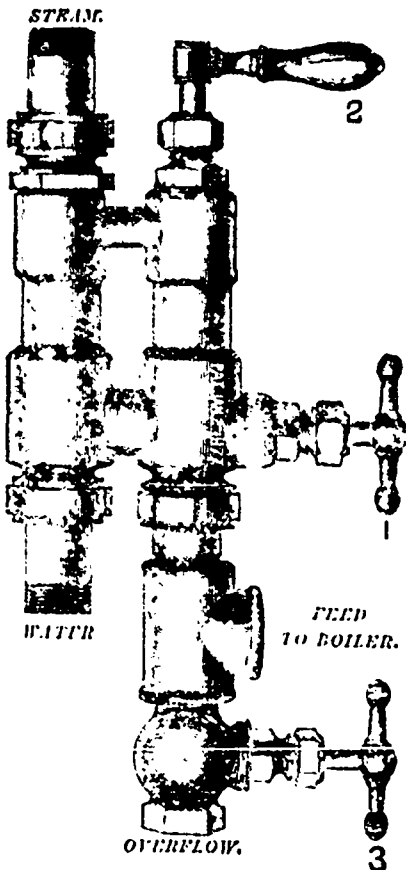
Flexible Leathers.

Half Russia. Full Sheep.

And Cloth Bindings.

—AT THE—

Review Bindery.
PETERBOROUGH.



The Hancock Inspirator

Best Feeder known for Stationary, Marine or Locomotive Boilers.

The Injector Perfected!

All sizes lift water 25 feet. No adjustment required for varying Steam Pressures.

Over 70,000 Now in Use.

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5 Custom House Square,

MONTREAL, P.Q. - - CANADA

Manufacturers of Inspirators, Ejectors, and General Jet Apparatus. 1891

A FULL LINE of all Size Single and Double Belting constantly in stock.

ALL ORDERS Filled same days as received.



TORONTO WAREROOMS

86 King Street East

Factory and Warerooms:—2518, 2520 and 2522, Notre Dame Street.

MONTREAL, QUE.

Axes & Cross-Cut Saws.

CANADIAN AXES.

Both Inland and overlaid steels, 10 patterns, from \$7.00 upwards per dozen.

AMERICAN AXES.

Both Inland and overlaid steels, eight patterns, from \$10.00 upwards per dozen.

SILVER STEEL LANCE-TOOTH CROSS-CUT SAWS.

Warranted to be good temper or will be replaced. Special three square and extra fine cut flat files for these saws.

BLOCKING AND BROAD AXES

Of extra shape and quality. Samples of axes and saws sent to any address on approval and for selection.

Geo. Stethem

Importer of Heavy and Shelf Hardware for the B-A-Ay-Axe. Sole Agent for 1891

FILES—Now's the Time

Collect and Ship them to be

RE-CUT

BEFORE THE SPRING OPENS.

DO NOT WASTE

Your Money on buying new, when the old ones will do. We pay Freight one way.

SHIP THEM TO-DAY

—TO THE—

ONTARIO FILE CO.

150 FRONT STREET, EAST, TORONTO. Agents Wanted Everywhere. 1891

Market Reports.

MONTREAL

From Our Own Correspondent.

Nov. 9.—The bad weather continues to be much against business, but still the amount of business done so far in 1885 is considerably in excess of last year up to the same date.

Table listing lumber prices for various types like Pine, Spruce, Hemlock, Ash, Oak, Walnut, Cherry, Butternut, Birch, Hard Maple, Lath, Shingles, etc.

SHIPPING.

The shipping for South America is now about closed, the New Brunswick being the last vessel for that destination. The West Cumberland has been taken up for London, for deals at 55s.

CORDWOOD.

The demand has considerably fallen off since the date of last report, prices, however, remain steady, stocks are very full.

Table listing cordwood prices for Long Maple, Long Birch, Long Beech, Tanisack.

TORONTO.

From Our Own Correspondent.

Nov. 9.—The volume of trade for the past two weeks have been fully up to high water mark. Yet to say that the yard men have done their fair quota of said trade would not be quite correct.

they intend to retain any considerable portion of their past trade. I speak advisedly when I say that the middlemen will be prepared to meet them fully half way.

The railroad yards are full to repletion, all available space is taken up, so that instead of computing the stock now piled here and standing on cars it might not be amiss to quote it by the acre instead of by the M.

Shipments from the docks are rapidly drawing to a close, and I will endeavor to give you a statement in time for your issue of December 1st of the total quantity shipped from docks here, and as near as possible to make it, of the total quantity sold on our local market.

Present scale of prices at the yards remain as before, wholesale prices to consumers about \$1 per M less, which will fully account for the large trade taken from the retail yards to track sidings.

Table listing prices for Mill cull boards, Scantling and folst, Cutting up planks to dry, Round dressing stocks, etc.

Table listing prices for Three uppers, B. M., 1 1/2 inch flooring, etc.

Table listing prices for 1 1/2 inch flooring, 1 1/2 inch rough, 1 1/2 inch dressed, etc.

OTTAWA.

From Our Own Correspondent.

Nov. 9.—The outlook for the lumber trade in this section during the coming winter is fairly good, although it is now evident that operations will be somewhat curtailed, especially in the square timber line.

freshets. The railway company in order to give lumbermen every chance of benefiting by the line, construct such works as facilitate the loading of the timber wherever timber is to be shipped, and this in a measure fosters the growing industry of the new region.

OSWEGO, N.Y.

From Our Own Correspondent.

The recent advance in lake and canal freights has checked receipts, and we do not anticipate much more this fall. The assortment is good; sales have been better since our last report, but prices remain about the same.

Table listing prices for Three uppers, Picking, Cutting, Fine Common, Common, Culls, Mill run lots, etc.

CHICAGO.

BY THE CARGO.

The Northwestern Lumberman of Nov. 7th says:—The port list this week shows the smallest number of incoming cargoes in a single week since last May, only 108 vessels having arrived. But a small number of the total have stopped at the sales docks.

Table listing prices for Dimension, short green, long green, No. 2 boards and strips, etc.

AT THE YARDS.

The favorable indications noted last week continue. If there has been any change within the week, it has been for the better. The volume of shipment is slightly on the increase and prices are stronger and a little higher on some

sorts. The aggregate of car loads sent out of that portion of twenty-second street district, north of the South Branch, during October, was larger than the aggregate in September.

There is a decidedly better feeling in prices. The improvement now openly admitted, even by the almost incorrigible bears, appears to have come to stay.

There is considerable trade between yards in shingles. It is claimed that there has been a late advance of five cents a thousand on standard and extra brands.

Receipts of lumber, shingles, etc., from Jan. 1st to Nov. 5th as reported from the Lumberman's Exchange:—

Table showing receipts of lumber and shingles from Jan 1, 1885, to Nov 5, 1885, inclusive.

Table showing stock on hand Oct 1, 1885, and 1884 for various lumber types.

EASTERN FREIGHT RATES.

Table listing freight rates from Chicago and common points on car load lots of hard and soft lumber.

LONDON.

The Timber Trades Journal of Oct. 31st says:—There was nothing at the "Baltic" this week to indicate that prices were improving for ordinary stock.

There was a bit of a bustle at Messrs. Churchill & Sim's sale when the Montreal pine ex Scotland was put up, and we consider the result decidedly favorable to present stock holders.

The spruce by this ship offered at the same time presented a strong contrast, the prices throughout being very indifferent. The spruce is not in very active request just now.

Flooring prices remain much as they were; there is, perhaps, a better inquiry for narrow stuff, stocks of those widths have considerably reduced. The second day's proceedings were marked by somewhat more activity, but certainly no better prices than the day before. Some choice parcels were submitted, of which Sunde-wall 4th, ex Primula, at £8, went cheap. It is questionable if the figures covered the first cost. Goods of this class have not been done much under £3 f.o.b, this with freight and charges would bring them up to £7 15s., at which price two of the lots were knocked down, so that anyway it would be a close thing. This cargo was in very fair condition, as intimated last week, and realized 5s. better than the parcel ex Stanley, of the EAD mark, also a very good shipment. The damaged portion of the pitch pine boards ex Bellingham, went at wretched prices seemingly, but they were rust-stained and otherwise defective, so that no estimate of their value could be better obtained than that which the market afforded. The other descriptions were cheap but proportionate to the stocks, with which the market is well supplied.

Outside the saleroom things were a bit firmer, judging from the tone of those representing foreign stocks; the grounds for anticipating an improvement as regards the north of Europe ports were the expected shortage there next year on the output of 1884 both in Finland and Sweden. The combination of the two is roughly set down as 100,000 standards less to be shipped in the Gulf of Bothnia next year, but we must allow for some exaggeration in this estimate.

The first-open-water quotations will not be fixed probably till after Christmas, but we believe they will not be very different from those put before the trade on in January last. On 11 in. first-class brands a trifle advance may be asked, but this will probably be counterbalanced by a corresponding reduction on the qualities and sizes more abundant. The shortness looked forward to will not do more than equalize the slackened demand of the present time. It will require a considerably lessened stock at the port of shipment to keep prices about on the scale they now rule.

When the demand was lively, prior to the steamer trade shippers, on the other side used to hurry their opening quotations forward, and take as early advantage of the market as possible. Since communications have become more rapid there is not the same object to buy early. Freight are nearly always obtainable at low rates, and the chance of their advancing would not be sufficiently strong to have any influence on the trade. The merchant or importer can now regulate his purchases in reference to the freight market with as much certainty as he could if he were arranging to supply some distant place by railway. When sailing ships did the carrying, things were not so easily accommodated.

TONAWANDA.

CARGO LOTS—MICHIGAN INSPECTION.

Three uppers.....	\$42 00@46 00
Common.....	18 00@24 00
Culls.....	10 00@13 00

BUFFALO.

We quote cargo lots:—

Uppers.....	\$45 00@46 00
Common.....	17 00@18 50
Culls.....	12 50@13 00

WINNIPEG.

The Commercial says.—The business of the season in the lumber trade is drawing to a close, and last week gave strong evidence of this. Some demands for finishing stuff for the different buildings now approaching completion sales of storm sash made up the business of the week, and the only hope of any further stir during this month lies in the probability of storage elevators being constructed during the remainder of the year.

TYNE.

The Timber Trades Journal of Oct. 31st says:—The arrivals of the past seven days show a great decrease upon the previous week's report, no one item of great importance appearing in the list. Pit-props and staves seem to be about the largest items, and a few cargoes

deals and battens also appear. So far the imports of 1885, according to the board of trade returns, are in excess of 1884, the figures from your list being: 1884, 150,262 loads; against 159,042 for 1883; showing an increase, in round numbers, of about 9,000 loads for this year. The figures are a little astonishing, more especially to those who consider there is little or nothing doing. The extremely wet weather of the past seven days has very materially retarded all building operations, and for the time caused a great slackening in the housebuilding trade.

ALBANY.

Quotations at the yards are as follows:—

Pine, clear, 4 M.....	\$63 00@65 00
Pine, fourths.....	45 00@50 00
Pine, selects.....	45 00@47 00
Pine, good box.....	22 00@33 00
Pine, common box.....	11 00@13 00
Pine, 10-in. plank, each.....	00 42@00 45
Pine, 10-in. plank, culls, each.....	00 23@00 25
Pine boards, 10-in.....	00 18@00 20
Pine, 10-in boards, culls.....	00 10@00 10
Pine, 10-in boards, 10 ft., 4 M.....	28 00@32 00
Pine, 12-in boards, 10 ft.....	28 00@32 00
Pine, 12-in boards, 13 ft.....	28 00@32 00
Pine, 11 in. siding, select.....	49 00@43 00
Pine, 11 in. siding, common.....	10 00@18 00
Pine, 1-in. siding, select.....	13 00@15 00
Pine, 1-in siding, common.....	00 00@00 10
Spruce, boards, 1-in.....	00 00@00 20
Spruce, plank, 1-in, each.....	00 00@00 30
Spruce, plank, 2-in, each.....	00 12@00 12
Spruce, wall strips, each.....	00 00@00 14
Hemlock, boards, each.....	00 00@00 12
Hemlock, joist, 2x4, each.....	00 00@00 34
Hemlock, joist, 2x4, each.....	00 00@00 11
Hemlock, wall strips, 2x4, each.....	100 00@120 00
Black walnut, good, 4 M.....	80 00@90 00
Black walnut, 4 inch.....	00 00@85 00
Sycamore, 1-inch.....	23 00@30 00
Sycamore, 1-inch.....	21 00@23 00
White wood, 1-inch and thicker.....	38 00@40 00
White wood, 2-inch.....	23 00@30 00
Ash, good, 4 M.....	40 00@43 00
Ash, second quality, 4 M.....	25 00@30 00
Cherry, good, 4 M.....	40 00@55 00
Cherry, common, 4 M.....	25 00@30 00
Oak, good, 4 M.....	40 00@43 00
Oak, second quality, 4 M.....	20 00@25 00
Basswood, 4 M.....	25 00@30 00
Hickory, 4 M.....	40 00@40 00
Maple, Canada, 4 M.....	23 00@30 00
Maple, American, per M.....	28 00@28 00
Chestnut, 4 M.....	38 00@40 00
Shingles, shaved, pine, 4 M.....	0 00@0 50
" 2nd quality.....	0 00@0 50
" extra, sawed, pine.....	4 30@4 50
" clear.....	0 00@0 30
" cedar, mixed.....	0 00@0 30
" cedar, XXX.....	0 00@0 00
" hemlock.....	2 25@2 37
Lath, hemlock, 4 M.....	0 00@0 13
Lath, spruce.....	0 00@0 25

HULL.

The Timber Trades Journal of Oct. 31st says:—The arrivals of wood goods into this port for the past week are 20,043 loads, of which 1,007 were from Quebec.

The arrivals are very heavy and the port very active. The local merchants have got the bulk of their goods in, and there is little more to come forward. It is expected that November and December arrivals will fall off from the usual average, as late charters have been difficult to obtain for sailing vessels, and steamers have picked up the balances of goods very readily.

The present is a time when wood is exceedingly low, but it does not appear to animate the building trade in a manner we might reasonably expect. Every one pleads slackness, and there is no question that trade in all branches, within reach of this port, is exceptionally dull.

QUEBEC CULLERS' OFFICE.

The following is a comparative statement of Timber, Masts, Bowsprits, Spars, Staves, &c measured and culled to date:—

	1883.	1884.	1885.
Waney White Pine..	3,513,515	2,193,453	2,830,943
White Pine.....	7,130,419	3,680,744	2,711,467
Rod Pine.....	474,458	327,735	70,738
Oak.....	1,888,294	772,042	1,560,908
Elm.....	302,261	63,512	1,018,932
Ash.....	257,827	410,458	287,508
Basswood.....	2,244	4,544	95
Butternut.....	1,023	1,200	3,265
Tamarac.....	7,409	19,113	3,622
Birch & Maple.....	138,563	201,289	381,055
Masts & Bowsprits.....	— pcs	— pcs	— pcs
Spars.....	— pcs	41 pcs	17 pcs
Std. Staves.....	677.3.0.15	93.6.1.12	77.7.3.20
W. I. Staves.....	619.2.3.20	268.0.0.10	185.0.3.25
Brl. Staves.....	115.3.0.16	9.7.1.0	209.2.0.24

JAMES PATRON,

Quebec, Nov. 23. Supervisor of Cullers.

WHY WILL YOU cough when Shiloh's Cure will give you immediate relief. Price 10 cts, 50 cts, and \$1. For sale by Ormood & Walsh druggists, Peterborough.

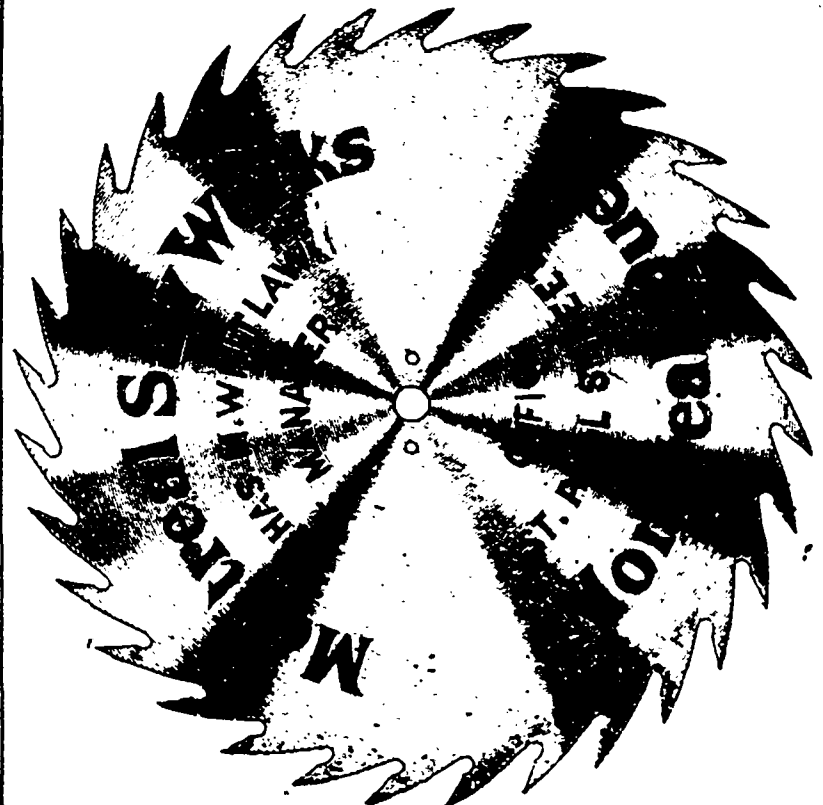
MONTREAL SAW WORKS!

CHAS. M. WHITLAW, *Manager.* MONTREAL A. I.

OFFICE: 452 St. Paul Street. P. O. Box, 1167.

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CIRCULAR, GANG, SHINGLE, CONCAVE GROOVING,
 TOP, DRAG, CROSS-CUT AND BILLET WEB, PIT,
 ICE, AND ONE MAN CROSS-CUT SAWS,
 — AND DEALERS IN —
 BAND SAWS, BARREL AND HEADING SAWS, EMERY
 WHEELS, GUMMERS AND CUTTERS FILES,
 RUBBER & LEATHER BELTING, SWAGES, SAW SETS.



Catalogues and Price Lists furnished on application.

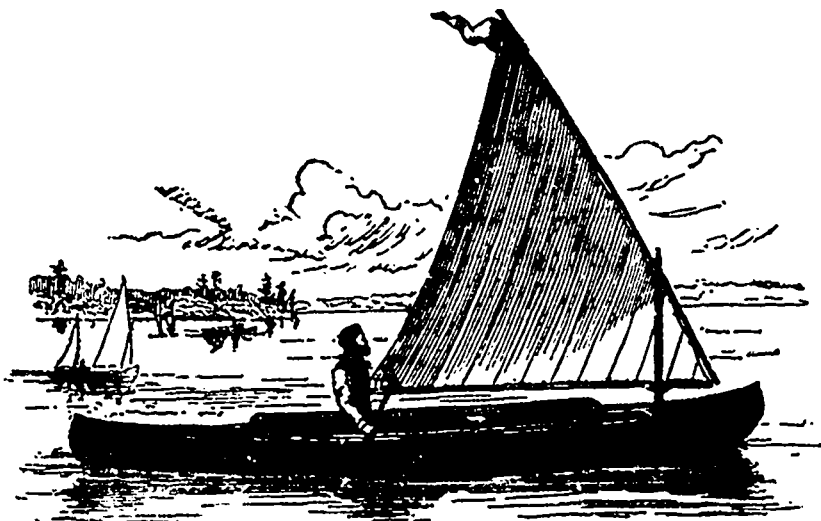
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PETERBOROUGH, ONTARIO,

Manufacturers of all kinds of PLEASURE, FISHING and HUNTING

CANOEES

Patent Cedar Rib Canoes, Patent Longitudinal Rib Canoes, Basswood Canoes, Folding Canoes, Paddles, Oars, Tents, and all Canoe Fittings.



Gold Medal, London Fisheries Exhibition, 1883.]

J. Z. ROGERS,

Send 3 cent Stamp for Illustrated Catalogue. President and Managing Director

Canoes for Lumbermen, designed to carry any amount of goods and chattels and strongly built, made to order on short notice.

HUGH GIBSON,

MANUFACTURER OF

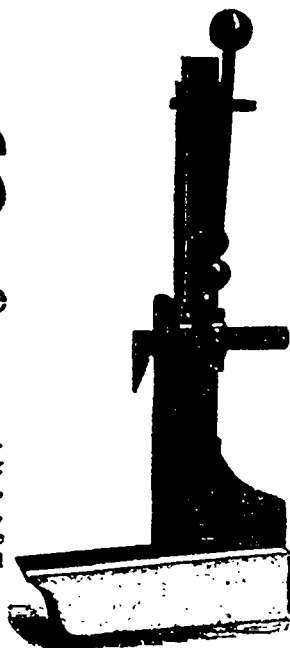
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SAW MILL DOGS

The Sawyer's Favorite

For Holding Logs upon a Saw Mill Carriage while being Sawed into Lumber.

These Milldogs I guarantee to give satisfaction in every case. They will hold a frozen log as well as a soft one, for cutting Scantling, Square Timber, &c. These Dogs cannot be excelled, I sell them all on their own merits, give ten or fifteen days trial, and then, if not satisfactory, return them to my order, as I have no agents on the road this year, I will sell them at a reduced price. Send for Circular and price list.



Manufactured by HUGH GIBSON, CHATHAM. EXOELSIOR DOG.

H. WILLIAMS,

SLATE & GRAVEL ROOFER

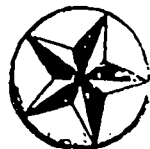
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F. E. DIXON & CO.



Manufacturers of
Patent Lap-Joint Star Rivet

LEATHER BELTING

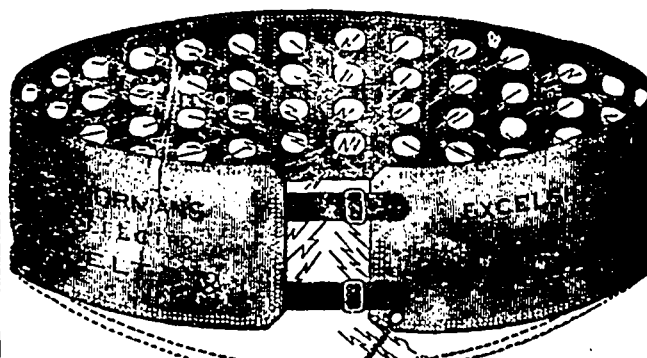
70 KING ST. EAST, TORONTO.

To Mill Owners, Manufacturers & others requiring Leather Belting

Do not buy any Belting unless with DIXON'S PATENT LAP JOINT. It will last longer and do more service than any other. Please note the address, 70 KING ST. EAST, and send for Circulars and Latest Discounts.

Norman's Electro-Curative Belt!

4 QUEEN ST., EAST, TORONTO.



This Belt is the last improvement and the best yet developed Curative Appliance in the world for

INDIGESTION,
NERVOUS DEBILITY,
RHEUMATISM,

and all diseases of men, and is a grand remedy for Female Complaints also. Circulation and constitution free.

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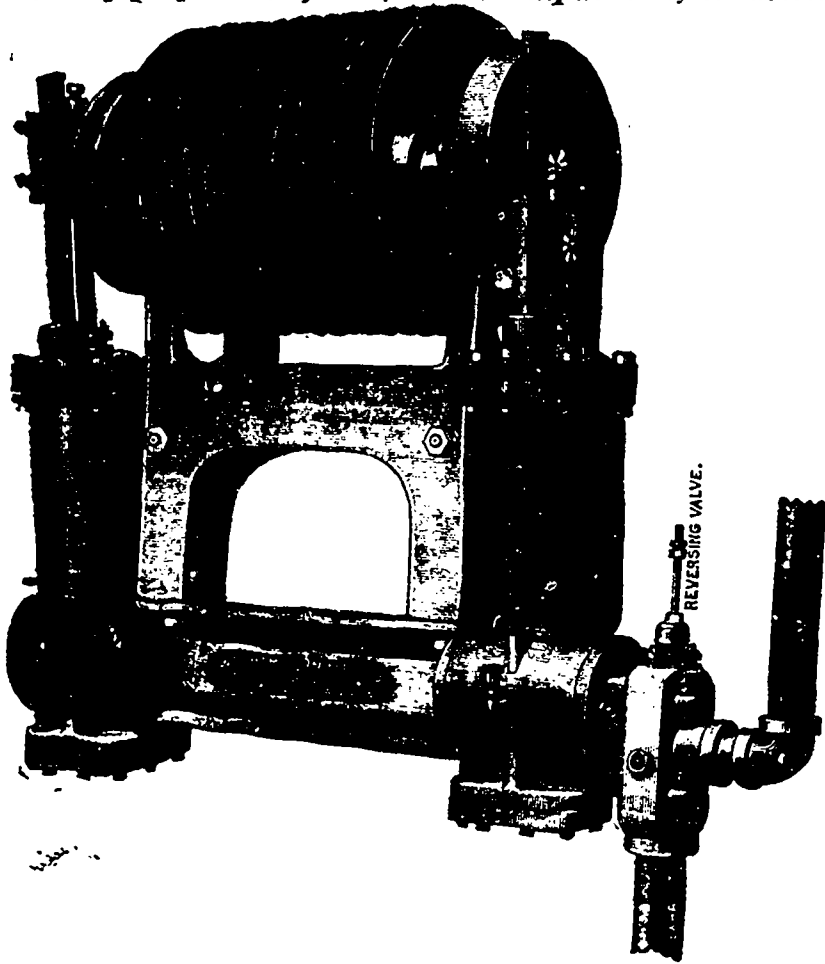
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FOR STEAM FEED IN CIRCULAR MILLS WITH RACK OR ROPE.

This Engine has practically but two moving parts, aside from cranks and shafts. The whole array of eccentrics, valves, valve rods, connecting rods, cross heads, slides, levers, rock shafts, bell cranks, etc., is done away with, and the very perfection of simplicity, compactness, durability and cheapness attained.



The above engraving illustrates the Twin Engine, 10x16, for Rope Feed, for Saw Mill Carriages. The spool is 27 in. diameter, 30 in. face, is grooved 2 in. pitch for 1½ in. rope. The shaft is steel, 4½ in. diameter, with disk cranks. No connecting rods, eccentrics or valve rods to get loose and out of order. The ports are in the trunions, and worked by an oscillation of the cylinders, and are held in their place in the downward motion by a steam cushion below. The sawyer's valve is a perfect balance, and by moving this valve the engine can be reversed, stopped or started almost instantaneously if necessary, as the sawyer has perfect control of it by his lever either to go fast or slow. Should the sawyer let go of his lever either by mistake or any other cause, it is balanced so that the valve will come to the centre and cut the steam off both cylinders and stop the feed. When standing, the lever is locked or fastened, so that it is impossible for it to start off itself. The engine stands upright below the carriage, and bolted to two upright beams, placed on the mill for the purpose. When a rack is preferred in place of the rope, we put on a steel wheel 30 in. in diameter, and the engine placed high enough to work into the rack on carriage bar, or if the beams come in the way, an idler wheel can be used between engine and rack segs; or, the engine can be placed at a distance and have a shaft

from it to the carriage; or it can be placed in the engine room, where it is under the control of the engineer for oiling, thence by shaft and pinion to carriage rack bars. These engines are well adapted for cutting long logs, or where the logs are mixed, the advantage of this feed will be apparent to mill men. When the carriages are used in two or more sections, the coupling and uncoupling of each section is quick and simple.

There were two of these feeds working this summer and giving the best of satisfaction, one with rope feed at James Playfair & Co's Mill, Sturgeon Bay, near Waubaushene, and one at the new mill furnished by us to Francis Carswell & Co., at Calabogie Lake, on the Kingston and Pembroke R. R. This mill is working with the Rack and Pinion feed, and drops from fifteen to seventeen stock boards per minute. We have also sent one to the Rathbun Company, Deseronto, to put in to feed their heavy Circular Mills. They will also commend themselves for various other cases, especially for running Elevators, hoisting Engines, and wherever a simple and easily reversible motion is required.

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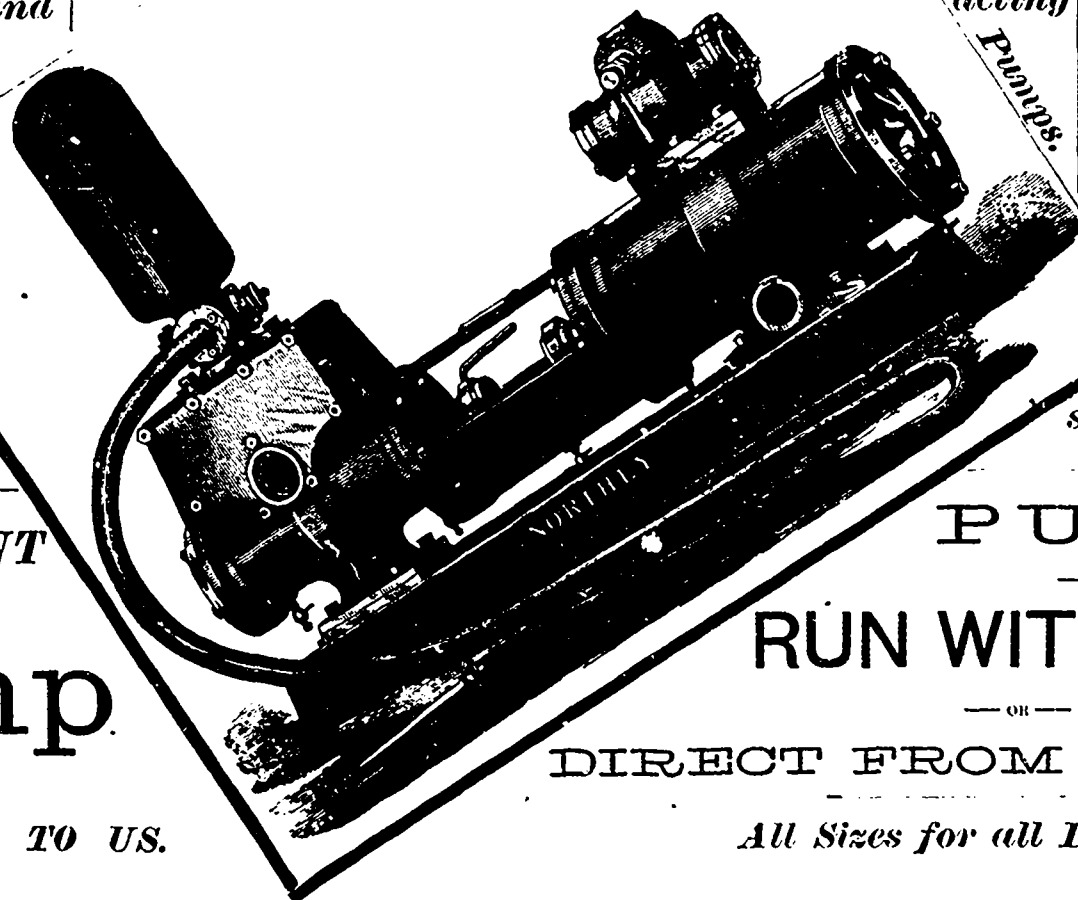
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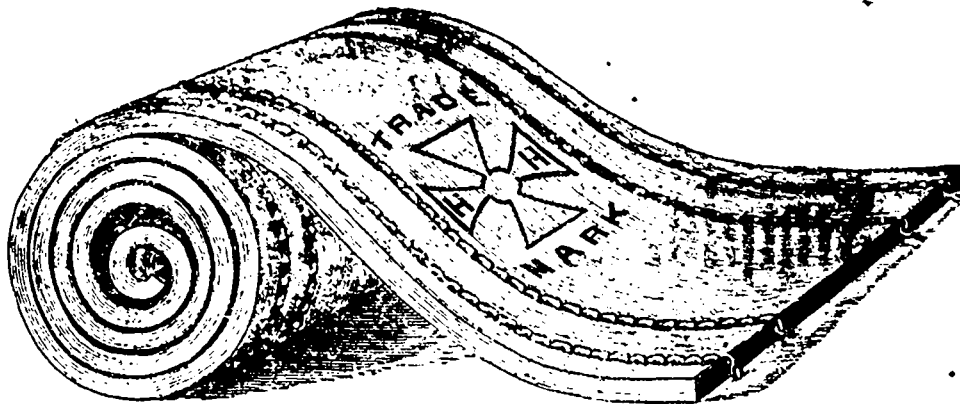
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 Foreman, City Flour Mills.



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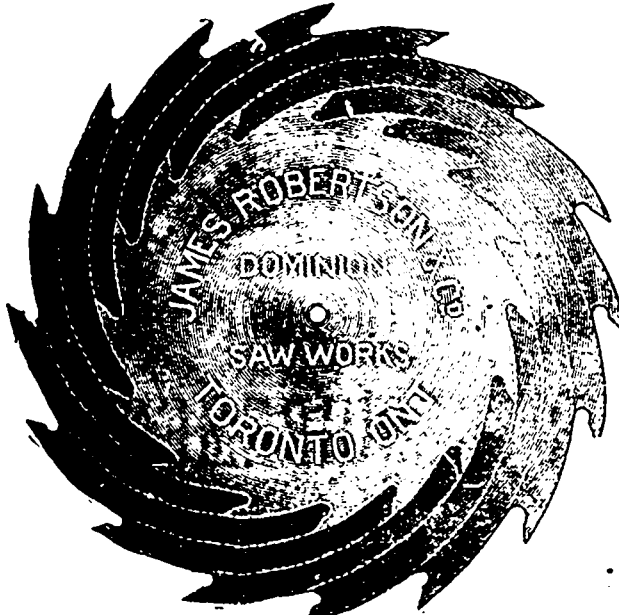
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