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THE CANADA LUMBERMAN

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CHARACTER SKETCH.

J. R. BOOTH.

"The Truest Wisdom is a Resolute determination."—Napoleon.

FEW pages of history are more fascinating than those which tell of the achievements of men born in humble circumstances and against whom there would seem to have been arrayed insurmountable difficulties. In the story of such lives is found easy demonstration of the old saying, that truth is stranger than fiction. No romance is half so romantic as a memoir of these world's conquerors.

One finds in the life of Mr. J. R. Booth, of Ottawa, who is credited with having been the owner and operator of the largest saw mill in the world, few incidents that can be weaved into a biographical sketch. His biography is written in deeds, not words. With one of old he might say, "It is not what I am, but what I have done—that is my kingdom," or as one of the world's greatest poets has observed:

"It is not in mortals to command success;
We will do more—deserve it."

Mr. Booth was born in humble circumstances. At one time he was owner of a very small piece of land. To-day he is believed to be the largest property holder in the city of Ottawa, outside of the Government. His larger holdings, however, and those which have brought him wealth and fame, are his great timber interests, and the extensive saw mills he has owned and operated in the Ottawa district.

Mr. Booth's big mill, which the record has declared was the largest saw mill in the world, was, as is well known to LUMBERMAN readers, destroyed by fire about twelve months since. It was a property of which the owner had good reason to be proud. The mill was most perfectly equipped, with modern machinery, containing alone 14 large band saws, and capable of cutting over 1,000,000 feet per day. Not alone did the destruction of this mill by fire prove a serious loss to Mr. Booth, but in some respects the loss to the city of Ottawa, and its commercial interests was even greater, for how completely is the prosperity of a community associated with the success and individual effort of its most enterprising citizens. Whether Mr. Booth will at some future time rebuild his mill, no one can at this time say. The water by which it was driven is derived from the Chaudiere Falls, in which is found a most valuable asset, that will before long, no doubt, be utilized for commercial purposes, either by its owner or some one else.

Some two or three years ago Mr. Booth purchased the well-known Perley & Pattee mill, and shortly after remodelled it, and made it one of the most completely equipped mills on the Chaudiere. The two mills together were estimated to cut 165,000,000 feet per year. Operations for the season on the present mill were commenced about a fortnight ago, employment being given to fully one thousand men. As we have taken occasion to note in our editorial pages, a commendable step was taken by Mr. Booth this season in fixing the day's labor at ten hours in place of eleven, as in former years, the same wages being paid for the shorter day.

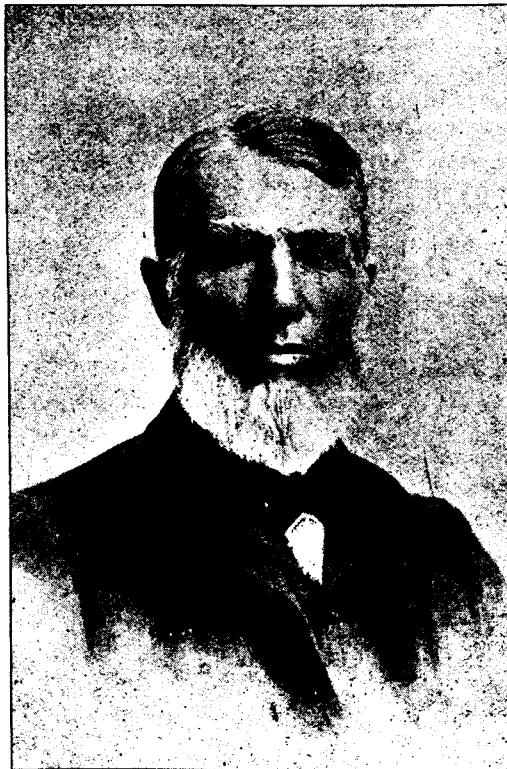
The activities of Mr. Booth have been developed in late years in the building of the Canada Atlantic Railway, of which he is one of the largest shareholders. This road has proven of immeasurable help to lumber exporters in the Ottawa district. A valuable adjunct to the Canada Atlantic is the Ottawa and Parry Sound Railway, which is now nearly completed, connecting Ottawa with important lumber districts in the interior, the construction of which is due to Mr. Booth's enterprise, and has been carried through with his well-recognized business ability and energy.

The subject of our sketch is without ambitions in the

direction of public office. One of the wealthiest and most esteemed citizens of the Capital, responsibilities and honors in a public way would be willingly placed upon his shoulders, but to all such suggestions he has ever given a decided "No." Modest and retiring in disposition, he prefers to stick closely to his business, erecting there a monument that will carry with it personal gain to himself, but likewise a still greater gain to the community that has been fortunate enough to enlist his citizenship and generous good-will.

WASTE OF FILES.

THOUSANDS of dollars' worth of files are annually used among wood-working shops, and nineteenth-twentieths of this amount are lost or thrown away, after the teeth become dull. There are several ways of utilizing worn-out files by recutting or partially recutting the



MR. J. R. BOOTH.

teeth. The acid process pops up periodically. It consists merely of treating the files to a solution of soda or potash to remove the pitch, grease, etc., from the teeth. After this treatment they are immersed in diluted sulphuric acid, laid on one side for a few hours, then cleaned of the acid, thoroughly washed and oiled; the action of the acid sharpens the teeth, so that there is quite a little cut to the file thus treated, but it does not last long; the file gets dull again very quickly, showing that the acid process gives only temporary benefit. Files may be returned to the maker, the teeth ground off, and recut, at a cost of about fifty per cent. of the original price of the file. A worn-out file may be cleaned of grease, dirt, &c., between the teeth, then laid one side several weeks, when it will be found much sharper than when laid away. This result is due to the action of the atmosphere, which seems to dissolve in a manner similar to, but much less, than the acid process, the points of the teeth. Like the acid process, the benefits derived are not lasting.

The machinery for Messrs. Mason & Sons' mill, of which mention was made in the LUMBERMAN for May, was furnished by the Waterous Co., of Brantford.

BY THE WAY.

IN response to a letter from the CANADA LUMBERMAN, Mr. J. Arthur Maguire, Consul-General in Canada, for the Argentine Republic, and who is at present in South America, writes as follows from Buenos Ayres, giving important information, touching the changes recently made in the lumber tariff of that country. He says: "The duties on the different classes of lumber now stand as follows:

Pitch pine, \$4.65 Argentine gold, per 100 cub. meters.
White pine, \$5.43.
Spruce, \$3.88.

"One hundred cubic meters equal 929 sup. feet, B. M. The reduction of about \$5 per 1,000 feet on pitch pine will have a bad effect on spruce shipments, as first named wood can be bought as cheaply, if not more so, than spruce, and, at the same time, is preferred for almost all purposes. The duty on spruce has been slightly decreased, and I fear that a great falling off in the use of white pine, will be the result. The market here, is very largely stocked with last year's shipments of white pine from Montreal, nearly all of which remains in store. I may add that the difference between Canadian and Argentine gold is, roughly speaking, 3½ per cent., that is to say, the Argentine dollar is worth about 96⅔ cents Canadian."

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THE approach of the summer season creates in the breasts of lumbermen fear of losses by fire. Indeed, forest fires have already shown themselves in some quarters, more particularly for the moment in certain parts of Quebec. The situation suggests the necessity for the utmost precaution on the part of individual lumbermen themselves, who are so vitally interested, and the government. The view has been expressed by Mr. W. C. Edwards, the large Ottawa lumberman, that ten times more lumber has been destroyed by fire than has ever been cut by the lumberman's axe. When we remember what the cut of lumber in this country has amounted to, the thought is a terrible one to entertain. The direct financial loss is something enormous. Mr. Peter White, Speaker of the House of Commons, and one of the oldest lumbermen of the country, has observed that forest fires along the Upper Ottawa occur between May and August, and he has made the suggestion to prohibit the starting of fires for clearing or other purposes within those four months. Out of thirty years' experience he has come to the conclusion that most of the bush fires have been the work of fishermen and hunters, who not only destroy valuable timber, property of the public, but also the shanty and material of the lumbermen. These are reasons, good and sufficient, strong in the strongest sense of the term, for governments taking the most vigorous measures to prevent forest fires. The Ontario government is farther ahead in this respect than the governments of any other province in the Dominion, and a long way ahead of the United States. But what Ontario has accomplished by its system of fire rangers, simply furnishes argument for further strengthening that department of crown lands management. Other local governments, and the government at Ottawa, should not allow any time to be lost in placing regulations on the statutes that will work to this same preservative end. The destruction of the forests by fire works back on the lumber industry in many different ways. To take the case of Minnesota, of last year. The trouble has not ended with the direct losses sustained at that time. But when the standing timber is destroyed, in order that what remains burned may not be a total loss, it must be cut at once to save it from destruction by worms. This means, as it does with Minnesota, an abnormal cut of lumber, which is sure to effect the lumber situation in some of its branches.

TIMBER OF CANADA.

INTERESTING ADDRESS BY HON. J. K. WARD, OF MONTREAL, QUE.

BEFORE the Natural History Society, of Montreal, a fortnight since, Hon. J. K. Ward, one of the veteran lumbermen of Canada, delivered an exceedingly instructive address. Business-like he launched into his subject as follows: "I do not purpose on this occasion to take up much of your time with preliminary remarks, other than to say that, having received my education, in the work shop and the woods, on the drive and in the saw mill, I will flatter myself that you will think with me that this is sufficient reason why I should not attempt to address the learned, but if I can succeed in imparting a few practical ideas in regard to economizing our supply of commercial timber, I will feel that my effort has not been in vain. My aim will be to speak only of what it has been my fortune to learn in the rough school of experience.

I will proceed with my paper on the lumber industry of the Dominion in the following order:

First, the quantity of lumber manufactured, and the extent of territory on which it is made, and whence our future supply is to be derived.

Secondly, the importance of this trade in a commercial and economic point of view. Next, some points in its history, and a short notice of some of those men who have taken a prominent part in developing the trade.

The figures as to area and quantities are given approximately, as I consider it is extremely difficult to estimate the quantity of good timber on such a vast territory as Canada. I have never seen two lumbermen agree as to what a single limit of 50 miles contains. In my experience of 50 years I have known men who could find nothing on a limit worth going after, while others have worked and done well on the same territory. There are about 6,000 sawmills in the Dominion, employing during the season of, say, 150 days, not less than 15,000 men in and around the mills, sawing, piling, shipping, etc. In the woods during winter, getting out the logs and timber, and river driving, there are about the same number. Six thousand mills, averaging 400,000 ft. per season, makes up the apparent output of all the mills. This quantity is sawed in a single day by some of the larger mills, while many of the smaller mills do not turn out 200,000 in the season. The difference in the apparent output of the mills—that is, 2,500 million—and that returned as cut on public lands is made up as taken off private lands and the Crown Lands of Nova Scotia, of which we have no returns.

The area under license in the different provinces is about 100,000 square miles, yielding annually (1893) about 2,500 million feet b. m. of sawed lumber, pine and spruce principally, and hewn timber divided as follows among the different provinces:

Ontario—7,140,000 logs, producing 728,000,000 feet b. m., principally pine; 40,000 pieces white and red pine, 42,000,000 feet b. m.; 133,000 pcs boom timber, 2,000,000 feet b. m.; average size of pine and spruce logs, 90 feet; ordinary revenue, \$939,000.00; ex bonus, \$958,000.00; area under license, 21,500 miles; area unoccupied, 17,000 miles.

Quebec—Area under license, 48,000 miles, producing spruce and pine logs, 6,170,000, equalling 683,000,000 feet b. m.; producing pine, spruce and birch timber, 18,500,000 feet b. m.; railroad ties and other wood, 22,500 pieces, 12,000,000 feet b. m.; pulp cedar, etc., 10,000 cords; revenue, \$892,000.

New Brunswick—Area under license, 6,000 miles, producing pine and spruce logs, 87,000,000 b. m.; hemlock logs, 7,000,000 b. m.; cedar, 14,000,000 b. m.; tamarac, 1,400,000 b. m.; 14,700 cubic feet pine and hardwood timber, 176,400 b. m.; 12,000 boom sticks, 240,000 b. m.; revenue and bonus, 102,000.

British Columbia—Area under lease, 1,200 miles, producing 80,000,000 b. m. fir and cedar; 10,000,000 cedar shingles. The timber produced in British Columbia being so much larger than is found in the east requires a very different equipment to handle it than is used in this part of the country.

Manitoba and territories—Area under license, 2,200 miles, producing pine and spruce logs, 24,000,000 feet

b. m.; 10,000 railroad ties, 320,000 feet b. m.; 2,000,000 shingles; 5,000,000 laths; revenue, \$70,000.

Large as the foregoing is, it only forms one-quarter of the sawn lumber received in Great Britain, and one-sixteenth of the timber, the great proportion being the product of the north of Europe and Southern States. While not an alarmist as to our supply of pine timber, I cannot but consider the wanton waste of it a sin, when so much good lumber has been and is being thrown away. A mistake is made by our mill men in not having more sawing capacity than the fast mills now in use possess, sawing, as they do, in 12 hours 40,000 or 50,000 feet with one circular saw. Too much haste is required to do this, when more money might be got out of the same logs, by employing two sets of saws, with the necessary trimming machinery, and doing the work with less speed. It does seem as if the lumbermen of the past, as well as many of the present day, entertained the idea that the supply of pine in Canada was inexhaustible and were anxious to get rid of it as quickly as possible.

With our vast amount of hardwood, which is fast coming into use, with the facilities of getting it to market, as well as the modern machinery for manipulating it, along with the great quantity of wood supply, said to be in British Columbia, all this, with the natural increase, if fire can be kept at bay, we can reasonably conclude that the end of our forest supply is a good way off. When that time comes I hope a substitute will be found.

The carrying trade and commerce is largely indebted to the forest. There is more tonnage employed on the St. Lawrence and canals in conveying lumber and timber to market than on any other commodity. Quebec was once the greatest timber and ship building port in the world. Forty years ago as many as forty to fifty ships were built in a single year. Now there is not one. In years gone by as many as 600 sailing ships visited the port in the spring and fall, taking away 300,000,000 feet b. m. of timber and lumber, as much as 18,000,000 cubic feet of square timber were shipped in a season. Last season about 3,000,000. Its once famous coves and wharves are deserted and falling to pieces, most of the pine deal business being done at Montreal that was formerly transacted at Quebec."

SUGGESTIONS FOR FOREST PRESERVATION.

Mr. Ward emphasized the necessity of preserving the forests from fire, quoting at length from Hon. Peter White on the question. Continuing the lecturer said: "In selling lands to settlers, I would make it a condition of sale that 20 acres in every 100 should be given free and that it should be forever kept as woodland. To the uninitiated, travelling through the woods after the shantymen have taken all they think worth taking, he would hardly notice that the chopper had been there, except for seeing an occasional stump, a few chips, or a top of a tree, the great bulk of the timber remaining to hold back the water in its natural beds, and to prevent sudden rises and falls in the rivers, which oftentimes cause serious damage by overflowing the banks or becoming so low that they refuse to do the work they once performed with ease. To avoid these troubles and have our country remain well wooded for many years, it is but necessary to give the trees indigenous to it, leave to grow, and there will be no necessity to plant. I have no doubt but that much of the land that has been denuded of its timber would in a very few years be covered with a spontaneous growth of wood, and so prevent our country from becoming an arid waste, by utilizing only that portion of it which can be profitably worked.

To an inexperienced eye there may be hardly an evidence at first glance of the disappearance of the pine. The hardwoods with which the pine is interspersed are usually left standing to a considerable extent, and so are the smaller pine, so that even a well cut country will still look splendidly wooded. No doubt the time will come when it will be carefully re-cropped. But the commercial value is largely gone, and with it the natural desirability, for the cutting of the pine greatly lessens the value of the woods as vast reservoirs, holding the snows in spring and the rains of summer, so as to feed steadily the innumerable streams of the water sheds. Consequently, spring floods and summer droughts for the cleared lands in the valleys follow close on the lumberman's axe. A certain amount of attention has

been aroused by the rapid retirement of the pine. Some political action has been taken. Bad as the axe is, fire is worse. The Ontario Government has recently attempted to enforce strict precautions against fire, and it has also appropriated as a provincial park an enormous reserve near Lake Nipissing, thirteen hundred square miles, of which nine hundred are pine timber, situated on one of the chief natural watersheds of the province. But a great deal more than this is necessary of the Canadian pine forests are not soon to disappear like the tracts of Maine. We cannot urge too strongly on the government to set apart all lands not suitable for making a decent home for the settler. Much of the land that they are tempted to go on is not worth the trouble of clearing; it is only the presence of the lumberman, in many cases, that enables him to exist. The question of revenue is of importance, as well as other considerations in not destroying the forests and the country of its principal source of wealth.

The product of the forest is disposed of about as follows:

Exported sawn lumber and timber.....	\$24,000,000
260 million feet b. m. sawlogs.....	208,000
Railroad ties, pulpwood, bark.....	27,000

The first timber shipped to Europe from Canada was sent from Quebec to Larocelle by Talon in 1667. Leat. Hocquart shipped timber and boards to Rochefort in 1735. In 1823, 300 cargoes were shipped from Quebec.

REMINISCENCES OF THE LUMBER TRADE.

In the early part of the present century the Montmorency mills were established by a Mr. Usborne. Mr. Peter Patterson, a ship carpenter by trade, who had spent some time in Russia, became an employe of Mr. Usborne's, and finally proprietor of the property, and became one of the largest manufacturers of lumber in Canada. Sir John Caldwell established mills at Riviere-du-Loup en Bas and at Etchemin. The late William Price, father of the Hon. J. Price, of Quebec, established large mills at Chicoutimi, St. Alexis, L'Anse-St. Jean, St. Etienne, Batiscan, Matane and many other places, leaving an immense business to his sons, which is now conducted by the son before named. The late Allan Gilmour, and relations of the same name, carried on for many years a large business on the North Nation, the Cateneau and Mississippi (Canada), and at Trenton, Ont., the younger branches of the family continuing the business.

Philomene Wright, one of the first lumbermen on the Ottawa river, came from Woburn, Mass., in the United States, arriving at the Chaudiere Falls—or the Astouca, as called by the Indians—as early as the year 1790. It was not till 1797 that he finally decided to make his home in Canada, and on the 20th of October 1799, he and two companions pitched upon the site of the future city of Hull. He finally quitted Woburn for Canada on the 2nd of February, 1800. He was accompanied by five families, and had in his train fourteen horses, eight oxen and seven sleighs. The first tree was felled on the site of the homestead on the 7th of March, of the same year. He brought the first square timber from the Ottawa to Quebec in the year 1807. He built the first slide on the Hull side of the river in 1829. He was elected the first member to represent the County of Ottawa in 1830. He died in 1839, and sleeps, an honored memory, in the little cemetery on the Aylmer road. Philomene Wright built his first saw and grist mills in 1808; they were, unfortunately, burned down, but were rebuilt in 60 days.

About eighteen years prior to this the first saw mill on the Ottawa had been built at Point Fortune, by a Mr. Story. It boasted one upright saw, and it is recorded that when the man in charge giggered back the carriage for a fresh cut, he would sit down on the log to take his dinner, and was about through by the time the cut was finished. With our present saws the same can be done in four seconds.

Among our successful lumbermen have been the late James McLaren, of Buckingham; Peter McLaren, of Perth; Bronson, Weston & Co., Perley & Patec, J. R. Booth, Alex. Fraser, of Westmeath; W. Mackey, and the late firm of Hamilton Bros., whose father was one of the first in the trade at Hawkesbury, Ont. Many others have taken an active part in the business, with more or less success.

West of the Rocky Mountains, Canada, contains vast

quantities of valuable timber, the manufacture of which is rapidly increasing, to meet the wants of the Pacific coast and islands. Much of this lumber will find its way east to the treeless prairies.

As to Canadian's method of lumbering, when circumstances will permit, we pile or skid before the snow becomes too deep. When the snow is deep we draw direct from the stump to the lake or river. Our style of living in the shanty, and, in fact, the building itself differs in the various parts of the country. Until very recently, particularly in the lower St. Lawrence, the fare of the shantyman was very primitive, the commonest tea being quite a luxury, and the only variety in the bill of fare was that it consisted of pea soup, bread, pork and beans for dinner, the same, with the addition of tea for supper, and either, less the pea soup, for breakfast. On the St. Maurice, for many years, the living has been good and substantial, with comfortable shanties provided with stove, tables and bunks, the cooking being usually done in an outside compartment. The shantyman's conditions however, is improving with the times.

Our shanty-men, whether English or French, as a rule, are as good axemen, and expert drivers and canoe-men, as can be found in any country. Our people are well up in dam building, as well as in making slides and clearing away the rivers to facilitate driving. Our rivers, as a general thing, being very precipitous and rapid, require extensive improvements, especially for the running of square timber.

Mr. Hale, of Sherbrooke, gave an amusing history of a stick at the Forestry Congress in this city in 1882. "An example of the far-reaching benefit of arboriculture, I will give the history of probably the first importation of any new variety of tree ever made into the eastern townships. Many years ago a solitary horseman might have been seen wending his way from the central part of Vermont, bearing in his hand a riding stick broken from a tree as he left his home. His destination was Lennoxville, and in due course of time he arrived, and taking up his abode at a farmhouse about one mile east of the village, stuck his now useless stick in the ground. Like Aaron's rod, in due time it budded and grew apace—a scion of the then unknown white willow. From this little stranger have come all the original magnificent trees, for which Lennoxville and the surrounding country, have been so long and so justly famous, and which have done so much towards clothing the country sides for miles around, with its rich and luxuriant foliage; into many other towns and villages have they spread, until the offspring of this embryotic willow might be numbered by the thousands."

TWO CANADIAN WOODS.

I can hardly let the occasion pass without a reference to two of our woods, the first because of its usefulness to the poor aborigine, whose heritage we possess; it served to cover his wigwam, and was the material for his canoe, to aid locomotion; the latter, the great wood of commerce.

The white birch, or boleau, has within a few years become of some value when found within easy reach, having been turned to account for the manufacture of spools and spool wood for thread makers, the white part of the wood only being used. It is made into squares, varying from one inch, in eighths, to say, two inches, and three or four feet long. Many shiploads have been shipped to England and Scotland the past few years, principally from the lower St. Lawrence. The red, or heart, being worthless to the spoolmakers, either used as fire wood or left to rot. There are vast quantities of this wood in the interior too far from navigation or rail to be of any value. It is mostly found on poor soil, mixed with balsam, small spruce and cedar. It makes good firewood when dry. The bark is useful to the Indian for the making of his canoe; the vessel for retaining the sap of the maple; his drinking cup and the cover of his wigwam. The yellow birch provides a cough remedy by boiling the sap down to a syrup; and, lastly, though not least, it furnishes the proverbial birch-rod, which, though almost obsolete, sometimes does good service, even in these days of advanced ideas. Vast quantities of the dwarf or black birch have been used as withes in rafting logs, some concerns using as many as thirty or forty thousand in a season, each of them representing a young tree; but little of this is done at present.

We now come to what every lumberman considers the king of the forest, in grandeur, usefulness and value, the white or cork pine, or *pinus strobus* of the scientists, the tree of all others that serves more purposes than we can enumerate. Among them the tiny match, the mast for the great ship, the frame of the sweet sounding piano, and wherever a soft, easy-working wood is wanted, either in the arts, the workshop, or the factory, there it is to be found. As an article of commerce, it far surpasses in value and quantity that of any other wood, if not of all sorts put together. It supplies more freight for vessels coming into the St. Lawrence than any other commodity; it gives more employment to wage-earning men than any industry in our country, except agriculture. It employs more capital in manipulating it from the time the men leave for the woods in the fall, to make, haul and drive the logs and timber to the mills—the building of mills for sawing, the construction of barges and steamboats to convey it to market, as well as the large amount of freight furnished to railroads, the erection of factories to convert it to the various uses to which it is put. It is safe to say, that the value of the output of pine lumber alone, produced in Canada, is at least \$25,000,000, or two and a half times as much as that of any other manufacturing industry, and, when we consider that 60 per cent. is paid for labor, and that, nearly all to men, representing a large population, you can readily see how important it is, either by legislation or otherwise, to protect and conserve the source of this great factor in our prosperity. How can we extol sufficiently this monarch of the forest that we are so much indebted to? The tree when growing in the open country is of little or no value, except as a shade tree, its literal branches reaching almost to the ground, it is in the dense forest we have to look for the great tree of commerce, where nature acts the pruner. There the branches decay and drop off, the trunk shoots upward high above its neighbors, seeking that which it was deprived of below—light and air. By this action of nature we get our clear pine, so much prized by mechanics. As the branches drop off, the wood grows over them, and we get the stately tree carrying its size well up, and often attaining 60 or 70 feet to the branches. I once saw a tree that measured 40 inches in diameter 70 feet from the ground, without a knot or defect visible in this space. Naturally, however, it is very rare to get a log or the best of timber without finding knots or defects as you get near the heart, the remains of the dead branches that fell off during the tree's youth. My experience teaches me that white pine is of slow growth. The smallest trees that ought to be taken for saw logs or timber should be at least fourteen inches at the butt. This would take not less than fifty years to produce, and such a tree as I have before described as much as one hundred and fifty; more than three inches in twenty years. Large groves of pine are usually found on poor light soil, I think, consequently, that the bulk of the pine found under such circumstances is apt to be punky or defective for the want—so to speak—of nourishment. The best pine is usually found on stronger soil mixed with hardwood. It is unpleasant to contemplate the want of this valuable timber. Once gone it is gone forever, and cannot be reproduced in our or our children's time, as unlike mineral or the other products of the soil, the quantity produced from these are limited by the amount of labor employed in producing them. Perhaps, however, time will find a substitute in some artificial wood, or employ metal to take its place.

OTHER CANADIAN WOODS.

Hardwoods, to which I will briefly refer, that were once almost discarded, except for burning, are coming largely into use in consequence of the improved wood-working machinery that has been devised of late years, making the work of preparing and completing joiner work much more simple and easy than it was to do the same thing in pine when I served my time over 50 years ago, and when flooring, mortising, tenoning, sticking mouldings out of dry spruce with hard knots, was done by hand. The facilities also for reaching hardwoods and getting them to market will help to make up for the loss of this favorite material, which, I hope, is yet a long way off. I might say before closing this part of my subject that the magnificent cedar of British Columbia will, no doubt, largely take the place of white pine for

joiner-work. The Douglas fir will be a valuable substitute for our coarser woods, when they become scarce and high in price. A lumberman's life is not passed on a bed of roses, yet there is a charm about it to those who have the stamina to endure its hardships, and enjoy its excitements, that is not easily forgotten. Who, that has followed it, can forget the log drive from early morn to sun-down, kedging across the lake to the tune of the chanteur, or breaking the jam in the roaring cascade, whose noise is drowned by the yells and shouts of the crew on seeing the great mass move off, each great log as it were, trying to get ahead of its neighbor, until they reach still water. What excitement after the risk run and efforts made! Old lumbermen can and do look back to such scenes with much pride. What other business has so many contingencies connected with it, apart from the ordinary mishaps in trade?—sometimes too much snow, other times too little. On other occasions the ice or the floods carry away his booms and scatter the logs, to be often stolen by land pirates, who will secret his property, and annoy him in trying to find it.

As to the utility of the forest, though it may not attract the rain or influence its downfall, there can be no doubt as to its regulating the flowing of the waters by holding them back in the glades and swamps, sheltering the land from the fierce rays of the sun, preventing rapid evaporation to a great extent, and thus preventing oftentimes damaging floods and dried up streams. For the reasons advanced does it not behoove us to use our influence to bring about such legislation as will have the effect of preserving and protecting our forests, on which so much depends."

In concluding his address, Mr. Ward said that on the 15th of April last was the fiftieth anniversary of his entrance into a sawmill to work.

THE GAS ENGINE AND THE STEAM ENGINE JOINED.

REFERRING to the discussion of the gas engine question, a prominent engineer remarked in conversation that he failed to see why the gas engine and the steam engine should not be compounded, so to speak. He put the case something in this manner: In the gas engine one of the problems is to keep the cylinder reasonably cool, and in the steam engine to keep the cylinder hot. Now, suppose we have a gas engine running and jacket its cylinder with water, which is then used for boiler-feed water, thus saving the heat which is now thrown away. Then take the exhaust from the gas engine through the jacket of the steam cylinder, and, if necessary, as it probably would be, add a heating chamber for the steam to pass through just before reaching the cylinder, so that more heating force could be employed. Two such engines adapted to each other would probably mean a relatively small gas engine and a steam engine large enough to carry all the load in case the gas engine refused to work for any reason, and, arranged in this way, each would supplement the other so far as the proper distribution of heat is concerned. The proposition is a novel one, and there is a chance to do some thinking over it. Possibly someone may be so situated as to make it easy to try the plan and let us know the results.—American Machinist.

DAMAGE TO CHIMNEYS BY LIGHTNING.

AN investigation was recently carried on in Germany, by C. Carlo, upon the subject of the damage done by lightning to chimneys, both with and without lightning conductors. From a study of twenty-four cases, he draws the following conclusions:

1. Lightning very seldom strikes a chimney in such a way as to leave any perceptible effect.
2. The damage done by lightning to chimneys is in most cases inconsiderable; only in one case was a chimney actually destroyed, and in four cases only was the damage so great that it was necessary to pull the chimneys down.
3. Lightning strikes chimneys both with and without lightning conductors; the latter appear, however, to be struck oftener than the former. Of the cases reported on, two were with and fifteen without lightning conductors; in four cases it was not definitely known whether a conductor was in position or not.
4. In low, marshy grounds, lightning flashes seem to occur more often than in high and dry neighborhoods.
5. In one case only has lightning struck a steam boiler so as to necessitate repair.



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THE CANADA LUMBERMAN is published in the interests of the lumber trade and of allied industries through the Dominion, being the only representative in Canada of this foremost branch of the resources 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 writer 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.

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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.

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WHITE PINE PROBLEMS.

THAT business is constantly undergoing changes, is evident to the most unobservant. The lumber trade is no exception. Take white pine. It was not many years since it was king of all timbers. It still holds much supremacy in the lumber market, but the sway that it held a few years ago, if not shortened, has to be maintained by constant fighting and eternal vigilance.

For some years yellow pine has been encroaching on the field hitherto controlled by white pine. The nature of the two woods is not in every way identical. For many purposes yellow pine will never fill, with satisfaction, the place occupied by white pine. Where, however, competition could not be met on the grounds of merit, a reduction in price was made to further the interests of this southern wood. And in times of depression, such as all countries have suffered for years past, not only is it the tendency, but the necessity becomes strong for customers to satisfy themselves with an inferior article, when it means a saving in cost. This was the card played by southern lumbermen. They were selling lumber practically at a loss, but they had great quantities of lumber to sell, and they were playing for future trade. Having in a measure, at least, secured the desired end, the price of yellow pine has now been advanced. On the other hand, white pine, though not declining to a degree to affect the market, does not take on that measure of strength, that would indicate any important advance in price.

White pine owes its present dullness, however, to something more than competition with yellow pine.

Duluth lumber has been working its way into the eastern markets for some time, and following on somewhat similar lines to the southern lumbermen, there has been a disposition to figure prices below a current market basis. This year pine from Lake Superior is cutting an important figure in the market. In Saginaw, we are told, that Norway bill stuff held there at \$8 to \$8.50, is selling at Lake Superior points at \$7. A result is that factory men in that State are buying their lumber in Duluth, and shipping it into Michigan, claiming that they can buy at those interior points, pay freight and handling, and make more money out of it than to buy stock manufactured on the Saginaw river.

A continuation of this policy cannot but affect the entire market for white pine, and in any change that may take place, Canada, like Michigan, is largely interested.

CUTTING OF TIMBER FOR PULP WOOD.

It is worth while remembering when cutting the products of Canadian forests that there are other uses to which logs are put than that of manufacturing lumber. There are good reasons to think that the sawmill will be outrun in the race, as one of our greatest industries, by the pulp mill, which already consumes large quantities of timber and seems to be open to almost limitless development.

It is just about fifty years ago, in the year 1846, since the wood pulp industry may be said to have commenced. Give one Keller credit for the first paper-making from ground wood, which was manufactured under a patent taken out in Saxony in the previous year. As with most new industries, the growth at the outset was slow, but of recent years the manufacture of wood pulp has jumped into immense proportions. We can understand this, when it is remembered that of the making of books there is no end, and of the making of newspapers, were it possible, a stronger statement might be made. We are living in an age of newspapers, almost countless in numbers, and in many cases reaching into immense circulation daily, consuming tremendous quantities of blank paper.

Years ago it was learned that rags, cotton waste and straw were neither sufficient nor cheap enough to meet the demand of the paper maker. Wood paper was invented. It did not cover every requirement at first, but as a result of experiments and inventions improvements were rapidly made. Newspaper stock, which brought from fifteen cents to twenty cents a pound in the sixties, is to-day sold by Canadian mill men as low as three cents. The industry is growing, until the paper made from pulp wood on this continent is shipped to almost all parts of the world. Australian papers are said to be printed on paper having its origin in the spruce forests of this continent.

Canada's interest in pulp wood is in her immense spruce forests in Quebec and New Brunswick in particular, though spruce is also found in some parts of Ontario and British Columbia. Conditions are peculiarly favorable for this industry because of her splendid water privileges, for as Mr. J. H. Lefebvre, C. E., has pointed out the three things necessary to the success of the pulp industry, namely, suitable wood, extensive water power, and cheap labor are found in abundance in Canada. Our immense forests of coniferous trees contain a practically inexhaustible supply of the different kinds of woods required in this line of manufacture, and besides are of a very superior quality. A proof of this is found in the yearly increase of American importations, and further in the energy with which United States manufacturers are securing possession of large tracts of spruce land in the Lower Provinces. The importation of Canadian wood for pulp to the United States increased from \$57,197 in 1890 to \$454,253 in 1893, and the increase goes on. Norway and Sweden have held a prominent place as manufacturers of pulp, but in England Canadian pulp has sold at an average of \$24.80 a ton as against \$20.27 for the Scandinavian product, a proof of the better quality of our pulp wood. The immense growth of the wood pulp business is such that it absorbs nearly fifty per cent. of the spruce logs produced in New York and the New England States.

It is not necessary to enter into a discussion of the processes of pulp manufacturing. Our interest is as lumbermen. A cord of wood produces about 900 pounds

of chemical and about 1400 pounds ground wood or mechanical. In the Dominion there is now made about 50 tons of sulphite or acid pulp, 50 tons of soda pulp, and 100 tons ground wood pulp per day. In order to produce this quantity of sulphite and soda pulp about 225 cords of wood are required daily or 70,000 cords per year. And to produce ground wood manufactured about 100 cords daily or 32,000 cords a year. These figures are suggestive of the importance of this industry, and of the wisdom of preserving it to our own people, for with the free export of spruce logs to the United States, and a heavy duty exacted on all mechanical and chemical pulp imported by that country, it becomes a question how far we are serving this end.

There can be no doubt that the spruce forests of the Dominion must each year grow in value, and as may be noted from an interview with a prominent Ontario lumberman published in the Eli page, those who are wise in their day and generation, are going to give thought to securing possession of spruce forests, perhaps even more so than those of white pine or any of our other woods.

EDITORIAL NOTES.

ANTICIPATED trouble by the lumbermen of the Ottawa Valley, and those in certain parts of New Brunswick, in the expected enforcement of the new sawdust act, has been set at rest by the announcement of the Hon. Mr. Angers, in the Senate, that the act compelling Canadian lumbermen to consume the saw dust and mill refuse would be amended with a view of conserving the interests of the Ottawa Valley and the lumbermen of the St. John river. It provides that when a good case can be made out against the preservation (contained in existing statutes) of sawdust in any river or stream, the government may grant the exemption.

A NEW form of tree has been recently discovered in Japan, at an elevation of some 2,000 feet, which is said to partake very largely of the nature of Douglass fir. The Pacific coast has all along been looked upon as the home of this wood, which finds a market to-day in many parts of the world. It will be interesting to watch the growth and development of the new species. It is described of a tall growth with horizontally arranged branches, but in point of size, it falls much below the species on this continent. This being the case, even though it may be the same nature of timber, it must, from a commercial standpoint, lose a great deal of its worth, as Douglas fir is valued, not alone for its great endurance and strength, but also for size.

THE step initiated by Mr. J. R. Booth, fixing the hours of work in his big mill at ten hours a day, and followed generally by the other mills, large and small, of the Chaudiere, is one that marks the trend of the present day towards shorter hours for workingmen. What is pleasing in connection with the present step is that it was taken voluntarily by Mr. Booth, and no friction was observable in the mill men generally falling into line. At the ten hour day the same wage will be paid. This is further worthy of remark, because made at a time when profits in the manufacture of lumber are exceedingly close. And yet there is good reason to believe that in the reduction of the actual number of hours the men will work as great an amount of work will be accomplished per week. The superficial observer will be disposed, perhaps, to question this statement, but there are many noticeable instances on record, where a reduction in the hours per day of labor by large manufacturers has brought to them as large, and in some cases a better, return than under the longer day.

IT is interesting to watch how trade shifts from one section of country to another, as circumstances make this necessary. It would seem that we sometimes deplored, rather unnecessarily, the losses that are sustained to particular sections of country, when the resources that have built up those sections no longer exist. There are points in Ontario, as in other parts of the Dominion, that once rejoiced in the constant hum of the saw mill. Things are dead there to-day, because the timber of those territories has been cut away. But what is proving a loss to one place, becomes a benefit to another. It is

necessity, that sets men planning work afresh, and seeking for other fields to conquer. We have thought of this as we have read a report of Mr. C. W. Spencer, who returned to Montreal, recently, from an annual tour of inspection of C. P. R. lines east of Port Arthur. He says: "We shall have an increased shipment of over 120,000,000 feet of lumber over last year in this district between Sudbury and Sault Ste. Marie. They are spending \$10,000 in Kenabutch in erecting a saw mill, and houses are springing up fast." Attention has been directed to this new territory only within recent years, as timber has become scarce in some of the more settled places.

In a sketch of British Columbia timber interests in the May monthly issue of the CANADA LUMBERMAN we gave Mr. R. E. Gosnell, of Victoria, B. C., credit for the estimate that there are 100,000,000,000 feet of good timber in sight in British Columbia. Mr. Gosnell writes us that whilst he made use of these figures in referring to the timber interests of the coast province, he did not give them as his own figures, but that "it has been estimated," or "it is estimated" that such is the case. He says: "I wish to call your attention to this for the reason that it is not desirable to assume the responsibility of so important a statement regarding the subject, upon which I had not in any sense claimed to be an authority. This much we do know, however, that the extent of timber is very great, and were it up to the 100,000,000,000 feet or half that amount, it is still an enormous resource, but not too great to render your advice as to its preservation necessary and serviceable. The exact amount of timber land under lease is 542,000 acres, but that does not, of course, represent anything like the real extent, although it does represent the best of it. Over 500,000 feet of lumber have been cut from one acre of timber land, and that is by no means unusually heavy, but if we take one-fifth of that as an average for the 540,000 acres under lease, we get 54,000,000,000 feet; so that the latter may be accepted at least as a safe estimate for the whole of British Columbia."

THERE are tricks in all trades, it has often been said. Where lumbermen in some cases have united on an advance in prices, it is stated that more unscrupulous members of the combination are getting away from the real purpose of the agreement by giving concessions in the shape of better qualities of lumber, where they are ostensibly holding, at the same time, to association prices. It is here the difficulties in combinations always show themselves. This is to be remembered regarding the man who will play false with his fellowmen where an agreement has been entered into, he will play false as quickly with the very men who may think they are receiving a favor from him. We would advise any dealer who buys from a lumberman, who has agreed with others to stick to certain prices, to watch closely every transaction, for if the unscrupulous man does not get even with him in some way it will be no fault of his. Besides, without drawing the lines too strict, the individual who is prepared to accept of another terms which he knows represent the violation of an agreement, is not himself too straight, and may be worth watching. We know the old story that business cannot be done unless a little sharp practice enters into it, but this is to be noted that when everybody in trade commences using sharp tools, there is no telling where blood will not be drawn first. The old saw is terribly hackneyed, but it is true yet, that honesty is the best policy, and there is nothing like square, up-and-up business methods. Where any man is a consenting party to a lowering of the standards of business methods, he himself has taken a step downwards.

CONSIDERABLE interest is attached by Quebec lumbermen to the proposed amendment to the Dominion Inspection Act of 1893, which will provide that lumber conform to the inspection of all other articles of trade and commerce, but not compulsory. In the matter of square timber, however, inspection is to be compulsory for two or three years. Going back a good many years in the history of the lumber trade of Quebec lumbermen are disposed to think of the difficulties they had to fight against before the Cullers' office at Quebec was established. History saith, that this was instituted about

fifty years ago, for the protection of the lumberers, who, previous to that date, felt that they were unfairly oppressed by buyers at Quebec. Lumbermen in those days were obliged to submit to all sorts of "allowances" in the measuring and culling of timber purchased by the merchant who engaged his own culler, to put on his own measurement. It is said that lumbermen lost from 20 to 30 per cent. of the value of their lumber, sufficient to completely wipe out all margin or profit, and not unfrequently leaving them in so tight a corner financially, that an escape was impossible. In a word, the allegation is that they were completely at the mercy of the buyers. The establishment of the Cullers' office, was the means of changing all this, and the unpleasant friction, to put matters mildly, became a thing unknown. Whenever anything went wrong, redress could always be had at once, by applying to the Supervisor, who would award a survey and thus rectify any loss incurred by wrong measurement or otherwise. The contention in favor of the proposed change is that conditions have altered, making the existence of the Cullers' office, and those attached to it, no longer a necessity. But this is seriously questioned by those who know well lumber conditions in Quebec. Where an office has been in existence for so great a length of time, and with the lumber trade of Quebec still assuming large figures, it would appear the part of prudence to go slow in making any changes.

It is difficult to understand why the Treasury Department at Washington should rule that the red cedar of British Columbia must come under a 25 per cent. duty. The case, as presented by British Columbia lumbermen, through Mr. J. G. Scott, was really unanswerable on its merits, and this was the view taken by the New York Board of Appraisers. What consistency was there in ruling that the red cedar of British Columbia was not a cabinet wood, and therefore ought not to be classed among cabinet woods, and yet charge an impost on it as one of them? It is said the department ruled that the cedar of the Pacific coast was cedar in the general commercial sense, and though botanically it might vary a little from a true cedar, nevertheless it was cedar still. It may be a cedar in name. It is not a cedar in point of fact. It has been generally admitted by leading lumber journals of the United States that it was through an oversight that it was placed under the cabinet schedule in the first place. The West Coast Lumberman in its latest issue says: "There is but little doubt that the duty on cedar was laid on through a careless wording of the act." The Timberman and other journals have voiced the same thought. When the government at Ottawa evinced a disposition to trifle with the question of duty on boom sticks, that gave rise to friction with Michigan lumbermen, the CANADA LUMBERMAN took ground that the quicker the government receded from its absurd position, the better would it be for the lumber trade. The question of free trade in lumber is too big a one to admit of trivial disputes of this character. The same is to be said in reference to the red cedar trouble. The government at Washington have no reasonable grounds for ruling out red cedar from under the free trade tariff. Their own officers, the New York Appraisers, and the lumber press generally, without regard to their particular opinions on the question of free trade, are of one mind on the matter. Without the necessity for further protest on the part of Canadian lumbermen, it is to be hoped that the authorities at Washington will at once remove cause for friction in this particular, as the Canadian government have absolutely removed cause in the case of the boom difficulty with Michigan lumbermen.

THE Pacific Lumber Trade Journal, the new lumber paper published at Seattle, Wash., and which it is fair to say reflects credit upon its editor and manager, Mr. Victor H. Beckman, is disposed in the first issue to read the shingle trade of the Coast, a deserved homily. Our contemporary freely admits that the red cedar shingle industry of Washington territory has suffered many reverses during the past two years, and these are to be attributed to a class of men who, it declares, are as foreign to the trade as a clown at a funeral. Stated briefly, the shingle trade of the Pacific coast, and British Columbia cannot be altogether excepted, has run the

gauntlet, and all the disaster that comes, of an unhealthy boom in business. Red cedar shingles became known for many meritorious qualities, and with abundance of this wood indigenous to the Pacific coast, every Tom, Dick and Harry thought he saw money in shingle manufacturing. The result was that a class, quoting from our contemporary, composed of "ex-butchers, real estate men out of a job, lawyers without clients, doctors without patients, insurance men sans occupation, and wholesale merchants with an eye to the main chance," embarked in the shingle business. Late in the year of 1892 the shingle industry was on a good basis, giving employment, at good wages, to several thousand men in the mills and camps. This attracted the attention of inexperienced men with little ready money, with the result that in an incredibly short time mills were built by the score, without regard to location, existing conditions, or the law of supply and demand. Competition became so keen three months ago that shingles were sold as low as 85c. per thousand, barely the cost of labor, and leaving nothing for raw material, investment, interest, etc. It is estimated that nearly \$2,000,000 were lost through this senseless and criminal price-cutting. Has the end been reached? This, it is difficult to answer definitely as yet, but it is believed that the situation is changing, and commonsense will take hold of the reins of the shingle manufacturing of the Pacific coast. Lumbermen everywhere throughout the Dominion will trust that this will be the case, for unhealthy and commercially immoral methods employed in any department of a particular trade reflects back on the entire trade.

WHAT of white pine prices in the near future? When the new cut is on the market, will prices go up or down? This question is being widely discussed in lumber circles everywhere. There is a good deal of diversity of opinion. Some there are who could most determinedly that there will be a break in prices not long after midsummer has been entered upon. They argue that stocks are not very much depleted at leading mill points, and that when these are supplemented by the new cut, with trade continuing as slow as it has been since the first of the year, no other result can follow. The question is whether stocks at mill points are large. Whilst it is true that some mill men are holding more white pine than they would wish to, with the mills busy cutting on fresh logs, yet this is not everywhere the case. This much seems certain, that buying has been conducted on so conservative a scale, that the yards of lumbermen throughout the country must be well thinned of stocks. If they are going to do any trade they will have to fill up with new stocks, and it is doubtful if the ability to meet such a demand will be any too complete. The situation, centres around the one point of a betterment in trade conditions. If the season's trade is going to warm up, though late about it, there is no good reason to suppose that prices, except possibly for particular grades, will decline. A survey of commercial conditions point to an improvement in business. Bankers and others, who are supposed to keep their hand on the pulse of trade, tell us that this is the case. Other circumstances will also enter into the situation. The belief is growing that the output of white pine for 1895 will not be on a very extensive scale. Possibly it may reach the figures of 1894, but this is hardly probable. At this writing, it also looks as though a good many logs will be hung up, and if so the cut will be made still smaller. Much will depend too on white pine men themselves whether prices can be made to improve. There is encouragement in the position assumed this season by the yellow pine men, and also the spruce manufacturers. Business in both these departments of lumbering had been demoralized, and was going from bad to worse rapidly. None too soon, Southern States lumbermen on the one hand, and spruce men in the Eastern States on the other hand, took the bull by the horns and formed strong organizations, with the result that to-day both have fixed on a basis of advanced prices, that has all the appearance of proving strong combinations, and which will help these men to make some money this year, where they had been sacrificing profits in the past. For white pine men to attain this end would mean that in sections of country, as we have remarked in another article, where the tendency has been to do business, regardless of profits, lumbermen would need to join hands with the older manufacturers and resolve to put an end to the foolish method of cutting prices.



BUSINESS END OF WOOD-WORKING.

THE laws of business are as fixed and exacting as those of nature or science. Violate them, and disaster is sure to follow. Work closely up to their requirements, and, other things being equal, success is assured.

In the engine room the engineer knows that if he neglects even the simplest rules that govern the management of steam or electric power, trouble will come. Every hour in the day he must be on the alert, satisfying himself that there is not the slightest detail in connection with his engine that is allowed to go wrong. Boiler explosions occur when these well-fixed rules of engineering science are violated. They do not occur by accident. So it is all through the workshop. Let planer, mortiser, and tenoning machine be carefully and correctly run and careful and correct work will be executed. Spoiled work comes from a shop, and losses are sustained, when the workmen become careless, and the foreman less vigilant in guarding every interest of his employer.

Neglect of little things, producing waste and destruction of valuable material, and expensive machinery, can be given as the explanation of business disaster in many wood-working concerns. But a careful study of the situation will reveal the fact that the leaks, which eventually sink the ship, exist within the four walls of the counting-house more frequently than in that larger space usually known as the shop or factory. Bradstreet's put down as the first and chief cause of failure, incompetence, and it is no stretch of the word to say that the man, with capital invested in business, who does not watch closely the daily transactions represented in the books in his counting-house, is incompetent to engage in business. A study of business failures will show that capital has become impaired, and losses, that have wrecked the business, made, through bad bookkeeping, or no bookkeeping, more often than in any other way. An examination of the assets of insolvent concerns reveals a heart-rending condition of affairs, oftentimes, in the size of figures opposite the item bad or doubtful accounts. These bad accounts arise through a lack of watchfulness in giving credit, as well as in neglect in rendering accounts and keeping up close collections.

Bad bookkeeping and office mis-management does not stop with losses through bad debts. The history of business tells of thousands, and tens of thousands of dollars, that are lost every year by mercantile concerns through neglect to charge goods, in whole or in part. Let anyone give memory play for a few minutes and he will bring to recollection errors that have been made in accounts rendered, where charges have been omitted, cash neglected to be credited, and various other blunders made, all the result of careless office management.

How many men engaged in the wood-working business take stock regularly, and strike a trial balance to know in what position they stand? When times are good and business is rushing, the ingo and outgo run sufficiently parallel to each other to keep things easy. But those seasons come around that are known as cycles of commercial depression, and here and there, at this point and at the other, business men commence to find the strings tightening. Do they wisely sit down and examine into their business? Too often not. The practice ought to be made as exacting a feature of business management as that the boiler is properly protected for the night before the engineer turns the key in the engine house door.

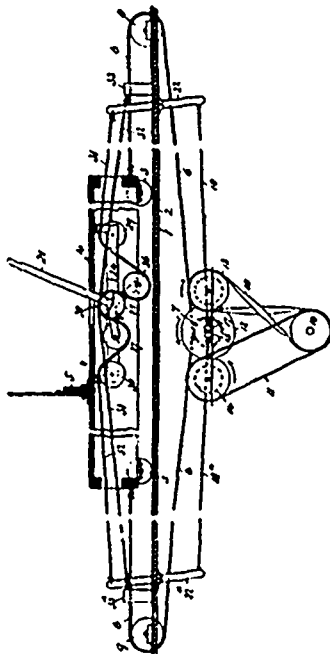
A man eminent in practical science has observed:

"It is astonishing how few people I have met with in the course of my experience who can define a fact accurately." It is astonishing how few men in business can define accurately, or nearly so, the condition of their business at any given time, except when the assignee comes into possession.

These may seem to be commonplace statements, but they are of a character that will bear repetition. Two important considerations come into play in the management of a wood-working industry: (1) That the proprietor himself be a practical wood-worker, or else place the mechanical department of the business in skilled and capable hands. (2) That he be a thorough-going business man, living up to the science of business in all particulars.

It is a good thing when these two conditions can be made to dovetail together, but in the present day of intense competition, and close profits, if one is more essential than another in the wood-working business in Canada, the latter ought to have choice. The mechanical end of the business can, with some safety, be delegated to others. The business end calls for the closest attention of the proprietor himself.

NEW CANADIAN PATENTS.

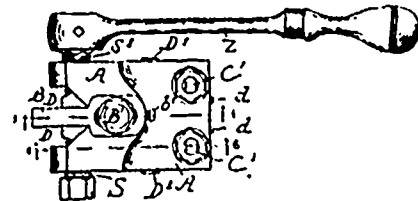


DEVICE FOR OPERATING SAW MILL CARRIAGES.

Patentee: John Hamilton, Stewartville, Ont., 1st March, 1895; six years.

Claim.—1st. The combination with a saw-mill carriage and accessories, means for driving the same and a hand lever fulcrumed to said carriage, said lever having two sets of sheaves and two cables passing in reverse order between said sheaves, said cable secured at the ends to fixtures and to tilting levers, operating said accessory means, whereby the hand lever when inclined effects a pull on one cable, and when inclined in the opposite direction effects a pull on the other cable to reciprocate the carriage when desired by a person riding thereon, as set forth. 2nd. A device for reciprocating or gigning saw mill log carriages by accessory means, said device comprising a hand lever fulcrumed to the carriage and having two sets of sheaves journaled

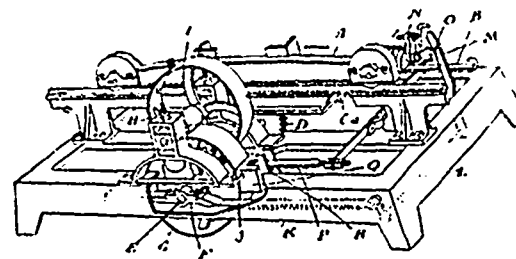
thereto, and two cables, one cable passing between one set of sheaves and the other cable passing in reverse order between the other set of sheaves, and over sheaves attached to the carriage, one end of said cables attached to a fixture and the other to a lever, whereby by an operation of each cable forms a loop which is elongated by a sheave when the hand lever is inclined to effect a pull on either cable, as set forth. 3rd. The combination, with a saw mill log carriage and accessory, means for gigning the same, of a hand lever fulcrumed to said carriage, said lever having two sets of sheaves and two cables, one cable passing between the other set of sheaves in reverse order, whereby each cable forms a loop, one loop being elongated when the hand lever is inclined in one direction and the other loop elongated when the lever is inclined in the opposite direction to effect a pull on the cables, respectively, and to cease when said lever is vertical for the operation of the carriage by accessory means such as a friction gear steam feed, etc., as described and set forth.



DEVICE FOR SHAPING SWAGED SAW TEETH.

Patentee: John F. Pribnow, Mellon, Wis., U.S.A., 12th March, 1895; six years.

Claim.—1st. The combination in a shaper for the points of saw teeth, of the frame work, a stop, clamping jaws, and carrying blocks for said jaws, said carrying blocks being secured to the frame of two-sized bolts, whereby they serve both as pivot and securing bolts substantially as set forth. 2nd. That said carrying blocks having perforations and said frame having slots, through which said slots pass, the smaller portions of the bolts being flattened where they pass through said slots, and said slots being equal in width to the smaller diameter of the bolts, whereby said bolts are prevented from turning. 3rd. The combination, in a shaper for the points of saw teeth, of the frame work, carrying blocks for the clamping jaws pivoted to the framework, and said clamping jaws independently adjustable upon said carrying blocks. 4th. Said clamping jaws secured to said carrying blocks by bolts passing through slots, and into said jaws, and set screwed, whereby the longitudinal adjustment of the jaws may be finally regulated.



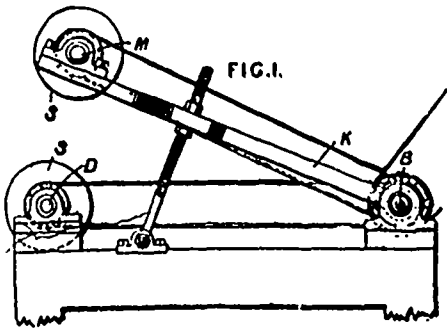
SHINGLE MACHINE.

Patentee: B. R. Mowry & Son and Isaac Milton House, Gravenhurst, Ont., Assignee of Asa Mutchmacker, Rosseau Falls, all in Ontario, 26th March, 1895; six years.

Claim.—1st. In a shingle machine, a pivot on the frame of the machine and carrying a brake-shoe adapted to engage with a pulley geared to the carriage of the machine in combination with the reciprocating carriage, adapted to engage with the lever and apply the brake, substantially as and for the purpose specified. 2nd. In combination with reciprocating carrier carrying a pivoted dog, which may be set to engage with the said lever and apply the brake. 3rd. In a shingle machine, the combination of the pulley G, brake-shoe Q, bar P, fork R, lever G, dog N, and reciprocating carriage A, substantially as and for the purpose specified.

David Cross, employed in Galbraith's sash and door factory at New Westminster, B. C., recently had his hand badly cut by a shingle saw.

AN ENGLISH PATENT.



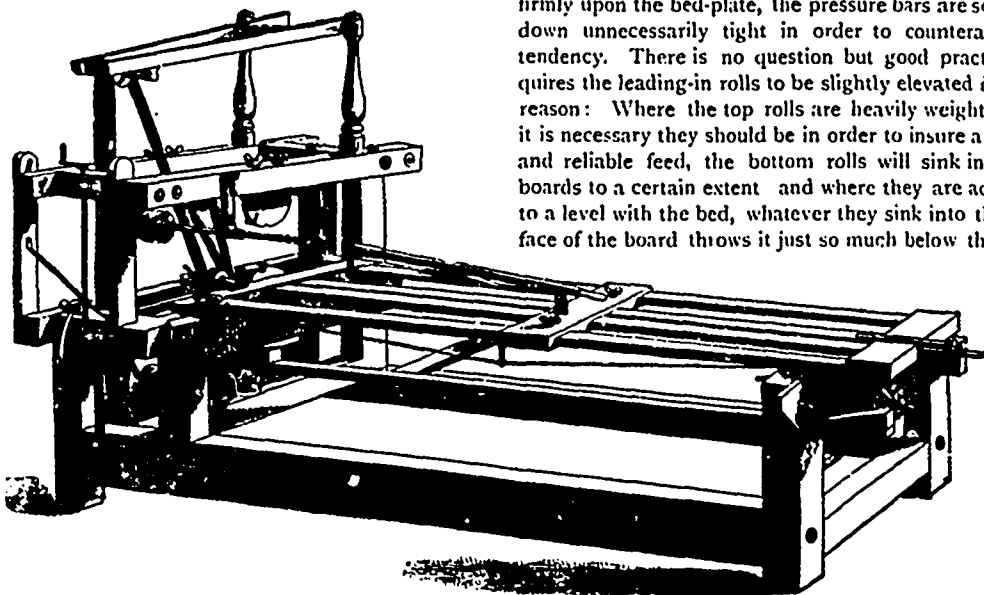
Relates to a machine for sawing, mortising and trenching, and for marking for setting out work. The figure shows an elevation of one form of the apparatus. Adjustable circular saws or cutters S S are fixed on parallel shafts M D worked by driving belts from a third shaft B. The shaft M is carried by brackets on pivoted arms K, which may be adjusted to regulate the distance between the shafts M D between which the wood, &c., is introduced. Many modifications are described, in one of which the shaft D is mounted similarly to the shaft M. Guides and gauges may be arranged for the wood, etc.

TENONING MACHINES—THEN AND NOW.

IT is by taking a glance into the past that we can best learn, oftentimes, how high is our altitude to-day. Let wood-workers look at the two illustrations here given, and they will have some idea, at least, of the progress made in the manufacture of wood-working machinery within less than half a century.

The cut here given of a new tenoning machine, as in operation in many wood-working establishments to-day, stands out in striking contrast to its representative of forty years past.

This tool is used principally for sashes and blinds. The cutter-heads are made small, so that they can be run at great speed and do better work and more of it. The top headstock is adjustable up and down and in and out, and both headstocks can be moved up and down together without changing the thickness of the tenon in the least. The bottom headstock and the main standard are in one piece, gibbed to the inside of the frame, and raised and lowered by a screw. Both top and bottom cutterheads are run by one belt at the



TENONING MACHINE MADE IN 1856.

same speed, and this belt is provided with a self-operating weighted tightener having vertical and horizontal adjustment.

This machine is provided with a combination roller table, greatly facilitating the work both in ease of operation and quantity turned out. In this device the top part of the table travels farther in a given time than the under part, not requiring the extra long ways. The table is secured to ways with safety gibs and stops, so it can not be thrown from the ways or into the knives.

It is perfectly rigid and cannot be thrown or worn out of line. It is provided with a positive hold-down, conveniently and quickly operated, and by which the shortest piece is firmly held in place. The guard and cleaning device avoids chips accumulating on ways. The fence is adjustable to any required angle. The cut-off attachment is adjustable to any length tenon desired (by means of a screw) without stopping, and is run with the same belt as the heads. The machine weighs 900 pounds.

PLANING MILL PRACTICE.

NOTWITHSTANDING all that has been said on the subject of planing mill practice, together with the care and management of wood-working machinery generally, still there seems to be a wide difference of opinion upon certain points even among those who profess to be experts at the business, says a writer in the Age of Steel. Many of those articles which appear in various trade journals from time to time are not only instructive to the young operator, but the hints thrown out may not always be uninteresting to the more experienced man, while on the other hand, others contain points that are of a doubtful character. It is all folly to suppose that one man knows it all and incapable of learning something more, even from an amateur operator, still, the best and the most expert planing mill operators, like the doctors, often disagree.

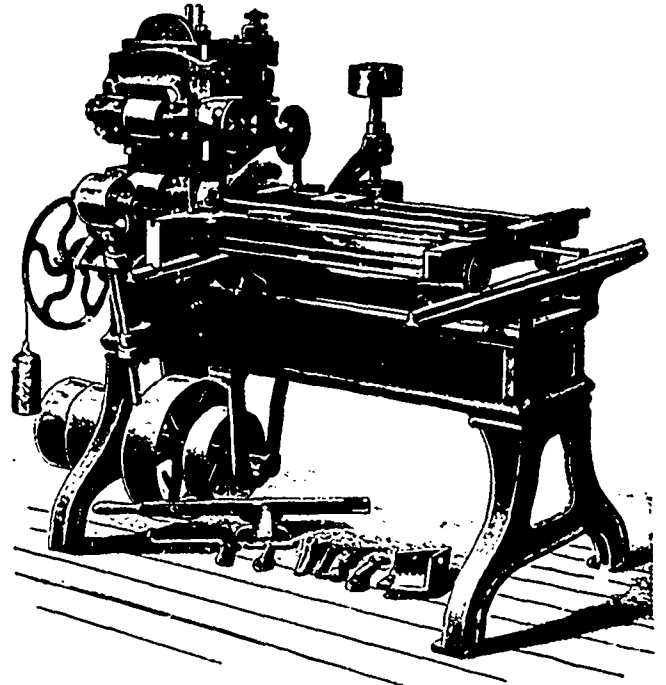
For example, the operator tells us that the bottom leading in rolls of a planing machine should be set upon an exact level with the bed, and attempts to prove his theory correct, while another argues with equal force that they should in all cases be raised from one-eighth to one-quarter of an inch above it. Now, while there is no question that by slightly elevating those rolls over the bed-plate, the machine will feed easier and the lumber will not drag so heavily upon the plank and consequently the wear will be less, not only upon the bed-plate but the gearing also. But there is no doubt that this manner is often carried to extremes by some operators. By elevating the rolls too far above the bed, the tendency is to lift the board from it, and as it is essential in order to avoid easy work, that the board should rest firmly upon the bed-plate, the pressure bars are screwed down unnecessarily tight in order to counteract this tendency. There is no question but good practice requires the leading-in rolls to be slightly elevated for this reason: Where the top rolls are heavily weighted, as it is necessary they should be in order to insure a strong and reliable feed, the bottom rolls will sink into the boards to a certain extent and where they are adjusted to a level with the bed, whatever they sink into the surface of the board throws it just so much below the level

of the bed and produces an unnecessary pressure upon it, but in no case will the pressure of the top rolls be sufficient even upon the softest lumber to sink the bottom ones into the lumber one-eighth of an inch, or even a small portion of it.

The careful operator, however, who is a close observer, can always judge from the working of the machine whether the pressure upon the bed is sufficient to cause extra wear and friction, and regulate them accordingly. As a rule, the sinking into the lumber by the bottom

rolls, upon ordinary work amounts to but little, and if a thick piece of paper or tin be placed upon the bed and a straight edge laid upon it, and the bottom rolls raised until they come in contact with the straight edge, it will be found sufficient for all practical purposes.

To say that absolute perfection may be obtained so that all classes of lumber, both hard and soft, may be run with exactly a uniform pressure upon the bed, would be absurd; therefore, as no fixed rule will apply to all cases, the experienced operator must judge for himself from the size of the rolls, the amount of pressure upon them and the nature of the work, just how much elevation is necessary in order that the lumber pass through the machine with as little resistance as possible. As the lumber, after passing the rolls in front of the bed-plate, is already compressed so that the rolls behind the cylin-



TENONING MACHINE, 1895.

der will not sink it to it, there is no necessity of elevating the back rolls, but they should be set level with the bed.

Another point has been frequently referred to, is the amount of allowance for jointing upon the side next to the long guide. Where the groove is run upon this side, it is very important that sufficient margin be allowed for jointing, but the extra amount cannot be governed by any fixed rule, but must be determined by the condition of the lumber, and the good judgment of the operator, and there is no question but a large amount is wasted in some mills by setting the long guide too far back of the stationary matcher head. Where the man at the saw, whether it be a single or double edger, is particular in straightening the stuff, that is, to avoid short crooks, but little margin will be required for that purpose.

In most cases it is customary to allow one-eighth of an inch for this purpose, and under favorable conditions, this is amply sufficient, and all over that is a waste of just so much material. With stock lumber, however, where it is matched as it comes from the yard, the case is different, and short crooks and lumps, especially, where there are knots near the edge, often render it necessary to set the long guide further back so as to allow a greater margin for jointing. Still, it is a question whether it is not more economical to run a few boards a second time than to set the guide back of the matcher head, so as to take off a quarter of an inch, as is frequently the case, whether it is required or not. There is probably no other place in the planing mill where good judgment and economy may be practiced, than at the edging saw. It is customary with many sawyers in ripping up strips for matching, to allow about one-eighth of an inch, but in many cases the strips will be found to measure from one-quarter to three-eighths of an inch wider than there is any necessity for.

Now, if the strip is to be six inches face when matched, there is no necessity for being sawed more than six and one-half inches. This allows three-eighths for the tongue and one-eighth for jointing on the groove side, but more strips will be found to measure six and three-quarters than otherwise and of course all over what is really necessary is so much waste of lumber, and while it may appear to the sawyer a small matter it will amount to many hundreds of feet or even thousands in the course of a year.



OF those entitled to rank among the large lumbermen of Ontario are the Muskoka Mill and Lumber Co., composed, as most people know, of Mr. A. H. Campbell and his two sons, owning large timber interests in the northern sections of the province and with the head office at Toronto. It may be taken as significant of the outcome of lumbering in Ontario at not a very distant day, that this firm have within the past few years disposed of considerable of their limits in this province, and become investors in spruce lands in New Brunswick. There is not necessarily any connection between their transaction in Ontario and New Brunswick, but they have shown that they are able to take a long look ahead in putting some of their money into spruce lands in the Lower Provinces. I was conversing the other day with Mr. Campbell, and learned, as with others who have studied the matter, that he sees a profitable investment in spruce. His idea is to acquire, perhaps, 500 or 600 miles of spruce lands, and at some distant day operate these. It is believed that spruce can be cut over every ten or fifteen years, and with limits of the size named by Mr. Campbell it will be readily seen that these would practically never be denuded, and a continuous revenue of a very profitable character would be derived from them. I am not going to anticipate anything that may be said in the editorial columns on the question of pulp wood, but it is well known by lumbermen that this industry is assuming large proportions in Canada, and bids fair to over shadow what has heretofore been considered the legitimate business of lumbering. Mr. Campbell paid a visit to the Maritime Provinces about two years ago, and I was enquiring as to his impressions of the lumbering industry there. Viewed from the standpoint of an Ontario lumberman, he could not but think that lumbermen there were much behind in their methods. The equipment of their mills is, with few exceptions, of the most primitive character. "I pointed out," said Mr. Campbell, "to one of the largest lumbermen in New Brunswick the loss that he must be yearly sustaining by his method of sawing lumber, giving rise to so great waste. The reply was of the most easy-going nature. Money was being made at the mills and our friend did not see any occasion to change. And so it is in every department of business. They are splendid people down there, but conservative, and lacking the go-ahead-iveness that we are inclined to think belongs to the people of the west."

* * * *

It is at this season of the year that some of the greatest risks are taken on by those engaged in the activities of lumbering. Dangers and privations, though much less to-day than years ago, have to be endured by the shantymen who spend their winters in the woods. Life there, however, is tame compared with what it is when the drives commence. Rafting is one of the exciting experiences of lumbering. How old raftsmen can dilate on the adventures of the river drives, as they have made their way through these waters in all sorts of ways and under, at times, most exciting conditions. One moment sailing along placidly and again plunging through a dam and over an apron into the pool beneath. Then again logs are stranded, a jam is formed, and the energy and ingenuity of the drivers are fully taxed. "It depends a good deal," said Mr. Gordon, of McArthur Bros., who was giving the writer some of his experiences a few days ago, "where the rafts are making for. I can remember rafting twenty-five or thirty years ago. It was something different then to what it is now with the progress that has been made in this line of business, as in every other. Then, it is one thing to raft logs across the Georgian Bay, and it is something quite different to take a raft of logs down the St. Lawrence. I can tell you excitement runs high at times, when the rafts are running the rapids of this great Canadian river.

We speak of business men being keen-witted, but all the keenness, and all the wit, that the cleverest can summon up is required when this work is engaged in. Losses of life too often occur, but the risks seem inevitable to the work. Fancy yourself strapped to the rafts, as the men have to be when going through certain portions of the rapids. The ordinary traveller knows what it is to run the St. Lawrence rapids in one of our lake steamers, and what danger is undertaken, of the excitement that occurs, when the steamer, may, perchance, strike the rocks." I had gone down the St. Lawrence on the Corinthian a few years ago when that vessel met with a mishap as she was running the Lachine rapids. There was great excitement on board, but from what Mr. Gordon has just stated, one can readily understand that that was child's play along side of the excitement and risk attending these raftsmen, when their improvised vessel of logs should chance to strike the rocks of the St. Lawrence. As one has said: "The dexterity and agility of drivers are astonishing. Upon logs of all sizes, bobbing, floating and rolling, they walk, stand and ride. The bucking broncho is a rocking-horse compared to these sawlogs with their treacherous antics. Tests of skill are at times attempted between expert drivers by two of them getting upon one log and turning it rapidly by turns, as a squirrel turns the wheel in his cage, when one contestant will attempt to check it and thus throw the other driver into the water. Chill and frequent are the baths these men daily receive, often spending the entire day in the water that is fresh from a snowbank."

* * * *

The address delivered recently by Hon. J. K. Ward, of Montreal, and which the LUMBERMAN is publishing in full this month, is very suggestive of the changes that have taken place in the past few decades in methods of lumbering. Mr. Ward is able to speak as one who knows all about it, for fifty years ago he commenced at the lowest rung of the ladder and has with intelligent interest, and much personal success, watched the progress of this great industry from that time forward. This matter was further brought under my notice as I talked a few days ago with Mr. McBurney, of McBurney & Laycock, operating a mill at Callender, Ont., and cutting this season for Robert Thomson & Co., for the British market. Mr. McBurney a number of years ago carried on a saw mill business at Simcoe, which is still his home. There is no longer, however, any opportunity to engage in lumbering in Simcoe, for the forests thereabouts have long since been depleted of their timbers. Mr. McBurney remarked to me, that with a reasonable competence in hand, it might have been the wisest thing for him to have left lumbering alone, and enjoyed the evening of his days in his old home. But he is a man of too great energy to withdraw for any length of time from the activities of business, and so he keeps at it, sometimes in one direction and again in another. I am not going to play the preacher at this point in my talk, but the fact that the timbers in the district of Simcoe are depleted, and that this place is only one of scores of others, points the old, but ever necessary lesson of the need of taking greater care of the forest resources of the Dominion. Mr. McBurney lumbered a good part of the winter with Mr. Laycock, who by the way is a well-known Buffalo lumberman, in the vicinity of northern Michigan and Wisconsin, where they were cutting timber for the Flatt Bros., of Hamilton. Mr. McBurney thinks that this firm will rank among the largest shippers this season of lumber for the British markets. As with the lumber got out by McArthur Bros., Sharpless Bros., and others, it is forwarded to Quebec, and from there exported to Great Britain. I was interested in what Mr. McBurney had to tell of the changed conditions of lumbering in northern Michigan and Wisconsin. Lumbermen no longer plant their mills in the territory in which the lumber is cut, but bring the logs a distance of from 300 to 500 miles to mills located in other parts of the country. This change has come about, through the enterprise of the railroads in shaping their equipment and rates to meet this particular line of trade. It is a sight worth seeing, said Mr. McBurney, to watch the immense car loads of logs that go out from that district daily, to be sawn at some of the great mills of the country hundreds of miles away. I questioned whether this was a paying method of lumbering, and was informed that mill men

could bring the logs even 500 miles, lay them down at their mill door, and the cost would be less than that of operating mills in the locality where the logs were cut. This experience is just another instance of the large place that steam occupies in the business economy of the present day. Mr. Meaney, Toronto manager of Robert Thomson & Co., was with us at the time of conversation and remarked, that at one time his firm endeavored to make an arrangement with the Grand Trunk Railway to carry logs from the northern lumber districts to Hamilton, where they would have been willing to have established a large saw mill and wood-working business. But nothing satisfactory could be arrived at with the Grand Trunk.

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One of the hard problems in the Canadian lumber business is that of securing anything like uniformity of prices. This matter came under my notice a few days ago by the remark of a country mill man, that he was unable to interpret the LUMBERMAN'S quotations for hardwoods in the light of his experience in endeavoring to sell certain classes of woods in the Toronto market. He had been unable to secure within two or three dollars of the quoted price in Toronto for certain woods. This is to be remembered that the prices quoted on the fourth page of the WEEKLY LUMBERMAN are those at which wholesalers are selling their lumber in Toronto. This lumber is brought from the mills of the province at a cost for freight and handling. On top of this must be added the wholesalers profit. I do not know that a mill man could expect to secure that price, should he come to a dealer in Toronto and offer the output of his mill. He is in the position of the manufacturer of woollen goods who comes to the wholesaler and offers to sell him goods at certain prices. The wholesaler makes his purchase. When he comes to sell to the retailer, his profit must necessarily be added to the cost. This will account in part, at least, for the apparent discrepancy in prices, to which my friend the mill man referred. A broader interpretation, however, must be placed on all current price lists of lumber. They must be read alongside of the comments on the market conditions that find a place every week in all lumber journals, and that prove a leading feature of the WEEKLY LUMBERMAN. The situation in certain lines will change sometimes for the week. A few weeks ago, maple, which had been demanding a certain price, became slow, and at that time could have been bought a little less than the current market quotations, and yet it would not have been fair to say that the current market quotations were out. Within a month after this date, building operations had become more active in certain large centers, and maple was going into consumption more largely and the price again stiffened. This also is to be remembered, and it suggests another trouble the trade has to contend against, that ash, or elm, or basswood, may be quoted mill run at a certain price. But mill run will differ widely in certain mills. I may go to a mill man and get his figures for basswood, mill run. I examine his stock and find that it runs less to 1sts and 2nds than the stock of his neighbor. Or it may be that a larger percentage of the stock of one man will be off in color as compared with that of another. So it is through every class of wood. It is impossible to draw these distinctions in prices in a printed price list. They must always be flexible enough to permit of changes in the local conditions and situation. I talked this matter over only a week ago with a lumberman whose operations run into large figures, and who can talk from the standpoint of a mill man, as well as a wholesaler. "What we have to contend against here," said he, "is the imperfect character of inspection. We all go paddling our own canoe; fix our own standard of what constitutes certain grades, and as long as we can dispose of the stuff in this way we are satisfied, seemingly forgetting that the most successful business can always be done when the trade are something nearly of a unit in methods of handling their business." But to repeat, let current lumber prices of the WEEKLY LUMBERMAN be read alongside with the comments on the week's trade and the remarks and quotations that are given in Stocks and Prices column, and how closely to the mark the editor shapes these things will at once be seen.

NEW BRUNSWICK LETTER.

[Regular correspondence CANADA LUMBERMAN.]

AMONG the mills doing good work this season is that of C. I. Prescott, Albert, which is cutting over 45,000 feet per day. In the plant is a lath machine, which for two hours one day recently manufactured one bunch per minute, which is 6,000 an hour, or at the rate of 60,000 per day. The firm think they take the cake on this work.

The mills of the province are at present very busy.

The Snowball mill at Chatham is running, giving employment to 200 men.

Gibson's new saw mill, at Blackville, will cut from 30,000 to 40,000 feet per day.

The drives are all out in the main Tobique, except McCalm & Esty's and Giberson's.

G. D. Prescott's steam mill at West River is cutting 32,000 feet of deals per day, besides boards and ends.

Stetson, Cutler & Co. employ 150 men and boys in one of their mills. They have recently added in one of their mills a Prescott band saw and edger.

Burn's portable saw mill, which was at work near Bloomfield, was destroyed by fire the early part of the month. It will be replaced at once by another mill.

A raft of 60 joints of logs, belonging to Chas. Stillwell, of Waterloo, while in tow of the tug Martello, was broken up and went ashore in a northeast gale a few days ago.

A despatch here from Mobile states that the schooner Anne E. Valentine, lumber-laden for Port Liman, dropped her anchor and went ashore in seven feet of water.

There is some talk of the erection of a large pulp mill here, in which New York capitalists are believed to be interested. But at this writing nothing definite has developed.

The shingle sawyers and bunchers, of Restigouche county, want 11c. and 14c. a thousand instead of 8c. and 11c., the rate last year. It is doubtful if employers will go to the request.

In place of shipping by rail this year, D. F. George, of Fredericton, will ship by schooner, thus saving, so he says, about \$1.50 a cord on hemlock bark, which is the particular stock he ships.

All the drives of lumber on the south branch of the Oromocto are on the rafting-grounds. There has been about double the quantity of lumber got out on these waters this season compared with last.

It is uncertain yet whether A. Cusning & Co. will rebuild their mill recently destroyed by fire. In the meantime they are having their logs cut at Flewelling's mill on the Kennebecasis, the mill to run at night for that purpose.

A log train is being run on the C. P. R. between Magaguadavic and Vanceboro, and will be continued until about the last of June. The logs which are being piled for Messrs. Murchie & Sons, of St. Stephen, are dumped into the St. Croix at Vanceboro. About 40 car loads are carried from Magaguadavic every day.

Newcastle is the centre of an extensive lumber business this season. W. A. Hickson's saw mill has been running since the first of the month and employs about 150 hands, and cuts about 9,000,000 ft. of spruce lumber, 1,000,000 shingles and 4,000,000 laths. Messrs. D. & J. Ritchie's lumber mill is also in active operation. The mill employs 200 men and cuts about 14,000,000 of spruce lumber, 7,000,000 lath, 2,000,000 pilings annually.

St. JOHN, N. B., May 25, 1895.

MICHIGAN LETTER.

[Regular correspondence CANADA LUMBERMAN.]

PATIENCE is a virtue which needs to be freely exercised in the lumber business these days. This has not yet brought to the lumbermen of the Saginaw Valley that share of trade which they had reason to hope for in the month of May. Trade has improved over April, but falls short of what had been anticipated. Firms who have given the matter thought say that the volume of trade will fall fully 25 per cent. below that up to the years preceding the panic of 1893. It sounds very like a chestnut to say that no doubt business will be better in the month to come, and yet there is reason to think that this will really be the case. Logs will commence to arrive from the Canadian shore in large numbers shortly and will be speedily cut into lumber by the mills here. In a comparatively short time this cut will be placed on the market, and the view is entertained that stocks are just running bare enough at distributing centres to make the demand larger than some hold will be the case.

The Tittabawassee River Booming Co., will bring down about 22,000,000 feet of logs.

Rail shipments from Saginaw points are increasing over water shipments steadily, and to an extent to discourage vessel owners.

During the first four days of May there was shipped out from Bay City by vessel over 8,000,000 feet of lumber intended for Buffalo, Tonawanda and Ohio ports.

F. W. Gilchrist, of Alpena, and who has large lumber interests in Canada, is also owner of a large fleet of lake vessels, and expects to do a good trade this season.

Albert Pack, of Alpena, well-known to Canadian lumbermen, and one of the most enterprising members of the trade in this state, has been re-elected member of the police commission in that city for five years.

The saw-mills at Cheboygan expect to cut about 40,000,000 feet more lumber this season than last. The tug Mocking Bird is preparing to take boom sticks from Tawas to French River, making ready for the season's rafting.

The Canadian propeller Enterprise, which has come into the possession of F. W. Gilchrist, of Alpena, has been remodelled, at a cost of about \$20,000. She is now known as the Norseman and made her first trip to Cleveland with a cargo of lumber and cedar posts a few days ago.

During April the lumber shipments from Saginaw were:

	Feet.
Chicago.....	1,950,000
Toledo.....	600,000
Tonawanda.....	400,000
Port Clinton.....	390,000
Cleveland.....	320,000
Total.....	3,660,000

A good reason prevails for expecting that many logs will be tied up at different points in Michigan this year. Rains during the past few days have helped matters some, but not to the extent that will be necessary to relieve the logs. The waters are very low. Such conditions, however, may help prices.

The annual report of the St. Mary's Falls Canal, at Sault Ste. Marie, for 1894, which has just been completed, shows that during the year 722,788,000 feet of lumber passed through the canal, and that the freight rate was \$1.90 per thousand, yielding a revenue of \$1,373,297.20. Iron ore heads the list, but lumber comes second.

A change that is showing itself in methods of lumbering is the growing of Saginaw as a distributing centre. The prediction was made some years ago that the time would come when there would be as much lumber come to the Saginaw river cities by water as would be sent out, and the developments of this year seem to indicate a confirmation of this prediction. Some large shipments of lumber are coming here from Lake Superior and other points. W. B. Mershon & Co. have purchased 14,000,000 feet to come here from Lake Superior points. The same may be said of several Bay City concerns. Lake Superior lumber is going to cut a growing figure in transactions from this time out.

SAGINAW, Mich., May 23, 1895.

AN AUSTRALIAN LETTER.

MESSRS. E. B. Clifford & Co., of Sydney, N.S.W., write as follows to the LUMBERMAN, furnishing some interesting particulars of trade conditions in that country, and particularly the uses to which Australian woods are placed. They say: "Our export lumber trade has been very narrow and small up to the present time, but there is not the least doubt that when New South Wales hardwoods get well known, that a large demand will exist for them. Of the durability of these woods we will mention later. A proof of their durability for wood pavements is shown by the fact that on one of our busiest streets, subject to heavy travel, the pavement of native woods has been in existence for the past eleven years. These woods were laid in the first place in a very primitive method, viz.: one batten between each row of blocks, which made it a kind of a corduroy road. These same blocks have recently been taken up, and found to be as sound as the day they were put down. Each block had one inch taken off the ends, making them five inches instead of six inches, and on examination were found so sound that fresh blocks were not used, but the old blocks were put down again. These five inch blocks are now expected to last fifteen years, which in a climate like this should prove the durability in your climate of double the time."

"The woods used by the city corporation, also throughout the colony, for pavement purposes, are blue gum, black butt, spotted gum, mahogany, tallow wood, iron bark and turpentine. I may mention that these woods are now being largely shipped to London, Eng., in lengths of 3 feet to 16 feet, 9 inches wide by 3 inches thick, and great supervision is exercised on this side in shipping them. A government inspector is retained to inspect the brand and pass each piece before shipping. This consequently means that what he brands is first-class and fit to go into any building in this city, and is used in all of our streets. We can get and send you sample

blocks of each of these woods in sizes as used by our city corporation. If your railways require a sleeper of our New South Wales iron bark I can send you over one if you will let us know, and all you would have to pay would be the freight on it. The sleepers used in this part of the world are 9 feet long, 10 inches wide, 5 inches thick. These would cost 3s. 9d. per sleeper f.o.b. steamer or sailing vessel. These sleepers would be passed by our government inspector, and when they are are passed by him they go into the very best work. They have been proven to stand all the trouble of water and rainy weather. Shifting ashes from the fire will not burn them. There are sleepers down now and being used by our railways for the past twenty-eight years, and are almost as sound as when first put down. They are run over daily and likely to remain for the next eight or ten years. We can get iron bark for bed plates for your engines, or for any heavier work that you might contemplate. This wood will last under water and under ground a very long time. Its density of weight is also in its favor, and is allowed by old hands to be superior to any known wood."

SYDNEY, N. S. W., April 15, 1895.

A BRITISH COLUMBIA SUIT.

THE following letter from Robert Ward & Company, Ltd., Victoria, B. C., explains itself:

"We have a copy of the May issue of the CANADA LUMBERMAN, and observe therein an item regarding the decision rendered against us in an action with John Clark. The facts of the case are that John Clark, ship-builder and ship owner, owed us some eight thousand dollars, and gave what we believe to be a fraudulent judgment in favor of his son, John Clark, Jr., and Isaac Hennigar, for a sum approximating \$8,000, and under these judgments the sheriff seized what property John Clark, Sr., possessed, and John Clark, Jr., purchased the property, stating that he had paid Hennigar himself. We, however, obtained an injunction from the Supreme Court restraining the defendants from interfering in any way with the property they had just purchased. In the meantime John Clark, Sr., left the country, probably with a view of avoiding criminal action on our part. He, however, wished to consult with his partners, and returned here, as he thought, unknown, and kept in hiding. We succeeded in obtaining information as to his whereabouts and had him arrested on a case, and lodged in jail. The defendants, John Clark, Jr., and Hennigar, thereupon applied to the Court, raising the unique point that by seizing the person of John Clark, Sr., our judgment was satisfied, and that we had no further right to restrain defendants from disposing of the property in question. This the Court held good, and ordered the release of Defendants Hennigar and John Clark, Jr., from the suit. This judgment, however, was appealed to the Divisional Court, and the judgment reversed. John Clark, Sr., was never released, and is still a prisoner in the Provincial jail."

NEWS AND NOTES.

—Sawyer Bros., of Coldwater, Ont., intend putting a new Valentine planer in their mill.

—The W. C. T. U. of Victoria, B. C., will probably send a missionary to the lumbering district on the mainland.

—Chew Bros., Midland, Ont., have put up a fine new mill, adding a 20 x 24 engine, and new band and gang mills.

—The Georgian Bay Box Co., Midland, intend putting in fuel pipes in their large box factory, also a blower for refuse shavings, etc.

—A hand sawyer named D. B. Dickson, while working at the Brunette saw mills, New Westminster, B. C., was struck by a large cant of timber and severely injured about the head and legs.

—The steam barge New Dominion is reported to have sunk in the Georgian Bay, eight miles from Parry Sound. The vessel carried 250,000 feet of lumber, which was insured. The crew is said to have reached shore safely.

—The Victoria Harbor Lumber Co. have put in a new band mill, made by the Wm. Hamilton Mfg. Co., of Peterboro. They have also erected a new burner. Their large mill will commence operations about June 1st.

Mr. Theodore Ludgate has resigned a position in the Crown timber offices at Peterboro, Ont., to accept the management of a large lumbering business at Traverse City, Mich. Before his departure he was presented by the citizens with a complimentary address and a gold watch and chain.

—D. Sprague, of the Winnipeg saw mill, has received word that his log drive of 6,000,000 feet has been successfully floated into the main stream of the Rosseau river, and it is not expected that there will be any difficulty in getting the logs to Winnipeg. The first part of the drive will reach Winnipeg early in June.

THE NEWS.

—Beecroft & Sloan have purchased J. E. Moore's planing mill at Flesherton, Ont.

—Gilmour & Hughson's mills at Chelsea, Ont., have commenced operations for the season.

—J. H. & W. Mackintosh are about to commence the erection of a saw mill at Halifax, N. S.

—Samuel Running, of Frankville, Ont., is adding a planer and matcher to his saw mill equipment.

—Drinkwater Bros., of Alton, Ont., have purchased a saw mill which they are operating at that place.

—Findlay & Lewis' new planing mill and sash and door factory at Parry Sound, Ont., is nearing completion.

—A new saw mill will be erected at Savanne, near Fort William, Ont., during the coming summer, at a cost of \$22,000.

—D. A. Hyslop, of Woodburn, has closed down his saw mill for the season, having cut about 125,000 feet of lumber.

—S. Lavellee, of Ottawa, will erect a factory at Arnprior, Ont., for the manufacture of sash and doors. About forty-five hands will be employed.

—The Hawkesbury Lumber Co.'s mills at Hawkesbury, Ont., are running day and night. Between eight and nine hundred hands are employed.

—It is said that the firm of R. H. & James Klock, of Klock's Mills, will operate Lindsay's mills at Aylmer this season. The firm have a large supply of logs on hand.

—Machinery for the manufacture of boxes and packing cases will shortly be placed in the Ontario and Western Lumber Co.'s mills at Keewatin, Norman and Rat Portage.

—The J. M. Thomson Co., of Menominee, Mich., are building a new saw mill near Richard's Landing, Algoma. This will make eight mills now in operation on St. Joseph Island.

—The Walkerton Herald states that the largest number of logs ever taken out of the Greenock swamp in one season were taken out last winter, Mr. Cargill alone taking out between six and seven million feet.

The mills of J. R. Booth at the Chaudiere have commenced running day and night, and it is expected to continue this arrangement throughout the summer season. About one thousand men are now employed around the mills.

—Incorporation has been granted to the Richmond Industrial Company, of Richmond, Que., to manufacture wooden wares and purchase the effects of the Richmond Water Power and Manufacturing Company. The capital stock is \$100,000.

—E. G. Lavellee, of Notre Dame des Anges, Lake St. John, Que., is building a large saw mill at that place, which will cost in the neighborhood of \$15,000. The machinery is being supplied by Messrs. Carrier, Laine & Co., of Levis, the large air wheel being ten feet high and weighing eight tons.

—A writ is said to have been issued by E. W. Nesbitt, of Woodstock, against James Sharp, of Burke's Falls, and Wm. Carmichael and Wm. Gilson, of Powassan, for \$2,000 damages for alleged wrongful conversion of trees in the timber limits on South River, Parry Sound district, and for an injunction to restrain the defendants from cutting timber or handling timber already cut in that locality. The plaintiff holds the right to the limits from the Ontario Government.

—A dispute has arisen concerning the possession of the Martineau saw mill at St. Gabriel, Que., the use of which was claimed by Mr. Matte for the sawing of certain logs there, under an agreement made shortly after the failure of Beland & Martineau, but which was disputed by Mr. Martineau. The engine was recently taken to Quebec, where a seizure was effected. Judge Caron, therefore, granted a motion to put Mr. Matte in possession of the engine, which has been taken back to the mill.

CASUALTIES.

—Robert Adair, of Tanworth, had the thumb cut off his right hand while working at an edging saw in Wood Bros.' shingle mill at that place.

—Two young men named J. Gerard and A. Pinion were seriously injured a couple of weeks ago in a jam of logs on the Booth drive on the Opéongo.

—While driving logs on Brennan's drive on the Maganeta-wan river recently, a young man named J. Jarvis was drowned. His home was at Byron, Ont.

—A fortnight ago, while working in Broadfoot & Box's factory at Seaford, Ont., William Patterson lost a finger of his left hand by coming in contact with the saw.

—Arthur Boulet, thirteen years of age, was killed in Price's steam saw mill at St. Thomas de Montmagny, Que., recently. His head was caught by a chain and almost torn from his body.

—M. Brittain, of Chatham, was recently engaged with others in preparing a raft of logs, when one of them rolled upon him, dislocating his shoulder and breaking one of his legs.

—Benjamin Coughlin was rafting logs at Elm Tree Brook, N. B., for B. N. T. Underhill, of Blackville, when he fell off the log and was drowned, owing to the swift current.

—A young man named Ed. Charbonneau, in the employ of the Bronson & Weston Lumber Co., was drowned at Pine Sault Creek early last month. He was 22 years of age and unmarried.

—Frank J. Mavelle, formerly of Westport, Ont., was killed recently while working in a saw mill at Saginaw, Mich. He was thrown on the saw, which penetrated his breast diagonally to a depth of 10 inches.

—While operating a circular saw in W. McLellan's mill at Amherst, N. S., Kelton Carter was struck in the face by a piece of deal thrown from the saw. His lower jaw was terribly shattered and his head bruised and cut. He remained unconscious for twelve hours.

—A fatal accident occurred at David Deguer's saw mill at Binbrook, Ont., on the 17th inst., by which Adam Smith, aged 72 years, lost his life. He was showing some friends how he used to run a saw when he was young, when his foot slipped and he was thrown upon the saw and almost cut to pieces.

TRADE NOTES.

The Waterous Engine Works Co., of Brantford, are placing new machinery in S. T. King & Son's saw mill at St. John, N. B.

—Stetson, Cutler & Co., of St. John, N. B., have purchased from the Wm. Hamilton Manufacturing Co., of Peterboro', Ont., a Prescott hand saw and an edger, for use in their Indian town mill.

—Geo. White & Sons, of London, Ont., have recently fitted the saw mills of Gow & McLean, of Fergus, and George A. Patrick, of Delaware, with new internally fired boilers and "Clipper" engines.

—The Cant Bros. Co. of Galt, Ltd., manufacturers of wood-working machinery, in announcing the retirement of Mr. H. Cant, beg to state that this will not in any way interfere with their business, which will be carried on as usual.

INSTRUCTIONS TO BOILER ATTENDANTS.

THE Manchester Steam Users Association of England, has issued a revised edition of its "Instructions to Boiler Attendants."

In forwarding these instructions to its members, the Association says:

"These instructions have been drawn up with much care, it being desired to make them as complete and educational as possible. There are so many points affecting the safety and proper treatment of boilers, that it was found impossible to compress the instructions into a small space. In boiler and engine rooms, height of wall space is more generally available than width, and, therefore, the sheet was made long and narrow, rather than short and wide. If hung up so as to be about two feet from the floor, it can easily be read from top to bottom.

"It is desirable that the sheet should be mounted, and the best plan of doing this will perhaps be to have a board about ½ in. thick built in three or four widths and stiffened by a batten at each end, the joints being grooved and tongued. On this board the sheet might then be pasted, and varnished for preservation. In most cases it might be well to have this done by a bookbinder.

"When mounted, the sheet should be placed in a good light, and where the boiler attendants can have convenient access to it. They should be encouraged to study and master its contents. Much of the information contained therein will be of service daily, and not merely on the occurrence of an emergency."

GETTING UP STEAM.—Warm the boiler gradually. Do not get up steam from cold water in less than six hours. If possible, light the fires over night.

Nothing turns a new boiler into an old one sooner than getting up steam too quickly. It hogs the furnace tubes, leads to grooving, strains the end plates, and sometimes rips the ring seams of rivets at the bottom of the shell. It is a good plan to blow steam into the cold water at the bottom of the boiler, or to open the blow-out tap, and draw the hot water down from the top.

FIKING.—Fire regularly. After firing, open the ventilating grid in the door for a minute or so. Keep the bars covered right up to the bridge. Keep as thick a

fire as quantity of coal will allow. Do not rouse the fire with a rake. Should the coal cake together, run a shifter in on top of the bars and gently break up the burning mass.

Repeated trials have shown that under ordinary fair conditions, no smoke need be made with careful hand-firing. Alternate side firing is very simple and very efficacious.

CLEANING FIRES AND SLAKING ASHES.—Clean the fires as often as the clinkers render it necessary. Clean one side at a time, so as not to make smoke. Do not slake the clinkers and ashes on the flooring plates in front of the boiler, but draw them directly into an iron bucket and wheel them away.

Slaking ashes on the flooring plates corrodes the front of the boiler at the flat end-plate, and also at the bottom of the shell where resting on front cross wall.

FUEL-WATER SUPPLY.—Set the feed valve so as to give a constant supply, and keep the water up to the height indicated by the water-level pointer.

There is no economy in keeping a great depth of water over the furnace crowns, while the steam space is reduced thereby, and thus the boiler rendered more liable to prime. Nor is there any economy in keeping a very little water over the furnace crowns, while the furnaces are rendered thereby more liable to be laid bare.

GLASS WATER GAUGES AND FLOATS.—Blow through the test tap at the bottom of the gauge hourly, as well as through the tap in the bottom neck, and the tap in the top neck twice daily. These taps should be blown through more frequently when the water is sedimentary, and whenever the movement of the water in the glass is at all sluggish. Should either of the thoroughfares become choked, clean them out with a wire. Work the floats up and down by hand three or four times a day to see that they are quite free. Always test the glass-water gauges and the floats thoroughly the first thing in the morning before firing up, and at the commencement of every shift.

It does not follow that there is plenty of water in the boiler because there is plenty of water in the gauge glass. The passages may be choked. Also, empty gauge glasses are sometimes mistaken for full ones, and explosions have resulted therefrom. Hence the importance of blowing through the test taps frequently.

BLOW-OUT TAPS AND SCUM TAPS.—Open the blow-out taps in the morning before the engine is started, and at dinner-time when the engine is at rest. Open the scum tap when the engine is running, before breakfast, before dinner, and after dinner. If the water is sedimentary, run down ½ in. of water at each blowing. If not sedimentary, merely turn the taps round. See that the water is at the height indicated by the water-level pointer at the time of opening the scum tap. Do not neglect blowing out for a single day, even though anti-incrustation compositions are put into the boiler.

Water should be blown from the bottom of the boiler when steam is not being drawn off, so that the water may be at rest and the sediment have an opportunity of settling. Water should be blown from the surface when steam is being drawn off, so that the water may be in ebullition and the scum floating on the top. If the water be below the pointer, the scum tap will blow steam; if above the pointer, the scummer will miss the scum.

SAFETY VALVES.—Lift each safety valve by hand in the morning before setting to work, to see that it is free. If there is a low-water safety valve, test it occasionally by lowering the water level to see that the valve begins to blow at the right point. When the boiler is laid off, examine the float and levers and see that they are free, and that they give the valve the full rise.

If the safety valves are allowed to go to sleep, they may get set fast.

OPENING DRAIN TAPS AND STEAM PIPES. If the boiler is one of a range, and the branch steam pipe between the junction valve and the main steam pipe is so constructed as to allow water to lodge therein, open the drain tap immediately the boiler is laid off, and keep it open until the boiler is set to work again. If the main steam pipe is so constructed as to allow water to lodge therein, open the drain tap immediately the engine is shut down, and keep it open till the engine is set to work again.

If the water is allowed to lodge in the pipes, it is

impossible to blow it out under steam pressure without danger. Attempting to do this frequently sets up a water-hammer action within the pipes, and from this cause several explosions have occurred. The only safe plan is not to let the lodgment occur, or to shut off the steam before opening the drain taps.

SHORTNESS OF WATER.—If the boiler is found to be short of water throw open the fire doors, lower the dampers, ease the safety valves, and set the engine going, at rest, so as to reduce the pressure. If the boiler is one of a series, shut down the junction valve. If there is reason to conclude that the water has not sunk below the level of the furnace crowns, and they show no signs of distress, turn on the feed and either draw the fires quickly, beginning at the front, or smother them with ashes or anything ready to hand. If there is reason to conclude that the water has sunk below the level of the furnace crowns, withdraw, and leave the safety valves blowing. Warn the passers by from the front.

EASING THE SAFETY VALVES.—If either the construction of the boiler or the character of the feed water is such as to render the boiler liable to prime, the safety valve should be eased gently.

TURNING ON THE FEED.—From experiments association has conducted, it appears that this is the best thing to do in nearly every case, especially where the feed is introduced behind the firebridge, as it would tend to restore the water level, and at the same time to cool and reinvigorate the furnace plates. While, however, the experiments showed that showering cold water onto red-hot furnace crowns would not, as has been generally supposed, lead to a sudden and violent generation of steam which the safety valves could not control and the shell could not resist, it is thought that if the furnace crowns were very hot and just on the point of giving away, the generation of a few additional pounds of steam might turn the scale and lead to a collapse. Thus it might be wise to turn on the feed in some cases and not in others, according to the extent to which the surfaces were overheated, and this it is difficult to ascertain. Under these circumstances a hard and fast rule, applicable to all cases, cannot be laid down, and therefore, having regard to the safety of the fireman, the advice to turn on the feed, as a general rule is confined to those cases where the water has not sunk below the level of the furnace ground.

DRAWING THE FIRES.—This ought not to be attempted if the furnace crowns have begun to bulge out of shape. It is an extremely responsible task to give any recommendation with regard to the treatment of a boiler when short of water and working under steam pressure, that shall be applicable to every case under every variety of circumstance. A boiler attendant has no right to neglect his water supply and allow it to run short; nor has he a right to charge the fires without making sure that the furnace crowns are covered. Should he neglect these simple precautions it is impossible to put matters right without some risk being run. A boiler with hot fires and with furnace crowns short of water is a dangerous instrument to deal with, and the attendant who has done the wrong must bear the risk. The best advice the association can give the boiler attendants on this subject is do not let shortness of water occur. Keep a sharp look-out on the water-gauge.

USE OF ANTI-INCORUSTATION COMPOSITIONS.—Do not use any of these without the consent of the association. If used, never introduce them in heavy charges

at the manhole or safety valve, but in small daily quantities along with the feed-water.

Many furnace crowns have been overheated and bulged out of shape through the use of anti-incrustation compositions, and in some cases explosions have resulted.

EMPTYING THE BOILER.—Do not empty the boiler under steam pressure, but cool it down with the water in; then open the blow-out tap and let the water pour out. To quicken the cooling the damper may be left open, and the steam blown off through the safety valves. Do not, on any account, dash cold water on the hot plates. But in case of an emergency pour cold water in before the hot water is let out, and mix the two together so as to cool the boiler down generally, and not locally.

If a boiler is blown-off under steam pressure the plates and brickwork are left hot. The hot plates harden the scale, and the hot brickwork hurts the boiler. Cold water dashed on to hot plates will cause severe straining by local contraction, sometimes sufficient to fracture the seams.

CLEANING OUT THE BOILER.—Clean out the boiler at least every two months, and oftener if the water is sedimentary. Remove all the scale and sediment as well as the flue dust and soot. Show the scale and sediment to the manager. Pass through the flues, and see not only that all the soot and flue dust has been removed, but that the plates have been well brushed. Also see whether the flues are damp or dry, and if damp find out the cause. Further, see through the thoroughfares in the glass water gauges and in the blow-out elbow pipe, as well as the thoroughfares and the perforations in the internal feed dispersion pipe and the scum pipe are free. Take the feed pipe and scum troughs out of the boiler if necessary to clean them thoroughly. Take the taps, if not asbestos packed, and the feed valve to pieces, examine, clean and grease them, and, if necessary, grind them in with a little sand. Examine the fusible plugs.

All taps, whether asbestos packed, or metal to metal, should be followed in working, especially when new. The gland should be screwed down as found necessary so as to keep the plug down to its work, otherwise, it may rise, let the water pass, and become scored.

PREPARATION FOR ENTIRE EXAMINATION.—Cool the boiler and carefully clean it out as explained above, and also dry it well internally. When the inspector comes, show him both scale and sediment as well as the old cap of the fusible plug, and tell him of any defects that manifested themselves in working, and of any repairs or alterations that have been made since the last examination.

Unless a boiler is suitably prepared, a satisfactory entire examination cannot be made. Inspectors are sent at considerable expense to make entire examinations, and it is a great disappointment when their visits are wasted for want of preparation.

PRECAUTIONS AS TO ENTERING BOILER.—Before getting inside the boiler, if it is one of a series, take off the junction valve handwheel, and if the blow-out tap is connected to a common waste pipe, make sure that the tap is shut and the key in safe keeping.

From the neglect of these precautions, men working inside boilers have been fatally scalded.

FUSIBLE PLUGS.—Keep these free from soot on the fire side and from incrustation on the water side. Change the fusible metal once every year, at the time of preparing for the association annual entire examination.

If fusible plugs are allowed to become incrustated, or if the metal be worked too long, they become useless, and many furnace crowns have been rent from shortness of water, even though fitted with fusible plugs.

GENERAL KEEPING OF BOILER.—Polish up the brass and other bright work in the fittings. Sweep up the flooring plate frequently. Keep ashes and water out of the hearth pit below the flooring plates. Keep the space on the top of the boiler free, and brush it down once or twice a week. Take a pleasure in keeping the boiler and the boiler house clean and bright, and in preventing smoke. — The Safety Valve.

WASTE IN CONVERTING A LOG INTO LUMBER.

IN the hardwood sections the most experienced estimators, says the Southern Lumberman, almost invariably over-estimate the amount of lumber the standing timber will make. It is not done with fraudulent intent, but simply because neither the estimators, the purchasers, or the manufacturers realize what a small per cent of the actual contents of a hardwood tree is convertible into merchantable lumber. In the pine forests the loss is less than in the hardwoods, because the pine trees are generally more nearly straight and of more uniform diameter at both ends of logs of the usual lengths. After a tree is cut into saw log lengths the amount of lumber that can be got from it can be very closely ascertained by the use of what is known as the Doyle rule as given in Scribner's log book. This rule is in almost universal use where the logs to be measured can be seen all over, but does not apply generally to logs to be measured in water, as a raft. About the only thing that the lumber trade is in full accord on is this Doyle rule. About twenty years ago the publishers of Scribner's log book substituted it for the one the author had brought into wide use years before, and is now considered the standard. If we take the actual contents of a log and compare with the result given in Doyle's rule we will find the loss ranges from 20 to 65 per cent., the loss being greater in the smaller logs. We get the actual contents by taking the mean diameter of the log, finding its cubical contents in feet and multiply by twelve to reduce the cubic feet to board measure.

The following table will illustrate this more fully :

DIAMETER OF LOG. 10 FT. LONG.	Real Contents of Log in feet ft. ft. or 1/4 inch cubic foot, allowing no waste.	Contents in feet ft. ft. as per Scribner or Doyle's rule.	Waste as per ct. of real contents deducted by Doyle.
10 inches	65	23	65
14 "	127	67	51
16 "	167	90	46
18 "	211	122	42
20 "	261	160	39
24 "	376	250	34
30 "	588	422	28
36 "	847	610	25
40 "	1,046	810	23
50 "	1,635	1,322	20

Thus it appears that while in a log 50 inches in diameter 80 per cent. may be converted into salable boards, this ratio drops to 35 as the diameter decreases to 10 inches; a good argument against cutting young and small timber.

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THE GREATEST FOREST IN THE WORLD.

WHERE is the greatest forest in the world? The question was asked in the Forestry section of the American Association for the Advancement of Science, at its recent annual meeting. The importance of forests for equalizing the climate and the rainfall of the globe was under discussion, and the purpose of the question was to show where the great forest tracts of the world are situated.

One member replying offhand, was inclined to maintain that the greatest continuous tract of the forest lies north of the St. Lawrence river, in the provinces of Quebec and Ontario, extending northward to Hudson's Bay and Labrador; a region measuring about 1,700 miles in length from east to west, and 1,000 miles in width north and south.

A professor from the Smithsonian Institute rejoined that a much larger continuous area of timber lands was to be found, reckoning from those in the State of Washington, northward through British Columbia and Alaska. But he limited his statement to North America, for he added, that, in his opinion, the largest forest in the world

occupied the valley of the Amazon, embracing much of Northern Brazil, Eastern Peru, Boliva, Ecuador, Columbia and Guiana; a region at least 2,100 miles in length by 1,300 in breadth.

Exceptions were immediately taken to this statement by several members who, in the light of recent explorations, have computed the forest of Central Africa in the valley of the Congo, including the headwaters of the Nile to the northeast and those of Zambesi on the south. According to their estimates Central America contains a forest region not less than 3,000 miles in length from north to south. and of vast, although not fully known, width from east to west. Discussion, in which the evidence afforded by travels and surveys was freely cited, seemed favorable to the defender of the Amazonian forests.

Later in the day the entire question was placed in another light by a member who was so fortunate as to be able to speak from some knowledge of still another great forest region of the globe. This gentleman gave a vivid picture of the vast, solemn taigas and urmans, the pine, larch and cedar forests of Siberia.

It appears that Siberia, from the plain of the Obi river on the west to the valley of the Indighirka on the east, embracing the great plains, or river valleys, of the Yenisei, Olenek, Lena and Yana rivers, is one great timber belt, averaging more than 1,000 miles in breadth from north to south—being full 1,700 miles wide in the Yenisei district—and having a length from east to west of not less than 4,600 versts, about 3,000 miles. Unlike equatorial forests, the trees of the Siberian taigas are mainly conifers, comprising pines of several varieties, firs and larches. In the Yenisei, Lena and Olenek regions there are thousands of square miles where no human being has ever been. The long stemmed conifers rise to a height of 150 feet or more and stand so closely together that walking among them is difficult.

The dense, lofty tops exclude the pale Arctic sunshine, and the straight pale trunks, all looking exactly alike, so bewilder the eye in the obscurity that all sense of direction is lost. Even the most experienced trappers of sable dare not venture into the dense taigas without taking the precaution of "blazing" the trees constantly with hatchets as they walk forward. If lost there the hunter rarely finds his way out, but perishes miserably from starvation and cold. The natives avoid the taigas, and have a name for them which signifies "places where the mind is lost."

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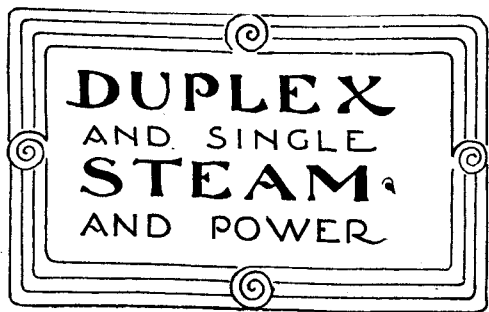
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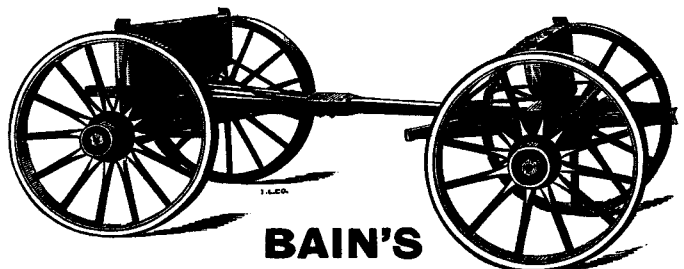
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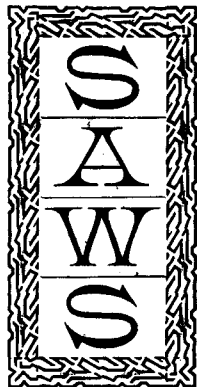
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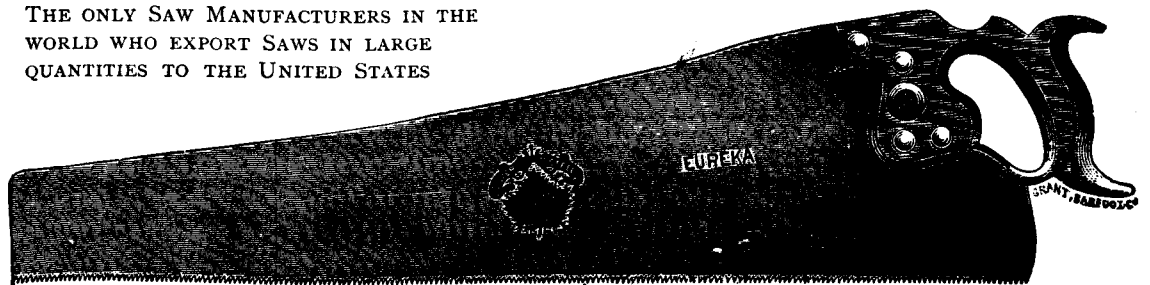
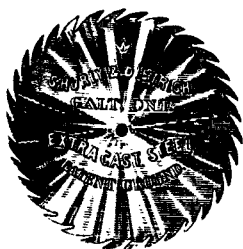


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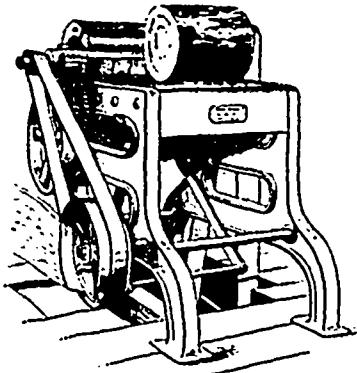
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ROOFING, SHEATHING AND FLOORING FELTS

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Patent Rossing Machine



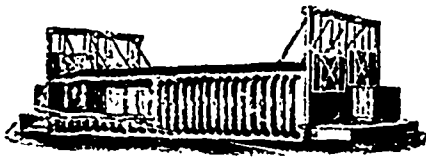
Why you should use this Rosser. . . .

It will do double the work of any other.
It is the only machine made that will peel Cedar Shingle Blocks.
It will peel dirty blocks without taking the edge off the knives as they cut from the clean bark or block out.
It is a self-feeder, and very easy to operate.
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All iron and steel, very simple and durable.
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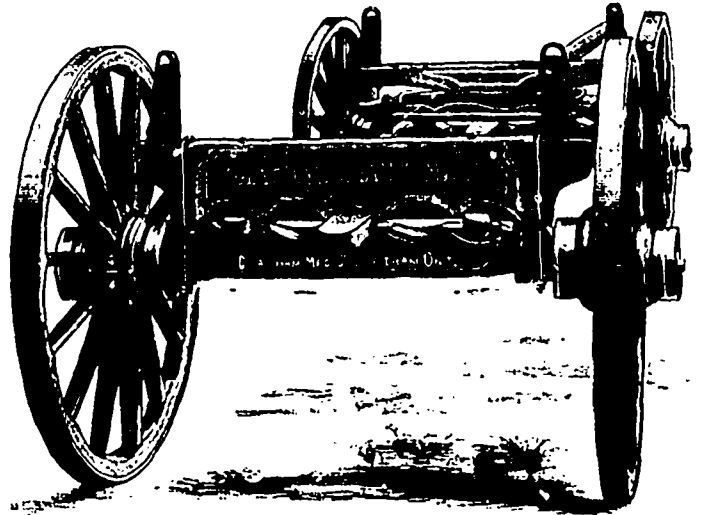
PATENTED.



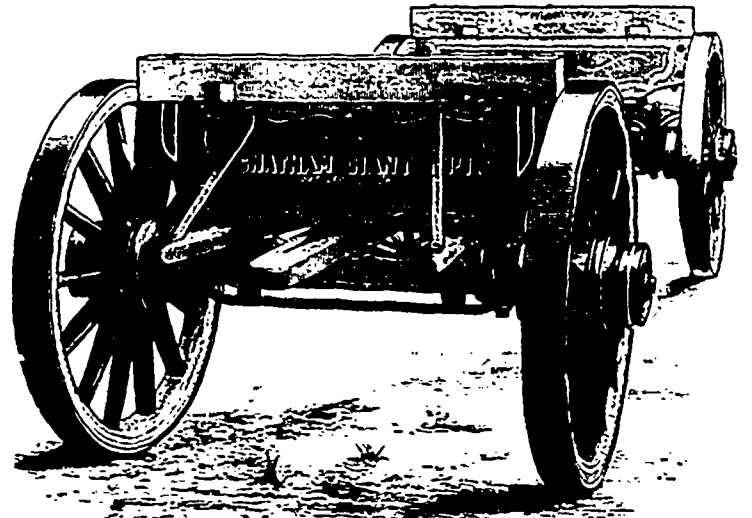
COST of erecting, running and maintaining the lowest and results the highest of any dry kiln and drying system in the market. Green Elm, Ash, Whitewood, &c., for furniture dried in six days; only exhaust steam 10 hours per day used.
NO CHECKING, WARPING OR CASE-HARDENING.

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THE CHATHAM GIANT LOG TRUCK.



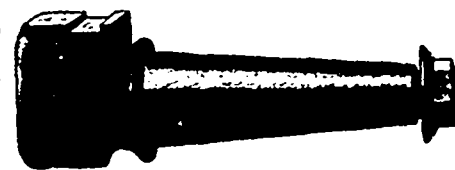
IT must be self-evident that our GIANT ARM LOG TRUCKS, of which the above is a faithful illustration, is the best log truck made; but if conclusive evidence of this is wanted we refer to every mill man and lumberman in the county of Essex, Ont., where millions upon millions of Elm logs are gotten out every year on them, and where these trucks sell readily, while those of other makes remain unsold at \$5 to \$10 less.



THE CHATHAM GIANT LOG AND LUMBER TRUCK.

As seen above it is a Lumber Truck, but it is quickly converted into a Log Truck by bunks which are grooved at the ends to receive the stakes and slip down between them, and are perforated for side or lug poles. We build these trucks in all sizes from 2½ to 4 inch Malleable Giant Arms. Farmers all over are extensively adopting the lighter sizes as general purpose wagons.

In reference to above trucks we would call the attention of the reader to the accompanying illustration of VANALLEN'S PATENT GIANT ARM with which they are equipped.



It will be seen that the hind bolster and sand-board are formed to rest upon the flat top of this arm, and being securely clipped to the axles forms a complete and solid truss and render the axles unbreakable and inflexible.

Our Malleable Giant Arm farm and teaming Wagons have no equals on this continent, of which the judges on vehicles at the World's Fair, Chicago, gave us an unqualified certificate in the shape of a GOLD MEDAL AND DIPLOMA.

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WE MAKE A ... SPECIALTY OF LONG BILL STUFF IN ROCK ELM, PINE, CEDAR AND HEMLOCK

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OF EVERY DESCRIPTION FOR

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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.

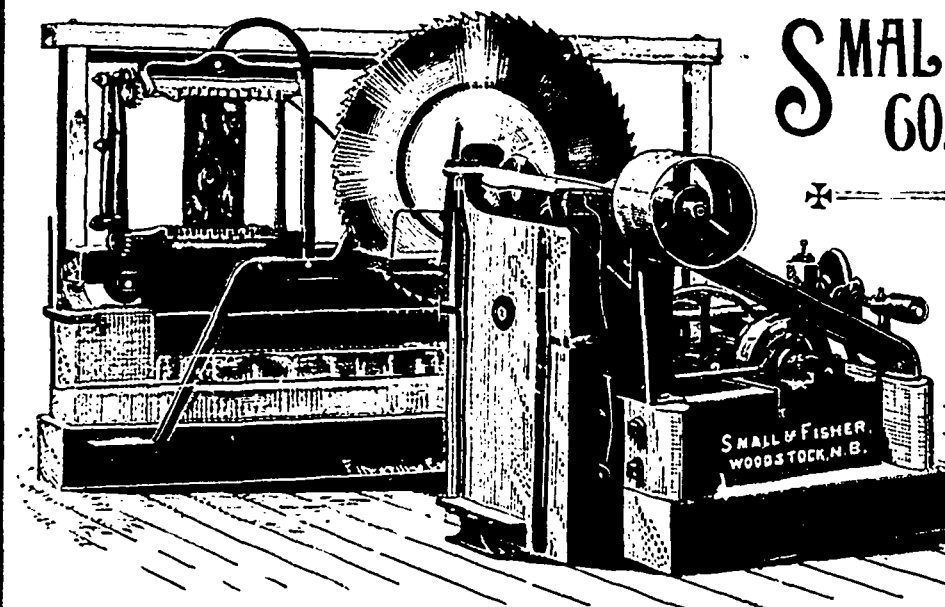
A book filled with valuable information on the care of band saws. Giving the reasons for breaking; analyzing each reason; giving instructions to dispense with the causes as laid down in each reason; and full details on filing and brazing. The proper styles of hammers to use are illustrated and described, 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.

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Patent Shingle Machine

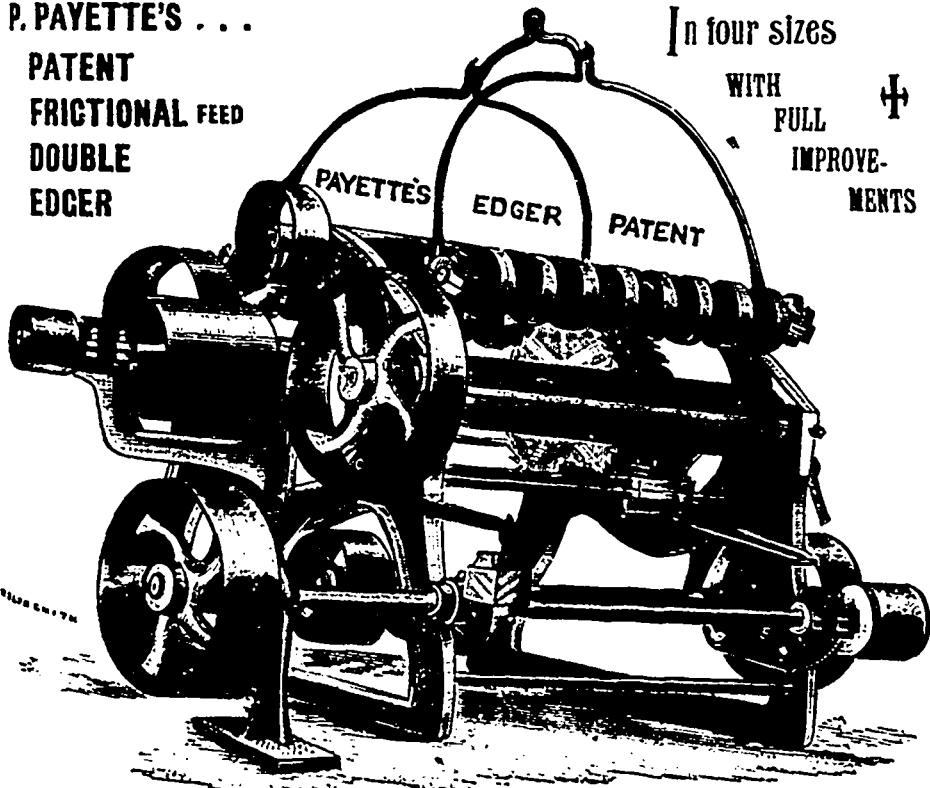


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In four sizes

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- Circular Saw Rigs, Light and Heavy
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- Double Edgers, Friction and Direct Feed.
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- Machinery for Lath Mill.
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Terms and Prices on application.

P. Payette & Co. Penetanguishene, Ont.

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FROM Port Huron and Detroit

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To ST. PAUL, DULUTH and Pacific Coast Points.

This road traverses a section of Michigan with unrivalled advantages to settlers. Cheap lands, thriving villages and towns, well watered with streams in all directions: a market for every product of Forest and Field.

The policy of the "F. & P. M." is known to all travellers and settlers.

A. PATRIARCHE, Traffic Manager.

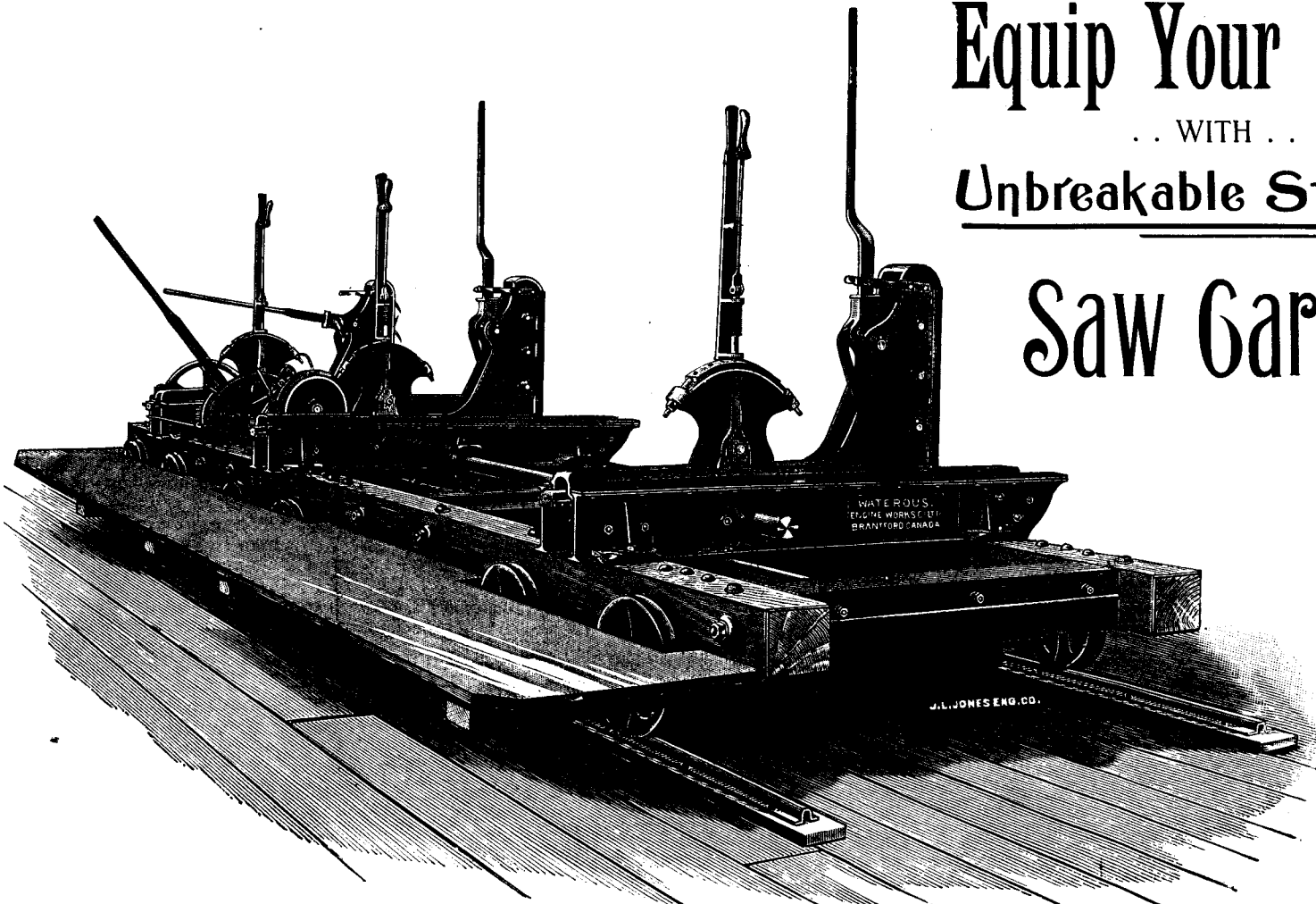
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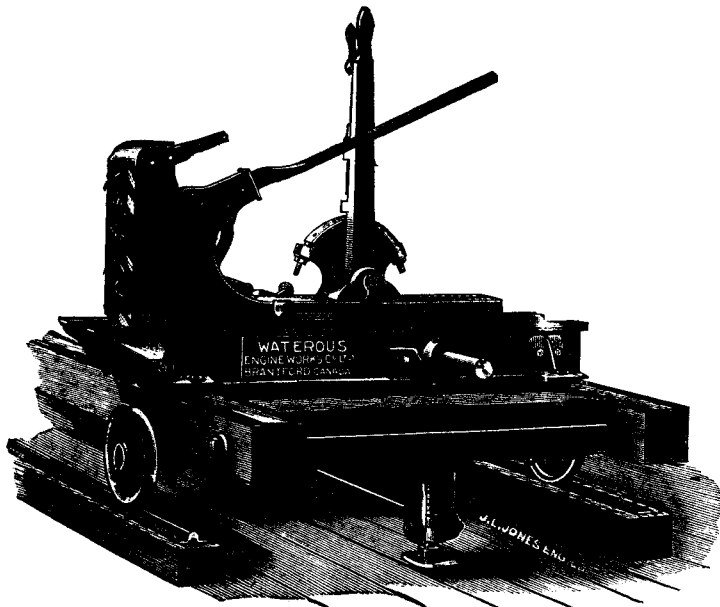
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Unbreakable Steel Girder

Saw Carriages



Rear View No. 5 Carriage—Opens 50 in. from Saw; 8 in. Steel Girders; 14 in. Steel Wheels; Cut Steel Rack and Pinions.



No. 4 A—Front View—Opens 36 in. from Saw; 6 in. Steel Girders; 10 in. Steel Wheels; Cut Steel Rack and Pinions.

The First to Start Up of the 18 Allis Bands Sold in Canada this year.

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THE WATEROUS ENGINE CO., (Ltd.), Brantford, Ont.

Gentlemen,—We have now tried the No. 3 Allis Band purchased from you. It has been running for the last eight days, and is giving us good satisfaction. It don't seem to take any more power than the circular saw did. We are sawing Birch, and there is quite a lot of frost in it, but it is making splendid work. We have not broken a saw so far.

The trial that we have given the mill is sufficient, and we accept the mill as per our agreement with you. We will have much pleasure in recommending the mill to anyone who may contemplate putting in a band.

Yours very truly, T. G. S. TRAIN.

MR. TRAIN USES WATER POWER

Two More No. 3 Bands Just Started

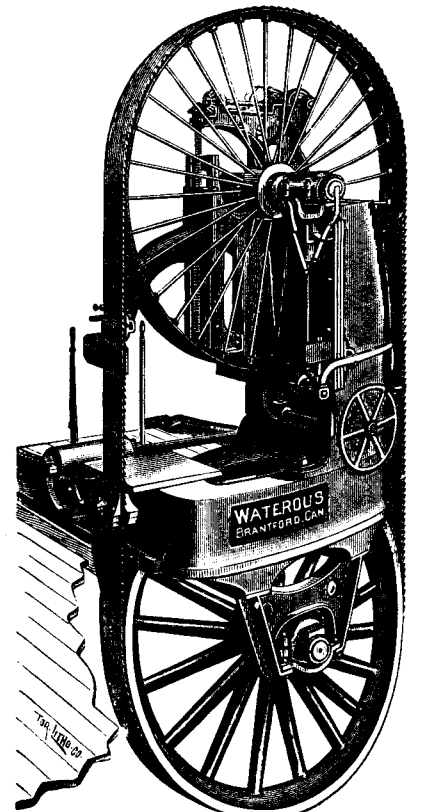
Ottawa, May 10th, 1895.

The Waterous Engine Co.,
Brantford, Ont.

Gentlemen,—This is to let you know that your Mr. Grant has been here since Thursday last, and has hammered and put in order all the saws, except one, that we have here.

We have much pleasure in stating that so far both the mills and the saws on them have given us the best of satisfaction, and if they continue to do as well as they have done, the few days we have been running them, we will be very well satisfied indeed.

Yours truly,
WM. MASON & SONS.



LEFT HAND FRONT VIEW, ALLIS BAND.

If You Change to a Band, Make no Mistake
● PUT IN AN ALLIS ●

The Most Popular Mill Built.

WE BUILD

Steam Feeds, Steam Niggers, Steam Log Unloaders, Steam Log Rollers, Steam Cut-Off Saws, Heavy Edgers, Trimmers, Stave Sawing Machinery, Conveyor and Haul-Up Chains.

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