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THE CANADA LUMBERMAN

WOOD WORKERS' MANUFACTURERS' AND MILLERS' GAZETTE

VOLUME XIV. }
NUMBER 5.

TORONTO, ONT., MAY, 1893

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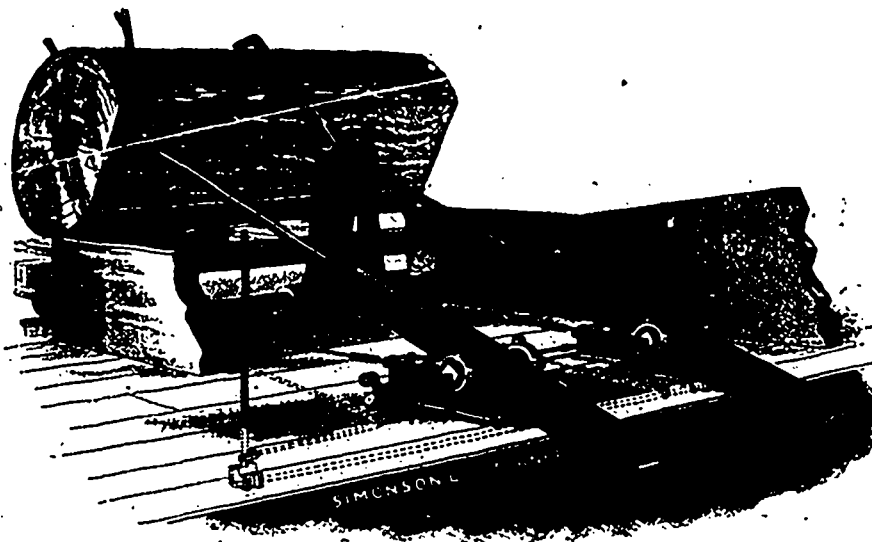
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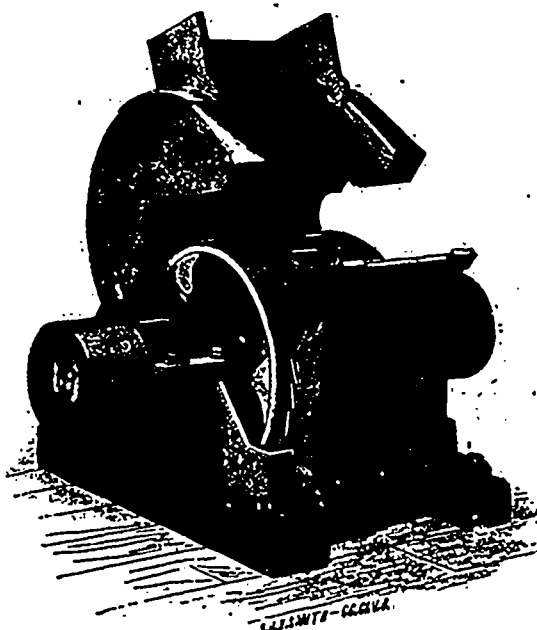
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MODERN USES OF THE WINDMILL.

IN this hurly-burly age we do not give much concern to the history of the past. The mill, we are given to say, cannot grind with the water that is past, and we deal with most affairs of life on this principle. The ever-living present is with us on all occasions and it is the things of the present that chiefly engage our attention. Illustrations are not few, however, that show the importance that may be profitably attached to a study of the past. To-day is only a step that we had not taken yesterday, and to-morrow, when it arrives, will leave to-day in the past. Everything has at some time existed in embryo. Of the progress of plant life, animal life, mechanism, even that creature man, this is true.

In an age when the wondrous powers of electricity are becoming more wonderful every day few have any other thought of the windmill than of a very primitive method of creating power that has long since become obsolete. But the windmill has done much for the past and as we shall have occasion to point out further in these remarks, it has a future.

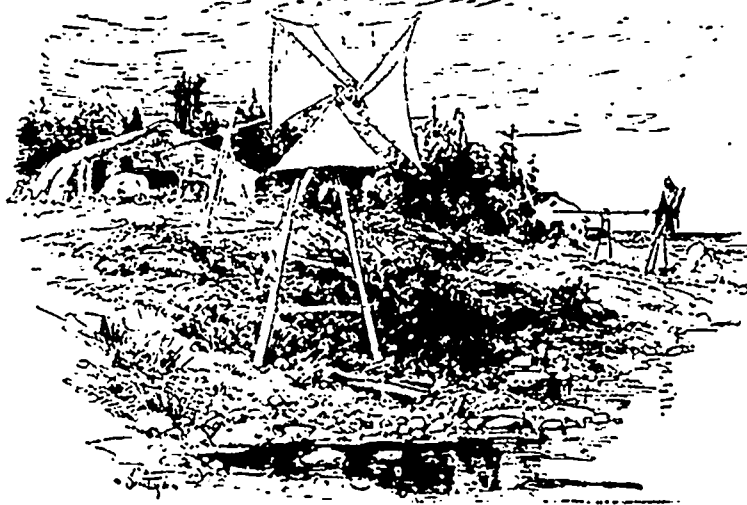
"The windmill," remarks Mr. Robert H. Thurston in an article in the *Engineering News*, "has helped to make a nation, has aided in the construction of the foundations of prosperity of more than one great country, and has lent picturesqueness to many a landscape which has a more serious interest for the historian and the statesman than for the artist. The "Rise of the Dutch Republic" was due to it, and the wonderful wealth and prosperity of that remarkable people came hardly less through the operation of windmills than through the exertion of their talent for commerce and manufactures. The Holland of the Middle Ages, comprised within an area of millions of acres captured from the fields of ocean and preserved against the assaults of the sea—by windmills. Without the windmill, there would have been neither country nor people to set such example to the rising nations. During the last fifty years or more this wonderful race has continued its "impoldering," and has ravished from the ocean nearly a thousand square miles of territory per year, and it has held it, largely by the aid of windmills."

In many parts of the world, as we approach the dawn of another century the windmill is an important factor in material progress. Mr. Thurston says. "Throughout Europe the windmill is still in extensive use, especially in the low countries adjacent to the mouth of the Rhine, where the writer once counted, from the car window, as the train swept rapidly across the fens, seventeen in sight at one time. In the United States, also, these inexpensive "prime motors" are used in immense numbers, especially for raising water and the minor tasks of the country-districts. Mr. Alfred R. Wolff, in his excellent treatise on this subject published several years ago, gave the number which had been manufactured in a single city as above 5,000, and stated that there were hundreds of thousands in operation in this country, doing many kinds of work that may, without serious loss, be performed intermittently, such as pumping and storing water, and grinding grain on a small scale in rural districts.

"It is not known when the windmill was first invented. It is claimed by some early writers that it was known to the ancients, but it certainly was not mentioned in the famous work of Hero, in which the first steam engine is described as made two thousand years ago—the prototype of the modern steam turbine—and in which is

illustrated the steam fountain, the progenitor of all the steam engines, so-called, up to the time of Newcomen. Beckmann points to the fact that windmills were not mentioned by such observing and minute chroniclers as Vitruvius, Seneca and Chrysostom. They were used in Northern Europe at the very commencement of the Middle Ages, and probably some time before. The first of the Dutch mills seem to have been mounted on floats, so that they might be turned to the wind and adjusted as required. Later, and especially in Germany, mills were mounted on posts, upon which they could swivel, and still later Dutch mills were built like those employed by our own fathers and grandfathers in America, with a movable top, which could be turned toward and away from the wind as desired, carrying the sails and shaft with it, turning about its central spindle, through which the motion of the machinery of transmission was carried down into the mill below.

"There are, according to Mr. Wolff, two principal modern types in successful use, with a number of less well known variations upon the standard constructions. These two classes are the "side vane" and the centrifugal



WINDMILL USED FOR THRESHING GRAIN.

[This mill is on the St. Lawrence River between Pt. Levi and Rivière du Loup. Wheel and sails can be turned in any direction to suit the wind. Power is transmitted along the shaft (the direction of which is stationary) by means of a universal joint.]

governor mills. The first had its vanes set permanently at their best angles for the best states of the weather, while their positions relatively to the thread of the current is determined by a "side-vane" which relieves the pressure of the wind in such a manner as to throw the whole wheel around and away from the wind, if that should become too strong. In the other form, the blades are pivoted on axes running lengthwise, and are turned, as their speed varies, by a governor, in such manner as to have, at every instant, just that inclination to the wind which will give the desired speed of rotation. In moderate winds they are held at an angle of 60 to 80 degrees with the wind; in very high winds they fall almost into the line of its motion. Of these one is a simple and peculiarly durable machine; the other excels somewhat in excellence of regulation, though costing more for wear and tear. As compared with the steam engine and other heat motors, the power of the wind mill is small and its volume large, but it is the most economical of all known motors for many locations, and, in the aggregate, it is doing an enormous amount of work for the world, and is destined to do vastly more, we may be sure, in the future."

A modern use of wind power, the development of which we are likely to hear more of in the future is that

proposed by Sir William Thompson years ago—its employment to store electric energy in "storage batteries," intermittently working with the variable winds, laying in a stock of energy to be afterward regularly and steadily given out in supplying light and power, and possibly heat as well—in short, for all the thousand-and-one purposes to which electricity is constantly finding application. For such work the fitfulness of the winds is a matter of little importance, and their variable efforts employed night and day, yield, later, a large and inexpensive store of power for transportation, as may be found desirable, and which may find use in every operation of the home and farm, or of the small industries of the cities.

TIMBER LIMIT SALES.

THE sale of timber limits of the Muskoka Mill and Lumber Company, which took place in the rotunda of the Board of Trade, Toronto, on April 25th, brought together a large number of representative lumbermen from various parts of Ontario, Michigan and other lumber centres. Prominent among those present were T. Bliss, A. P. Bliss, Maurice Quinn, T. W. Howry, Fred H. Howry, D. J. White, Jr., C. W. Wells, of Saginaw, Mich.; S. O. Fisher, West Bay City; Jas. T. Hurst, Wyandotte; A. Maltby, Bay City; C. A. McCool, Cantier; J. D. Shier and A. McLeod, Bracebridge; Mickle and Dymont, Barrie; John Waldie, Jas. Scott, Robert Laidlaw, and many others of Toronto.

Mr. Peter Ryan, who conducted the recent Ontario Government sale with so great success, was auctioneer, but his persuasive wielding of the hammer failed to magnetize intending buyers into buying. In the *LUMBERMAN* editorial pages is discussed what would seem to be some of the reasons for the apparent unsuccess of the sale.

The sales effected were as follows:

Robert Laidlaw, Toronto; berth 5, Wood, 2½ square miles, at \$6,600 per square mile, \$16,500.

Robert Laidlaw, Toronto; berth 4, Medora, 5 square miles, at \$2,200 per square mile, \$11,000.

J. D. Shier, Bracebridge; berth 3, Medora, 17 square miles, at \$1,500 per square mile, \$25,000.

Mickle, Dymont & Son, berth 1, Medora, 4 square miles, at \$350 per square mile, \$1,400.

The berths offered in Algoma were all withdrawn, the reserve bids not being reached. Berth 137, 36 square miles, was withdrawn at \$5,100 dollars per square mile, \$183,600. Berth 82, 36 square miles, was withdrawn at \$7,300 per square mile, \$262,800. The total properties sold represented the sum of \$54,400.

The sale of limits of Mr. Alex. Fraser, of Westmeath, conducted by Messrs. Dickson & Townsend, at their rooms, Manning Arcade, on Thursday, April 27th, like the sale of the previous Tuesday, fell flat. The highest bid reached was for berth No. 5, Paterson, 25½ square miles, \$3,530 per square mile was the amount, and the Charles Beck Manufacturing Co., of Penetang, the bidders. The properties were all withdrawn.

TO BE SYNDICATED.

Mr. E. W. Rathbun, of Deseronto and John Bell, Q.C., Belleville, are now on their way to London, England, to conclude the transfer of the big Rathbun interest at Deseronto to an English syndicate—mills, railroads, timber limits, and all the other flourishing industries built up by the Rathbuns on the Bay of Quinte.

ONTARIO CROWN LANDS.

THE report of the commissioner of Crown Lands, laid before the Legislature now in session, presents some interesting facts concerning the woods and forests of the province. We are told that the total collections for the year on account of woods and forests amounted to \$2,174,591.38, which includes \$1,317,798.59 on account of bonuses. The revenue derived from timber dues, ground rent, etc., was \$856,792.79. The sawn lumber trade has not been in as prosperous a condition for many years as during that just closed. The demand for all kinds of lumber has been active, especially for the American market, and in sympathy therewith there has been an advance in prices. This satisfactory condition, so far as the American market is concerned, is owing no doubt in part to the reduction in the import duty on sawn lumber, shingles, etc., entering the United States. The duty, which was a specific one of two dollars a thousand, having been reduced to one dollar a thousand, enabled the coarser grades of lumber to be sent to that market at a profit, and thus much of the tree that was formerly not marketable at a profit, and was wasted either by being left in the bush to burn or piled up in the mill-yard to rot, is now taken out and manufactured. The output of pine from the same area of territory will probably be considerably greater than it was before the removal of the duty, as everything that has any merchantable timber in it is now sawn.

There has been a demand for Canadian logs for export, to be sawn at saw mills in the United States, but the export has not been as large as has been publicly stated. Should the remaining dollar per thousand duty on Canadian lumber imported into the United States be removed at next session of congress, the advantage would all be in favor of manufacturing in Ontario, and it has been represented by those interested that in such case the export of sawlogs would be greatly lessened.

A sale of timber berths by public auction was held on October 13th last. The areas sold aggregated 633 miles, and were situated in the Nipissing, Algoma, Thunder Bay and Rainy River districts. Of the total area, 410 miles were in the district of Nipissing on the head waters of the Muskoka, Madawaska and Petawawa rivers, a small part of it being within the region proposed to be set apart as a provincial park. It is surrounded by licensed lands upon which lumbering is being actively carried on. The region contains a great many lakes and streams, well stocked with fish, while game of every kind is plentiful, and it is a great resort for hunting and fishing parties during the summer months. Settlement had approached from the Parry Sound district on the west up to the very confines of the pine timber, and overflowed into some of the townships. Considerable squatting had taken place and a number of settlers were resident with clearings, although every effort had been made to discourage people from settling there. No less than four railways are projected, all of which must pass through the territory, and the plans of the right of way of one of them filed in the department showed it to traverse the densest pinery of the whole tract. On this line—the Ottawa, Arnprior and Parry Sound railway—twenty miles on the west end have already been built, and active construction is proceeding on the eastern end, the intention of the company being to push the construction through as rapidly as possible. The Canadian Pacific railway, under the charter of the Atlantic and Northwest railway company, are also building a road parallel to and alongside of the Ottawa, Arnprior and Owen Sound railway, on the eastern end of which construction is in progress. Under the circumstances stated it was evident that the timber was becoming liable to destruction by fire in the immediate future, and that its early disposal would be prudent and advisable.

The sale of a considerable portion of this territory was called for by other considerations. Large sawmills had been erected at various towns, and lumbering industries, giving employment to and supporting considerable populations, had grown up at these points. From time to time it had been represented to the government that the limits from which some of these mills drew their supplies of timber were nearly exhausted, and that unless other sources of supply were found, some of them would be obliged to shut down for lack of material to saw, and it was urged that these mill owners should be

given an opportunity of acquiring further supplies of timber by offering this territory, which was tributary to them all, for sale by public auction. From these considerations, that is, the exposed condition of timber, the necessities of the mill owners, and the buoyant state of the lumber trade—it appeared that the time had arrived when the territory should be offered for sale as timber berths.

Advantage was taken of the holding of the sale to dispose of this territory, to offer two townships and a small part of a township in the district of Algoma, which lay within the mining belt and on which prospecting was actively proceeding—mining locations having been sold in some of them and a number of applications for others have been filed in the department. Those berths in the Thunder Bay and Rainy River districts remaining undisposed of at the sale of 1890 were also included in the sale, thus bringing the whole area offered up to 633 miles.

For the purpose of this sale, two important changes were made. First, the pine timber only was offered for sale; and, second, with respect to the berths in the Nipissing and Algoma districts, the Crown dues, payable when the timber is cut, were increased one-fourth, viz.: On sawlogs, from \$1 to \$1.25 per thousand feet board measure, and on square timber from \$20 to \$25 per thousand feet, cubic.

The attendance of the sale was large and representative of the lumbering interests of Canada and the United States. The prices realized were greatly in excess of those obtained at any former sale, the highest average per mile at any previous sale being \$2,859 (obtained at the sale in 1887), while at this sale it reached \$3,657.18. The total amount realized was \$2,315,000, of which the sum of \$1,227,665.63 on account of bonus was paid in during the year. Of the 633 miles offered, 564 were purchased by Canadians and 69 by Americans.

The Ontario cullers' act seems to be giving satisfaction and to meet the object for which it was passed. During the year just closed ten examinations were held at the different lumber centres of the province, at which 187 candidates presented themselves for examination. Of these, 136 were found qualified and granted licenses. This number, added to the 371 who were licensed last year, makes the staff now available for duty 507, practically all of whom have been able to secure employment during the present winter. The expenditure incident to the holding of the examinations was \$934.30: the fees received amounted to \$716.25, leaving an apparent expenditure beyond receipts of \$218.05. Deducting from this the amount received last year from fees in excess of the cost of examinations and refunds, the net cost to the department of examining these 507 men has been practically nil.

The fire ranging system continues to give satisfaction to those availing themselves of its advantages. Owing to the past summer being wet, no great damage was done by forest fires. The total cost of the service was \$31,976.38. The service of the year proper, however, cost only \$18,362.73, \$13,613.65 being carried from 1891, as, owing to the dryness of the autumn of that year and the numerous fires which took place, the accounts were not all received in time to be checked and paid before the end of the year. The amount refunded by the licenses was \$9,993.02, of which \$5,919.19 was on account of previous years, and \$4,073.83 on account of last year.

Since the last report, under the provisions of the last act for the protection of the provincial fisheries, all crown timber agents, forest rangers and fire rangers have been appointed *ex-officio officers for the enforcement of the observance of this act*, and a few additional overseers have been appointed. The revenue from permits, etc., was \$484.

PERFORATED BELTS.

AN engineer has been enquiring of us as to the value of belts perforated with holes. The argument of the dealer is, that the air is let out through these holes from under the belt, and being thus excluded, atmospheric pressure must be excluded, and the pressure of the atmosphere upon the pulley will help to secure a firmer grip without further tightening. This is on the supposition that the air is carried under the belt in the rush of

the belt on the pulley. This engineer does not want to pay for perforated belts if they do not do what is claimed for them, and yet he wants all the adhesion he can get with the least tightening. We do not believe that atmospheric pressure has anything to do with the driving of belts, and has no part in causing them to adhere to a pulley, whether perforated or not. It has been found that at high speed belts do not adhere so well to pulleys as at a slower speed, and this has been claimed due to the air getting between the belt and pulley at the high speed and preventing less adhesion from atmospheric pressure. It can be quite clearly demonstrated that the centrifugal force of the more rapidly moving belt counteracts to some degree the adhesion of the belt and causes it to adhere so firmly. This is the cause of this peculiarity, not the taking of air under the belt.

PERPETUAL MOTION.

I have read with much amusement, writes a correspondent of Power, the several designs lately described to create motion without expense. I regard them all as mere playthings, which never can have any real commercial value, from the simple fundamental truth that wherever there is an action there is also a reaction of the same magnitude. In other words, there can be no perpetual motion. But still I am inclined to hang a tail to this doctrine, in the form of a (to my mind, at least,) sufficient argument; namely, because we small things are not brainy enough to know how it could be done. There are manifestations in the physical world which would tend to show that not all motion is dependent on the consumption of heat, to which, under our present limited knowledge of natural laws, we have invariably to resort wherever we want force and motion for any purpose. A lamp-wick will draw up against gravity a considerable amount of a fluid to a height of five or six inches, without consuming any heat in so doing, as careful experiments have shown. And it is by no means certain that heat is consumed in the movements of the nutritive fluids of the highest tree, in its capillaries; nor is there any reason why it should, while a dead wick can do it within certain limits.

In spite of all theories, it is not certain that the heavenly bodies move under compulsion of heat-producing motion. True, we get light and heat from the sun, and it is but natural to suppose that these might, in some way, be helping in our progress through space. But then, the slightest variations in the amounts received would have to show perceptible variations in speed (one cycle compared with another), which is by no means the case. To explain the movements of the heavenly bodies by attraction, repulsion and gravitation needs no presence or influence of heat, no more than does the swinging of the compass-needle under the influence of iron near by.

In looking the whole ground over as impartial observers, we are compelled to say that we use heat to produce force and motion only because we do not know of any other way to obtain them in commercially valuable form, and not because there is no other way. As soon as we get far enough to have the natural powers of capillarity controlled so as to raise great amounts of liquids in very short times to a lasting height of only one foot above level, we have a costless power for any well-constructed turbine wheel. But that will be a long way off, as the discovery of so many things will be, in spite of all our little bit of knowledge. I shall always remember what Baron Liebig told us in a lecture at Munich University about thirty-five years ago: "If our earth were to be maintained and moved only by what forces and powers we know of and are able to understand, I certainly should be glad for some other place of safety." Spontaneous (or perpetual) motion is therefore possible, and occurs as a reality. But to try to obtain it by mechanical, pneumatic or hydrostatic means, as they are at command of our limited knowledge at this time, is simply folly. For us, pressure of any kind is accompanied by counter-pressure at all times, at all places, and under all circumstances.

A new pen often refuses to work. Stick the point in a raw potato, and it will then write easily and smoothly.

IEWS AND INTERVIEWS.

An Historic Forest.

Epping Forest is one of the spots of the United Kingdom that has more than a local interest to Englishmen. All readers of history have learned of it, while to-day it is intimately associated with the life of Londoners as the favorite place of recreation for the people of the world's metropolis. Some interesting facts and history in connection with Epping Forest are given by Dr. Edward Everett Hale in a recent article in the *Cosmopolitan*. At the time of the Long Parliament its area was 60,000 acres. In 1882 it was restored to the public. Epping Forest had its origin as a public domain in the fact of its being common land. The right of commonage in England still carries with it a great many privileges for the communities possessing it. In the case of Epping Forest its exercise interferes with the use of the place for public recreation. One right of the commoners is that of lopping, which enables them to lop for fuel in fagots any branch not bigger than a man's finger. This was a great damage to the trees; therefore, under the new regime the people surrender this right for certain other privileges, with a certain sum of money.

Logs vs. Lumber for Export.

One of the peculiar features of British export trade in lumber is the shipment of timber as logs, round and square, rather than as sawed lumber. Recent visitors from this side of the Atlantic to the London and Liverpool lumber docks give an explanation. Their observation is that lumber that was of the best quality when it left the mill, reached the English dock in an almost unrecognizable condition. Wide, clear boards and plaaks were split from one-fourth to one-half their length, others were split entirely in half, while others had lost a larger or smaller piece diagonally from one corner, sometimes two corners being missing. In other cases the edges or face had been gouged and battered by letting one piece drop endwise or cornerwise on to another from the hatchway above, while other pieces of first quality stock were marred and ruined except for a thinner thickness, by nail marks in the heels of the stevedores who stowed the lumber in the steamer's hold. One visitor declares that of a large number of lots of fine walnut, poplar, oak, gum, and other hardwoods, comprising a large portion of the several vessels' cargoes, hardly one came out even in fair condition. The only good stock which did not leave the vessel in a greatly depreciated condition was that carried in those vessels which were exclusively lumber carriers, consigned to a shipper's agent who was in a position to enforce the terms of a bill of lading, or else shipped f.o.b. port of shipment, the consignee assuming the risk of collecting damages from the carrier.

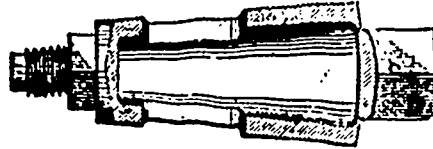
Walking In a Circle.

Everyone, and especially those whose work takes them over long distances through woods and forest or across the barren plain, have doubtless noticed that it is impossible to walk in a straight line unless some observable objective point is ahead of them for which they are making. The invariable tendency is to walk in a circle, and thus it is that many people are lost on a desert or in a forest. A writer in *Pearson's Weekly* says that this circumstance is due to a slight inequality in the length of the legs. Careful measurements of a series of skeletons have shown that only 10 per cent. had the lower limbs equal in length; 35 per cent. had the right limb longer than the left, while in the other 55 per cent. the left leg was the longer. The result of one leg being longer than the other will naturally be that a person will, unconsciously, take a longer step with the longer limb, and consequently will trend to the right or to the left, according as the left or right leg is the longer, unless the tendency to deviation is corrected by the eye. The left leg being more frequently the longer, as evidenced by measurement of the skeleton, the inclination should take place more frequently to the right than to the left, and this conclusion is quite borne out by observations made by a number of persons when walking blindfolded. Further, on measurement of the arms, it is found that in 72 per cent the right arm

is longer, showing that a considerable majority of persons are right handed and left handed. The inequality in the length of the limbs is not confined to any particular sex or race, but seems to be universal in all respects.

DEFECTIVE WATER COCK.

A foreign paper recently published the illustration given herewith showing a defect common to steam and water cocks. In case such a cock was attached to a



boiler blow-off, the most serious consequences might follow if an attempt was made to open it. Better measure all cocks before putting them on dangerous places.

PRACTICAL MECHANICS.

By C. R. TOMPKINS, M. E.

SINCE the introduction of the split pulley, both of wood and iron, the removing of couplings in order to apply new ones or change old ones from one part of the shaft to another is not so frequently called for, thus removing one objection to this as well as all other styles of couplings.

The necessary hangers to support the line and the distance from centre to centre of the bearings is another important matter to be taken into consideration. It was remarked not long since, by a writer in a certain paper, that in calculating the strength of shafting, only the torsional strength should be taken into consideration. This we consider an error, from the fact that lateral strength is of as much importance and should enter into the calculations as well as torsional, from the fact that it is not always convenient to locate pulleys in close proximity with the bearings, and where such is not the case, if the shaft is deficient in lateral strength, and springs with the stress of belt, it not only loosens it and deprives it of part of its driving power, but also cramps the journals, causing extra friction upon the boxes with loss of power, and frequent heat and abrasion. It is fair, however to suppose that a shaft having sufficient torsional strength to perform certain work will also have sufficient lateral strength, provided the distance between the bearings be such that the lateral and torsional strength will be equalized.

As we have before stated, it is a safe rule to apply to all shafting, by taking three times the diameter of the shaft in inches, for the same number of feet from centre to centre of bearings. Thus, three times the diameter of a two-inch shaft is six inches, and this, taken in feet, would call for six feet from centre to centre. One of two and one-half inches would call for seven feet, and so on.

Now, as much of the power in many mills is consumed or absorbed by the lines of shafting, arising from imperfect bearings and bad lubrication, it becomes necessary that this part of the outfit should not only be selected with the same care and receive the same care and attention as any other part of the machinery. It is no uncommon thing to find at this late day, in some of the older mills, a shaft of three inches in diameter or more loaded down with pulleys of large diameter and supported upon bearings about four inches long, and groaning under this weight at a speed of perhaps not over one hundred and fifty revolutions per minute, when a shaft of two or two and one-quarter inches in diameter, if run at a proper speed, with pulleys of not more than one-half the power, so far as the shafting is concerned, and would be more appropriate; and instead of bearings four inches long, they should never be less than eight inches for shafting up to two and one-half inches. Above that size a fair rule is three times the diameter of the shaft.

Post hangers are frequently used in the place of the drop hanger, but the objection to post hangers is not so much in the style of hanger as the objection to the posts, especially where the shaft is hung overhead. In order to place the bearings the proper distance apart the posts are so numerous that they become a serious obstacle to handling the lumber or placing the machines to the best advantage. In some mills, in order to avoid this, both

post and drop hangers are used, the post hangers being located at each and the drop hanger suspended from the ceiling to support the centre. This is not good practice, from the fact that those attached to the post are not materially affected by the settling of the building, while those that are suspended from the ceiling are not only affected by the settling of the building, but the shrinkage of the timbers also, and it will be found a difficult matter to keep a shaft so arranged in align. Therefore, whenever post hangers cannot be conveniently used upon all the bearings, it is better to dispense with them altogether and use the drop hanger for all bearings.

In selecting the hangers it is not only the weight of the hanger that should be taken into consideration, but the strength and convenience of adjusting the boxes is an important item, and it is not always the hanger that contains the greatest number of pounds of cast iron that is really the strongest. Probably what is known as the double-braced hanger possesses the greatest strength for the least number of pounds than any style; besides, this style of hanger has the most convenient method of adjusting the boxes in each direction, so that should the shaft get out of align by the settling of the building or shrinkage of its timbers, it is easily corrected by adjusting the boxes without disturbing the hanger.

A line of shafting is not always as easy of access as a machine standing upon the floor, consequently it is more liable to be neglected, and not as much attention is given to its proper and perfect lubrication. Among the many different devices that have been introduced from time to time for this purpose, the self oiling box that was introduced a few years ago and at one time adopted by nearly all the leading manufacturers, was probably one of the best systems of lubrication that has been introduced. This box was provided with a reservoir below the bearing to contain the oil, which was drawn up to the journal by capillary attraction to tubes filled with cotton wick or other fibrous substance. Openings were provided at each end of the box that formed the bearings so that the oil that was drawn up through the tubes to the journal could flow back again into the reservoir to be used over again until it was worn out and become so thick that it would not flow, then the box and reservoir required cleansing and replenishing with oil, which usually occurred once in from three to four months. But the trouble with this box and no doubt one of the principal reasons why it was abandoned by most of the manufacturers, as well as many other good devices, is neglect and want of proper attention. If the box were perfectly safe for three months, the chances are it would never be looked after and cleaned in six months, unless it became dry and began to heat, when the box was not only frequently spoiled but the shaft badly cut, and the box was condemned by mill owners, and for no other reason than from their own neglect.

The glass oiler is another device that has merit in the economical use of oil, and for good lubrication, but like the self-oiling box, it needs care and attention. The principal objection to this is that the fine dust which pervades the atmosphere of all wood working establishments, settles into everything, the glass oiler not excepted, and no matter how perfectly the flow of oil may be adjusted, the tubes are liable to become obstructed with dust and stop the flow, and before one is aware of it the journal is dry and cutting, unless the heat admonish the engineer or other person in charge of it of this fact.

Perhaps, under these conditions, the box that is now in general use is about as good as any for wood working establishments. This box is furnished with one or more moderate sized reservoirs attached to the cap and protected from the dust by hinged covers. Into these reservoirs may be packed a quantity of waste or fibrous substance to retain the oil, which gradually filters through it, and if these are replenished with oil once a day there is but little danger from heat and abrasion.

The Artizan.

Messrs. Steinhoff & Gordon, of Wallaceburg, Ont., manufacturers of cooperage, last year did a business represented by 60,000,000 staves, 12,000,000 hoops, 1,000,000 heads, besides selling 4,000 logs and 8,000 cords of wood and bolts, totaling in value nearly \$500,000.



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J. S. ROBERTSON, EDITOR.

THE CANADA LUMBERMAN is published in the interests of the lumber trade and of allied industries throughout the Dominion, being the only representative in Canada of this formerly dormant branch of the commerce of this country. It aims at giving full and timely information on all subjects touching these interests, discussing these topics editorially and inviting free discussion by others.

Special pains are taken to secure the latest and most trustworthy market quotations from various points throughout the world, so as to afford to the trade in Canada information on which it can rely in its operations.

Special correspondents in localities of importance present an accurate report not only of prices and the condition of the market, but also of other matters specially interesting to our readers. But correspondence is not only welcome, but is invited from all who have any information to communicate or subjects to discuss relating to the trade or in any way affecting it. Even when we may not be able to agree with the writers we will give them a fair opportunity for free discussion as the best means of eliciting the truth. Any items of interest are particularly requested, for even if not of great importance individually they contribute to a fund of information from which general results are obtained.

Advertisers will receive careful attention and liberal treatment. We need not point out that for many the CANADA LUMBERMAN, with its special class of readers, is not only an exceptionally good medium of securing publicity, but is indispensable for those who would bring themselves before the notice of that class. Special attention is directed to "WANTED" and "FOR SALE" advertisements, which will be inserted in a conspicuous position at the uniform price of 15 cents per line for each insertion. Announcements of this character will be subject to a discount of 25 per cent. if ordered for four successive issues or longer.

Subscribers will find the small amount they pay for the CANADA LUMBERMAN quite insignificant as compared with its value to them. There is not an individual in the trade, or specially interested in it, who should not be on our list, thus obtaining the present benefit and aiding and encouraging us to render it even more complete.

WHERE THE LOG DUTY HITS.

THE sale of timber berths which took place at the Board of Trade rooms in this city on the 25th ult., a report of which is given in another page, presents some features bearing on the question of the export duty on logs which has been so much discussed lately.

The berths on the North Shore of the Georgian Bay, eight in number, were offered by the Muskoka Mill and Lumber Co. and the Collins Inlet Lumber Co. They are admitted to be valuable, many of them with large areas of virgin timber, just what is eagerly sought for by American buyers. They are all of easy access to the Georgian Bay, so near that logs could be delivered from them on the waters of the bay in the month of May or early in June. There were a good many Canadian lumbermen at the sale, and a large contingent from Michigan; yet not one of the berths was sold. Offers were made on two of the berths, but did not reach the reserve bid. On the other six no bids were made at all. Lumber is higher now than it has been for many years: many Michigan lumbermen are looking for standing timber, and yet notwithstanding all this, the sale was in a way allowed to go by default.

An explanation was offered at the close of the sale by Mr. Fisher, of Bay City, Mich. Speaking on behalf of the American lumbermen present, he said that they had come over to buy timber, but wanted a guarantee that no export duty would be placed on logs, as they could not afford to place American money in this country with the risk of it being taken from them again by any legislation. Mr. Foster's allusion in his budget speech to the demand made by some sections of the country for a re-imposition of the export duty on logs and his promise to reconsider the whole question, has had an unsettling effect on the values of this class of property, and what is wanted now is a permanent settlement of the policy of both the United States and this country, so that business can be conducted on a straight

basis, and without any disturbing elements cropping up now and again. The amount of money employed in the lumber business is so large and investments are so heavy, that it would only be fair to those interested to have the matter definitely settled.

When Mr. Fisher finished speaking some one in the audience shouted "give us free lumber and we will give you free logs." This of course Mr. Fisher could not do any more than the sellers could guarantee a continuation of the present policy of free logs.

At present Canadian lumbermen are at some disadvantage alongside of the American manufacturer. The Americans can take logs from Canada without any export duty being charged, saw them into lumber in the United States, and so place their lumber on the market at a relatively lower rate than if manufactured in Canada. This is aside from the advantage they possess in disposing of their refuse, to a considerable extent, in connection with their salt wells, and the better market, which attracts buyers, produces competition, and as a result increases prices. Whereas the Canadian lumberman, sawing his logs in this country, and shipping his lumber to the United States, is met by a duty of \$1 per M in white pine, and \$2 per M on red pine and spruce.

The view is held by many Americans that the next Congress will abolish the present duty on lumber altogether. If this is correct it will be a fair and reasonable solution of the whole difficulty. All that Canadian lumbermen want is a fair field and no favor, and surely the much vaunted push and go of their American congeners would be equal to a fair competition.

ETHICS OF DISCUSSION.

To employ the language of a wise man of old, whose words are quoted in many different forms of literature, it is true, under perhaps all conditions, that "A soft answer turneth away wrath, but grievous words stir up anger." A mealy mouthed discussion of any subject, even though the sacred cause of religion were in question, will not be favored by any healthy mind. As we read the purest writers, either sacred or profane, chaste though they be, perspicuity and vigor of expression are not wanting. A "soft answer," however, need lack none of these points.

These remarks, which it is not necessary to amplify to any further extent, are suggested by a letter from Buffalo, signed "Willard," published in our ELI page, wherein our correspondent, "Canadensis," of last month, is brought to book for maligning the good name of Uncle Sam, by saying "The name American is synonymous with bad faith, the grossest deception and the lowest forms of commercial morality." This is a strong statement to make, and "Willard," we think, has made a good case, individual to Canadensis' own article, as well as general in its application, when he intimates that this writer weakens what was otherwise a well-constructed and clever article by the unnecessary insinuation of unfaithfulness against a neighbor. Likely "Willard" himself will admit that his reply is not cast in the most parliamentary terms perhaps it was intended more as a piece of bluff and it has not been given room in these columns for the purpose of encouraging this class of discussion. We appreciate the good taste of LUMBERMAN readers too highly to allow any such a practice to grow.

It need only be remarked that the more closely one adheres to the ethics of good taste in argument and phraseology the more surely will the object aimed at in the particular topic under discussion at any time be secured. We might apply this comment with some directness to the various trade discussions—the log duty not excepted—that necessarily take place between Canada and the United States. There is too great a disposition to let national prejudices and animosities warp the judgment of disputants on either side. Not only is the dignity of argument sacrificed by the practice, but the force and strength of what is stated is materially minimized.

EDITORIAL NOTES.

A COMMUNICATION from Mr. Wm. Little, of Montreal, Que., on the Canadian pine lumber trade, has reached us too late for publication this month. It will be given place in the June LUMBERMAN.

THE Paper Trade and Wood Pulp News, of New York, quotes a contemporary as saying that at the present rate of cutting, the spruce timber in the Adirondack forests will not last over ten years. The same paper further remarks: "To an outsider it would appear that the pulp men do not seem to have realized the situation, and have taken feeble measures to supply themselves with ample areas of raw material. They have had an idea that spruce was inexhaustible in the great Adirondack forests, and that they would always get the supply they needed." Our paper trade contemporary replies to these comments by saying: "The first assertion is doubtless quite true. But the pulp men will hardly allow themselves to be caught unawares. They are, even now, prospecting for spruce timber all over the northern end of this continent, more energetically than did ever a miner prospect for gold in the far west. The obvious resource now is the Canadian forest. The question is, how shall we get it? By annexation, by purchase of timber lands, or simply by buying the cut timber? It is worth studying." The matter is also worth studying by Canadian timbermen and those interested in the manufacture of pulp.

THE great fire in Hull, Eng., a few weeks ago, destroying a million pounds worth of the Wade Timber Company's property, is in some respects a parallel case to that of the Carnegie Homestead troubles on this side of the Atlantic. It is an outcome of the recent strike among the dockers of that port just as the destruction of the Carnegie property followed the strike of the Homestead mills. However far justification may be urged for precipitating the strike, and even though it may be denied in some quarters that the strikers are to be held responsible for the fire, all evidence shows that somehow it is one of the disastrous results that has followed the strike. When we consider the terrible effects in so many different ways of the great strike at the docks on the Thames a few years ago, followed by the Cardiff strike, and now the Hull strike, without making any reference to the Lancashire weavers strike just ended after five months stagnation of mills and men, and turn to this side of the Atlantic, and sum up the cost of the Homestead difficulties, the big railroad and the miners strikes a few years before that, not to extend the list any further, it is not to be wondered at that earnest men are asking the question, whether some rational means cannot be adopted to avoid these great losses in life, property, means, and worst still in the moral character and purpose of all concerned.

SOME few months ago two communications appeared in our ELI page concerning Kauri pine. British Columbia was given as the place of growth by one authority, a statement that was corrected later by a local authority showing that Kauri pine owed its origin to New Zealand, little or none of it growing in the Coast province. From the New Zealand Official Handbook for 1892 we learn that the gum which is exuded from the Kauri tree is an important item of commerce to that country. In 1891, 8,388 tons of this gum, valued at £437,056, were exported to London, Eng. Thirty years ago the Maoris were the only people who employed themselves in the searching for this gum, which at that time was to be found on or cropping out of the surface of the ground, where, perhaps ages before, forests of kauri had stood. After a few years' exports the Maoris began to dig for the gum a few inches below the surface. As the uses for it increased, its market value rose, and presently Europeans betook themselves to digging for it, until, at the present time, there are probably 1000 whites and 1000 Maoris engaged in the work in Auckland provincial district, where alone the gum is to be found. Hence the output has steadily increased during the last thirty years, notwithstanding that the gum is not being reproduced, except to a very inappreciable extent, in the existing forests, and these are being cut down because of the commercial value of the timber. Within a measurable period of time the gum must cease, although it is expected that, at the present rate, it will take fifty years to exhaust the deposits in the Auckland district.

The Gauls, to make handles for their axes, cleft the branches of a tree, placed the axe in it, and left it till the wound in the wood had been completely healed.



"It is a mistake to suppose," said Mr. C. H. Clark, representative of the Burton Bros., Barrie, Ont., "that southern pine is not coming into competition with northern white pine." Mr. Clark's work takes him across the border frequently, where he is constantly mixing with United States lumbermen and has an opportunity to study lumber conditions. At the time of the present conversation he had only returned from the eastern States a few hours. "While it is true," continued this well known Canadian lumberman, "that for some uses white pine has no substitute, and certainly not in southern pine, yet the difference in price between the two woods is so large, that southern pine is being made to do service where northern pine would otherwise be used. Lumbering is carried on at much less expense in the south than in the northern districts, and though the distance from the eastern markets is very great the freight rates have been made low enough to make this condition no drawback. And when we commence to talk about a timber famine such a thing seems hardly possible if for a moment one considers the immense tracts of forest yet untouched to be found all through the southern States. These are conditions that in Canada we may profitably consider when disposed to be over dogmatic in the opinion that the United States must have our Canadian pine."

* * * *

John Armstrong, of the lumbering firm of S. & J. Armstrong, Commanda Creek, says. "I employ about a hundred men, and we are getting out 5,000,000 feet for the Ontario Lumber Co. We pay the foreman \$45 a month, the cook \$35, the choppers, sawyers, rollers and loaders \$23, the trail cutters and loadmakers \$16 to \$20, and the river drivers \$35 to \$40 a month." "What do you feed them on?" "Well, for breakfast they get hot pork, beef, potatoes, beans and pancakes, good bread, no butter, but lots of apple sauce, currants, syrup, biscuit cakes and strong tea that would float an ironclad, or good coffee if they prefer it. The noon meal necessarily is eaten in the bush, and is composed of boiled pork and bread chiefly. When they come in at night they get the very best meal that can be got up in the woods. It is similar to the breakfast, with the exception that they commence with big tureens of soup and wind up with cake, pie and pudding. Sunday is as strictly observed in the middle of the wilderness as it is in Toronto; yes, better observed. It would do you good to see them on a Sunday morning after a wash-up, a clean shave and a bleared shirt, sit down to the long dining table after it is cleared off and read their Bibles or prayer books. During the day they write their letters, that is those who have any correspondence. Some of them indulge in grave and learned religious discussions. Jonah in the whale's belly, Daniel in the lions' den, David and Goliath, and the young man Joseph, who was sold by his brethren, are their favorite characters."

* * * *

Mr. Hurst, of Wyandotte, Mich, when asked the question, a few days ago, during his stay in the city, "What has become of the proposed American syndicate that was going to buy up our timber limits," replied, "the possibility of an export duty on logs stopped that." "Is the fear of an export duty then keeping out American capital?" was the next question. "I should think it was," said Mr. Hurst. "I know of several sales that have been cancelled just on that account. In one instance the purchaser had up a deposit and sooner than take the timber he forfeited the deposit. If the government gave an assurance that no export duty would be put on logs Canada could have all the capital we have. But under present conditions we don't care to risk it." I chatted with Mr. Quinn and other Michigan lumbermen during the progress of the recent timber sales in this city and they all talked the same way. Canadian lumbermen with whom I talked think it is simply a game of bluff on the part of the Americans. It is not the best time of

the year to buy limits. Buyers can afford to wait, and in the interval present high prices may recede some, and later perhaps the Minister of Finance will have made up his mind what is best for the lumber trade of Canada. There seems to be little doubt that in the meantime he has created an opportunity for Americans to give a black eye to present Canadian lumber sales. At least this is the thought I found influencing lumbermen, as I moved around among them. In a word lumber conditions are a bit unsettled and unsettledness never helps business.

* * * *

A well-known Buffalo lumberman, who signs himself "Willard," makes this comment on the log symposium that extended through the March and April LUMBERMAN: "I read the symposium in your March issue with interest. I disagreed with some statements therein contained, but as a whole the articles were fair ones and the facts fairly stated. Your April issue is received, and I have read the criticism of 'Canadensis' on the March article referred to above. I beg to say that the latter article is bereft of weight on account of the evident bitterness and narrowness of its author. Such remarks as this: 'The name of American is synonymous with bad faith, the grossest deception and the lowest forms of commercial immorality,' and several others indicate that, either he is a fit subject for a lunatic asylum or else that he has not been about the world enough to know decency, worth, upright dealing and integrity from an ash log. My guess is that 'Canadensis' has never been one hundred miles from home, or else he is one of those 'cranks' who forever imagines that the United States is greatly in earnest and very anxious to annex Canada. Dear Canadensis do not be alarmed, the United States does not want Canada. I am certain that if the matter was voted upon to-day, 99 out of every 100 citizens would say 'No, to the question of annexation. As to your timber, I doubt if Canadensis ever owned a standing tree, when your last standing timber in the Dominion of Canada shall have rotted, the people, your great, great, great grandsons of Canada can still come to the United States, and purchase their supply."

* * * *

That there won't be much done in the export shingle trade this year in British Columbia is the opinion of Mr. H. H. Spicer, of Vancouver. "I have just returned," said he, "from a lengthy trip to eastern Canada, the New England States and Manitoba, and that is the opinion I have formed. I find that we cannot compete with the Puget Sound mills in the New England States on account of the duty. If the C.P.R. were to give us a reduction on rates equal to the duty, we could do a good trade, but I suppose that would not pay them. In eastern Canada I found that people have not yet discovered that it is cheaper to pay a little more for British Columbia shingles and have a good roof for years, than to buy cheap pine shingles, and have to repair continually. The pine shingles they are cutting now are not so good as they used to be, as all the best logs they are cutting up into lumber. On the whole the year will be a good one for the lumber trade in the east, especially in the Ottawa Valley. In Manitoba too, the outlook is far from encouraging. The dealers have a considerable stock on hand, and I found that just before I got there, a representative of a British Columbia company had been in Winnipeg quoting shingles \$2 per M. delivered. Shingles are being sold throughout Manitoba at the ridiculously low price of \$2.10 to \$2.25 per M. This state of affairs is not only unsatisfactory to the millmen here but also to the dealers, one of whom told me that he would much rather we formed an association and so regulate the price. Why, he told me they would rather pay as high as \$2.85 and \$3 if they knew a competitor could not buy for less. As it is now they run considerable risk in buying a carload, as another man may get a cut on prices, and cause them to sell at a loss. I don't know what the other millmen are going to do, but I shall only cut as few as possible, if these prices continue. I prefer to look on, and watch what the outcome will be."

* * * *

Mr. P. Colton, forest ranger and valuator, has been making an examination of the Indian reserve on Lake Nipissing, known as Dukis reserve. It is forty-seven miles in extent, and is said to be one of the

finest timbered districts in the Dominion though Mr. Colton was wary in going into particulars. The head of the tribe, Chief Dukis, who resides on the north shore of Lake Nipissing, had always refused to consider the matter of putting any of his patrimony. But it is reported that more recently he has changed his mind and it is likely the reserve will be sold. According to the law governing Indian reserves the property cannot be sold by private sale, but must be put up to sale. Much speculation is indulged in regarding the value of the limit. Men who are supposed to be good judges value the limit all the way from \$400,000 to \$600,000. The quality of the pine is first class and neither fire nor axe has ever touched it, with the exception of one place where a fire got a foothold, a mere strip along the southern boundary. A portion of the limit is on an island in Lake Nipissing and the other portion on the mainland. A great deal of the timber is of the yellow pine variety, the best of the pine species. Mr. Colton says that if it is advertised for sale and thrown open to public competition, with sufficient time given for examination by those desiring to purchase, no Canadian will ever get it. He thinks that several American firms have had their eye on the limit for some time and are only waiting the opportunity to make a bid for it. The limit is so situated that the lumber can be taken to the Georgian Bay with the greatest ease, the French river being the connecting channel between Lake Nipissing and the bay. The cable tugs now getting into general use in the lumbering business can be operated right up to the limits, and the use of these tugs facilitates the getting out of the timber, one hundred fold over the old style of manual labor.

* * * *

Lumbermen have watched with interest the construction and development of the Manchester ship canal, as it has been supposed that the Canadian lumber trade, as much, perhaps, as any other department of commerce, would be benefited by this new means of transportation. Mr. John Dyke, the Canadian government agent at Liverpool, Eng., was lately summoned to appear before the select committee of the House of Lords to give evidence, as an expert, touching the influence of the Manchester canal on Canadian export trade. In an interview afterwards he said a great drawback towards the development of Canadian trade in many articles of produce with the dense mass of consumers of which Manchester is the centre, are the freight rates from Liverpool to Manchester. They are just sufficient, said Mr. Dyke, "to shut out a good deal of Canadian trade and check expansion. With the canal completed, you may note how material the saving would be when the produce is carried direct from Canada to Manchester and there brought within carting distance of the consumer." Speaking directly of the timber trade Mr. Dyke said: "Of the Canadian deals landed at Liverpool by the cattle steamers fully 70 per cent. go to Manchester and district, or through Manchester to their destination. A standard of deals (165 feet) occupies about the same space as a ton of hay, and a ton of hay occupies about the same space as twenty barrels of apples, and the saving in freight would therefore be a material item in the imports for the Manchester markets. Wood pulp comes now almost wholly from Norway and Sweden. In 1891 the British imports were 156,464 tons, and in 1892, 190,938 tons, of the value of nearly a million sterling. A large proportion of this import from Europe is conveyed from Hull to Manchester and neighborhood by rail for the manufacture of paper, mill boards and other supplies used for packing Manchester goods to be sent to all parts of the world. Dimension timber is also used in large quantities for the manufacture of agricultural implements, while the cotton mills take immense quantities of spools and other wooden work which Canada may supply, as well, if not better, than other countries."

* * * *

Mr. Eddy of Hull, Que., says. "Canada's supply of pulp wood is worth more in dollars than the pine supply in diamonds. The United States pulp mills get more than half their raw material from Canada. If a prohibitory export duty were imposed, the sterile land from St. John to the Lake of the Woods would be thickly dotted with immense pulp mills and accompanying villages, and United States capital and labor would be introduced very largely."

OTTAWA LETTER.

[Regular correspondence CANADA LUMBERMAN.]

THE lumbermen of the Chaudiere are busily engaged completing improvements and repairs in order that their mills may be ready for running as nearly as possible by the first of May. The Perley mill, which is undergoing important improvements will hardly be ready for operation before the end of June.

Lumbermen generally look for a satisfactory years business. The winter has been favorable to the getting out of a large crop of logs, and in addition to these there are large quantities of logs to be brought down that were stuck last summer on account of the unusual low water in the Ottawa and its tributaries. The cut of the mills will likely exceed that of last year. The following estimates are given of the work of several leading firms: Buell, Hurdman & Co. have cut over four hundred thousand logs on their limits this winter. They expect to cut about fifty million feet of lumber this season which is a similar figure to that of last year, although the quantity of logs cut in the bush is somewhat larger than that of 1892. The Bronson firm expect to have a similar cut, both in the bush and at their mill. Mr. J. R. Booth will certainly have a greater output of lumber than he has ever had. The new mill which is expected to begin running about July will cut some sixty million feet of lumber, which together with the cut of the large mill will make a total cut of about one hundred and seventy million feet. The cut in the bush this season will be between eight and nine hundred thousand logs.

INDIFFERENT LENGTHS.

The Messrs. Conroy's are counting on starting their mill at Deschenes on 1st May.

Another large water wheel has been purchased by Buell, Hurdman & Co., and been placed in position beneath the dimension shed of their mill.

Local lumbermen have been notified that cribs of timber passing down the Ottawa river and through the Grenville canal during the coming summer months must not exceed twenty-eight feet in width. Alleged injury to the banks of the canal by the passage of rafts of unusual size is given as the cause for this order.

Messrs. Shepard, Morse & Co. have sold two large rafts of square timber got out in the Kippewa this season. The timber will be floated to Quebec, and then delivered to the purchaser. It is understood that good prices were realized. The two rafts will contain nearly 400,000 feet. This is the first sale of this winter's cut of square timber.

Edwards & Co., whose new mill at New Edinburgh, will be ready for sawing next month, are already under contract to saw 25,000,000. The mill will likely run day and night. A new invention, an air compressor for lifting logs and lumber, is in operation in this mill. This works under the saw table and carts the logs, doing away with a great deal of manual labor.

An alligator tug has been despatched by Shepard & Morse to their Kippewa drive. This tug is worked by a steel cable and can not only tow logs on the lake, but can propel herself over the portages that lie between the lakes. Since the introduction of these tugs, several of them being in operation last season, a perfect revolution has been worked in the driving of logs, as six men on a tug can do as much as fifty men without one. The tug is worked on the "cadge" principle, that is the cable is fastened to some object in front and then the machinery is set in motion and she propels herself forward, of course carrying with her the load hitched behind. The tug is also provided with paddle wheels and can run around the lake at a speed of six miles an hour.

Mr. John McLatchie, of New Edinburgh, returned to the city a few days ago from an extended surveying trip beyond Klock's depot at Ross lake. The party travelled 140 miles from the Mattawa and Mr. McLatchie's business was looking over timber limits, fifty miles above Ross lake. He found some fine pine, and birch on a good level country. A peculiarity noticed by the party was the almost entire absence of game, only one moose being seen. There are also very few Indians in this section. All the timber from this section comes down the Ottawa. The party on their return trip to Mattawa snowshoed 90 miles in six days, and the only great inconvenience suffered was frozen toes, not one man out of the party of fourteen escaping. The McLatchie Bros., who are to work the Ross limits, are now engaged building a large steamer on Ross lake, which they will be able to portage to the Ottawa river.

OTTAWA, Can., April 26, 1893.

BRITISH COLUMBIA LETTER.

[Regular correspondence CANADA LUMBERMAN.]

IT is with pleasure I have to write of the mills in this vicinity having begun sawing, etc., full blast and with lots of orders on hand and ahead. Every week shipments of lumber, lath

and shingles are made to the Northwest. The orders for salmon boxes are very large as a big run of fish are most confidently expected. Four new canneries are under construction on the Fraser river, and with the wharves in connection will require considerable lumber.

Although reports from Australia are more favorable shippers are still holding back until the financial question is more settled.

The British Columbia exhibit to Chicago is sure to attract considerable attention and it is to be hoped will be the means of introducing our woods more largely into eastern Canada and the eastern States. The mills have received several enquiries for clear cedar from the eastern states. When the new American trans-continental railways are completed and connected with New Westminster, it will be possible to fill these orders with more ease than at present.

SHIPPING INTELLIGENCE.

The following vessels are at Vancouver loading lumber for foreign points: Chillian ship Hindostan, 1,543 tons, Capt. Welsh, loading lumber for Valparaiso. American ship Ivy, 1,181 tons, Capt. Lovell, loading lumber for Wilmington, Del. British bark Natuna, 1,106 tons, Capt. Grahn, loading lumber for Port Pirie. American bark Harry Morse, 1,313 tons, Capt. Herriman, loading lumber for Shanghai. British bark Blairhoyle, 1,291 tons, Capt. Gray, loading lumber for Sydney. Chillian ship Atacama, 1,235 tons, Capt. Caballero, loading lumber for Valparaiso. Norwegian bark Sigurd, 1,530 tons, Capt. Aase, loading lumber for Port Pirie. British bark Wythop, 1,248 tons, Capt. Edwards, to load lumber for Sydney. Hawaii bark John Eua, 2,588 tons, at Cowichan, loading lumber for Port Pirie.

COAST CHIPS.

The Brunette Saw Mill Co. held their annual meeting this month and decided to increase their capital stock from \$200,000 to \$300,000.

Messrs. Hamill & White's mill at Sydney, Vancouver Island, is ready to begin sawing as soon as logs reach the mill. It is reported they have the contract to supply the Victoria & Sydney Railroad with the timber and ties they require, delivery to begin when wanted by the railroad, which will be shortly.

NEW WESTMINSTER, B.C. April 22, 1893.

MICHIGAN LETTER.

[Regular correspondence CANADA LUMBERMAN.]

IN another week, probably, Michigan lumbermen will have got well into the season's trade and a brisk business is anticipated. Prices keep up; in some respects they are phenomenally high. The mills are calculating on a large cut, no little of which will be of Canadian logs. Preparations are now being made for an active season's towing from Canada, and operations will likely commence about May 1.

PURCHASE OF THE COOK BROS. LIMITS.

Rumor is revived here concerning the probable purchase of the Cook Bros. limits on the Georgian Bay by Gen. R. A. Alger, one of our largest white pine operators. One statement is that the deal is practically closed at a figure a little short of one million dollars. This is expected to cover over 10,000,000 feet, with mills, and about 20,000,000 feet of log.

BITS OF LUMBER.

The Dollarville Lumber Company at Alpena is reported to have 17,000,000 feet of lumber on hand.

The Perry Lumber Company has banked 10,000,000 feet in Canada which is to be towed to Cheboygan to be manufactured.

Peter McArthur, the resident member here of the firm of McArthur Bros., of Saginaw and Toronto, reports a good demand for square timber and prices improving.

C. K. Eddy & Son have started their mill; the entire product of the mill, about 20,000,000 feet will be handled in the yard trade. Heretofore from 10,000,000 to 12,000,000 have been sold in cargo lots. The firm has not a foot of unsold lumber on the mill dock.

Two new lumbering organizations have identified themselves with the town of Mainstee, Mich., viz., the Mainstee Flooring Company, with a paid-up capital of \$10,000, and the Babcock Lumber Company, which will devote its attention principally to cedar shingles.

Pine is an exceptionally scarce article at Muskegon. Chiefly hemlock is being cut. An operator in hemlock at this point is reported to have said that steps will be taken to bring hemlock logs to Muskegon by water. "You see," said he, "there is any amount of it to the north and east of us, even as far over as the Canada shores. Under modern rafting arrangements logs can be handled for that distance with perfect safety. It will be found a profitable investment."

According to the boom company's estimate 515,000,000 feet of logs were cut on the Menominee river during the past winter. The cut up to the present time, however, will reach about 550,000,000 feet, which with the 40,000,000 feet left over from last season will make 590,000,000 feet to be manufactured during the season.

The following sales, reported to have been made by the Saginaw Lumber and Salt Company, within the past fortnight, indicate how prices are going. Three million feet were sold to be cut at an advance of 25 per cent. on prices for the same stock in December. Another lot of 1,250,000 feet was sold at \$17.50 a thousand. The same grade sold last season at \$14.50 to \$15. Two million feet has been sold at \$22 a thousand and the same grade sold at \$18 to \$19 three months ago. Probably 30,000,000 feet has been sold within two weeks at these prices. In the yard, trade prices have advanced \$3 and \$4 a thousand on nearly all grades. The same concern are said to have sold 1,000,000 feet of Norway lumber at \$2 increase over last year's figures and commence cutting at once.

The various lines of railroad running into the valley are considering a project which will doubtless be carried into effect, and will solve the problem of log rafts and avoid obstructing the channel of the Saginaw river. Last season the large rafts brought down the lake and from Georgian Bay territory obstructed navigation in many instances on the river and at the mouth of the stream. It is proposed now to extend to the track from Oatka beach a mile or so along the bay and boom all the rafts there, instead of bringing them into the river. Then it is proposed with an endless chain system to hoist the logs on freight cars from the water and deliver them by rail to all mills on the Saginaw river at a uniform freight rate. The project is entirely feasible and meets with much favor among mill owners.

SAGINAW, Mich., April 26, 1893.

FRICTION AND LUBRICATION.

WE often hear of the "co-efficient of friction," and no doubt many wonder what that means. It is easy to understand with a little explanation. Let us take a piece of iron and pull it along a plate of iron also. Let the block weigh 10 pounds, and we will hook an ordinary spring balance and pull it along, noting the amount of pull of the scales necessary to move it. Suppose this is 1 pound, or in other words, it takes 1 pound to pull 10 pounds on this iron plate, and we say the "co-efficient of friction" is 1-10 or .1. Now let us oil this plate and block and try it again, and we find it moves with a pull of 1/2 a pound, showing that we have reduced the "co-efficient of friction" to 1-20 or .05, just half of the former friction.

The friction of bearings vary with the conditions under which they run, the metals that run together, the lubrication of the bearings and the load or weight imposed upon them. For good sound shafting (turned practically true), in good, long bearings, properly lubricated and not too heavily loaded, the "co-efficient of friction" will average about .07, varying from .04 to .1. In other words it takes about 7 pounds pressure to move 100 pounds of shafting in good bearings, this will hold good for most shafts in good condition.

It will be seen that it pays to have a bearing lubricated and not allowed to run dry as the power required is often doubled or tripled by not having a shaft lubricated properly.

This does not mean that it should be spasmodically dosed with oil and then left to run until dry, for this means an uneven friction, is not economical of oil, nor is it at all mechanical. When possible have a steady regular feed, even though it be but a drop an hour, and you will be surprised to know how little oil will run a shaft and keep it cool. If you have no feeding device, then become as nearly automatic as you can yourself, by oiling "little and often." It may take a little time but it will lessen the oil required, will obviate hot journals and will be more satisfactory in every way.

A THREE CENT STAMP DOES IT.

ON receipt of a three cent stamp we will mail free to any address a copy of our little hand-book entitled "Rules and Regulations for the inspection of pine and hardwood lumber," as adopted by the lumber section and sanctioned by the Council of the Board of Trade, of Toronto, June 16, 1890. Address, CANADA LUMBERMAN, Toronto, Ont.

THE NEWS.

ONTARIO.

—Gilmour & Co.'s mills at Trenton are in operation for the season.

—The Parry Sound Lumber Company started their water mill on 17th April, and it is now running to its fullest capacity.

—The mills of the Whaley Lumber Co., at Huntsville, commenced running on the 17th ult.

—The new planing mill and sash and door factory of Tessier & Co., of Penetang, is in operation.

—The sawmills at Hawkesbury are reported to be in full operation, and an output that will aggregate between fifty and sixty million feet is expected.

—The drive of saw logs down the Moira river this spring will be very large—about 475,000 pieces, or 60,000,000 feet. Gilmour & Co. will have 265,000 and Rathbun & Co. 145,000.

—J. Kendrick, of Ice Lake, Gore Bay, has sold his mill to Mr. Andrew Robertson. Mr. Kendrick has taken a position with the Pickwick Island Shingle Company at Little Current.

—Gillies Bros., of Braeside, anticipate a heavy summer's lumbering. They will do away with the boarding house system and erect some twenty or more cottages for the operators.

—The new steam mill of McLachlan Bros., Arnprior, which will rank among the large mills of the province, is now complete. This firm will run their four mills to their fullest capacity.

—The following well-known lumbermen are incorporated, along with others, as the Hamilton, Waterdown and Guelph Electric Railway Company, with a capital of \$500,000: W. Laking, Jacob Flatt, W. Debors Flatt, and John Ira Flatt, all of Hamilton.

—An average of twenty car loads of lumber is now being shipped each day from the yards of the Canada Lumber Company, at Carleton Place. Most of it goes to the Standard Oil Co., of New York.

—Rumor has it that Mr. T. H. De Cew, the big lumberman of Essex, will erect at Green Basin, Oregon, in the near future, one of the largest saw mills in Oregon. He will also erect a stove factory at Albany.

—Cooper & Stewart are reported to have sold their timber limit and winter's cut of logs on the north shore of the Georgian Bay, to a Saginaw, Mich., firm. The consideration is stated to be \$60,000 with the square timber reserved.

—What is known as the Old Whistle Mill, on the Ottawa, now the property of the Pembroke Lumber Co., is now undergoing important improvements which will make it one of the best equipped dimension timber mills on the Ottawa.

—Messrs. John White, ex-M.P., of Roslin; Robt. Thomson, Hamilton; John Davidson, of Barrie; T. J. Hamill, J. S. Hatton, of Toronto; W. Bell, of Guelph, and others have been incorporated as the Toronto and British Columbia Lumber Company, with a capital stock of \$1,000,000.

—The Georgian Bay Sawlog Salvage Company, recently incorporated under charter from the Ontario government, have elected the following directors and officers: Charles Beck, Jas. Scott, John Waldie, Douglas L. White and James L. Burton. Mr. Chas. Beck, of Penetanguishene, was elected president and Mr. Alexander A. Wright, of Toronto, secretary. This company expects to be of great service to the owners of sawlogs on Lake Huron and the Georgian bay, to assist in economically recovering lost logs. Half of the stock is yet unallotted so as to give opportunity to sawlog owners to join, as it is the desire of the members of this company that it shall be a mutual working concern, and not one organized for the purpose of profit.

QUEBEC.

—The quantity of white pine timber which wintered at Quebec is placed at about 4,000,000 feet or 1,000,000 less than the preceding season. The quantity which wintered on the Ottawa is only about 500,000 feet, as compared with 2,000,000 in 1891.

NEW BRUNSWICK AND NOVA SCOTIA.

—F. F. Warren, of Grand Prairie, N.B., intends starting a saw and shingle mill in Salmon River district.

—Frazer & Maley, of Sheet Harbor, N.S. are erecting a mill at Ecum Secum, Eastern Shore. It will operate principally on hardwood.

—It is feared that many of the lumbermen throughout the lower New Brunswick will experience much difficulty this spring in drawing their logs owing to the amount of snow of the past winter. A heavy rain is necessary to save many logs from being hung up.

—A cargo of 1,400,000 shingles was shipped a few weeks ago from St. John, N.B., to Portland, Me. About 25c. a thousand is saved in freight by water.

—It is estimated that upward of 100,000 logs will soon be on the move to the booms on the Liverpool river. Large numbers of men are being dispatched to the streams at different points.

—The Washington Treasury Department has modified the existing regulations as to the entry of lumber sawed in St. John, N.B., from logs cut in Maine, so as to make them less stringent. The Treasury Department has directed that an overrun to 7 per cent. of the measured quantities of the logs sawed into lumber be admitted free of duty into the United States.

MANITOBA AND THE NORTHWEST.

—The liabilities of Bell Brothers, builders, Brandon, Man., who recently failed, are placed at \$50,000.

—It is said that 7,000,000 feet of lumber will be cut on Lake Winnipeg this summer. This is more than has been cut on the lake in one summer before.

—The timber cut of J. A. Christie, of Brandon, Man., on the Assiniboine and Saskatchewan limits, is said to be the finest that has come out of that section. The mills will have all they can do until next November.

—The Kewatin and Western Lumber Company, Winnipeg, Man., are asking authority to increase the capital stock from half a million to one million, and to extend the powers of the company for the following purposes: To purchase, acquire, hold, alienate and convey mills, properties, mill sites, water-powers and mills already constructed, and erect, to acquire, hold, charter, build and alienate ships, tugs or barges, requisite for the purposes of the company.

FIRES AND CASUALTIES.

FIRES.

—Carler's shingle mill at Fesserton, Ont., was destroyed by fire on the 18th ult. Loss, \$1,200; insurance, \$400.

—John Milne & Sons' planing mill, Huntsville, Ont., was burned on the 13th ult. Loss about \$12,000; insurance, \$8,000.

—The sawmill of McKechnie Bros. at Glenroadin, Ont., was completely destroyed by fire a fortnight ago. About 100,000 feet of lumber was burned. Loss, \$5,000; insurance, \$1,500.

—J. Joanist's steam planing mill, sash and door factory, and lumber sheds at Buckingham, Que., were burned to the ground two weeks ago. Loss about \$5,000; no insurance.

—The large mill of Burton Bros., Bying Inlet, Ont., was completely destroyed by fire on the 20th of April. This, it will be remembered, was the date of the great wind and rain storm that did so much damage all over the province. This served as an immense feeder to the fire, which hardly stopped until almost the whole village was consumed. Burton Bros. loss is estimated at about \$200,000. The mill was one of the best equipped in the province, capable of cutting a large quantity of timber. The cost was given to the LUMBERMAN by a representative of the firm as \$100,000. Besides this about \$60,000 worth of lumber was burned, a considerable portion of which was sold and was to have been shipped by vessel to the States within a few days following the fire. Some twenty cottages owned by Burton Bros. and occupied by workmen, and a large general store managed by Peter Potvin, were also destroyed. The insurance is placed at about \$120,000. It is not known whether the firm will rebuild. To relieve a large number of families who are without food or shelter, provisions have been forwarded from Collingwood to assist the sufferers.

CASUALTIES.

—Samuel Johnson, living near Oxford Mills, Ont., has been killed by a falling tree.

—Alfred Sherwood was killed in the bush near Woodstock, Ont., while felling a tree.

—Ricard Ellis, of Ivy, Ont., while working in a lumber camp near North Bay, Ont., was killed by a falling tree.

—Arthur Askey, aged 13, got caught in a belt at Harrison's sawmill in Norwood, Ont., and was whirled around the shaft and badly mangled.

—St. Victor d'Alfred, a workman in Grondin's mill, near Buckingham, Que., was instantly killed by being struck with a smokestack which he was helping to erect.

—H. Morgan, an employee of the Canoe Company, Peterborough, Ont., had his right hand lacerated by a circular saw necessitating the amputation of one of his fingers.

—Robert Essop, of Cremore, Ont., was drowned on the Shawanga river, Parry Sound district, while climbing a log. Though in sight of a number of comrades they were unable to render assistance in time.

—Patrick O'Connor was killed in the bush near Braemar, Oxford Co., Ont., on the 20th ult., a large tree being torn up by the roots and crashed down on the shanty killing the occupant. The deceased was employed as a wood chopper.

PERSONAL.

Mr. John Sharples, the well-known lumber merchant of Quebec city, has been created Legislative Councillor in place of the late Hon. John Roche, deceased.

Mr. W. Aschenbach, M.E., representative of Ernest Kirchner & Co., manufacturers of sawmill machinery, Leipzig, Germany, will be present throughout the World's Fair, at Chicago, in charge of the large exhibit being made by this firm.

The death is chronicled of Mr. John Law, of Ottawa, which took place suddenly a fortnight ago. Deceased was a native of Glasgow, Scotland. He came to Ottawa about thirty-five years ago and was engaged in the lumber business for some years, afterwards becoming proprietor of the Calcedonia foundry in New Edinburgh.

Mr. Finlay McGibbon, lumberman, of Sarnia, Ont., whose death occurred a fortnight since, was a well-known lumberman of the Georgian bay. He was born in the township of Nasa-gawaga, county of Halton, fifty-nine years ago, and when a young man engaged in lumbering in that section of country. Later when the Georgian bay district began to develop he sold his business in Halton and purchased a tract of several thousand acres of timbered land in the townships of Tmy and Tay, Simcoe Co., and developed a large lumber manufacturing business in Penetang. About twenty years ago he perceived the advantages of Sarnia as a distributing point for the products of his Georgian Bay mills, and became a resident of the town, where he has ever since resided. About four years ago Mr. McGibbon associated with him in business his sons Charles, John, Finlay and David, and the firm has since been known as F. McGibbon & Sons.

TRADE NOTES.

Attention is directed to the "Want" advertisement of Wm. McNally & Co., Montreal, which appears in this issue.

The Sandwich, Windsor & Amherstburg electric railway have placed an order with the Waterous Engine Works Co., of Brantford, Ont., for grip pulleys, shafting etc., as follows: 43 ft., of 5½ in. shafting with 9 self oiling ball and socket boxes and floor stands. One plain pulley, 45 x 24, two 300 H.P. grip couplings, one 350 H.P. grip coupling, and the following pulleys: One 86 x 12; one 84 x 12; one 72 x 10½; one 56 x 17; one 54 x 16; one 54 x 22.

Messrs. Wm. Gray & Son, the well-known carriage builders, of Chatham, Ont., have just had made for them by the Cant Bros. Co., of Galt, a new machine which will prove specially useful for sanding and polishing the joined bodies of buggies, carriages and light wagons, and for any other work of irregular curved form. In the centre of a strong iron table, a horizontal disc, 36 inches in diameter, lightly bevelled off towards the rim and covered by a cushioned face of sandpaper, revolves at a speed of 600 revolutions per minute. The disc can be raised and lowered at will, and a fence in the middle enables two operators to work on the machine at the same time from opposite sides. The sandpaper is held in the centre of the disc and on the outside by an iron band, and is easily renewed when worn out. The machine results in a saving of both sandpaper and labor.

PUBLICATIONS.

The Review of Reviews, American edition, leading articles of which we have had occasion to notice at times in these columns, enters on another volume with plans laid for still greater achievements in the future. Dr. Albert Shaw, the editor, has shown himself a fitting counterpart to his English chief, and founder of the journal, Mr. W. T. Stead; and in not a few striking respects, we are of the opinion that Dr. Shaw has more exactly met the needs of readers, at least those on this continent.

Rand, McNally & Co., the well-known gazetteer and directory publishers, have just issued a new edition of their "Lumberman's Directory, Shipping Guide and Reference Book." The work is a large volume of over 600 pages, containing what purports to be a complete directory of all lumber dealers, millmen, sash and door manufacturers and wood workers in every department of the trade, doing business in the United States and the several provinces in the Dominion. Besides this list, which is exceptionally valuable to the trade generally, the book contains rules for inspection, classification and measurement of lumber in the various states of the Union, and the rules in use in Toronto. And along with these is a digest of the statutes affecting lumbermen and lumbering in different parts of the States. The book bears the marks of careful editing and compilation, whilst typographically and in binding it reflects every credit on the publishers.

TRADE REVIEW.

Office of CANADA LUMBERMAN, April 29, 1893.

THE GENERAL SURVEY.

All activity in lumber circles, at least in Ontario, and lumbermen generally agree that trade for the season will prove active and profitable.

Shipments of lumber to the States will be heavy; a considerable export to the United Kingdom will take place, and at least a fair trade with South America is assured.

Trade in the province will be rather better likely than last year, though it will be carried on with caution.

Correspondence from British Columbia holds out the hope of a fairly good trade this summer, except perhaps in shingles.

Lumbermen in Quebec and the Maritime Provinces anticipate an improved trade over the past few years, though no little depends on the situation abroad, which improves only slowly.

UNITED STATES.

Financial circles are disturbed with the silver difficulty and the season opening with money stringent. Those who are pessimistic in their opinions contend that things will be worse before they are better.

FOREIGN.

An improved tone is to be remarked of the British timber market. Denny, Mott & Dickson, of London, Eng., say: "The enquiry for consumption during March showed generally some slight improvement on that of January and February, and this fact, in conjunction with the exceptional spell of bright weather, has caused a perceptibly better tone in the trade, although we still seem far off any great revival in the manufacturing industries."

HARDWOODS.

So far as hardwoods are required for finishing purposes in building the end of the season rather than the

commencement is more favorable to consumption. And yet hardwoods are used in so many different ways that the demand keeps steady; in fact, the trade in hardwoods is good.

TORONTO, ONT.

TORONTO, April 29, 1893.

Table of CAR OR CARGO LOTS with columns for item description and price. Includes items like 1 1/4 in. cut up and better, 1 1/2 and 2 dressing and better, etc.

YARD QUOTATIONS.

Table of YARD QUOTATIONS with columns for item description and price. Includes items like Mill cull boards and scantling, Shipping cull boards, etc.

HARDWOODS—PER M. FEET CAR LOTS.

Table of HARDWOODS—PER M. FEET CAR LOTS with columns for item description and price. Includes items like Ash, white, black, Birch, etc.

OTTAWA, ONT.

OTTAWA, April 29, 1893.

Table of Ottawa lumber prices with columns for item description and price. Includes items like Pine, good sidings, Pine, good strips, etc.

QUEBEC, QUE.

QUEBEC, April 29, 1893.

Table of Quebec lumber prices with columns for item description and price. Includes items like White Pine—in the raft, For inferior and ordinary according to average, quality etc., etc.

RED PINE—IN THE RAFT.

Table of Red Pine—in the raft with columns for item description and price. Includes items like Measured off, according to average and quality, etc.

OAK—MICHIGAN AND OHIO.

Table of Oak—Michigan and Ohio with columns for item description and price. Includes items like By the dram, according to average and quality, etc.

ASH.

Table of Ash with columns for item description and price. Includes items like 14 inches and up, according to average and quality, etc.

BIRCH.

Table of Birch with columns for item description and price. Includes items like 16 inch average, according to average and quality, etc.

TAMARAC.

Table of Tamarac with columns for item description and price. Includes items like Square, according to size and quality, etc.

STAVES.

Table of Staves with columns for item description and price. Includes items like Merchantable Pipe, according to qual. and spec'n—nominal, etc.

Bright, according to mill specification, \$115 to \$123 for 1st, \$78 to \$82 for 2nd, and \$37 to \$42 for 3rd quality.

BOSTON, MASS.

BOSTON, Mass., April 29.—The heart of the lumberman is cheered by the favorable opening of spring trade. Spruce is somewhat scarce. A good quantity of southern pine is coming on the market. Prices are firm.

EASTERN PINE—CARGO OR CAR LOAD.

Table of Eastern Pine—Cargo or Car Load with columns for item description and price. Includes items like Ordinary planed boards, Coarse No. 5, etc.

WESTERN PINE—BY CAR LOAD.

Table of Western Pine—By Car Load with columns for item description and price. Includes items like Uppers, 1 in., 1 1/2 and 2 in., etc.

SPRUCE—BY CARGO.

Table of Spruce—By Cargo with columns for item description and price. Includes items like Scantling and plank, random cargoes, etc.

LATH.

Table of Lath with columns for item description and price. Includes items like Eastern sawed cedar, extra, etc.

SHINGLES.

Table of Shingles with columns for item description and price. Includes items like Eastern shaved sawed cedar, 1st quality, etc.

OSWEGO, N.Y.

OSWEGO, N.Y., April 29.—Navigation is open and the outlook is hopeful for a good season's trade in lumber.

WHITE PINE.

Table of White Pine with columns for item description and price. Includes items like Three uppers, 1 1/2, 1 1/2 and 2 inch, etc.

SHINGLES.

Table of Shingles with columns for item description and price. Includes items like 1 in. siding, cutting up, etc.

1X12 INCH.

Table of 1X12 Inch with columns for item description and price. Includes items like 12 and 16 feet, mill run, etc.

1X10 INCH.

Table of 1X10 Inch with columns for item description and price. Includes items like Mill run, mill cull out, etc.

1X8 INCH.

Table of 1X8 Inch with columns for item description and price. Includes items like Mill run, mill cull out, etc.

SHINGLES.

Table of Shingles with columns for item description and price. Includes items like XXX, 18 in. pine, etc.

LATH.

Table of Lath with columns for item description and price. Includes items like No. 1, 1 1/2, etc.

BUFFALO AND TONAWANDA, N.Y.

TONAWANDA, N.Y., April 29.—There is every indication of serious trouble in Buffalo and Tonawanda between the lumber dealers and the lumber shovers. This is unfortunate, coming on the threshold of spring trade.

WHITE PINE.

Table of White Pine with columns for item description and price. Includes items like Uppers, 1, 1 1/2, 1 1/2 and 2 in., etc.

SHINGLES.

Table of Shingles with columns for item description and price. Includes items like Shelving, No. 1, 13 in., etc.

14 and 12 in. (No 3 out)	14 00	Narrow	13 00	14 00
16 and 8 in. (No. 3 out)	13 50	1 1/2 in.	15 00	18 00
1 1/2 and wider	16 00	1 3/4 in.	15 00	18 00
18 in. XXX, clear	3 75	2 in.	15 00	18 00
18 in. XX, 6 in. clear	2 75	SHINGLES		
No. 1, 4 ft.	2 60	16 in. *A extra	2 50	2 60
No. 2, 4 ft.	1 95	16 in. clear butts	2 10	2 10
		LATH		
		No. 1, 3 ft.	1 10	1 10

ALBANY, N.Y.

ALBANY, N.Y., April 29.—Though the season's trade is no more than opened, distribution has progressed with sufficient rapidity to materially reduce stocks on hand. Low grades of pine have been the first to become practically extinct. Contracts for the new cut are being made at from \$2 to \$3 a thousand feet ahead of last year.

2 1/2 in. and up, good	\$5 50	10 in. common	\$15 50	\$15 50
Fourths	58	12 in. dressing and better	28 34	28 34
Selects	59	Common	15 17	15 17
Pickings	45	1 1/2 in. siding, selected, 13 ft.	49 45	49 45
1 1/2 to 2 in. good	57 55	Common	15 17	15 17
Fourths	47 50	1 in. siding, selected	38 47	38 47
Selects	47 45	Common	15 17	15 17
Pickings	37 40	Norway, clear	22 25	22 25
1 in. good	52 55	Dressing	16 18	16 18
Fourths	47 50	Common	11 15	11 15
Selects	47 45	10 in. plank, 13 ft., dressing C. C.	42 55	42 55
Pickings	37 40	and better, each	23 25	23 25
Cutting-up	22 27	10 in. plank, 13 ft., culls, each	25 32	25 32
Bracket plank	30 35	10 in. boards, 13 ft., dressing	25 32	25 32
Shelving boards, 12 in.	30 32	and better, each	17 21	17 21
Dressing boards, narrow	20 22	10 in. boards, 13 ft. culls	20 22	20 22
Pine	\$2 40	LATH		
Sawed Pine, ex. XXX	\$4 35	Spruce	\$2 40	\$2 50
Clear butts	3 10	SHINGLES		
Smooth, 6 x 18	5 40	16 in. butts, C x 18	\$5 60	\$6 00
		Hemlock	2 15	2 30
		Spruce	2 20	2 30

SAGINAW, MICH.

SAGINAW, Mich., April 29.—The impression is gaining some headway in the Michigan market that prices have touched high water mark and we hear of purchasers of last fall who would be willing to unload at present figures rather than hold on for a prospective increase. At the same time no one sees any evidence of a reaction in present quotations which continue firm.

Uppers, 1, 1 1/2 and 1 3/4	45 00	Fine common, 1 in.	35 00	35 00
2 in.	49 00	1 1/2 and 1 3/4 in.	36 00	36 00
Selects, 1 in.	40 00	2 in.	36 00	36 00
1 1/2 and 1 3/4	41 00	C, 7, 8 and 9 in.	30 00	30 00
2 in.	41 00			
Clear, 1/2 in.	24 00	C, 1/2 in.	10 00	10 00
3/4 in.	48 00	3/4 in.	34 00	34 00
Select, 1/2 in.	21 00	No. 1, 1/2 in.	13 00	13 00
3/4 in.	40 00	3/4 in.	25 00	25 00
2 1/4 to 10 x 10, 12, 14 and 16 ft.	51 00			
18 ft.	13 00			
For each additional 2 ft. add \$1; 12 in. plank and timber \$1 extra; extra for sizes above 12 in.				
XXX 18 in. Climax	3 60	18 in. N (cull)	1 09	1 09
XXX Saginaw	3 40	XXX shorts	2 25	2 25
XX Climax	2 75	XX	1 50	1 50
18 in. 4 in. C. b.	1 25			
Lath, No 1, white pine	2 25	No. 2, W. pine, Norway	1 65	1 65

NEW YORK CITY.

NEW YORK, April 29.—The trade are commencing to feel the benefit of building operations and a fair volume of trade is being done.

Uppers, 1 in.	\$44 00	Coffin boards	20 00	22 00
1 1/2, 1 3/4 and 2 in.	46 00	1/2 in.	52 00	57 50
2 and 4 in.	55 00	Thicker	17 50	18 50
Selects, 1 in.	40 00	Ceiling, loose, fig. No. 1	40 00	42 00
1 in. all wide	41 00	No. 2	35 00	37 00
1 1/2, 1 3/4 and 2 in.	43 00	No. 3	24 00	26 00
3 and 4 in.	53 00	Shelving, No. 1	30 00	32 00
Fine common, 1 in.	36 00	No. 2	25 00	27 00
1 1/2, 1 3/4 and 2 in.	38 00	Molding, No. 1	36 00	37 00
3 and 4 in.	45 00	No. 2	34 00	35 00
Cutting up, 1 in. No. 1	28 00	Level sidg., clear	22 50	23 00
No. 2	21 00	No. 1	22 00	22 50
Thick, No. 1	29 00	No. 2	20 00	20 50
No. 2	24 00	No. 3	16 00	17 00
Common, No. 1, 10	22 00	Norway, C, and No. 1	23 00	25 00
and 12 in.	22 00	No. 2	20 00	22 00
No. 2	20 00	Common	18 00	19 00
No. 3	17 00			

COMING SALES.

An important sale of timber and mineral lands in North Carolina is advertised to take place on June 14. Particulars are given in our advertising pages.

Announcement is made in advertising columns of a valuable saw and shingle mill at Proton Station, on the C.P.R. that is offered for sale. The mill has a capacity of from 10,000 to 15,000 feet per day.

NEWS AND NOTES.

The safe of the Canada Lumber Company, at McIaren's depot in Lanark Co. was blown open and \$500 in cash stolen.

Charles Wilson, a millwright in Gilmour & Co's employ, Trenton, Ont., had four fingers taken off while fixing some shafting.

NOTES AND QUERIES

Questions and answers are inserted under this head free of charge, and all are invited to avail themselves of this column. Correspondents need not give their own name for publication, but it must be made known to the editor. Anonymous communications will find space in the waste basket.

No. 34. BOILER EXPLOSIONS.—Let me say, suggested by a correspondent in the April LUMBERMAN that the amount of water in a boiler at the time it "let go" has a good deal to do with the possibility of an explosion. When a considerable quantity of water is heated under pressure, as in a boiler, and suddenly released from pressure, as in case of an explosion, or rupture of the containing vessel, then the body of water is instantly flashed into steam and the sudden increase in volume which takes place when that happens makes matters much worse than when there is but little water contained in the boiler, and the destruction is only that which is caused by the escape of the pent-up body of steam therein contained. In the latter case, the mischief is all done at once and is over with; in the former case, the destructive energy is reinforced by a power two or three or perhaps many more times greater than that which caused the initial trouble. L. A. R.

No. 35. THE TERM HORSE POWER.—A writer in Power thinks that an imperfect understanding of the term horse power exists in more minds than that of the engineer who tried to get at his "horse power per hour" by multiplying the actual horse power by sixty. The horse power is foot pounds per minute, just the same as revolutions per minute, and it is just as meaningless to say "horse power per hour" as it would be to say "revolutions per minute per hour." The horse power is the unit of the rate of power consumption, and whether the number of foot pounds be divided by 550 per second, 33,000 per minute or 1,980,000 per hour, the rate of their production, or consumption and consequently the horse power, will be the same. When it is said, for instance, that an engine requires thirty pounds of steam per horse power per hour, it is meant that thirty pounds of steam are required per hour, or one-half pound per minute for each horse power developed.

LUMBERING IN HOLLAND.

MORE in some respects than the close student of books does the much-travelled man become an educated man. All men are not equally observant but usually what the eye sees is remembered better than the information that is acquired by reading. At any rate there is nothing like seeing a thing if one wants to be impressive in a description of it. "The sawmills in Holland," says Mr. Tolman, in the Northwestern Lumberman "are run by windmills. Talk of ease! Why, even a Georgia darkey in watermelon time would pine for work, if he had nothing more to do than attend to a wind sawmill; and a Mexican broncho is angelic in comparison with one of them for cussedness. It is worse than a six days-free-for-all-go-as-you-please walking watch. Think of putting a log on a carriage to be sawed and waiting a week for it to be done! And yet that is the common experience in Holland. The foreman helps his employer put on a log Monday morning, and along about Wednesday or Thursday they look in to see if the mill has started. Then they go out and shut the door, and call again next Monday. Fortunately the machinery is made so that, if the mill does start up in the night and do a little work, or even saw the log up, no damage will be done if the workmen are absent. But the method is a trifle too leisurely for any place except Holland."

TOO BUSY TO READ.

"TOO busy to read!" Well I'm sorry for you; You're busier far than occasion demands. I'm afraid you just bring that objection to view, To rescue yourself from the canvasser's hands.

If you are too busy to look at the page That tells of the methods that others pursue, That shows you are lagging in this busy age— You don't drive your business—it seems to drive you. The plans and ideas, the systems and schemes That other men find it pays them to employ, Are just what will help you to live out your dreams Of plenty, prosperity, honor and joy.

If you would but take time to read and reflect, Your business would yield you the time that you need. For those who have tried it have found this effect— By reading they've learned to have more time to read. —Business.

STEAM PUMPS



Duplex AND SINGLE Steam AND POWER Pumps

If you require a pump for any duty, of the latest and most improved pattern, and at close prices,

WRITE US



NORTHHEY

M'FG CO.

LIMITED

TORONTO - ONT.

A NEW STEAM TUG.

CONSIDERABLE interest is manifested by lumbermen in the construction of a new and somewhat novel steam tug that has been patented by a Simeco firm and six of which have already been manufactured by them at their foundry in that town. The tug is aptly called the alligator, as it is intended to be used on land as well as in water. McLachlin Bros., of Arnprior, who have three of these tugs in operation speak in highest terms of their usefulness. This peculiar vessel is scow-shaped with steel-shod runners for moving overland, is 37 feet long, 10 feet beam, decked all over, has sleeping room for men in the bow; the bottom and up the bow covered with steel boiler-plate, engine 23 horse power, furnishes steam for 10 hours' work with three-quarters of a cord of dry wood. In the water it moves six miles an hour, forward or backward as required, propelled by side-wheels. On land it is propelled by having a cable drum on which is coiled five-eighths of a mile of steel wire cable, which is fastened with pulleys to a tree or some object in front, the boat moving as the wire is coiled up. The boiler is hung on an axle in the centre, and a screw arranged on the front enables the fireman to tip it forward or back and keep it level going down hill. It will move over an elevation of one foot in three on land and draws about 25 inches in water.

LUMBERING IN SCOTLAND.

SCOTLAND as a whole, says J. E. Emerson in the Northwestern Lumberman, is the best timber land of Great Britain and has, I think, more mills for sawing and working timber and lumber. This probably is largely due to her numerous shipbuilding interests, and remarkable enterprise and rigid economy.

Scotland has the best monetary and banking system of any part of the world. Ship building was at one time carried on on the Thames in London, and its immediate vicinity, but as many ship builders were comparatively poor and there was a panic in England, and interest jumped as it often has from 2 to 10 per cent. in one day, and the Bank of England suspended specie payment, as it did during the wars of Napoleon Bonaparte, and the Crimean war, it was dangerous to be in debt and have notes falling due. Sir Walter Scott wrote under the assumed name of "Mullecar Mullagruder" (if I have spelled it correctly) and opposed Scotland's establishing the monetary system of England. For more than one hundred years interest in Scotland has not been more than 2 per cent.

It cost over \$15,000,000 to dredge the Clyde so ships could be launched. I was exceedingly interested in learning the method of doing business in shipbuilding, so I had a bank president explain it. Said he: "We want to know that a shipbuilder is a practical workman and manager. Such a man gets from the Canadian Line or East India, or a reliable nation, ship building to the amount of say \$5,000,000 and comes to us for a loan of \$100,000 until his first payment, which is when the outside of frame is ready for the machinery, and so on at each stage, as the work progresses, until launched, when all is then due. We get the contract at say 1 1/2 per cent. interest; if awarded to us he brings us his contract as our security and sends all of his bills, even his labour bill, for us to pay, and we pay them up to the sum loaned. He comes and says that he is ready for an inspector and we order one that is furnished by our government. Soon he brings in his receipt that it is done satisfactorily and we then send the receipt to the parties he is building for and draw on them for the first payment. It comes and we place it to his credit, and then go on again, settling every six months, charging him interest for the exact time he has had the money and allowing him half interest for what lies in our bank not used

by him. It costs us 1/4 per cent. to handle money, including all expenses, so that whatever we receive over that is profit."

In all of their doings I found the Scotch a farseeing people and in no way that we may call sharpers. They lay their plans often generations ahead, and what we call "clannish" Scotchmen look after the interests of Scotchmen wherever found.

WOOD PULP SILK.

THE uses to which wood may be put, as anyone who has studied the subject closely knows, are quite wonderful. The "forest primeval" is turned to many different purposes. Alcohol, gas, resin, tar, sassafras oil, quinine, rubber and cork, are only a few of the many products that come from wood as the result of distillation and the application of other scientific methods. But it has been left to a Frenchman to make a silk dress out of a piece of wood. The process seems to be a practicable one, for the inventor has organized a company and is now making the "wood silk." The process of manufacture is given as follows: The raw material is made from wood pulp, such as is used for the fabrication of certain kinds of paper. This pulp is carefully dried in an oven and plunged into a mixture of sulphuric and nitric acids, then washed in several water baths and dried by alcohol. The product thus prepared is dissolved in ether and pure alcohol, and the result is collodion, similar to that used in photography. This collodion, which is sticky and viscous, is enclosed in a solid receptacle furnished with a filter in the lower end. An air pump sends compressed air into the receptacle, and by its pressure the collodion is passed through the filter, which removes all impurities, and flows into a tube placed horizontally. This tube is armed with 300 cocks, of which the spouts are made of glass, and pierced by a small hole of the diameter of the thread of a cocoon as it is spun by the silk worm. The spinner opens the cock and the collodion issues in a thread of extreme delicacy (it takes six to make a thread of the necessary consistency for weaving). This thread is not, however, fit to be rolled on the spools by reason of viscosity and softness; the matter is as yet collodion and not silk. To produce the necessary hardness, the inventor resorted to a very ingenious but simple method. The little glass tube already mentioned is surrounded by a small reservoir of the same material constantly filled with water; when the thread issues from the aperture in the manner described, it traverses this water, which takes up the ether and alcohol, and then the collodion becomes solidified, that is to say, it is transformed into an elastic thread, as resisting and brilliant as ordinary silk.

OIL CANS.

NO engineer should use oil cans with bent and broken nozzles, and without covers and stoppers, for it gives a forlorn appearance to the whole room. As a rule, steam users will furnish these to some reasonable extent, but the writer has made a practice for more than a dozen years of furnishing his own, wherever he is employed, and the cost has not been excessive, for we have succeeded in keeping an ordinary brass squirt can for two years without accident, although using it every day in oiling valve gears in motion. Sometimes steam users are accused of being niggardly in dealing out supplies, but it may be that there is a reason for this, so that it is well not to be hasty in forming an opinion until you are familiar with all of the facts in the case. If an engineer has been in the habit of using belt lacing, for various purposes of his own, he should not be surprised if the supply is reduced. If he has not been careful of his waste, he should not object if he is put "on allowance." If he has wasted oil he must expect to be corrected for it. Scientific Machinist.

WANTED AND FOR SALE

Advertisements will be inserted in this department at the rate of 15 cents per line each insertion. When four or more consecutive insertions are ordered a discount of 25 per cent. will be allowed. This notice shows the width of the line and is set in Nonpareil type. Advertisements must be received not later than the 27th of each month to insure insertion in the following issue.

WE WANT ALL KINDS OF HARDWOODS. Will pay cash. ROBERT THOMSON & CO., 107 Bay Street, Toronto.

FOR HEMLOCK, DIMENSION LUMBER, hardwood flooring, cedar shingles, piles, sawdust, etc., write J. E. MURPHY, lumberman, Hepworth station, Ont.

WANTED—A SITUATION AS FILER IN A sawmill. Have had nine years experience with gang and round saws. Address "H," 3 Mainland St., Halifax, N.S.

WANTED—BY YOUNG MAN SITUATION as book-keeper, cashier or correspondent; rapid worker; energetic, and thoroughly reliable and experienced; competent to take charge of manufacturer's office. Address "Accountant," care CANADA LUMBERMAN, Toronto.

WANTED.

IN CAR LOTS, IN MONTREAL, ELM LOGS not under 25 inches in diameter, also Spruce. Apply to WM. McNALLY & CO., McGill St., Montreal.

WANTED.

LUMBER, LATH, SHINGLES, CEDAR posts, slabs, edgings, and hard and soft wood in exchange for wood-working machinery.

Address: "Machinery," care CANADA LUMBERMAN.

FOR SALE.

ABOUT A MILLION FEET OF LOGS (AT mill) suitable for bill stuff, etc. Mill can be leased to cut them. Address "Lumberman," care CANADA LUMBERMAN, Toronto.

LUMBERMEN

EXPERIENCED SHIPPER OPEN FOR ENGAGEMENT middle of May. Good book-keeper and correspondent. Competent to take charge of mill. References furnished. Address "Inspector," care CANADA LUMBERMAN, Toronto.

RAILS FOR TRAMWAYS

NEW AND SECOND-HAND STEEL AND iron rails for tramways and logging lines, from 12 lbs. per yard and upwards; estimates given for complete outfit.

JOHN J. GARTSHORL, 49 Front St. West, Toronto.

TO EASTERN STATES LUMBERMEN.

AN EXTENSIVE HANDLER OF PULP wood, fir, spruce, canoe birch and poplar, is desirous of finding a market for same in the Eastern States. New York or Boston preferred. Is prepared to ship any size required per schooner from Quebec. Parties handling same should communicate with I.C.L., care CANADA LUMBERMAN, Toronto.

FOR SALE

A WELL-ESTABLISHED, THRIVING LUMBER business, being one of but two yards in a rapidly growing manufacturing city of 20,000 inhabitants, surrounded by a well-to-do farming class. Sales the past year over \$50,000, which can be doubled. Capital required about \$10,000. Terms easy. Reason for selling, illness of Manager. Address "Good Opportunity," care CANADA LUMBERMAN, Toronto.

WANTED FOR CASH.

ASH AND SOFT ELM DIMENSION STOCK cut to exact sizes. Apply for specification, prices, etc., to P.O. Box 2144, NEW YORK.

WANTED FOR CASH

Ash and Soft Elm

MOSTLY ONE-INCH, SOME ONE-AND-A-QUARTER and one-and-a-half inch, strictly first and second; also commons. Furthermore, Ash and Oak squares from one-and-a-half to four inches thick. Red Birch Lumber, 1 and 1 1/2, all thickness; also Red Birch Squares 2 x 4 and 6 x 6, ten feet and over long. Address all particulars as to dryness, quality, quantity on hand and price, to P.O. Box 2144, New York, N.Y.

SAW MILL AND TIMBER LIMITS For Sale.

THE UNDERSIGNED OFFERS FOR SALE his Mill Property, situated in the town of Peterboro, known as the Point St. Charles saw mill, together with piling grounds, pond, booms, chains, anchors, ropes, horses' harness, wagons, sleighs, shanty and driving outfits. Also, the Galway limits and about 15,000 pieces of logs on Noyes's Creek and Swamp Lake, composed of pine, cedar and hemlock. For all information apply to

A. McDONALD, Point St. Charles, Peterboro, Ont.

SAW AND SHINGLE MILL FOR SALE

At Proton Station on the G.P.R.

Containing 3 1/2 Acres of Land

Mill Capacity from 10,000 to 15,000 feet per day

THE PROPERTY IS SITUATED IN ONE of the best hardwood districts in the country.

Two small houses, stable, etc., on the property. Mill is running, and can be seen at any time.

Terms easy. For full particulars apply

215 QUEEN STREET EAST, Toronto.

IMPORTANT SALE

— OF A —

LARGE AND VALUABLE

TRACT OF TIMBER AND MINERAL LAND

THE TIMBER AND MINERAL PROPERTY of the Scottish Carolina Timber & Land Company, limited, in liquidation, situate in Haywood and Madison counties, western North Carolina, will be offered for sale at public auction at the Court-House door, at Knoxville, Tennessee, on

Wednesday, June 14th, 1893

This splendid tract of land is estimated to contain about forty thousand acres, a large part of which is heavily timbered with poplar, whitepine, cherry, walnut, hickory, maple, birch, bass-wood, hemlock and other woods. After the timber is removed from the lands, the property will still be valuable for agricultural and grazing purposes, and for the rich deposits of iron-ore and other minerals upon it.

This property lying come into the hands of mortgagees, must be sold, and offers a rare chance to investors or practical lumbermen. For further description or particulars, apply to

LEON JOURJOLMON, Attorney, Knoxville, Tennessee.

VALUABLE

Timber Lands AND Saw Mills

FOR SALE AT PARRY SOUND

THE MILL IS SITUATED ON THE WATERS of Parry Sound, and has good shipping facilities. The largest vessels or steamers on the lakes can load at the lumber docks. The mill will cut about twenty thousand feet of lumber and twenty-five thousand shingles in ten hours.

There are about seven thousand five hundred acres of timber pine, hemlock, birch, ash, oak, spruce, bass-wood, etc.

The timber is free of dues.

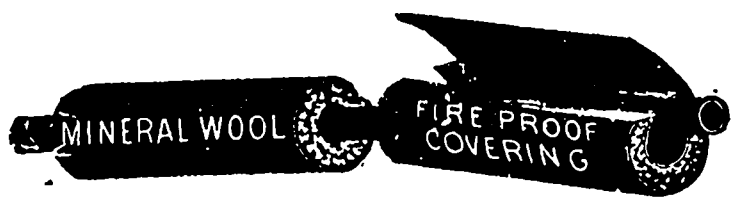
Parry Sound is the terminus of the Ottawa, Arnprior and Parry Sound Railway, now in process of construction.

Price: Twenty-five thousand dollars.

Terms as may be agreed upon.

W.M. BLATTY,

Parry Sound.



MINERAL WOOL

STEAM PIPE AND BOILER COVERING

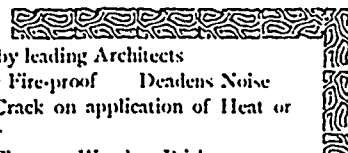
Saves enough fuel to pay for itself in one season.

Is Fire-proof, Frost-proof, Vermin-proof and Indestructible

CANADIAN MINERAL WOOL CO., LTD. # 122 BAY ST., TORONTO

THE RATHBUN COMPANY DESERONTO, ONT.

MANUFACTURERS OF



TERRA COTTA FIRE-PROOFING

For use in Old and New Buildings

Endorsed by leading Architects
Absolutely Fire-proof Deadens Noise
Does not Crack on application of Heat or Water
About as Cheap as Wool or Brick
Weight one-third that of Brick

Gives Warmth in Winter; Coolness in Summer

Cable Address
Hamburg: "Gardner."

Cable Address
London: "Freestuff."

GARL GARTNER

AGENT FOR

CANADIAN WOOD GOODS

HAMBURG, GERMANY: Office
Kl. Reichstr., 17-19



LONDON, ENGLAND:
8 Union Court, Old Broad St., E.C.
and 80 Bishopsgate St., E.C.

Representative Lumber Manufacturers and Dealers

Towns	Railway, Express, or nearest Shipping Point	NAME	BUSINESS	Power, Style and Daily Capacity
Ottawa, Ont.	Ottawa	Booth, J. R.	Lumber, Wholesale and Retail.	Steam, Circular and Hand Mill
Ottawa, Ont.	Ottawa	Bronson & Weston Lumber Co.	2 Sawmills, White and Red Pine, Wholesale.	Water, Gang and Hand, 4500
Ottawa, Ont.	Ottawa	OTTAWA LUMBER CO.	Lumber, Pine, Spruce, Hemlock, Wholesale.	2 Mills, Water, 1 Hand, 2 Gangs and 3 Circulars.
Ottawa, Ont.	Ottawa	Perley & Pattee	Saw and Lath Mill, Pine, Wholesale.	Water, Gang and Hand, Saw 4000, Lath 700
Parry Sound, Ont.	Uttersen	Conger Lumber Co.	Lumber, Wholesale and Retail.	Water, Gang, Circular, Saw 900,
Parry Sound, Ont.	Parry Sound	Parry Sound Lumber Co.	Saw, Shingle and Lath Mills, Pine, Wholesale.	Shingles 700, Lath 300
Muskoka Mills, Ont.	Penetanguishene	Muskoka Mill and Lumber Co., Head Office, Arcade, 24 King st. w., Toronto	W. Pine Lumber, Lath and Bill Stuff, all lengths.	2 Mills, Water, 1 Hand, 2 Gangs and 3 Circulars.
Alexandria, Ont.	Alexandria	McPherson, Schell & Co.	Cheese Box Factory, Pine, Spruce, Cedar	Circular, 3m
Almonte, Ont.	Almonte	Caldwell, A. & Son	Sawmill, Pine, Spruce, Hemlock, Hardwoods.	Steam, Circular, 400
Barrie, Ont.	Barrie	Dymont & Mickle	Saw, Shingle and Heading Mill, Pine, Cedar	Steam, Circular, 1600
Barrow Bay, Ont.	Warton	Barrow Bay Lumber Co., Limited	Oak, Oak Railway Ties, Paving Blocks	Stm., Hand, Cir., S. 750, Sh. 600
Blind River, Ont.	Blind River	Blind River Lumber Co.	2 Saw, Sh. and Lath Mills, Pine, Hem., Bl. Birch	Waukegan mill, stm., 2000; Pt. Severn mill, water, 1200
Hoboyagon, Ont.	Fenelon Falls	Boyd, Mossom & Co.	Lumber, Wholesale and Retail.	
Bracebridge, Ont.	Bracebridge	DOLLAR, JAMES	Lumber, Shingles, Wholesale	
Barrie, Ont.	Barrie	BURTON BROS.	Lumber, Wholesale and Retail.	
Waukegan, Ont.	Waukegan	Georgian Bay Consol. Lumber Co. (Hd. office arcade 24 King st. w., Toronto)	Pine only.	
Callabogie, Ont.	Callabogie	Cariswell, Thistle & McKay	Lumber, Wholesale and Retail.	
Callander, Ont.	Callander, G.T.R.	John B. Smith & Sons	White and Red Pine Lumber, Bill Stuff, Lath and Shingles.	Steam, 2 Circular, 600
Collins Inlet, Ont.	Collins Inlet	Head Office, Strachan Ave., Toronto	Lumber, Pine, Oak, Ash, Birch, Whol. and Ret.	Steam, Circular, 600
Comber, Ont.	Comber	Collins Inlet Lumber Co.	Saw and Stave Mill, Pine, Hardwoods.	Steam, Cir., Saw 1400, Sh. 2000
Glanville, Ont.	Pinkerton	Ainslie, J. S. & Bro.	Saw, Shingle and Lath Mill, Timber Lands.	
		McIntyre, N. & A.	Hemlock, Pine, Lumber, Hardwoods.	
		BRADLEY, MORRIS & REID CO.	Lum., Tim., Pine, Hem., Hwds., Whol. and Ret.	Steam, Circular, 250
		Heath, Tait and Turnbull	Sawmill, Pine, Spruce, Hemlock, Hardwoods.	Steam, Circular, 400
		Thomson, Robert & Co.	Sawmill, Pine, Spruce, Hardwoods.	Steam, Circular
		Dick, Banning & Co.	Sawmill, Pine, Hardwoods, Wholesale	Water, Hand and Circular, 1000
		Keewatin Lumber & Mfg. Co.	Saw, Lath, Sh. and Pl. Mill, Moving Posts, Pine	Steam, Circular, 250
		Lakefield Lumber Mfg. Co.	Lumber, Wholesale and Retail.	
		Conlin, T. & J.	Sawmill, Pine, Ash, Birch, Oak	
		Howry, J. W. & Sons	Lumber, Wholesale and Retail.	
		Gordon, James	Exp. and dle. in Am. Hwds. made to specification	
		Longford Lumber Co.	Saw and Plan. Mill, Hemlock, Hardwds., Whol.	Steam, Hand and Circular, 1000
		Greensides, W. S.	Cherry, White Ash, Hardwoods, Wholesale.	Steam, Circular, 400
		Cameron & Kennedy	Saw and Plan. Mill, Tim. Lands and Logs, Pine	Steam, Circular, 200
		Minnesota & Ontario Lumber Co.	Lumber, Wholesale and Retail.	
		S. B. Wilson & Son	Hardwoods, Shingles, Lath, Handles.	
		Campbell, A. H. & Co.	Lumber, Wholesale	
		F. M. Tennant	Lumber, Wholesale	
		Donogh & Oliver	Lumber, Wholesale	
		Victoria Harbor Lumber Co.	2 Saw, Shingle and Lath Mills, White Pine, Whol.	Stm., Cir., Gang and Hand, 1400
		W. N. McEachren & Co.	Lumber, Wholesale	Cont.
		James Tennant & Co.	Lumber, Lath, Shingles, etc., Wholesale.	Steam and Water, Circular, Portable and Stationery, 1000
		Miller, B. B.	2 Sawmills, Lumber, Barrel Heads.	Circular, Gang and Hand, 1500
		Ross Bros.	2 Sawmills, Pine, Spruce, Hardwoods	Steam, Circular and Gang, 600
		DeLaplante & Bowden	Pine and Hardwood Lumber, Whol. and Retail.	Steam, Circular and Hand, 500
		Cookshire Mill Co.	Saw, Shingle, Planing, Stave and Heading Mill.	Steam, Circular, 2000
		Dufresse, O. Jr. & Frere	Sawmill, Pine, Spruce, Hemlock, Hwds., Whol.	
		Roberts, Joseph & Fils	Saw and Planing Mills, Sash, Doors and Blinds.	
		SHEARER & BROWN	Int. Fin. Spruce, Hardwoods, Wholesale.	
		MOODYVILLE SAWMILL CO.	4 Sawmills, Oak, Ash, Elm, Pine, Hem., Dim.	2 Stm., 2 Wat., Hand, Cir., 400
		Brunette Sawmill Co.	Sawmills, P. Fin. Spruce, Cedar, Hardwoods.	Steam, Circular, 200
		James Morrison & Son	Saw and Planing Mills, Sash, Doors and Blinds.	Steam, Gang and Circular
		DAVIDSON, E. D. & SONS	Fir, Cedar, Spruce, Hardwoods.	Steam, Circular, 320
			5 Saw, Shgle. and Lath Mills, Pine, Spr., Hwds.	Water, Circular and Gang, 2000

Lumbermen desirous of being represented in this Directory can obtain information in regard to rates by communicating with the Publisher.

LUMBER TRUCK WHEELS

The Montreal Car Wheel Co.

... MANUFACTURERS OF ...

Charcoal Iron Chilled

RAILROAD WHEELS

OFFICES:

NEW YORK LIFE INSURANCE BUILDING, MONTREAL

WORKS: LACHINE, QUEBEC

We make a specialty of Wheels suitable for the requirements of Lumbermen and Street Car Service, and can supply them Bored, Finished and Balanced.

CORRESPONDENCE SOLICITED

OAK TANNED BELTING

TORONTO
20 FRONT ST EAST
TELEPHONE 475

THE J.C.McLAREN BELTING CO MONTREAL

MACHINERY

FOLLOWING LIST OF NEW AND SECOND-HAND BOILERS, ENGINES AND GENERAL MACHINERY FOR SALE BY THE CANADA MACHINERY AND SUPPLY CO., BRANTFORD, ONT., DEALERS IN NEW AND SECOND-HAND MACHINERY AND SUPPLIES:

- ONE BOILER TO BRICK IN, 44 IN. DIA., 10 FT. 7 IN. LONG, 41 IN. TUBES, IN FIRST-CLASS ORDER.
ONE BOILER TO BRICK IN, 44 IN. DIA., 8 FT. 8 IN. LONG, 39 IN. TUBES, IN FIRST-CLASS SHAPE.
THREE 25 H.P. PORTABLE LOCO. FIRE BOX BOILERS, IN GOOD ORDER.
ONE 30 H.P. RETURN TUBULAR BOILER, TO BRICK IN.
TWO 6 H.P. FIRE BOX BOILERS FOR CHEESE FACTORIES.
ONE 12 H.P. SLIDE-VALVE ENGINE, BECKETT'S MAKE.
TWO 9 H.P. SLIDE-VALVE ENGINES, GOLDBE & McCULLOCH and Morrison makes.
ONE 6 H.P. SLIDE-VALVE ENGINE COPP BROS. & BARRY MAKE.
TWO 32 H.P. SLIDE-VALVE ENGINES, BECKETT'S MAKE.
ONE 6 H.P. ENGINE, UPRIGHT, WITH 4 H.P. BOILER COMBINED ON ONE CAST-IRON BASE.
ONE 14 H.P. ENGINE, ENGLISH MAKE.
ONE 14 H.P. LEONARD MAKE ENGINE, NEARLY NEW.
ONE 12 H.P. HORIZONTAL PORTABLE ENGINE AND BOILER ON SKIDS, AMES & CO., MAKERS, OSWEGO, N.Y.

- MACHINERY:
ONE 24-INCH MCGREGOR, GOURLAY & CO. MAKE HEAVY SURFACE PLANER, ALMOST NEW.
TWO 24-INCH CANT, GOURLAY & CO. MAKE LIGHT SURFACE PLANERS, IN GOOD ORDER.
ONE GOLDBE & McCULLOCH THREESIDE MOULDER.
ONE ONE-SIDE MOULDER.
TWO 14-INCH WHEELS BAND SAWING MACHINES.
ONE ALMOST NEW VERTICAL SPINDLE LAMING MACHINE, MCGREGOR, GOURLAY AND CO.'S MAKE.
ONE ALMOST NEW IRON TOP JIG SAW, COWAN AND CO., MAKERS.
ONE GOOD SHAPER.
SIX GOOD SAW TABLES.
ONE NEARLY NEW GOLDBE & McCULLOCH TENONER, WITH DOUBLE COPIES.
ONE WOOD FRAME TENONER IN GOOD SHAPE.
TWO UPRIGHT SWING SHINGLE OR HEADING MACHINES, WITH JOINTERS.
ONE ALMOST NEW GENUINE "BAILEY" GAUGE OR LANDLIE LATHE, WITH COUNTER-SHAFT.
ONE ALMOST NEW SPINNING LATHE FOR MAKING SPAN METAL WORK, WITH COUNTER-SHAFT.
FOUR DOWELL MACHINES.
ONE 24-INCH WATEROUS CHOPPER COMPLETE WITH DOUBLE ELEVATORS, EQUAL TO NEW.
FULL PARTICULARS CHEERFULLY GIVEN UPON ENQUIRY AT THE CANADA MACHINERY AND SUPPLY CO., BRANTFORD, ONT.

SECOND-HAND MACHINERY FOR SALE

One right hand 12 x 14 straight line engine, our make run a very short time.
One pair of engines, right and left, 16 x 20, can be used separately or together, with two large pulleys and fly wheel and connecting shaft.
Three boilers 48 x 14 with large domes, full fronts all fittings, fixtures and stack.
One 60 x 11 ft. 6 in. steel boiler, with 64 3/4 in. x 1 1/2 in. tubes, boiler made of 6 sheets, double rivetted on side seams, furnished complete with fittings, fixtures and stack, boiler and fixtures are in perfect order having been run but three months.
One 50 x 14 boiler, comparatively new, has been in use less than a year.
One right hand iron saw frame, with mandrel, pulley, laves, three 5 1/2 in. saws, 46 to 100 teeth in each, and one 9 1/2 in. saw, suitable for steam or independent friction feed.
One 14-hk heavy saw carriage, Sewry's make, with loss thos. V and flat track, frame and carriage are in good order, have averaged 10,000 to 12,000 ft. per day, only discarded to put in a hand mill and carriage suitable for same.
One left hand 14-hk light medium sized saw carriage with V and flat track.
Several portable engines from 12 to 20 horse power

WATEROUS, BRANTFORD, CANADA

FOR SALE

A HANDLE LATHE FOR MAKING FORK and rake handles.
Inch squares are cut out of slabs, piled one on top of the other in the machine, and it automatically takes the lowest, runs it between the knives and produces the handle without any more attention. Contracts can be secured for all the handles that can be produced with the machine.

WATEROUS, BRANTFORD, CAN.

GANG SAW FILERS

TWO CAPABLE MEN WANTED AT ONCE for the season. Apply to THE MUSKOKA MILL & LUMBER CO., Muskoka Mills, Ont.

J. J. TURNER

Sail, Tent and Awning Maker.. 251 George St. and 154 King St. PETERBOROUGH

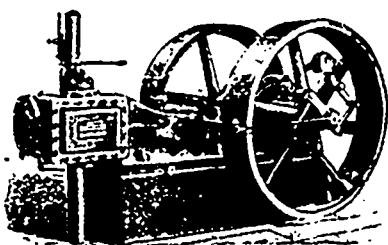
Canoe, Yacht and Boat Sails made to order. Perfect Fits Guaranteed. Every description of Lumbermen's Supplies and Waterproof Clothing.

WILLIAM FOSTER

Lumber and Commission Merchant RECEIVER AND FORWARDER OF LUMBER, LATH AND SHINGLES... CORRESPONDENCE SOLICITED... OWEN SOUND, ONT.

PATENTS CAVEATS and TRADE MARKS

Obtained in Canada. UNITED STATES AND FOREIGN PATENTS A SPECIALTY. Engineering Drawings Furnished. W. J. GRAHAM, 71 Yonge St. Toronto



ROBB-ARMSTRONG ENGINES

All parts interchangeable, Governor either Automatic or Throttling.

Monarch Economic Boilers

Economical Portable Durable

MILL MACHINERY AND SUPPLIES, WOODWORKING MACHINERY, ETC.

ROBB ENGINEERING CO. LTD.

AMHERST - - NOVA SCOTIA

THE

NORTH SHORE NAVIGATION CO.

Royal Mail Line of Steamers

CITY OF MIDLAND CITY OF LONDON... FAVORITE... MANITOU...

Running in connection with the G.T.R. and C.P.R., will sail during the season of 1893 as follows:

THE CITY OF MIDLAND AND THE CITY OF LONDON will leave Collingwood at 1.30 p.m. every Tuesday and Friday on arrival of G.T.R. morning trains from Toronto and Hamilton, calling at Meaford. Leave Owen Sound same day at 10.30 p.m. after arrival of C.P.R. train from Toronto, connecting at Winton with night train from the south, and stopping at all intermediate ports to Sault Ste. Marie. Returning leave the S.S. at daylight, making railway connections at Winton, Owen Sound and Collingwood.

The FAVORITE will leave Collingwood Monday and Thursday, at 1.30 p.m. for Parry Sound, Byng Inlet, French River and Killarney, connecting there with line steamers for Sault Ste. Marie. Returning stop at French River, Byng Inlet and Midland, making connection there with steamer MANITOU for Parry Sound and G.T.R. for south and east, and at Collingwood with G.T.R. for Toronto and Hamilton.

Commencing Thursday, May 4th

The MANITOU will make regular trips from Penetanguishene, connecting with trains from the south only at Midland, every Monday, Wednesday, Thursday and Saturday on arrival of G.T.R. from all points south and east for Parry Sound, making connection there with the steamer FAVORITE for Byng Inlet, French River and Killarney, where the latter connects with the line steamers for the S.S.

For tickets and further information see folders, or apply to all agents of the G.T.R. and C.P.R., or to C. E. STEPHENS, M. BURTON, Sec. Treas., Collingwood, Mgr., Collingwood.

CANADIAN

LUMBERMAN'S DIRECTORY

AND INDEX TO THE PLANING MILLS AND SASH AND DOOR FACTORIES OF CANADA.

THE Publisher is now open to receive subscriptions for the above Directory of the lumber trades. No effort is being spared to make this publication thoroughly complete and reliable in every detail, and it is hoped that all LUMBERMAN subscribers interested will fill in the following subscription blank and return to this office at as early a date as possible.

TO THE PUBLISHER OF THE LUMBERMAN'S DIRECTORY

AND INDEX TO THE PLANING MILLS AND SASH AND DOOR FACTORIES OF CANADA: 1893

Please supply.....with.....copies of the above Directory as soon as issued, for which.....agree to pay Two Dollars per copy.

All owners of saw and planing mills, wholesale and retail lumbermen, copers, etc., are earnestly requested to furnish information asked for in following blank and mail same as soon as possible:

Card of Enquiry to Lumbermen.

Manufacturers of lumber, shingles, lath, staves, headings, etc., will please fill in this blank:

Power, style and capacity of mill:.....

Class of manufacture:.....

Post Office:..... Shipping Point:.....

Dealers in lumber, shingles, lath, etc., will please fill in following blank:

Wholesale or Retail:..... Class of stock handled:.....

Post Office:..... Shipping Point:.....

Owners of planing mills, sash, door and blind factories, will please fill in following blank:

Power and style:.....

Class of manufacture:.....

Post Office:..... Shipping Point:.....

(Signed).....

.....P.O.

Province.....

Address all communications to

DIRECTORY DEPARTMENT, CANADA LUMBERMAN, TORONTO, ONT.

Do You Lack Steam? We Can Help You

THE CANADIAN HOLLOW BLAST GRATE

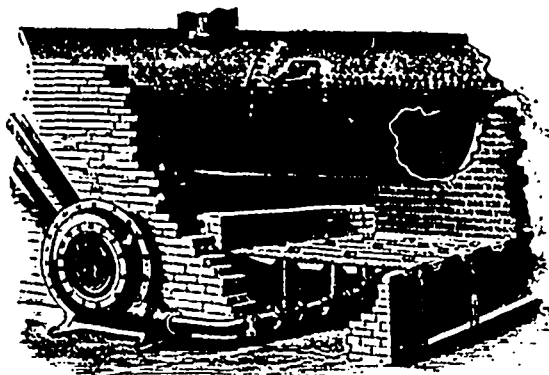
The Hollow Blast Grate supplies the furnace fire with a blast of hot air sufficient at all times to insure the rapid and perfect combustion of fuel of every sort.

It is the only appliance that steams successfully with green or wet sawdust, tanbark or other refuse and waste.

It alone has solved the problem of steaming with the fine, compact dust of the band mill.

THEY WILL NOT BURN OUT LIKE OTHER GRATES. NO SAW MILL CAN AFFORD TO BE WITHOUT. THEY WILL SAVE THEIR PRICE IN THREE MONTHS.

REGARDLESS OF THE CHARACTER OF YOUR FUEL, WE CAN GREATLY INCREASE THE VOLUME OF STEAM GENERATED IN YOUR BOILERS.



Furnace Fitted with Hollow Blast Grates and Apparatus.

HUNDREDS OF TESTIMONIALS LIKE THE FOLLOWING:

"After having used your blast grates for one year we have much pleasure in saying that in our opinion they are THE INVENTION OF THE AGE. We would not be without them under any consideration." STEINHOFF & GORDON, WALKER, ONT.

"They are a complete success, doing more than you claimed for them. We now keep a full supply of steam using nothing but green elm sawdust, doing better than we could with dry wood using the ordinary grate bars." C. W. THOMAS, GORMON, ONT.

"They give us full satisfaction in every respect. We now turn out one third more stuff per day than formerly. They exceeded our expectations." McMACKON & COATES, TILBURY, ONT.

"The blast grates started all right and give good satisfaction. We can burn most of the sawdust and keep up steam now. I would not be without them for double the price." JOHN G. ROCK, BRANFORD, ONT.

"I do not consider a saw mill complete without Blast Grates." AARON GORDON, DUNDAS, ONT.

"I put in a set of your Grates a year ago, and they pleased me beyond expectation. I spent hundreds of dollars in various contrivances to burn elm sawdust, but without success. I now burn all my dust. I can keep up better steam pressure than I could before with dry wood." C. E. NAVLOR, ESSON, ONT.

IT COSTS YOU NOTHING TO TRY THEM

WE GUARANTEE SATISFACTION OR NO SALE

FOR INFORMATION, PRICES OR ESTIMATES, ADDRESS

THE CANADIAN HOLLOW BLAST GRATE CO., ESSEX, ONT.

A. ALLAN, President

J. O. GRAVEL, Secretary-Treasurer

J. J. MCGILL, Manager

F. SCHOLDS, Managing Director



Canadian Rubber Company

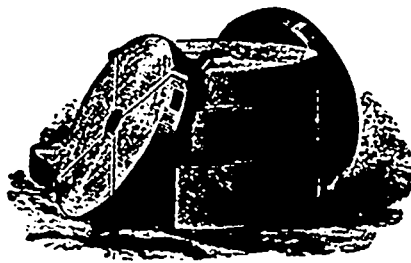
Capital, \$2,000,000.00

of MONTREAL, TORONTO and WINNIPEG

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SUPERIOR QUALITY
RUBBER GOODS
for Mechanical Purposes
RUBBER BELTING, PACKING, HOSE



FORSYTH
Seamless Rubber Belting
Seamless Tube Hose

These Patents we control for Canada

HEAD OFFICES AND FACTORY: MONTREAL

Western Branch: CORNER YONGE AND FRONT STREETS
TORONTO

J. H. WALKER, - - Manager



... THE ... FLINT & PERE MARQUETTE RAILROAD

FROM
Port Huron and Detroit

Is the Short Line to
SAGINAW AND BAY CITY
(Centres of the vast lumber interests of Michigan)

MT. PLEASANT, CLARE, REED CITY
BALDWIN, LUDINGTON, MANISTEE

AND
MILWAUKEE AND MANITOWOC, WIS.

The last two named are reached by the Company line of Steamships across Lake Michigan.

The line thus formed is a short and direct route from
NEW YORK BUFFALO MONTREAL
TORONTO

to ST. PAUL, DULUTH and Pacific Coast points.

Write either of the undersigned for Folders, which contain Maps, Train Schedules and much information of value to those contemplating a trip to any of the above-mentioned points.

W. H. BALDWIN, JR., W. F. POTTER,
General Manager. Gen'l. Sup't.

A. PATRIARCHE, Traffic Manager.

GENERAL OFFICES: - SAGINAW, MICH.

Actual Results

NET PREMIUMS
PAID TO THE

ONTARIO MUTUAL LIFE

on an ordinary Life Policy of \$1,000,
No. 1230 during its first 20 years,
issued for age 37:

In 1872...	Paid \$24.57	In 1881...	Paid \$13.29
1873...	26.57	1882...	12.31
1874...	26.57	1883...	11.69
1875...	24.71	1884...	11.35
1876...	20.65	1885...	11.35
1877...	19.16	1886...	12.10
1878...	17.37	1887...	12.28
1879...	13.02	1888...	12.41
1880...	12.65	1889...	11.91
1881...	13.29	1890...	11.38

Total Paid in 20 years...\$321.29

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& 2ND
MACHINERY
ILLUSTRATED CATALOGUE FREE
H.W. PETRIE
TORONTO CANADA

USE
SPROUERS
HONOR BRIGHT
GOPPERINE
BEST MACHINERY FOR METAL EXTANT.
CANADIAN MADE & STUMPS THE WORLD.
QUALITIES TO DO ALL YOUR WORK.
HARDWARES ALL YOUR WORK.
COOL BEARINGS NO HOT WORK.
EASY AS AN OLD SHOE
GENUINE SAFEGUARD
FOR ENGINEERS
HIGH CLASS
METAL

Rochester Bros.
: : COMMISSION AGENTS

Limits bought and sold on commission. Limits travelled and carefully prepared. Estimates given.
Some first-class berths on the North Shore of Lake Huron and on the Upper Ottawa now in our hands for sale.
Communications confidential. References given.

36 Rochester St. **Ottawa**

"BUILD TO-DAY THEN,
STRONG AND SURE,
WITH A FIRM AND
AMPLE BASE."
- Longfellow.

DO YOU?
WISH THUS TO BUILD
an advertisement
in the
**CONTRACT-
RECORD,**
TORONTO
will bring you
tenders from the
best contractors.

FIRE PROOF
ROOFING
ILLUSTRATED CATALOGUE FREE
METALLIC ROOFING CO
MANUFACTURERS TORONTO

GALT MACHINE KNIFE WORKS

MACHINE KNIVES
OF EVERY DESCRIPTION FOR
Planing, Moulding and Stave Cutting
Send for Price List

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MAITLAND, RIXON & CO.

OWEN SOUND, ONT.

Saw Millers and Lumber Dealers

All kinds of Building Material kept in stock

WE MAKE A ... SPECIALTY OF **LONG BILL STUFF IN ROCK ELM, PINE, CEDAR AND HEMLOCK**
Quotations furnished on application

The Georgian Bay

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JAS. SCOTT, Vice-President. C. P. STOCKING, Treasurer.

Consolidated Lumber Co.

MANUFACTURERS OF

PINE LUMBER, BILL STUFF, SHINGLES AND LATH

Shipments by Vessel or Rail

Address WAUBAUSHENE, Ont. or 24 King St. West, TORONTO

The Rathbun Company

DESERONTO, ONT.

MANUFACTURERS OF

Doors, Sash, Blinds, Stairs

And all kinds of House-Finishing Materials

CEDAR OIL for Purging Boilers

CORRESPONDENCE SOLICITED

John Bertram & Sons

CANADA TOOL WORKS

DUNDAS, ONTARIO

MANUFACTURERS OF

WOOD-WORKING MACHINERY
MACHINE TOOLS, ETC.

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G. F. CLEVELAND

J. L. Goodhue & Co.

MANUFACTURERS OF

LEATHER BELTING :::
AND LACE LEATHER

Danville, Que.

GEO. GORMACK

Wholesale and Retail Dealer in

ALL KINDS OF **LUMBER**

LUMBER SHIPPED TO ALL PARTS BY RAIL OR VESSEL

WHITBY, ONTARIO

IMPROVED IRON FRAME

LOG JACK

WITH ENDLESS CHAIN

DRIVEN BY INTERNAL FRICTION

MADE IN

3 SIZES

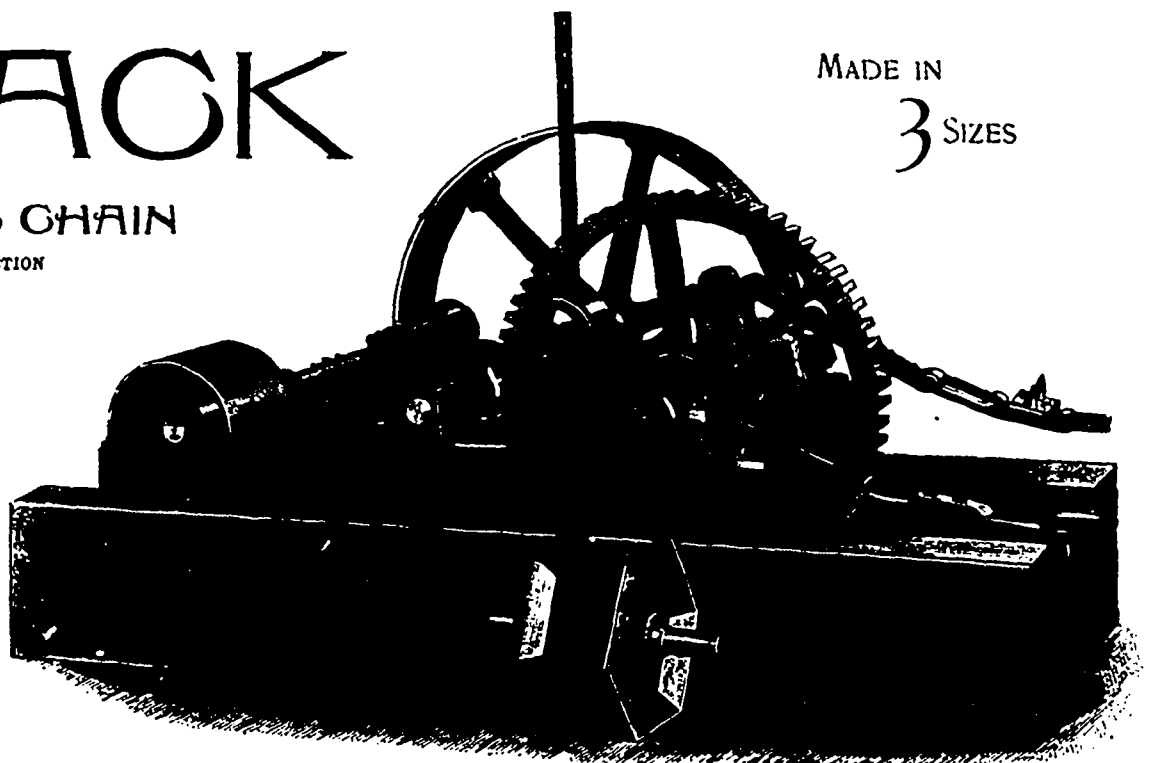
THE most powerful and smoothest-running Jack Works made.

Easy to place in mill.

Can be placed on mill floor or on timbers underneath the floor.

No crossed belt is required.

Can be stopped or started instantly without a jar.



F. J. DRAKE



BELLEVILLE, ONT.

LINK DRIVE CHAIN

.. FOR ..

Conveyors
Transfers
Trimmers
Slashers
Live Rolls
Lumber Pilers
Lumber Sorters

About . . .

40 Tons
Carried in Stock

Extra large quantities of

75 - 77 - 78
88 - 103

Giant Chain for Endless Log Jacks

Lumbermen appreciate prompt shipments this time of year. We can please you.

PRICES OF LINK BELTING REDUCED.

To show how fast the band mill is supplanting the circular and gang, it is only necessary to mention that orders to band saw makers from Canadian lumbermen this year will run over

12,000 feet

of 8, 10 and 12 inch saws, say 255 saws, which at an average of 5 saws to a mill, indicates 50 band mills in operation.

Figure up the saving on this year's stock in making each cut with less than $\frac{1}{8}$ kerf and the kerf you are now making. If seriously considered, you will be compelled to join the rapidly increasing minority.

Your Drive will probably soon arrive at your mill.

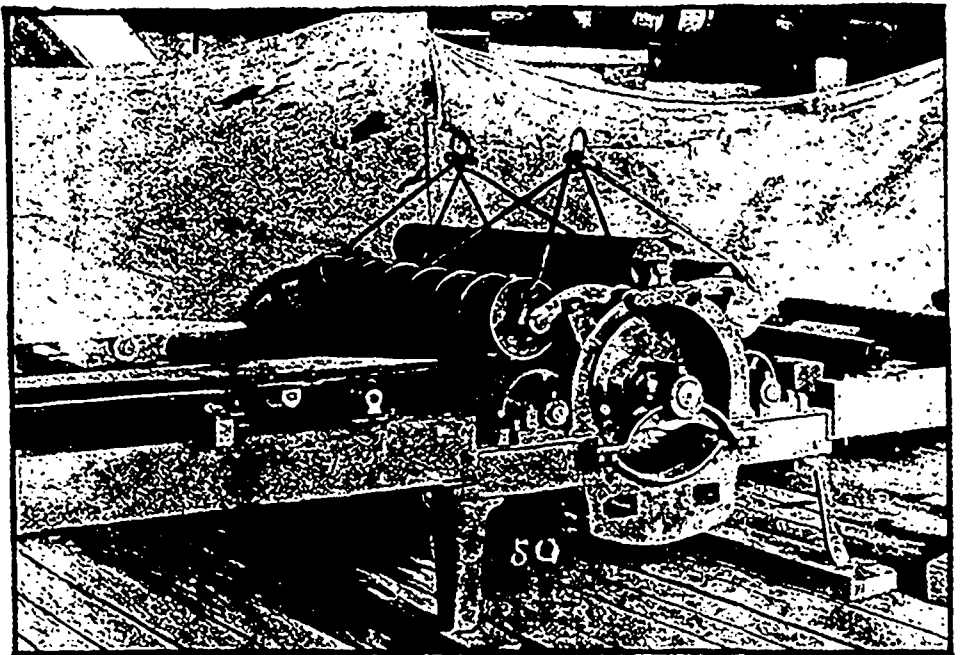
Not having already decided to put in a **Band**, you may consider it too late for this season.

We can erect in your mill at any time during the summer, one of our No. 2 Band Mills, and not delay you longer than a week or ten days.

Will not a saving of 5-32nds on each cut of an ordinary circular more than pay you to make the change.

Capacity of mill is increased rather than diminished.

BETTER ORDER AT ONCE



4 Saw Edger, iron guides with lever adjustment, iron rollers. Automatic device for crowding lumber against guides; removable bridge tree, arranged with divided rolls to allow two men to edge at once. **BEST EDGER IN THE MARKET.**

Prescott Direct-Acting Steam Feed
Oscillating Steam Feed Engines
Dake Patent Steam Feed Engines
Steel Carriages of Heaviest and Latest Designs

CORRESPONDENCE SOLICITED

Waterous, Brantford, Canada.

F. E. DIXON & CO.

MANUFACTURERS OF

Star Rivet LEATHER BELTING

70 KING ST. EAST

Toronto

WRITE FOR DISCOUNTS

DONOGH & OLIVER



WHOLESALE DEALERS IN

LUMBER

OFFICE

Nos. 213, 214 and 215

Board of Trade Building

Toronto, Ont.

Napanee Cement Works, Ltd.

NAPANEE MILLS, ONT.

MANUFACTURERS OF

STAR BRAND PORTLAND CEMENT

ONE BETTER; AND OF

NAPANEE CEMENT

PARTICULARLY ADAPTED FOR DAMS, SMOKE-STACKS, FOUNDATIONS, CULVERTS, CISTERNES, CELLARS, ETC. LARGELY BEING USED IN THE ST. LAWRENCE RIVER CANAL. ENDORSED BY LEADING RAILWAYS AND CONTRACTORS.



Send for sample of our new SAWMILL BELT

F. REDDAWAY & CO.

MANUFACTURERS OF



BREAKING STRAIN 6 IN. "CAMEL" HAIR BELT 14,181 lbs.
6 IN. ENGLISH OAK DOUBLE LEATHER 7,522 "

ALSO MANUFACTURERS OF

LINEN FIRE HOSE

MANCHESTER, ENGLAND. 57 ST. FRAS. XAVIER ST. MONTREAL

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A.B.C. CODE CARLE ADDRESS: "ROSS" NEW WESTMINSTER, B.C.

CORRESPONDENCE SOLICITED ... BOX 273

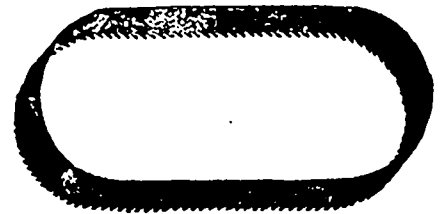
WHY BAND SAWS BREAK

SIXTEEN

REASONS,

AND HOW TO

AVOID THEM



Being instructions to filers on the care of large band saw blades used in the manufacture of lumber.

A book filled with valuable information on the care of band saws. Giving the reasons for breaking: analyzing each reason; giving instructions to dispense with the causes as laid down in each reason; and full details on filing and brazing. The proper styles of hammers to use are illustrated and described, and views of blades showing the blows of the different styles of hammers form an important part of the illustrations. Improper and unequal tension are then treated, and the manner of properly setting irregular teeth is described. In connection with the treatise is a history of the invention, manufacture and use of the saw from its origin to the present time. The work in whole makes an accumulation of information such as has never before been published.

The book is printed on fine paper, good clear type, and is handsomely and substantially bound in cloth. It will be sent to any address on receipt of the price, ONE DOLLAR.

Address— CANADA LUMBERMAN, Toronto, Ont.



SCRIBNER'S LUMBER AND LOG BOOK OVER ONE MILLION SOLD Most complete Book of its kind ever published

Gives measurement of a kinds of Lumber, Logs, Planks, Scantling; cubical contents of square and round timber; hints to lumber dealers; wood measure; speed of circular saws; care of saws; cordwood tables; felling trees; growth of trees, land measure, wages, rent, board, interest, stave and heading bolts, etc. Standard book throughout the United States and Canada. Get the new illustrated edition of 1892. Ask your book-seller for it. Sent post paid for 15 cents.

GEO. W. FISHER, Box 718, Rochester, N.Y.

or A. G. MORTIMER, Toronto, Can.

J. D. SHIER

MANUFACTURER OF

Lumber, Lath & Shingles

BRACEBRIDGE, ONT.

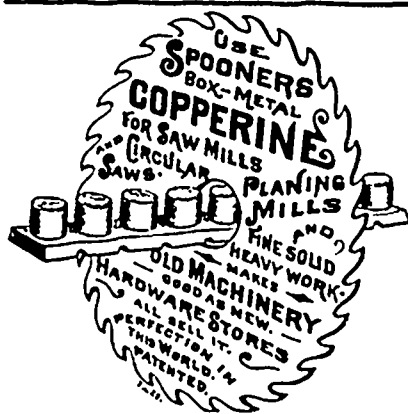
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(Member Toronto Stock Exchange)

BROKER & FINANCIAL AGENT DEALS SPECIALLY IN TIMBER LIMITS

No. 2 Victoria Street,

Telephone No. 418. TORONTO, ONT.



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We have the most complete establishment in Canada, and by our different processes are enabled to make cuts for every and all purposes.

HALF-TONE CUTS made direct from photos our specialty.

LINE CUTS for Newspaper and other advertising purposes.

Send for Catalogue and Prices.

MOORE & ALEXANDER, Props.

TEL. 2158

LUMBERMEN

Your business is helped by .

ADVERTISING

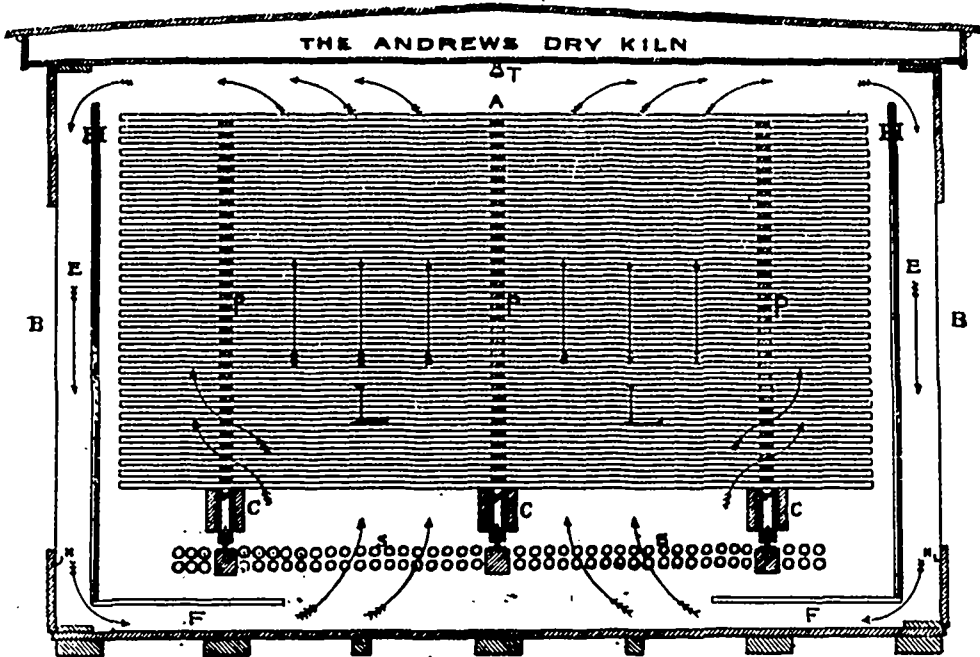
IN

Canada Lumberman

Write for particulars

THE ANDREWS DRYER

For Lumber, Shingles, Staves, Heading, etc.



THIS DRYER

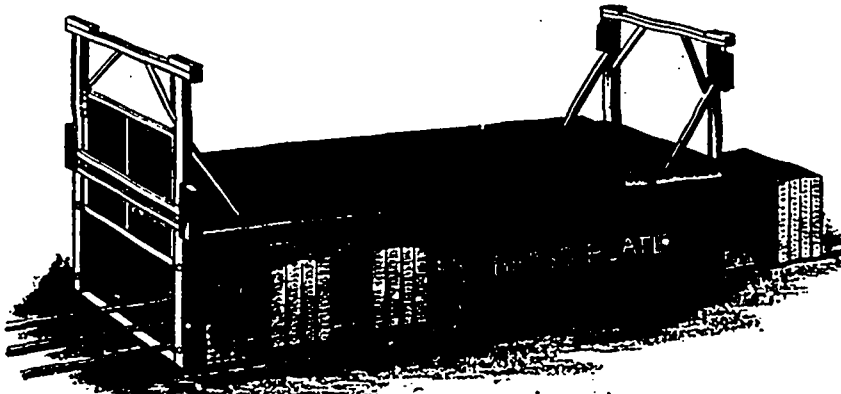
HAS PROVED TO PURCHASERS TO DO WHAT IS GUARANTEED IN SAVING THEM MONEY IN

Freight, Insurance, Time, Interest, Expense, Capital, Yard Room, Labor

There may be persons who do not appreciate the advantages of the artificial drying of lumber. But the shrewd men, in the manufacture of furniture and other woodwork where reputation would be sacrificed by a lack of proper material for good gluing and finishing, recognize a good system of drying as an important element of their success. High scientific authorities and thoroughly practical men are now agreed that the hot-blast and rapid-current systems ARE WASTEFUL, and that steam heat is the only safe means for artificial drying. The mode of applying steam heat most efficiently and economically is therefore now the essential point. The Andrews Dryer accomplishes this result more surely than any other known system.

This system and apparatus covered by letters patent.
 A—Drying-Room. BB—Brass Condensing-Walls. CCC—Lumber Cars. DD—Down Air-Flues. FF—Bottom Air-Pipes. EE—Inside Walls, protecting metal from heat. LL—Lumber
 NN—Brass Gutters for receiving condensed moisture. PPP—Sticks between lumber. RR—Double beam-coils. T—Automatic Steam Fire-Extinguishers. Arrows show direction of currents of air.

- NO FAN
- NO ENGINE
- NO SMOKE
- NO CHIMNEY
- NO SPECIAL FIREMAN OR FUEL
- NO EXPENSIVE BRICKWORK
- NO RISK OF FIRE
- NO CHECKING OR WARPING
- NO CASE-HARDENING
- ... NO EQUAL ...



Outside View of the Andrews Progressive Kiln, showing Lumber placed crosswise the building, on cars.

'WE PUT GREEN SPRUCE IN DRIPPING WITH WATER, AND IN EIGHTEEN HOURS IT WAS DRYER THAN LUMBER THAT HAD BEEN STUCK UP IN THE YARD ALL SUMMER.'

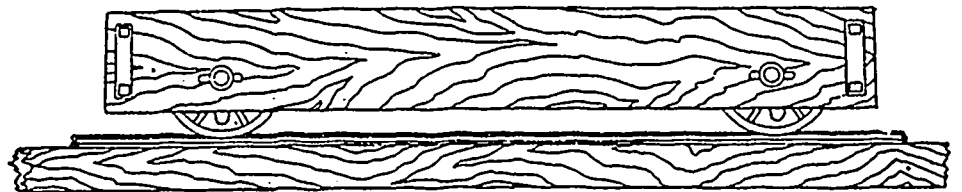
This is the verdict of a Quebec lumber firm, and we can give equal results every time.

The Andrews Lumber Dryer

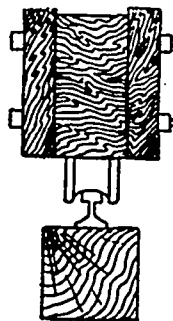
Has been proved to possess the following points of excellence:

- 1st. That its drying is rapid and perfect.
- 2nd. That external and internal checking and discoloration are entirely avoided by this method.
- 3rd. That the drying is done by a CONTINUOUS system and the temperature of the kiln is under absolute control at all times.
- 4th. That our Dryer is free from the varying air currents (always wasteful) incident to all fan and open-draft kilns.
- 5th. That our drying is done by the slow continuous movement of a large body of slightly-moistened air.
- 6th. That our condensing surface is so very large as to be adequate to precipitating the moisture of the saturated air with the least amount of movement.
- 7th. That our piping is tested by high pressure and every outfit is fully guaranteed.
- 8th. That by our improved system of drainage the freezing of pipes becomes impossible.

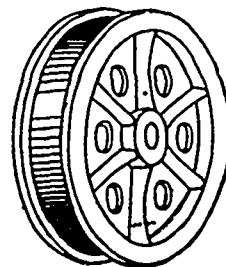
SEND FOR CIRCULARS



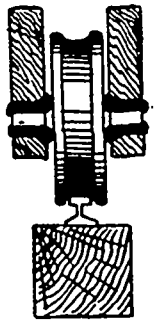
SIDE VIEW OF CAR AND TRACK.



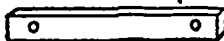
DOUBLE FLANGE WHEEL ON SINGLE TRACK



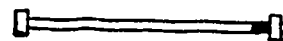
CAR WHEEL, DOUBLE FLANGE



SECTION OF CAR TRUCK, SHOWING AXLE BOX.



STRAP WASHER



BOLT



AXLE

DOMINION DRY KILN COMPANY

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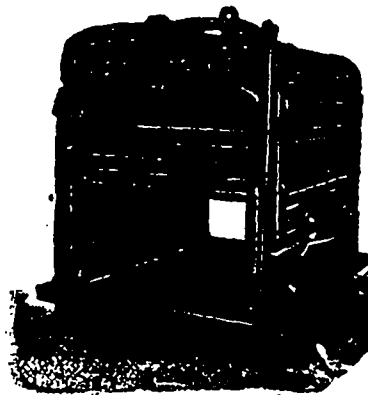
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