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THE CANADA LUMBERMAN

WOOD WORKERS' MANUFACTURERS' AND MILLERS' GAZETTE

VOLUME XIV. }
NUMBER 7.

TORONTO, ONT., JULY, 1893

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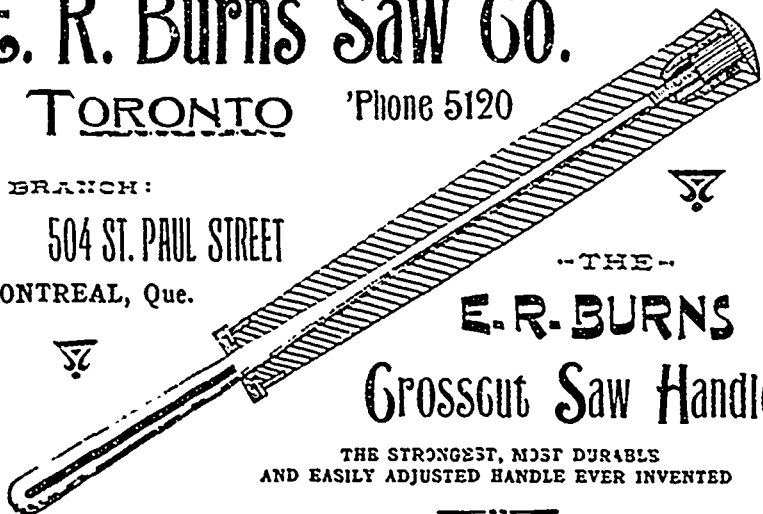
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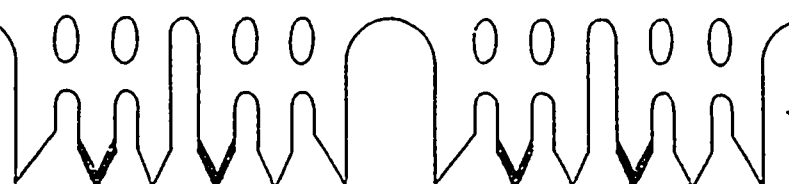
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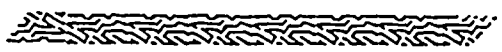
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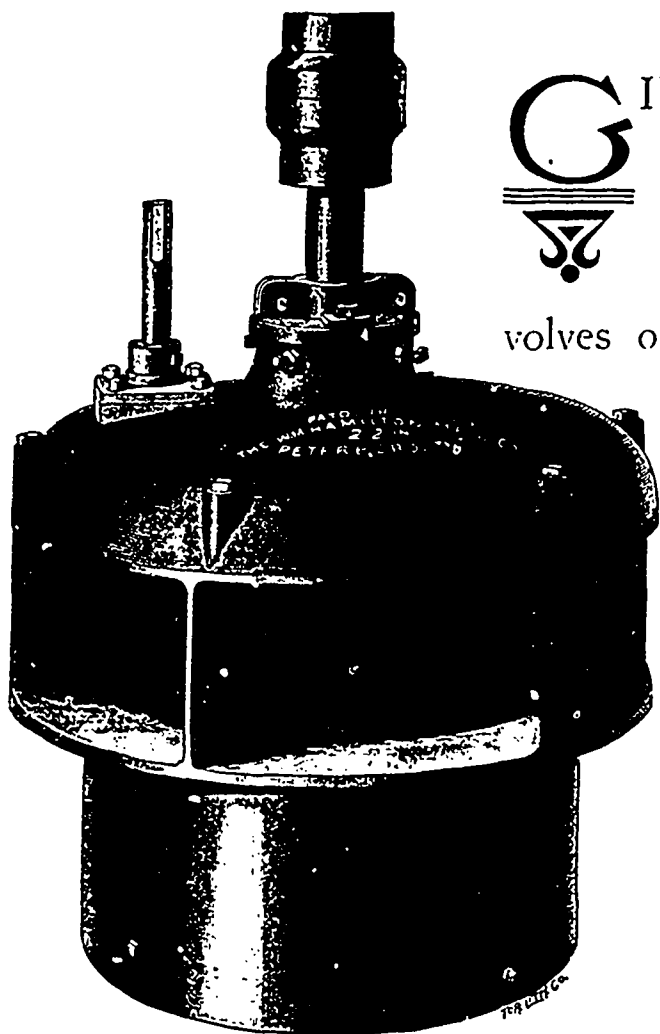
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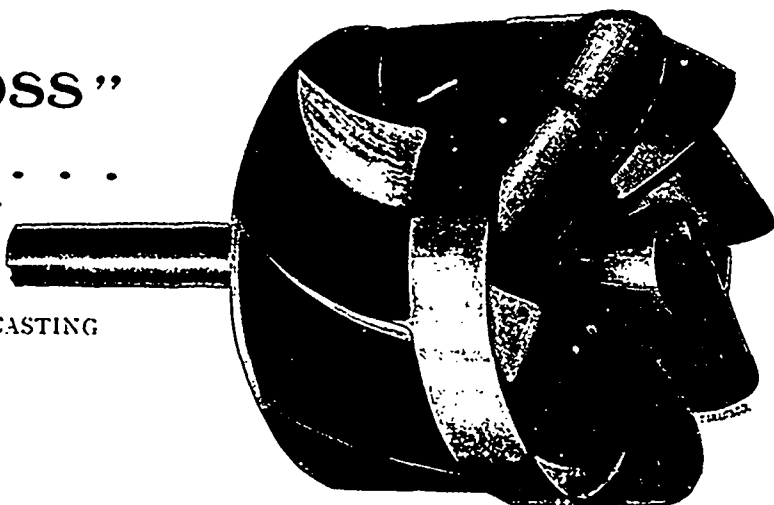
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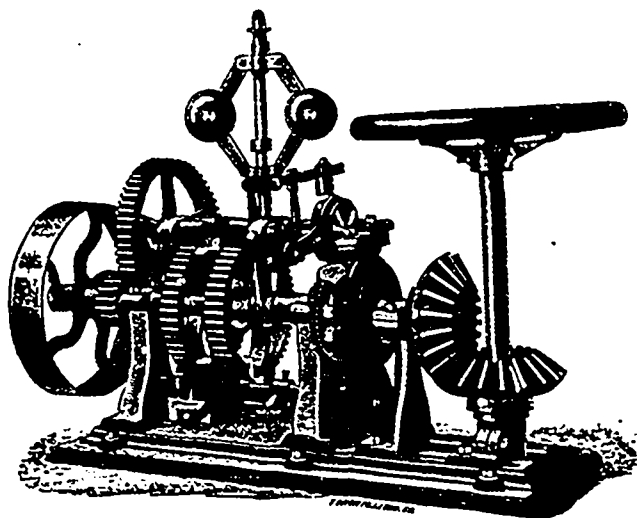
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DEFECTIVE MILL CONSTRUCTION AND OPERATION.

IN my rounds, says J. H. Miner in *The Woodworker*, I find very few sawmills profitably constructed and arranged, though the aim was to have a perfect mill. I do not allude to novices in the business, but men of money and experience make these mistakes. Later they see and admit it, and if they build again these mistakes are not repeated, but even then broad mistakes are often made.

A man of experience and money built his third mill lately, and invited me up to see it, and I took occasion to visit the place. It was a fine mill—fire-proof boiler house and all the modern improvements. The mill was running nicely. My attention was first directed to the arrangement of steam pipe of main engine, an eight-inch pipe, which had a leaky expansion joint which could have been done away with in that length of pipe by connecting it right to the engine without the extra elbow. The engine was running rather slowly. Further investigation found a hot saw mandrel. Nothing would keep it cool. I found a 28-inch pulley on mandrel and a tight 20-inch belt on it. Right here was the cause. Had there been a 30-inch pulley on mandrel, the 20-inch belt would have run with 50 per cent. less tension to do the work.

The edger was set so close to saw that there was time lost in sawing long lengths. I made no further investigation, but saw a deficiency of 10,000 feet in the mill. I said the mill ran nicely; so it did, but to crowd the saw to what it should stand, the drive belt would slip, and to make it tighter would burn out the boxes. Sixty-inch 6-gage saws, 80 teeth, were used, and would stand right up to 12-inch feed in 12-inch cut, if the belt would hold it. The proprietor didn't seem to want over 45,000 out of the mill when it would have cut much more. A little defect to look at, and 10,000 feet short every day of the capacity of the mill.

In another mill a centre-crank engine was put in. The shaft was all on one side of the crank and only a bearing on the other side. An eight-inch shaft, full of pulleys, with a 3½ inch bearing on a disk crank pin. The result was a slight pound, and the chances of a hot wrist. Here "nursing" was unnecessary. The engine might have suited for another class of work, but the man got the wrong thing when he placed that style of engine for sawmill work.

In a large cypress mill, 60-inch bottom and 48-inch top saws were run instead of 72-inch bottom saw and 30-inch top saw. As no two saws can be made to track accurately, as large a lower saw as possible should be run. In this mill, and I venture to say in nine-tenths of all mills, the top saw ran in the direction of the lower, and in deep cuts bad lines were made and valuable lumber spoiled. The mill man saw it, but after his mill was put in and a stock of saws on hand. He was familiar with smaller timber and made a "little oversight" in ordering his saws.

A prominent mill firm with a paid-up-capital of \$150,000, concluded its main engine had too much to do. Another engine was bought and placed, without "thinking" that the steam would be affected, as there was ample and a surplus. Result, no steam one-half the time. The engine was finally taken out. The president overruled the superintendent's views and had the engine put in.

A great mistake is often made in the power. A surplus should be put in, as progressive mill men are generally adding instead of diminishing. Small shafting and light belting is a great drain on many mills. Sawmill machinery has more break downs and delays than any other class of machinery. This is casting no reflection on the foreman, who is often on the lookout, expecting what he cannot overcome. The foreman often

gets no credit for what he foresees and claims ought to be done. A three-inch shaft was in use in a certain place. Nothing was thought about it until, in the midst of a rush, it gave way. The foreman insisted on a steel shaft, but it was not heeded; but it was put in later, after the second shaft was broken. In a change of line shafting a wood pulley 16 x 48 was put on. The pulley man and the superintendent overruled the foreman, who remarked that one month was the limit—and so it was. With the superintendent's careful watching that it was kept tight, it played out in five weeks.

The foreman is often criticised for "knowing it all" when he expresses a weakness of certain parts. There is a great difference between the man who takes the mill as it is, and makes out with what he finds there, and takes care of it though he knows what is weak, and the man who wants this, that and the other taken out because it doesn't suit his liking, when in reality it is a better machine or part than what is replaced.

The construction of the furnace and size and height of stack have much to do with the steaming qualities of sawmill boilers. It is not the size of the boiler that makes steam, but the furnace and stack with draft to burn lots of fuel, which in turn makes plenty of steam. It is astonishing the amount of money spent in experimenting in changing a mill. We note mills built to cut a certain amount, which, when completed, lack considerable of coming up to it; but after months of running, involving many changes and loss of thousands of dollars, the mill attains its capacity. Why cannot men of money and experience put up a mill that will at the start turn out what it was built for? In some cases mills are constructed and proportioned right, and from the start turn out their intended capacity. Such mills make money. A mill properly constructed throughout should run every day through a season, without loss of any time whatever from machinery or belting.

HEMLOCK FOR FLOORING.

A RECENT issue of the *Pacific Builder* contained the following interesting information and general comment on this subject: "The floor of the Clatsop county court house at Astoria, Oregon, is of native hemlock and was laid over thirty years ago. It is now in good condition, it is stated, although it has been subject to the severest usage. This is one of the best illustrations of the high value of native hemlock and demonstrates the superiority over the eastern species of the same tree. In our large buildings one of the most difficult features to obtain is satisfactory flooring. In the Oregon building according to specifications no joints were to have been made in the flooring in any of the offices. In consequence continuous lengths of twenty feet and upwards were sometimes required, which in hard flooring is almost impossible to obtain—at least without a very great expense. None of our native hardwoods could well be made to meet the requirements of such specifications. Whether or not eastern maple could have been obtained of the desired length and perfectly clear, was not demonstrated, for, as a matter of fact shorter lengths were used in the floors than were at first specified. Still in fine buildings unbroken floors are very desirable, and are much more enduring. If it should be found, therefore, on further experiment, that native hemlock will make a smooth, close and durable floor, the fact will generally be hailed with delight by our builders. It should not be forgotten that this wood has never yet been fully tested on this coast, but so far as it has been tested the results would appear to be quite satisfactory. It exists in abundance throughout Oregon and Washington and the timber attains a great size here everywhere. No difficulty would be experienced in obtaining flooring in any desired length from hemlock."

Hemlock is, as almost everyone knows, found also in great abundance in British Columbia, but it is in the opinion of leading lumbermen unlikely that much use will be made of the wood for flooring for many years to come. The hemlock, though otherwise durable, is somewhat apt to splinter on the surface with wear, being in this, as in certain other respects, inferior to cedar or fir, the supplies of which last woods are in British Columbia inexhaustible for generations to come. It is, however, possible that a modest use of native hemlock will gradually come to be made by B. C. lumbermen.

NEW ZEALAND LUMBER INDUSTRY.

THE timbers of New Zealand, says a writer in *The Northwestern Lumberman*, are as numerous as they are varied and beautiful, but those that have up to the present been brought into any commercial use consists of kauri, rimu (red pine), matai, kahikatea (white pine), totara, silver pine and black birch; the first of these, the kauri (*Damara Australis*) is the well known New Zealand pine, and its production and general commercial use has far exceeded in quantity any of the others as it excels them in value and superiority. History says that Capt. Cook, the great navigator, first discovered its merits, landing and obtaining kauri spars for refitting his vessels on the first voyage of discovery. The timber is light in color and regular, with the grain displaying fine, even markings. Kauri is only excelled by our southern pine. It is more silky than Quebec yellow pine, and takes a higher finish. It is stronger and more durable than the best red deal of the White Sea and Baltic. It is tougher and more elastic than American spruce, while it is more easily worked than the redwood of California. Boards of it can be obtained in long lengths and up to six feet wide without a knot or shake, and it may safely be stated that no other timber known is capable of being applied to such varied uses. Houses in New Zealand and Australia are constructed of it throughout from the shingles to the floor, internal work being left varnished to show its fine figure. It is also used extensively for railroad sleepers, bridges and wharf construction, and railroad cars, and is especially adapted for masts and deck planking of ships, many vessels being entirely built of it. It planes across the end of the grain as smoothly as with it, stains well and takes a high polish, being much in demand for church and counter fittings on this account. Its durability is unquestioned. Some of the early wooden houses built in Auckland fifty years ago of heart kauri are standing now, and the timber shows not the slightest signs of decay. Street blocks laid eight years ago on the Auckland wharves present few signs of wear. The kauri is indigenous to New Zealand and grows only on the province of Auckland between the 38th degree latitude south, and the north cape. It is the monarch of the New Zealand forest, in dimensions falling very little short of the giant sequoias of the northwest, many of the trunks rising to the height of 120 feet before the branches are thrown out. The tree is invariably found in clusters in dense bush and in mountainous country, this fact adding materially to the difficulty and cost of production. The tree is of phenomenally slow growth and has attained an immense age before it is felled. The rings on some of the large trees number over 1,000. To the credit of New Zealanders be it said, that these patriarchs are generally spared for the benefit of future generations.

HOW TO DO IT.

THE hardness of steel tools may be much increased by making them white hot, dipping them repeatedly into sealing wax until cold, and finally touching them with oil of turpentine.

CHIMNEYS AND DRAFT.

IN this age of science and practical development, the form, size and proportion of furnaces and chimneys, to be the best for steam users, take a prominent place, says Noah J. Tilghman, in *Power*. All desire the greatest amount of steam from the ton of coal or cord of wood as the case may be.

I here propose to deal with practical results, regardless of theory, but wherever practice and theory go together, they shall be accepted. I think best to state my experience first as the shortest way to the facts. Although a mechanic and somewhat acquainted with water power and machinery before, I had my first experience with steam engines and the setting of steam boilers in 1854, when my partners and I bought an engine, two boilers and other machinery. We asked the builders to give us a draft for the setting of the boilers, the shape and style of furnace and chimney, size and proportions, and also to send us a competent man to superintend the work. When all was ready we went to work, but in a short time steam failed to keep up as at first. We cooled down to find the trouble, and found the boilers covered with a scale of soot. We cleaned it off, and went on as at first, but soon had to clean again. On examination we found that the part of the boiler plate just over the bridge brick walls was clear of soot, while between the bridge walls the boilers had the scale of soot. We had been instructed that these several walls (Fig. 1) were to form smoke chambers, and as the unconsumed gases or smoke would roll over the walls into the spaces, it would ignite again and make extra heat. Then a consultation was held. I proposed filling the smoke chambers with brick work up to the top of the walls. This was objected to, upon the ground that the builders ought to know the way to do it. Then I agreed to make the change at my own individual expense, and if no for the best, to change it back as at first; so I made the change. The boilers never had to be cleaned afterward, and steamed better than ever before.

The plan given for the chimney was that it should be at the base, inside, 24 inches square, and steadily enlarged as it went, which we were told would increase

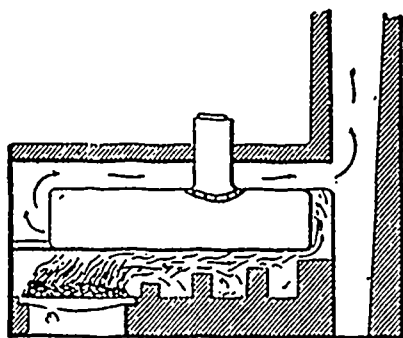


FIG. 1.

the draft. The chimney we never changed, but have found that it was not the best shape. This idea was in the mind of the old chimney builders for private residences to burn large sticks of wood. I have been a steam user ever since I began in 1854, but I have never gone back to the bridge walls.

In the year 1880 I was contemplating the building of another mill and wishing to know all about furnaces and chimney drafts, I went to several of the cities and visited the machine shops and chimney makers. But no one could tell me anything definite in regard to the matter. Quite a number said, "I can not say positively, but the opinion is that the chimney should commence with a suitable size at the base and enlarge somewhat as it goes up, but do not know all about it." So I went home knowing no more than when I left. But with a determination to know, I made a smokestack 12 feet long, 10 inches square at one end, and 12 inches square at the other end, and then built a furnace to set it on, with a fixture so that two men could reverse it, first large end up, second small end up. With fire in the furnace, we reversed it a number of times, and found that with the small end up it produced very much the stronger draft; when the large end was up, the draft was weak. This was the result at each and every trial. So with me the old draft theory was exploded.

I then examined many chimneys of various styles, from the mud and ladder to the fine brick, and inquired and found how each acted. With many of the fine chimneys with narrow smoke entrances, the draft was poor, and they smoked inside of the house too much for the comfort of the inmates. The mud ladder chimneys (the four sides of which had a frame much like ladders, the rounds being very close together and plastered with mud), were generally about three feet at the ground and

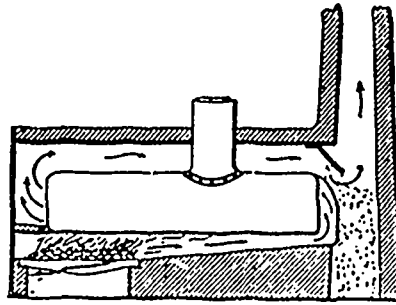


FIG. 2.

two feet at the top, and from 15 to 20 feet high. These chimneys all possessed an excellent draft, notwithstanding the high arch under which the wood was burned.

I then set about the building of the contemplated mill. I made my own plans for the brickwork but was warned and warned again by the bricklayers that my plan would not do. But the work was completed. Fig. 2 shows a side view, and, although not perfect, it will show the shape and style.

I will give a few facts that may be of interest to your readers. There were 20 feet of grate bar surface. At the farther end of the boiler the smooth brick pavement was seven inches from the boiler. The chimney at the base inside was 34 inches square; at the top it was 24 inches square, and 53 feet high. We used various kinds of fuel, green sawdust from a sawmill, chips from a planing mill, cordwood, hard and soft coal, coal dust, and other wastes from coal and wood yards. The draft was good, and the results all we desired. Here is the reason for it: first, if you fire a pile of wood the volume of blaze and heat will be greatest just where the flame leaves the wood, then it assumes a cone shape, so the nearer the inside of the chimney comes to fitting the tapering blast; the better will be the draft. If the chimney should be too large, or enlarged at the top, the cold air will fall in around the top and small end of the blast and weaken the draft.

A ship, to sail lively, must be free from barnacles. Water will run more rapidly through a smooth box or rough passage. So it is clear that from the grate bars to the top of the chimney the whole way should be made as smooth as possible. The bridge walls are a hindrance to a draft, and no good.

In the successful experiment just given, I placed a sheet of iron at the point where the blast enters the chimney, giving it a downward dash, which successfully threw all the sparks into the base of the chimney, from which they could be taken in the absence of firing. This chimney never sent out fire, although having a good draft.

A GOOD PLAN.

A SET screw on a moving part is a most dangerous thing, particularly if it is within reach. Why are they made to project about an inch above the surface? Why so much thread on a fixture that is as permanent as a key? We were taught many years ago to leave set screws only two threads above the surface of the job, and we think it is a good plan yet.

A SUCCESSFUL BUSINESS YEAR.

The sales of Magnolia Metal have been so enormous and the business so prosperous in the last year that the Magnolia Metal Co.'s stock has been recently made \$1,000,000.

Of the lumber situation in California at the present time, the San Francisco Iron and Wood wittily remarks: It takes ten mills to make a cent.

PICKARD & ROWAN, HEPPWORTH, ONT.: We like the LUMBERMAN very much.

NOTES AND QUERIES

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

No. 39. ABOUT STEAM BOILERS. It matters little all that has been written on the management of steam boilers, some new problem is continually coming up; or some one who has not learned on the particular point which is his worry seeks information. We give our readers the benefit of the following remarks by a writer on practical subjects in *Power*: "A boiler should never be blown out while hot. Portable tubular boilers should stand at least twelve hours after the fire is out before letting out the water. Stationary boilers should stand long enough to allow the brick walls to cool. I usually let my boilers stand from eighteen to twenty-four hours, and by so doing I keep the dirt in solution and can wash it out without any trouble. In case there is any scale I use a boiler pick and a good scraper. When there is any lime in the water, the latter should pass through a good purifier before being pumped into a boiler. Water should never be pumped into a boiler cold, as it makes hard firing and allows all the impurities in it to enter the boiler. In case the scale is hard, and can not be easily removed, saturate it with coal oil before filling the boiler with water. This will loosen the scale without harm to the boiler. A good skimmer properly constructed and properly attended to will do much toward keeping a boiler clean, but cannot be relied upon. All boilers should be opened and thoroughly cleaned once in two weeks, as they are often burned by relying on some automatic device for keeping them clean that fails to do its work."

No. 40. HOW TO PLACE THE KNOCK.—Mr. Robert Grimshaw, who always talks about mechanical matters in a thoroughly practical manner, and ever with a heap of good sense, makes this observation on how to place the knock: "I have been watching you, Bagley, with a great deal of interest as you have been endeavoring to locate that knock by sound. Whatever place you go to it seems to be in some other. Now, while your hearing is very sharp, there are some senses that are more acute than hearing, and feeling is one of them. Just take one end of this long lead pencil between your front teeth and rest the other end first on one place and then in the other about the engine, and you will find that you can hear through your teeth better than you can through your ears. You can detect differences in the amount of vibration that the ears would not be sensitive to, and you will not be fooled by the reflection of the sound from the walls, as in the case of hearing. I think that you will agree with me that the piston-head is a trifle loose on the rod, and that is a matter about which you will have to wait until shutting-down time before you can do anything. The lead pencil located it at once, and you were in doubt as to whether it was in the cross head or in the cylinder as long as you trusted to hearing."

AN ELECTRIC SAW GRINDER.

If there is any work connected with running a saw-mill more unpleasant than filing a saw, says "Quirk" in *The Tradesman*, I have failed to find it. Emery grinders have been made, but the best are too expensive to come into general use. The enclosed sketch shows what I fancy would be a convenient little machine for



ELECTRIC SAW GRINDER.

sharpening and gumming saws. As is well known, an emery wheel must touch a saw very lightly, or it will so heat the saw as to soften the steel, or as we say, take the temper out. The power therefore required to drive the wheel would be insignificant, so that a very small electric motor would answer the purpose. The entire machine need weigh but a few pounds, and being self contained, would be portable and easily applied to a saw without taking it from the mandrel. If these few words and sketch lead to something useful being brought out, I shall be glad.

IEWS AND INTERVIEWS.

Size of
The Tire.

As a means of providing improved roadways it has been made a law in Massachusetts that the tires of wagon wheels shall not be less than three inches in width. It has been found that the narrow tires cut deep into the road and soon render it quite unsafe for travel. Other vehicles come along and get into the same rut and cut further down aggravating the unfavorable conditions already existing. With the wide tire not only is the danger of cutting up the road reduced to a minimum, but the constant passing over of waggons with wide tires has the effect of a roadway roller of pressing down the material of which the road is composed and making it more solid and firm. Massachusetts example could be followed by other municipalities with profit to the roadways of the country, and all who travel over them. Business men of quick intuitions will be ready to make another application of Massachusetts' example in the construction of roadways. A large number of men do not succeed in business. One reason is that their methods are constructed on the principle of the narrow tire vehicle. They have cut down into a rut and in that rut they travel everyday. Such a thing as taking a new course where more progress might be made they never think of, for they are in a rut. The subject can be amplified ad nauseam, but the shrewd dealer will make his own application. The other fellow will remain in the rut and—stick.

Elms and
Poplars.

A writer in the Gentleman's Magazine, a well-known British monthly, has been writing of elms and poplars.

He tells us that the famous "Crawley elm" has a circumference of nearly 61 feet—more than double that of the one at Lutry, which visitors at Lausanne will readily remember; while the Wych elm (*Ulmus montana*) has its largest representative in Kenfrewshire, with a circumference of over 18 feet. The largest beech tree is said to grow on the "brash" formation in Cornbury park, Berkshire; while the "chalk" of Sussex is held to give its favorite nourishment to the celebrated beech woods in that county. The sycamore, or greater maple, finds its largest example in Cobham park, with a circumference of 26 feet, only two feet less than that of the sycamore of Troas, near the source of the Rhine. In lime trees, on the other hand, we are easily beaten by the trees of Villars, near Freiburg, and of Prilly, near Lausanne, the latter of which has a circumference of nearly 40 feet. The Lombardy poplar (*Populus dilatata*) is a characteristic tree of many parts of England, as well as of the plain country of France. It has the great advantage as a hedgerow tree of not intercepting too much of the sun's rays from the adjoining crops. Grigor, I think, mentions that a villager at Great Tew, Oxfordshire, lived to see trees which he had himself planted attain a height of 125 feet. But the finest poplar tree of St. Julien, near Troyes, far surpasses these, with a circumference of 41½ feet.

The Labor Problem
Clearly Stated

What is the solution of the labor problem is a question that confronts one wherever one turns. Social economists have, and are, proposing many remedies, but the trouble grows apace. In every land, monarchical, republican, or otherwise, the unemployed embrace a large percentage of the population. What is to be done to relieve the pressure? Mr. Carroll D. Wright, a statistical writer of some emmence, has recently written of conditions in the United States. Relatively, his figures may be made to apply to Canada. His propositions are certainly clean-cut, vigorous and forceful. He estimates that in the States there are over twenty-two millions of persons who are "engaged in gainful occupations." "Subtracting from sixty-five millions," he says, "most of the wives and daughters, all of the decrepit and aged, and all the school children, it will be seen that we are a work-a-day nation in its shirt sleeves. The class of do-nothings because they have too much money, and the other class of do-nothings because they are born loafers, do not count for much either in number or influence." But Mr. Wright adds "that not only is the aggregate of those who do work on the increase, but also the aggregate of those who are willing

to work, but can't get it. There's the rub. That is the reason for the existence of labor organizations, for strikes, and for the unceasing conflict between capital and labor. The remedy? There is but one. Skilled labor is nearly always in demand. A first-class workman is seldom out of a job. It is necessary, therefore, for the new generation to cease dawdling, to give up being jacks of all trades, to give themselves vehemently to some special department, and to become master of that. There never yet was a time when it was not easier to earn \$4 a day because you are worth it than to earn \$1 a day at work which a million others can do as well as you."

Market
Quotations.

A question has been raised as to the position a trade journal should take in reporting current market quotations. The man who would like to use the trade journal to bull or bear the markets to help his own particular schemes is known to the conductors of trade journals whatever branch of trade they may represent. It need hardly be said that the journal that would allow itself to be used by this class would soon lose the confidence of its readers. There is another class, however, who, though not taking so bold a position as the class we have already named, yet think there is less or more market news that should be given publicity very gingerly for the general good of the trade concerned. These people, says the Iron Age, hold that the trade journal "should hide bad news as long as possible and proclaim favorable developments with the utmost alacrity. When an advance has taken place it must be chronicled at once. A decline must be kept back, and quotations must remain stationary while still a stray buyer exists who has not heard of the lowering in prices. The true office of the trade journal, according to these critics, is to constitute the rear guard in retreat and the picket line in advance." All such suggestions are based on the theory that there is something to be gained by withholding part of the truth. Someone, it is true, will probably be a gainer in cases of this kind. It is equally true that someone will be a loser. A trade journal can never successfully perform its mission occupying the position of a mere time-server. As the journal from which we have already quoted further says: "We hold that it is the function of the commercial reporter to seek the truth persistently and diligently, and to present it fairly and candidly. If developments are unfavorable, the sooner their significance is generally understood the better. It will make the weaker sellers quicker to abandon hope and will make buyers more watchful of their opportunity, thus aiding in steadying the markets. The idea that secrecy was the only safeguard of merchants and manufacturers has been long since abandoned in all the markets of the great staples, such antiquated business methods being now regarded as childish. No one attempts the dangerous and unsatisfactory role of being the special guardian of any commodity, protecting it against untoward declines, or blowing it up during the brief days of expansion."

A LOGICAL METHOD OF DRIVING.

THERE is still another method of driving, writes R. J. Abernathy, that, I believe, is being used by some makers of machines, and that is to drive one fast and one slow role with the same belt, using two driving belts, one on each side of the machine as before described. In the judgment of the writer that is the most logical, legitimate and only really mechanical way of driving a machine. It is simplicity itself, does away with all annoyances and complication, gives a steady, regular and uniform motion with an unvarying differential, and I unhesitatingly say to millers that when all other conditions are equal, roller machines so driven should have the preference. I know of no reason why all machines, no matter what or by whom made, cannot be so driven.

A THREE CENT STAMP DOES IT.

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

PERFORATED BELTING.

ONE of the most unreasonable and unscientific facts, says a writer in the Mechanical Journal, is perforated belts. The advantage claimed for them is preventing an from accumulating between the belt and the face of the pulley, thereby decreasing its frictional power. This point is particularly urged in cases where a belt is run over a small pulley at high speed.

This theory is not only nonsensical, but contrary to all the laws which govern belt friction. The power of a belt, under any circumstances, depends entirely upon three conditions, viz., speed, tension, and the amount of surface in contact. Belts running over small pulleys at high speed, under all ordinary conditions, must necessarily work to a certain disadvantage as compared with those running at comparatively slow speed.

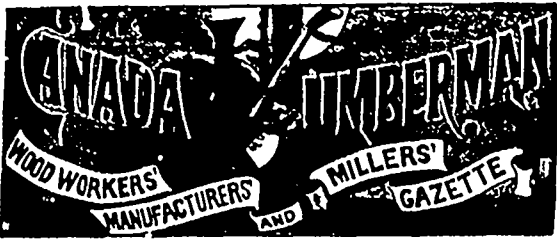
In the first place, in order to obtain the best results, a belt should embrace at least one half the circumference of the smaller pulley, but it is most frequently the case where high speed is necessary, the driving pulley is four times or more the diameter of the driven, and unless the conditions are such as to admit of considerable distance between the centres, and the slack side of the belt running towards the top of the driven pulley so as to utilize the sag of the belt, the speed will be such that not more than one-third the circumference of the small pulley is embraced; under such conditions it is highly essential that every atom of the surface of the belt as well as the pulley should be utilized.

It is a fact well known to belt users that the smoother and more perfect the face of a pulley is, the greater will be the friction power of the belt. There is no class of manufacturers who are more fully aware of this fact than the manufacturers of wood pulleys, and one of the greatest secrets of their success is in the careful manner in which their pulleys are finished. Why do the belt manufacturers always recommend running the grain side of a belt next to the pulley and claim an increase in power by that method? Simply because the grain side of leather, especially when new, is smoother than the flesh side, consequently presents a greater amount of frictional surface in contact with the pulley.

Now if the compressed-air theory is correct, and by perforating the belt and thereby depriving it of a part of its frictional surface, adds to its power, why not then, upon the same principle, perforate the face of the pulleys also by drilling holes in the rim?

The fact is plain to a close observer that the reason why fast running belts over small pulleys are more inclined to slip than those running at less speed, is not due to atmospheric influence, but entirely due to centrifugal force. A belt at high speed, passing over the face of a small pulley, is subject to the same laws which govern the pulley itself. The natural tendency of all revolving bodies subjected to speed beyond the tensile strength of the material of which they are composed, is to separate, and the several pieces to fly off at a tangent from the centre. Anyone who will observe the cylinder belts of a planing machine when running at its regular speed, will observe that the top or leading side of the belt, as it approaches the pulley, instead of hugging the pulley at the moment of approach, is thrown upward and outward; in some cases, especially where the belt is slack, it will not come into intimate contact with the pulley until it has passed a considerable distance beyond the top of it. This decrease beyond the arc of contact fully explains why such belts are more liable to slip over the face of the pulley. Wherever this decrease in the arc of contact and consequent decrease in friction becomes such that it is not equal to the resistance offered, the belt will run off, and the perforating of such belts can not possibly have any other effect than to decrease its frictional surface and consequently decrease its frictional power.

Where both edges of the belt are free and nothing prevents the air that may be carried along from escaping at each side of the pulley, how is it possible for sufficient air to accumulate under the belt to force it away from the face of the pulley? For this reason there can be no possible advantage in perforating a belt for either fast or slow speed, and the sooner that theory is abandoned the better. There are other claims for belting that are equally absurd.



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J. S. ROBERTSON, EDITOR.

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

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

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

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

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

THE FORESTS DISAPPEARING.

IN the LUMBERMAN of last month we published a brief extract from a paper by Mr. Henry Gannett, geographer of the United States Geological Survey, in which he attempted to prove that the beneficial influence of forests was not nearly so important as generally supposed, and that in some cases this influence was detrimental. He made the further remarkable statement that "there is to-day nearly, if not quite as great an area of woodland in the United States as when the white man set foot on our shores."

These statements are so contradictory of the general principles that underlie the foundation of forestry, and besides are so far afield from the generally accepted belief that the forests of both the United States and Canada are becoming rapidly depleted, that they are being vigorously challenged on different hands. Some of our lumber contemporaries have reminded Mr. Gannett of the old adage, "Shoemaker stick to your last," and whilst admitting his abilities in his particular field do not hesitate to intimate that he may get lost in the woods when he gets out of that field.

The most important and valuable reply to Mr. Gannett, has come from Mr. B. E. Fernow, chief of the Forestry Division of the Agricultural Department. He says: "Briefly, regarding the status of our timber supply Mr. Gannett says that the wooded area of the United States covers approximately 1,113,060 square miles (712,320,000 acres); that each acre produces annually forty cubic feet of wood; that we consume annually between twenty billion and twenty-four billion cubic feet of wood (accepting the estimate made by the forestry division); that, therefore no shortage is to be feared, but that no overproduction of from six billion to ten billion cubic feet of wood takes places on this area. With more knowledge than Mr. Gannett in these matters, I venture to say that his figures exceed at least ten times the actuality. How he arrived at his extravagant figures I am at a loss to understand. Since the question of wood growth per acre per year is of consid-

erable general interest, I will explain its condition more fully, and cite statistics of more than usual reliability, which are fortunately available to me.

"In the well-managed forests of Prussia (some 35,000,000 acres), largely stocked on poor land, the average total production of wood per acre for a long series of years has not been more than twenty-one cubic feet, but this includes branch wood, brush and roots, which are not used in this country. Of this only fourteen per cent., or hardly three cubic feet, represents material fit for the industrial uses, and we should add that in the United States firewood is also made from such material.

"In the government forests of Prussia (some 8,000,000 acres), exemplary in their management, the production reaches nearly sixty cubic feet. The highest wood production in German forests is reported from Baden (only 4,330,000 acres of forest), with somewhat over fifty cubic feet of wood per acre per year. Assuming also a larger per cent. of sizable timber, namely, twenty per cent., we would find the annual production per acre of such material as we are in the habit of using at the rate of ten cubic feet per acre. Competent writers on the subject who believe that the Government report understated the annual growth have calculated the same to be as high as fifty-five cubic feet per acre (see report of Forestry Division, 1886, page 184), of which they assume twenty seven per cent to represent wood over three inches in diameter. Even this larger figure would bring the product of sizable wood to less than fifteen cubic feet per year. And I repeat, what is well known, that in the United States we hardly use the smaller sizes even for firewood.

"To come now to the more familiar measurements, we can figure out the possibilities or probabilities in the following manner, leaning toward extravagance rather than conservatism: Any lumberman acquainted with the various forest regions of the United States will admit that, leaving out the exceptional conditions on the Pacific Coast, a cut of twenty thousand feet (board measure) per acre from our virgin forests would be an absurdly large average estimate.

"This would represent, with excellent practice in the preparation of the material, say two thousand cubic feet of round forest grown timber; and since the trees cut to yield such material are at least one hundred and fifty years old—they are in reality mostly over two hundred years old—the annual production would appear under such conditions as fourteen cubic feet per acre per annum, or about as much as the most advantageous results reported from well-managed German forests.

"Apply this most extravagant figure to the area as given by Mr. Gannett, and we find that our consumption at present is from 10,000,000,000 to 14,000,000,000 cubic feet in excess of what the area could possibly produce as an annual crop, or that we are cutting into our capital to the extent of more than fifty per cent. of our consumption, and not, as Mr. Gannett would have it, that we are laying up for the future, which, by the way, increases the demands for raw material at the rate of more than thirty-five per cent. every decade."

The similarity in lumber conditions in the United States and Canada and the attention that is at present being given to the question of forestry in this country will give Canadian lumbermen an appreciative interest in this discussion, and especially in regard to the data of conditions in Germany furnished by Mr. Fernow.

A NEW MARKET FOR LUMBER.

DISTANCE is a trifling barrier to the expansion of trade in the present day. Custom house lines may shut out near neighbors from doing business with one another, but in an age when the railroad, the telegraph and the telephone are bringing the most distant peoples into near and immediate contact, one with the other, having the market and the goods for the particular market and all else is easy going.

Nor need clime, color or nationality be a barrier to business. Business knows none of these distinctions. Business knows business only. A suggestion has come from the United States Consul at Jerusalem that it may be expected before long that America will find in this ancient city a large and profitable market for lumber. Jerusalem has a boom on, or coming, that bids fair to eclipse anything ever achieved by the boomiest of western towns.

"The foundation of the coming 'boom,'" says the Tradesman, "is a sentiment not less potent than that which sent all Europe upon the Crusades to that shrine, with the additional elements that there are many more people interested now than there were during any of the crusades. They are far better clothed, fed and have more money in their scripts. Besides the means of transportation now is as far ahead of that age as steam ships and railroad cars are ahead of walking. The entire Christian world, Protestant, Catholic and Greek, is agitating the project of holding a grand reunion or jubilee on the 19th centennial of the greatest event in the world's history. The idea is likely to spread like wild fire. There are no religious, political or financial interests to oppose it. The Turkish Government certainly will not, because such a gathering will afford the only opportunity the future offers to relieve it of impending bankruptcy and dissolution. The Armenians and the Asiatic Jews will hail it as a possible relief from ages of persecution.

"It must be borne in mind that Jerusalem is now in direct railway, steamship and telegraphic communication with all the civilized world. Since the completion of the railroad from Joppa, shrewd financiers have anticipated something like the proposed celebration and the price of lands and lots in the holy city and the region round about have increased enormously. In his official report the United States Consul in that city says: "Two acres that were sold in 1890 for \$250 per acre, sold in 1891 for \$750; twelve acres, sold in 1890 for \$435 per acre, sold in 1892 for \$2,178; seven acres sold in 1886 for \$363 per acre, sold in 1892 for \$6,534; two acres sold in 1886 for \$1,200 per acre, sold in 1892 for \$3,000. These are not in one section or locality, but in different directions about the city, varying from one-fourth of a mile to one mile distant from the town."

"There is no great available amount of timber within two thousand miles of the city. If the sentiment, or craze, develops to the extent it bids fair to do, the World's Fair, based on a sentiment purely worldly and in honor of a lucky adventurer, will pale into insignificance. There will be lots of hotels, dwellings and other dwellings needed to accommodate the vast crowd of visitors who will attend the anniversary, the pilgrims who will hereafter annually visit the city and the hordes of people who will take up their permanent abode in the city, or near it, when the facilities for procuring a sustenance makes living there possible. The holy city is about on the same parallel of latitude as Brunswick or Darien, Ga., and the timber of the South is about as near and more easily available than the forests of Germany, Sweden or Norway.

"It may appear to many that this a long look ahead, but seven years will decide the matter, and if there is a prospect for a shower of mush it is well enough to have our bowls right side up. Strange things are liable to happen any time during this rushing age.

EDITORIAL NOTES.

THE Timber Trades Journal, of London, Eng., in an article of considerable length says that "there is no doubt that this is the timber of the future. The forests of these gigantic pines are practically inexhaustible, and the facilities for bringing it to the markets of Europe are daily increasing. It stands well in water, and is being largely used in the Canadian ship canals for the lock gates where their own yellow pine is available. Speaking of the British market, we think it is merely a question of time before it becomes as common in use as pitch pine."

SOME time ago the lumber dealers of Manitoba formed a combine to fix prices and prevent cutting that threatened only to bring disaster on all concerned. Two dealers of Gretna refused to be bound by these conditions and broke prices with the result that they have been boycotted and cannot get supplies. The farmers are indignant, as they cannot get lumber unless they go to Plum Coulee, or Morden and pay the combination price. The shoe pinches the farmer when the bears get control of the wheat market and deprive him of his profits. It does not seem that more than a reasonable price has been charged for lumber in Manitoba, and why should dealers be asked to do business for nothing or at a loss? It is not what others appreciate.



by the workman who throws them? What is there in the relation between employer and employee that makes it the duty of the employer to stand the damages inflicted in this way by this class of men? If I, either carelessly or deliberately, smash a \$5 tool, why should my carelessness cost my employer \$5? Mr. Employer, what think you? *

A correspondent of the Scientific American tells the following interesting story: "In Guilford, Vt., are two beech trees that have grown into one. About twenty years ago I cut the top from one and made a slit in the other. I then united the two trees. It proved a successful graft, and when I saw them last fall they were about eight inches through at the base, distance apart about three feet, place of union about seven feet from the ground. Near this tree on the bank of a small stream stood a willow. I trimmed it, cut off the top, bent it over the stream and planted the top of the tree in the opposite bank. It rooted and in the summer the stream flows under a beautiful green arch. Another has its branches bent down and planted in a circle about its base. Another was twisted about an old fence rail, and as the rail has decayed, the tree resembles a giant cork screw. Another tied in a knot has grown so large that it would be no easy matter to untie it. On this same farm is an apple tree whose fruit is a union of the golden sweet and greening, or, in other words, the same apple is part sweet and part sour. It was produced by grafting the buds of a golden sweet and greening into another tree, and the singular part of it is the sweet part is covered with the yellow skin of the golden sweet, while the sour part, like an Irishman, sticks to its green."

A resident of the Pacific Coast, Col. G. H. Megquier, of Anacortes, Washington territory, has invented a new method of packing shingles that promises to revolutionize the time-honored square bundle of shingles apparently everybody has been satisfied with up to this time. Mr. Megquier's method of packing is to place twenty-one rows of shingles on end with the butts down, thus bringing all the butts together. A two inch strip is then run along on each side, top and bottom, and firmly bound with the usual wire strip, making a bundle 47 3/4 inches long, by about ten at the thick end and about four at the small. The cost of wire strips would be about 2 1/2 or 3 cents more than by the old method, but the great saving would come in from the greater number that could be packed in a day, at least 10,000 to each packer. Another saving would be in the increased capacity of the dry houses. Then in the matter of shipping, a further saving is effected, as at least 20,000 more shingles can be loaded in a car, and in the case of a cargo the capacity of a ship is increased by 1,000,000 up, a point of no small importance in water shipments. Altogether Mr. Megquier's improved bundle seems to fill the bill for the most economical, most compact and handiest bundle of shingles that has yet been introduced. Patents have been applied for, and the new shingle bundle will be subjected to the test of practical experience which, if successful, will insure its use all over the Coast.

The people of the Georgian Bay district are feeling keenly the effects of the free export of logs to the United States. Doubtless it is true that with them the question is more local than general. This circumstance does not, however, lessen the injury that they believe is being done to that part of the country which to them is home. A writer in a recent number of the Manitoulin Expositor, published in Little Current, expresses himself in vigorous fashion, thus: "Last year 175,000,000 feet of lumber was exported in logs, and this year there is to be 455,000,000 feet taken over to the States, showing that the annual shipment is increasing. This may look well, but how does it affect our country? In the first place, if these logs had to be manufactured in this country we would hear the busy hum of sawmills all along the shores of the Georgian Bay, see thousands of men busily engaged in these mills, see the little towns and villages in a prosperous condition, and everybody enjoying life. Again, the fact of logs being towed across the lakes materially affects the shipping and the work to be done by Canadian vessels. This means a

heavy loss to vessel owners in our country. As it is now, our mills are to a great extent shut down, and standing there rotting, men are complaining of hard times and no work, the merchants in the towns have great difficulty in getting a living, and on the whole the country is dead. No wonder that there is such an exodus from our country of the best of Canada's sons. Canada's forests are fat now, and if this state of affairs exists much longer instead of using the flesh we will have to pick dry bones. By all means put on the duty and save our pine."

Ex Mayor James Dollar, of Bracebridge, Ont., one of the best known lumbermen of that district has decided to remove to San Rafael, Cal. Mr. Dollar has endeared himself to the people of the locality not only because of his enterprise as a business man, and likewise as a citizen, but for his many sterling qualities as a man ever interested in the individual welfare of the people. Mr. Dollar made one of the best chief magistrates that had occupied the mayor's chair in that thriving northern town. Mr. Dollar was re-elected at the last municipal contest but he resigned some time ago owing to the fact that he had intended removing to San Rafael, Cal. "I spent most of the winter there," he said "and it is now about a month since I returned home the last time. Now I am going there for good." "You find a difference in the climate there, don't you?" "Oh, yes. Snow is unknown and the season is two or three months ahead of ours. When I left there haying was in progress, the grapes were fully formed and the grain was almost ripe enough to cut." "What about Bracebridge? Is it on the down grade that you are leaving?" "No. Bracebridge will hold its own always. It has all the modern improvements for a first-class town. I am interested in the lumbering business in California and can do better living right there than so far away here." It will be remembered that in August last Mr. Dollar lost a brother, John Melville Dollar, also a resident at one time of Bracebridge, but who for some years before his death had been engaged in lumber in San Rafael, Cal., where he died. Mr. James Dollar goes to the same place.

The owner of a combined saw and grist mill explains the continued and steady demand for lumber even at times when other staple commodities are depressed in this way: "Any conditions that will reduce the consumption of cotton goods - the actual wearing of them out - for a given time has no effect upon the actual consumption in future. In other words, because a man may be short of shirts this year does not imply that he will have to buy a double supply or wear out twice as many next year. And so it is with breadstuffs. Because a famine prevails this year is no sign that one who has been on short rations can consume more than the normal amount next year. He said, in his section where corn is high priced and scarce, the people economized by giving their stock more grass, their chickens less dough, and their dogs less bread. And so on through the list of necessities until it comes to lumber. He claims that it requires every year a constantly increasing supply of lumber to keep on repairs and build new structures. Conditions may be such that the necessary repairs and new buildings cannot be made at once, but they will have to be made later on. What cannot be done in this line one year must be done next year or later, and the deficiency must be made up some time. In this respect, he says, lumber has the advantage over all the other necessary products. Again, he claims that lumber is not held in such large stocks for long time and consequently the old stocks on hand do not effect trade and prices to near the extent that is felt in grain, sugar, cotton and tobacco. Who ever heard of any concern selling futures on lumber or trying to corner the lumber market." The gist of his argument is that lumber is the safest of all personal property to handle. His ideas are original, to say the least, and, we are inclined to think, very sound in the main. It is very comforting to think that any deficiency in the consumption of lumber one season will serve to make it increase the next.

VANCOUVER SAW MILL, VANCOUVER, B.C. Your paper affords much pleasant and profitable reading.

A CITIZEN of Ottawa, who foresees litigation from the farmers in the neighborhood of the Capital whose live stock are excluded from their usual watering places by the sawdust, suggests that lumbermen might use their sawdust and other mill refuse to their great gain by employing it to smelt our rich iron ores instead of having to pay heavily for throwing it into the river in the shape of damages and costs to Antoine Ratte and these aroused farmers.

A gentleman just returned from Lake Joseph says that, from present appearances, the hemlocks will be almost annihilated within a few years. Last year an insect appeared which destroyed the foliage of the trees on the shores and islands in the north and centre of the lake. This year the trees have not leaved out again. Many thousands of them are dead and present a pitiable appearance. Among the islands which have been devastated are Chief, Governor's, Elsinor, Laurie, Clareview, Badgerow, Cameron's, and nearly all the islands to the northward. It does not appear that anything can be done to stop the destruction. It would be worth while for the Local Government to send up an entomologist to ascertain the extent of the injury and the probable duration of the visitation, as, if the insect is not checked, the loss will mount into millions.

There is a deal of truth in Robt. Grimshaw's argument that the man who keeps his engine nice and clean also keeps it in good order. Says he: "The man who goes over and round and about his engine every day; whose eyes rest upon every square inch of its surface, and whose hand touches every square inch, can keep it in order better than he who simply squirts oil in or at the oil holes when he happens to think of it, or has his attention called to the necessity of oil by the squeak. A hot place is readily detected by him who goes often all over his engine, and can be better attended to if discovered when a trifle warm, than if allowed to get hotter and hotter until it squeals, or until the bearing seizes. It is the same way with steam leaks and trifling tracks; the man who goes all over his engine once or more every day knows of them before they get serious, and attends to them at once. Leaks are incompatible with brightness. Brightness must be had, hence leaks must be stopped at once when they are discovered."

These are blunt but sensible words from "Job," a writer, who hits off many good things in the Lumber World: "Look out for that class of workmen who may be named 'slambang' men, the men who never lay a tool or piece of stock down, but throw it down. Such men may be safe enough to work in powder and dynamite factories, but they are a costly nuisance in a wood-working shop, where fine and easily marred materials are used, and where most of the tools are keen-edged, delicate and complicated. What a lot of damage such men can do! The other day, in a large organ factory, I saw one of the 'slambang' men throw down a large chisel. It landed on a pile of delicate and costly veneers, rolled off and fell edge foremost on some bits of iron. Result: Two of the pieces of veneer were split, and one or two others marred. The chisel's edge was damaged. Fortunately for the establishment and unfortunately for Mr. Slambang, the foreman saw the incident—it was not an accident—and he sat down and figured up the damage, made a record of the incident, and sent it to the office. The proprietor happened to be in a not wholly amiable mood. He summoned the 'slambang,' and a scene followed. The end of it was a vacancy in the force. Should workmen be fined for incidents of this kind? Why not? If it be against express orders to throw fine tools around, why should not damages caused by throwing them around be paid

OTTAWA LETTER.

[Regular correspondence CANADA LUMBERMAN.]

UNMISTAKABLE activity is present among the lumber mills of the Chaudiere this summer. Whilst it is hardly likely that the mills will find it necessary to work over-time, they will all be kept busy until the close of the season. Taking J. R. Booth's mill, employing 950 men, Bronson & Weston's over 600, and Buell, Hurdman & Co.'s, 500, we have in these three mills alone employment furnished to more than two thousand men, some indication of the size of the lumber industry in this district. The strike that I intimated last month as possible among the mill hands has, it is expected, been called off for the season. No further trouble has occurred over the rising of the Ottawa, and outside of an occasional mishap that may come in the way it is now plain sailing with all the mills.

IMPORTANT LUMBER SUIT.

The case of Mackey vs. Canada Lumber Company, which has been before the courts since April, 1892, has at last been concluded. This is a case, it will be remembered, where the Canada Lumber Company, through W. C. Edwards, M.P., one of their directors, bought from W. Mackey, of Ottawa, certain logs lying in Buckshot lake and creek, at a certain price, the measurements to be that on which duty was paid and according to the returns of the government; terms nine months. At the end of nine months a note at nine months with six per cent. was agreed to, and delivery of the logs taken. A count of the logs was taken afterwards, the plaintiff says without his knowledge. When the note came due it was protested, the Canada Lumber Co. claiming in justification that there was a shortage in the number of logs. On this note the plaintiffs sued and have now received judgment for full amount with costs. Defendants appealed the case to Toronto with the result that the first judgment was a few days ago confirmed with costs of appeal.

INDIFFERENT LENGTHS.

A very large tow from the Gatineau river comprising at least 25,000 of the best logs that came down by that stream have arrived for W. C. Edwards & Co.'s mill. The tug Rockland takes them from the mouth of the Gatineau, where they have for some time been collecting to the mill at the Rideau Falls. So far all the logs sawn in the Edwards mill have been owned by the Shepard & Morse Lumber company.

A new circular saw mill is soon to be erected beside the present mill at New Edinburgh over the Rideau Falls for W. C. Edwards & Co. It was only last winter that the present fine mill of this firm with two band saws and one gate was erected, but the growth of their business has been such that they feel warranted in planning for a further increase of mill plant. The new mill will not be so large, but several large circulars which will do fine work will be put in, and lumber cut will be done very fine as well as very fast. The firm will also build a large sash and door factory on the island beside where the drying house used to be.

Opposite the Rideau falls on the northern banks of the Ottawa river, on the site of the old Gilmore mill, one of the most complete sawmills which has yet graced the valley of the Ottawa, has just been completed. The power requisite to drive the machinery will be generated in a small building beside the mill where boilers and two engines, each of one thousand horse power have been put in. The mill will thus be run altogether by steam. The piling grounds have all been laid out very nicely and levelled where it was necessary. The lumber will all be carried to the different sections of the yard by means of seven tramways radiating from the mill. The mill's cut will be about 250,000 feet per day, and it will be ready for operation in about a month.

OTTAWA, Can., June 24, 1893.

MICHIGAN LETTER.

[Regular correspondence CANADA LUMBERMAN.]

THE financial situation is being discussed with no little anxiety by lumbermen in this State, and yet so far as the lumber trade is concerned there is no occasion for anxiety. The trade have all they can do and in some respects it is a difficult matter to meet fully and as promptly as they would like the calls upon them for lumber. This is a fortunate position and will likely carry lumbermen over a period that in other lines of trade may prove troublesome. The general situation is not healthy. And just what the outcome may be it is not easy to say. No class of business men, perhaps, have a larger grasp of the financial affairs of the country than lumbermen. All their transactions lead them to view affairs in a large and liberal light and their counsel in the adjustment of financial troubles is invariably found valuable and desirable.

SHRINKAGE IN SHIPMENTS.

The following is a comparative statement of the shipments

of forest products from the Saginaw river for the past three years for the season to June 1:

| | 1891. | 1892. | 1891. |
|---------------|------------|------------|------------|
| Lumber..... | 48,848,000 | 76,293,000 | 87,116,000 |
| Lath..... | 2,450,000 | 980,000 | 2,963,000 |
| Shingles..... | 3,215,000 | 9,329,000 | 9,650,000 |

These figures taken at their face show a decline in lumber shipments this year of 28,000,000 feet over the corresponding date of 1892 and 37,000,000 less than in 1891. These conditions are explained in part by the smaller volume of lumber on the docks on the opening of trade this season and to the fact that the railroads are becoming more and more a strong competing element in the carrying of lumber.

BITS OF LUMBER.

Hemlock bark peelers are in demand, as high as \$35 a month being offered.

A raft of 3,000,000 feet has reached Cheboygan from Georgian Bay.

At Manistee trade seems unsettled and some of the mills talk of shutting down.

The new Emery & Holland mill at East Tawas is cutting lumber and doing lots of it.

McArthur Bros., of Saginaw and Toronto, report a good trade in cubic timber and prices somewhat improved on a year ago.

The Gilchrist mill at Alpena is to be operated day and night. Mr. Gilchrist is bringing over upwards of 25,000,000 feet of logs from Georgian Bay.

The tug Saugatuck has a contract to tow 10,000,000 feet of logs from the Georgian Bay to the Cheboygan Lumber Company's mills, at Cheboygan.

Isaac Bearinger, the big Michigan lumberman, who has large lumber interests in Canada, is cruising around the Georgian Bay waters in his beautiful yacht Wapiti.

S. G. M. Gates, of Bay City, has purchased a camp outfit, 4,000,000 feet of logs and 20,000,000 feet of standing timber in the Georgian Bay district of Stewart & Cook, the consideration being reported at \$60,000. The stock will come to Mr. Gates' mill here.

The steam barge Orion, of Toronto, with two barges Muskoka and Waulushery have been at Manistee loading rock elm timber for Quebec. Buyers buy this piece by piece in the standing tree, and carry their own axmen with them, and manufacture it to suit their own trade. It is a peculiarity of the English timber trade that it won't use sawn stock, but must have it hewn.

Canadian logs in considerable quantities are commencing to arrive at Bay City. The first raft reached that point May 16, the second May 27, and the third on June 7. The rafts average 4,000,000 feet each. One was for the Saginaw Lumber & Salt company, one went to Green & Braman's mill and the other to C. C. Barker. Other rafts have been coming along regularly since this date.

Great excitement was occasioned at Bay City and West Bay City by the announcement that the tug Winslow had foundered in Canadian waters, because it was known that Benjamin Boutell, of the Smith & Boutell Towing Company, and S. O. Fisher, the West Bay City lumberman, were on board the tug. The anxiety, however, was allayed as soon as Mr. Boutell could reach the nearest telegraph station, by his wiring to his family that and Mr. Fisher were safe. The tug Winslow ran high up on a shoal, but was only slightly damaged, having since been released and returned to Bay City. Messrs. Boutell and Fisher have also returned safely.

SAGINAW, Mich., June 26, 1893.

PERSONAL.

Among recent illustrious visitors to J. R. Booth's big saw-mill, Ottawa, Ont., were the Governor General and Prince Bonaparte.

Mr. J. C. Wells, of the Whitefish River Improvement Company, Little Current, Ont., was among the callers at the LUMBERMAN office a week ago.

Mr. J. T. Whyte, a popular employee of Barnett & Co., lumbermen, Renfrew, Ont., was united in marriage a fortnight since to Miss Julia Raymond, of Allumette Island.

The LUMBERMAN was pleased to receive a call during the month from Mr. W. J. Mathers, of Neepawa, Man. Mr. Mathers is a director of the Western Retail Lumberman's Association, an organization embracing a membership of nearly two hundred.

James Playfair, lumber dealer and general merchant, Sturgeon Bay, Ont., intends going to the World's Fair in a unique way. He will board his private yacht at Sturgeon Bay and sail right through to Chicago. He expects it will take about four weeks to reach the Windy City.

TRADE NOTES.

The band mill is moving lively, if one may judge by the work being done at different points by the Waterous band mill. We learn that before the accident in J. D. Shier's mill, to which reference is made by the Waterous Engine Works Co. in another column, that Mr. Shier had cut about 800,000 feet of lumber and was delighted with the band mill, the lumber being true and smooth, and according to his own statement he was saving \$30 per day with the band mill over and above the circular. The Baker Lumber Co.'s mill started about three weeks ago and is running very satisfactorily, they unfortunately, however, have a rack feed to their carriage and this interferes somewhat with the off-set of the carriage so that occasionally there is an untrue board. They are, however, obviating this by putting in a Prescott steam feed supplied them recently. Mickle & Dyment's band mill starts this week. They have been running a circular for the past two weeks and the lumber cut by that is piled on one side of the railway track, and the Baker Lumber Co.'s lumber is piled on the other side of the track, and the quality of the lumber can readily be compared. On examination it will be found that the Baker Lumber Co.'s stuff is cut much truer and smoother than that cut by the circular and much more handsome in appearance. The Waterous Company have also shipped recently to Wm. Sutton, late Sheriff of Bruce, to Victoria, B.C., a heavy circular sawmill outfit, steel carriage, opening 5 feet from the saw, the knees actuated by a screw 5 in. pitch. They also shipped a large sawmill to Mr. Sucksmith, of Kalso, B.C., and are shipping to the Hudson River Pulp Co. of the Hall & Neilson mill at Three Rivers, Que., one Prescott steam feed, one three block girder steel carriage, four large friction pulleys and two sets of gang slab saw irons. This week they start in Montreal, a No. 2 band mill for J. K. Ward, with power feed and heavy steel band carriage.

PUBLICATIONS.

H. R. A. Baughman, of Indianapolis, Ind., has issued a fourth edition of his "Buyer and Seller," a hand-book of lumber tables that are invaluable to anyone engaged in the lumber trade. Besides rather more than one hundred pages of these tables considerable space is given up to rules for flooring and siding, suggestions when ordering lumber and much other practical matter. The book is bound in full leather, limp, with finger index.

"The Georgian Bay" is the title that James Cleland Hamilton, M.A., L.L.B., has given to a neat little work of nearly 175 pages, recently published by James Bain & Son, Toronto. The contents-matter of the book was originally embraced in a series of historical papers read before the Canadian Institute, Toronto, and deals with the inhabitants, mineral interests, fish, timber and other resources of this district of country so familiar to every lumberman. A well executed map and numerous illustrations embellish the work. Mr. Hamilton holds the pen of a picturesque and ready writer, and possesses an intimate acquaintance with literature that gives a delightful freshness and beauty to many of the scenes pictured in the book. Those who may as yet have found it inconvenient to visit the Georgian bay territories will easily find themselves transported there in imagination when reading this book. Mr. Hamilton's position as chairman of the historical section of the Canadian Institute is a guarantee of the value of the present work from an historical point of view, which is perhaps the most important.

"Ontario's Parliament Buildings, 1792 to 1892," by Frank Veigh, private secretary to the Commissioner of Crown Lands, is a book that will take prominent rank among the historical works of the Dominion. It was an opportune time, just on the completion of the magnificent pile in the Queen's Park, in which all Ontarians, and indeed Canadians from whatever province, have much pride, to take a retrospect of provincial legislation for the past century. Mr. Veigh has shown large industry in the collection of historical incidents and facts related to the subject matter of the book and has compressed into this one volume a mass of data that will be new to not a few Canadians, who doubtless consider themselves well-read on the affairs of their country. To the general reader the information will be, in no small measure, entirely new, and to everyone it must be very valuable. The book is written in an easy, sketchy style, that marks whatever comes from Mr. Veigh's pen, and contains many illustrations of prominent legislators and of different places of meeting of the legislature during the past hundred years. Bound in cloth and well printed. The Williamson Book Company, publishers, Toronto.

Trade Review, St. John's Nfld.: Lumber is arriving in large quantities daily, both from Canada and the local mills. Owing to the number of new buildings going up the demand is very brisk, and the price is still stiff.

THE NEWS.

ONTARIO.

J. F. Lillierop has opened a lumber yard at Lakefield. Wm. Grier, of St. Patrick, is putting shingle machinery into his sawmill.

Harmon Gilmore, shingle and planing mill, Vittoria, has assigned to J. H. Johnson.

White & McCreary, sash and door manufacturers, Antiprior, have assigned to Ephraim Mohr.

The C. Beck Manufacturing Co., Penetang, have their two mills running to their fullest capacity.

A log came down the Gatiniau river drive for Gilmour & Hughson, which measured 3 feet 10 inches in diameter.

J. McLaren & Co., Wakefield, are having a survey made with a view to having a branch of the G.T.R. run up to their mills.

Carruther & Shaw's shingle mill at Penetang, is doing a large business. It is contemplated fitting the mill up as a complete planing mill.

McLaren's mill at New Edinburgh has commenced running. The mill is not a very large one, there being only four gate saws together with some circulars, but it has always been remarkable for the large cut that it makes.

Log driving in the vicinity of Deux Rivières is about completed for the season. Wm. Fitzsimons, agent for J. & B. Grier, has delivered a fine drive of dimension timber at Gordon creek, and G. A. Fraser has come forward with a drive from Antoine creek.

The Keewatin Power Co., capital \$1,000,000, incorporated by Alex. Fraser, lumberman, Westmeath; Wm. Gibson, M.P., Richard Fuller, Hamilton; John Mather, of Ottawa, and W. H. Brouse of Toronto, to furnish hydraulic and electric power from the Winnipeg river and establish factories, dwellings, and so forth, is gazetted.

A large number of men are engaged in Eddy's old planing mill at the Chaudière removing the floor to make ready for the putting in of machines for a paper mill. The building is a very large one and it will take a long time to fit it up and have it ready for work. The water power will have to be changed around and new beams put in some places.

Capt. W. H. Kelly, well known as the former skipper of the tug Matilda on the Ottawa river, but now of Montreal, has completed the purchase of some 1,600 logs, lying at Little Moose creek, from the Casselman Lumber Company. These will be made into boards and will be shipped by the Canada Atlantic Railway, via the South Nation river.

Seaman & Newman, of Warton, have built a large raft of square timber for the approaches of the Canadian Soo Canal. Its entire length is 180 feet, 25 in width and about 14 feet deep, 11 feet of which is under water. It contains 750,000 feet of hemlock square timber and is built in two cribs, so bolted together that it will be almost impossible to break it up.

W. C. Reid, lumber merchant, of Fergus, was committed for trial at Guelph, on a charge of attempting to buy counterfeit money. The case was worked up by Provincial detectives Rogers and Greer, upon information furnished by Major Percy Sherwood, of the Dominion police. Two of Reid's letters to "A. B. Morgan," a supposed New York green goods man, were returned to the dead letter office and a decoy letter from the detectives had the effect of landing Reid.

Sad is the case of William Reardon, a man who has been in the hospital at Toronto since February and who is probably disabled for life. He was sent here from the mills of the Ontario Lumber Company in Western Algoma with both feet frozen. Reardon lost the use of his feet in saving a French-Canadian boy from being frozen to death shortly after the deep snows settled on the lumber woods last winter. The lad ran away from the mills, but was tracked and followed some sixteen miles by a few of the men who knew he would freeze to death if he stayed away. The boy was recovered but Reardon had his feet frozen. There were no medical appliances at hand and when the man's feet thawed out some of the toes had to be removed by his fellow workers with ordinary tools. He grew worse and had to come to the hospital, where nearly all the toes were amputated. He is there yet and will be a cripple for life the doctors say.

QUEBEC.

Zepherin Perrault, builder, Montreal, has assigned, owing about \$18,000. He was a railway contractor until two years ago, when he started up as trader and builder.

The White Wings Ship Company, has been formed at Quebec with a capital of \$12,800 to build a wooden vessel of 350 tons to trade to New York, River La Platte, Rio Grande do Sul and other South American ports.

A lumber dealer in a moderate way at L'Assomption for the last five years, Oswald Chaput, has arranged a cash composition with his creditors on liabilities of about \$4,000. He is reported to have been before unsuccessful, while at Valleyfield in the grocery business.

A despatch from Three Rivers says: The lumbermen of this locality are highly incensed at the delay in obtaining their lumber for sawing owing to the slowness of the officials in having the various bonuses distributed. It is also owing to the action of the federal government in curtailing the allowances of cash, generally voted for lumbering operations on the St. Maurice. Heretofore \$11,000 has been voted, but this season only \$6,000 are allowed. The lumber operations at the mills have been put back for more than two weeks.

NEW BRUNSWICK AND NOVA SCOTIA.

W. H. & J. Rourke, lumber dealers, St. Martins, N.B., have compromised at 50 cents on the dollar.

The steam sawmill, owned by Levi Dinsmore & Sons, and recently burned at Noel, N.S., will probably be built this summer, as only half of the season's logs are cut.

The Forest Holme has sailed for Garston with a heavy cargo including 1,834,716 feet of deals and battens, 55,710 scantling, and 136,965 lath. She was loaded by W. M. Mackay.

The mills at St. Martins, N.B., are all at work. White, Fownes & White got their drive of 4,000,000 out, and are running night and day. Mosher & Co. got out 2,500,000 and other smaller mills about 1,000,000.

Nathaniel Wilson, a well-known lumberman and farmer of McNamée, Parish of Ludlow, N.B., was found dead at his log landing, near his home. The deceased was alone, putting in a landing of logs when he was struck on the head with a skid and instantly killed. His dead body was found by two young men. He was about 48 years of age and leaves a widow and three children.

The Norwegian bark, Benjamin Bangs, reached Halifax, N.S., from Vancouver, B.C., after a voyage of 165 days. She has inaugurated a new trade—the shipment of spars, etc., from the Pacific coast to this region. Her cargo, consigned to Bentley & Fleming, is valued at \$25,000, and the freight was \$11,000. It consisted of 194 Oregon pine masts, 100 feet long and 12 to 30 inches in diameter; 50,000 feet pine plank; 30,000 feet pine flooring; 80,000 feet red cedar; 50,000 feet spruce flooring; 250,000 red cedar shingles and 10 monster pieces pine timber 45 feet long.

FIRES AND CASUALTIES.

FIRES.

Schliehauf Bros.' stave factory, West Lorne, Ont., was totally destroyed by fire 20th ult. Loss about \$4,000.

The building and machinery of Davidson & Hay's mill at Cache Bay, Ont., was badly damaged by fire a few weeks ago.

C. P. Holton, lumber and sash factory, Belleville, has been burned out. Loss about \$8,000; insurance \$2,000. Mr. Holton has been a great sufferer from repeated visitations of fire to his property. It was but nine months ago since the big fire took place in his lumber yard, whereby a loss of \$17,000 was incurred. He will at once rebuild and resume business.

CASUALTIES.

R. Manning, employed on the Rathlun Company's drive, fell off the boom above the slide at Kinnmount, Ont., and was drowned.

Michael Cleary had both legs broken while working on Fraser's drive on the Petawawa, Ont., death following the severity of his injuries.

A man named Augustin Royer, a millman at Bertrand's sawmill in Clarence township, had three fingers cut off by the circular saw.

Joseph Dube, a laborer, while at work at Hortubise's mill at Casselman, Ont., had one of his arms accidentally cut below the elbow.

A young man named Drake, whose home is at Baysville, Ont., was drowned a week ago in the south branch of the Muskoka river with a gang of men driving logs for Mickle & Dymont.

Alexander McDonald, employed in Mickle, Dymont & Sons' sawmill, Gravenhurst, Ont., received severe injuries while attempting to put a belt on a pulley. His head and arms were badly cut and bruised.

Herman Woodland, 15 years of age, had his clothing caught by one of the chains in Booth's mill, Ottawa, and before he could extricate himself was drawn against a circular saw and killed. A verdict of accidental death was returned by Coroner Mark's jury.

Albert Hein was drowned at Eganville, Ont., whilst endeavoring to draw back a log that had lodged on the face of the dam into the mill pond.

A riverman named L. Cole, and hailing from Daere, Ont., and working on McLachlin Bros.' extensive drive near Eganville, had his arm jammed between a rock and the end of a log, almost severing it. It was afterwards amputated.

Frances Paron was drowned near the Quinge rapids on the Ottawa; and Thomas Newall, while trying to run the rapids of the Madawaska on a sawlog forfeited his life for his foolhardiness. Both men were employees of Thomson & Weston.

STRENGTH OF SHAFTING.

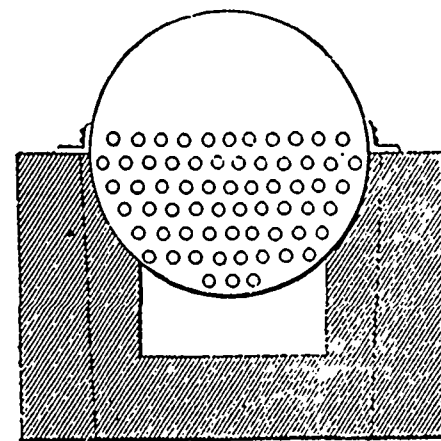
It is generally pretty well known that a shaft will transmit power in proportion to its running velocity, and, therefore, the faster a shaft runs the lighter it should be within reasonable limit. The use of extremely heavy shafting is not advisable under any circumstances unless actually needed to perform the work required. That there should be an ample margin of strength no one will deny, but shafting multiplies in strength so rapidly as sizes increase, that the unenlightened are apt to make the selections much too large when aiming at only strength margin. To show how easily uninformed mechanics may make mistakes of that kind, it is only necessary to say that a three-inch shaft has nearly three and one-half times the transmitting strength of a two-inch shaft. None unaware of the fact would ever guess at that difference and may fall into the error of selecting a three-inch shaft to safely do the work of a two-inch.

THAT BAND MILL ACCIDENT.

The Waterous Engine Works Co., Brantford, Ont., write of the accident that occurred at J. D. Shier's mill at Bracebridge: "The band mill was speeded by us when we left it in Mr. Shier's mill, at 390 revolutions per minute, and it had run in this way for six or seven weeks. The week previous to the accident Mr. Shier increased his boiler capacity and then speeded up his engine, and as a result the band mill was run 420 revolutions per minute. It was tested here to 450. An examination of the remains after the accident in endeavoring to ascertain the cause, revealed the fact that the governor belt was tightly twisted round the engine shaft, the lace holes being torn out at the ends. This was direct circumstantial evidence that the governor belt had broken and the engine had run away, increasing the speed to such an extent that the band saw fly wheel, already put to its limit or probably beyond, could not stand it. They were not sawing at the time, turning a log. The accident might have been avoided by having a stop motion on the engine, which would have stopped it immediately the belt broke. Mr. Shier's damages will probably not exceed \$500, and he will probably be running again inside of 10 days. What we wish to do is to correct the impression that the band mill was at fault. The accident was one that could have been avoided had proper precautions been taken with the engine, and one that is liable to happen at any time where the speed of the engine is uncontrolled."

BOILER SETTING.

HAVING seen a way of setting boilers which is new to me, I send the enclosed sketch, writes a correspondent of Power. The bridge wall is run up to within 12 inches of the boiler, and the opening is only 34



BOILER SETTING.

inches wide—being proportioned about as shown in the sketch. The boiler is 54 inches in diameter by 14 feet long. If the boiler is ever burnt or blistered I think it will be at a point just over the bridge wall. Besides, I am of the opinion that this setting materially reduces the heating surface of the boiler shell.

TRADE REVIEW.

Office of CANADA LUMBERMAN, June 30, 1893.

THE GENERAL SURVEY.

THE annual reports of the leading banks of the Dominion, which have been published within the present month, all speak in hopeful terms of the lumber trade. It is encouraging to remark that the general trade of the Dominion is reported to be in quite a satisfactory condition. No great expansion has taken place, but the leading trades appear to have gathered strength and are being managed on a careful and conservative basis. Of lumber, however, it is remarked that an increase has taken place, and whilst it is explained that the cost of the product will be greater than last year, owing to the increase in cost of supplies and a higher price paid for labor, this is more than offset by the advance in price. The manager of the Bank of Commerce makes use of these words: "Many of our customers have contracted for the whole of their summer's output; and, unless financial troubles in the United States interfere very seriously with consumption, a very much larger amount of money than usual will be returned to us for lumber alone." Continuing the report says: "The cut of sawlogs in the Ottawa district, and the stock held over from last season, are about the same as last season, but owing to the handsome advance in price the yield in money will be materially larger. Indeed, the output as a whole is said never to have been sold to yield a higher price. The amount of squared white pine timber is about the same as last season, while the waney timber is about doubled. At the moment the market is very dull and the outlook not so bright as for lumber. The market for deals, however, is all that could be desired. The conditions, both as to lumber and timber, in other districts, are not materially different, except that, apart from sawlogs cut in Canada by Michigan firms, to be taken out by Canadian firms have been sold in Michigan, instead of being sawn into lumber in Canada, as heretofore. It is to be hoped that before very long the demand from the east and better railroad facilities will make it more profitable to cut all these logs in Canada, instead of towing them across lake Michigan. Perhaps, indeed the scarcity of white pine lumber may have the effect of removing the duty within the next year or two."

The one remark of continued dullness in the local lumber trade is to be made. Building records show a falling off in Toronto of the volume of operations of half a million dollars in the first five months of 1893, as compared with a corresponding period in 1892. And contractors say that competition has brought down prices to such a figure that not in twenty years have the building trades been in a more unsatisfactory condition. In the other provinces, Quebec, New Brunswick and British Columbia, nothing remarkable is to be noted during the month.

UNITED STATES.

The one danger probably that menaces the lumber trade of the United States at the present time is a continuation of the panicky feeling that has prevailed in the republic for some months. Lumber itself is in a healthy condition, but a feeling of uncertainty cannot touch the finances of the country without the most stable and prosperous lines of business being affected. Lumber is not seriously crippled, yet the pinch is being felt and several good sized lumber failures during the month are causing some anxiety. Aside from this one influence the situation is encouraging. Mills are busy, the drives with a few exceptions are coming along nicely, and if orders have slackened off during the month much of the cut of the mills for the season has been already placed and prices keep firm.

FOREIGN.

Business in Great Britain, in the terms of Farnworth & Jardine's wood circular, Liverpool, Eng., continues quiet, the demand sluggish and values generally unsatisfactory. Stocks are quite ample and in some articles too heavy. The arrivals from British North America for the month of May are given as 14 vessels, 11,400

tons, against 17 vessels, 12,975 tons during the corresponding month last year, and the aggregate tonnage to June 1st from all places during the years 1891, 1892, 1893, has been 80,644, 87,400 and 72,626 tons respectively. Denny, Mott & Dickson, in their monthly circular say: "The apathetic tone, to which trades are becoming accustomed, continues. There is little encouragement to augment stocks on this side so long as the poor demand for consumption gives so little indication of improvement." No very encouraging intelligence reaches us from Australia, South America, or other foreign points.

HARDWOODS.

June has been rather a quiet month for hardwoods. So far as the United States is concerned the report is that neither buyers nor sellers are doing much, preferring to hold off and learn more of the possibilities of the future. In our own country there is nothing special to note.

TORONTO, ONT.

TORONTO, June 30, 1893.

Table with columns for CAR OR CARGO LOTS, listing various lumber types and prices.

YARD QUOTATIONS.

Table with columns for Mill cull boards and scantling, Shipping cull boards, Scantling and joist, and various lumber types.

HARDWOODS—PER M. FEET CAR LOTS.

Table listing prices for various hardwoods like Ash, Birch, Elm, Hickory, Maple, Oak, etc.

OTTAWA, ONT.

OTTAWA, June 30, 1893.

Table listing prices for various lumber types in Ottawa, such as Pine, Spruce, Fir, etc.

QUEBEC, QUE.

QUEBEC, June 30, 1893.

Table listing prices for White Pine and Red Pine in the raft.

RED PINE—IN THE RAFT.

Table listing prices for Red Pine in the raft, measured off and by the dram.

Table listing prices for various lumber types like Square, Flatted, Merchantable Pipe, Bright spruce, etc.

BOSTON, MASS.

BOSTON, Mass., June 30.—News has come to this port that logs are hung up in some of the eastern rivers for want of water and there are mills that fear they will suffer for want of supplies. Orders are not large, yet a comfortable trade is being done.

EASTERN PINE—CARGO OR CAR LOAD.

Table listing prices for Eastern Pine cargo or car load, including Ordinary planed boards, Coarse No. 5, etc.

WESTERN PINE—BY CAR LOAD.

Table listing prices for Western Pine by car load, including Uppers, Subjects, Moulding boards, etc.

SPRUCE—BY CARGO.

Table listing prices for Spruce by cargo, including Scantling and plank, Yard orders, etc.

Table listing prices for Spruce by cargo, including Eastern sawed cedar, extra, clear, etc.

OSWEGO, N.Y.

OSWEGO, N.Y., June 30.—Notwithstanding the financial depression, lumber remains active, shipments have continued satisfactory and prices steady.

WHITE PINE.

Table listing prices for White Pine, including Three uppers, Pickings, etc.

SHINGLES.

Table listing prices for Shingles, including 1 in siding, cutting up, etc.

1X12 INCH.

Table listing prices for 1x12 inch lumber, including 12 and 16 feet, mill run, etc.

1X10 INCH.

Table listing prices for 1x10 inch lumber, including 12 and 13 feet, mill run, etc.

1X8 INCH.

Table listing prices for 1x8 inch lumber, including Mill run, mill cull out, etc.

1X6 INCH.

Table listing prices for 1x6 inch lumber, including Mill run, mill cull out, etc.

SHINGLES.

Table listing prices for Shingles, including XXX, 18 in. cedar, etc.

LATH.

Table listing prices for Lath, including No. 1, 1 1/2, etc.

BUFFALO AND TONAWANDA, N.Y.

TONAWANDA, N.Y., June 30.—The continuation of the strike among the lumber shovers and the unsettledness in monetary circles have had a depressing effect on trade during the month, though not to the extent of causing any serious alarm. The workmen will themselves suffer most severely from the strike. So far as monetary affairs are concerned it would not be wise to say what the finality may be, but there is good reason to hope that no uncontrollable crisis is impending.

The lumber business is in the happy position of having its trade already pretty well assured for the season.

Table with columns for lumber types (Whiter Pink, Box, Shingles, Lath) and prices per unit.

ALBANY, N.Y.

ALBANY, N.Y., June 30.—Shipments have kept up well throughout the month, and yet business is somewhat slack.

Table with columns for lumber types (Pink, Lath, Shingles) and prices per unit.

SAGINAW, MICH.

SAGINAW, Mich., June 30.—No great amount of go has had any place in lumber this month.

Table with columns for lumber types (Finishing Lumber-Rough, Siding, Shingles, Lath) and prices per unit.

NEW YORK CITY.

NEW YORK, June 30.—Considerable quietude and caution marks the market at the present time.

Table with columns for lumber types (White Pine-Western Grains) and prices per unit.

BRITISH COLUMBIA LETTER.

[Regular correspondence CANADA LUMBERMAN.]

IT is pleasing to be able to report that all the mills on the coast of British Columbia and Vancouver Island are busy.

Mr. H. L. Delleck, of Brunet Saw Mill Co., has just returned from an extended trip through Manitoba and N.W.T.

AN IMMENSE SHIPMENT.

The largest lumber cargo ever shipped by a single vessel from a Pacific coast port was last week completed by Robert Ward & Co., limited, of Victoria.

COAST CHIPS.

Alex. Johnston, of the B. C. M. T. & T. Co. had his right hand badly cut by its coming in contact with a shingle saw in motion.

The Royal City Mills are working overtime to keep up with the demand for lumber, which has been fairly brisk of late.

Another logging camp is to be established by the Royal City Mills on Heming Bay.

There would seem to be no adequate reason why hardwood tree growing should not hereafter become a valuable addition to British Columbia's forestry enterprise.

NEW WESTMINSTER, B.C., June 20, 1893.

WORLD'S FAIR NOTES.

In section 3, of the sawmill building, the Covel Manufacturing Company, of this city, has what it calls the biggest exhibit of saw sharpening machinery ever seen.

COMING SALES.

An important sale of crown timber limits in the province of New Brunswick is announced in our advertising columns.

STEAM PUMPS



Duplex AND SINGLE Steam AND POWER Pumps

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

WRITE US



NORTHEY M'FG CO.

LIMITED

TORONTO - ONT.

The Canadian Lumber Company, at Elmira, N.Y., has passed into the hands of a receiver.

A TIMBER PRESERVATIVE.

REMARKABLE success is said to be attained with a new process of preserving timber lately introduced in England. The agent employed is melted naphthaline, contained in a tank, in which the timber is immersed. The temperature of the bath is about 200 degrees Fahrenheit, or a little below, and is evenly maintained, the heat being derived from steam pipes passing through the tank. The timber is soaked from two to twelve hours according to the size of the piece. It is believed that wood which is thoroughly impregnated with naphthaline, which takes the place of the sap and water it expels, will have peculiar advantages in its susceptibility to polish, for which merely rubbing with a cloth will be sufficient. In India where, owing to climate and other influences, not only wood but other products are prone to sudden changes and decay, an experiment like the above is worth adopting.

ECONOMY OF GAS ENGINES.

AN electrical paper says that "the waste involved by the intervention of the steam engine, with the clumsy modes of raising steam and the clumsier ways of utilizing it, is apparent to any one who looks into the calorific value of fuel." That is a sort of preface to the statement that gas engines are "beating the steam engine, both in fuel consumption and in general economy." Then it proceeds, "It is to be hoped that some central station in this country may be induced, at all events, to try a supplementary gas plant or two for day loads or for emergency use." If the gas engine is so very economical, why use it merely for emergency purposes? The position of the gas engine is well understood, and users of steam are quite aware that they do not get the full value of the fuel; but no "electrician" has yet attempted to improve on the "clumsy method of raising steam" except the man who was going to use electricity to raise the steam that produced the electricity. He is still "going to." -English Mechanic.

PAINT AND SHINGLES.

THE Timberman remarks that it has always seemed that in the use of paint to preserve wood exposed to the weather, the fact that a shingle roof was omitted from the catalogue was invariably the rule. This idea or oversight was one of the things in which custom becomes habit, and because every one else did so, all the rest followed suit. It is safe to presume that the custom of leaving the shingle roof unpainted originated in its angular form being less exposed to the after effects of rain and snow. A little thought will show the folly of such a conclusion when remembering the frail nature of a shingle and the slight fastening it has. If paint would be useful to any weather exposed surface it would certainly be so on a roof. The fact goes without telling, and in the present style of suburban residences the roof receives its share of paint along with the rest of the building, thus at once combining the useful with the beautiful. It is certainly singular that painting of roofs has not always prevailed, and it adds much to the finish and character of the building to see the roof painted. When the thin, slender nature of the shingle is taken into consideration, it will be plain to every one that sun cracks will easily go through the shingles, and to that extent render it worthless. The only way to overcome this is to paint, and always keep the shingles painted.

NEW HARDWOOD MACHINERY.

SOME ingenious mechanisms for the working of hardwood have recently been introduced. One of these is a boring machine adapted to making holes for blind nailing in hardwood floors, which works automatically, and accomplishes the object in view most perfectly; that is, the stock is carried forward by a fluted roll,

and is stopped by a cam at proper distances from the boring of the hole by the bit which operates horizontally, the board being carried on an angle. Another efficient mechanism in this field is a hardwood flooring apparatus, which takes the rough stock, planes it on both sides and matches it, and has five cutting cylinders, the first having a flexible bar, which allows of the free passage of irregularities in stock and insures the presentation to the second cylinder of a uniform surface, and this followed by top, side and bottom finishing cylinders; the side finishing cylinders are equipped with a weighted chip-breaking bar, which prevents splintering the stock; the six feed rolls are nine and a half inches in diameter, being all geared, and the back rolls are placed beyond the last cylinder, thus carrying all stock clear through the machine—the largest size taking stock of some eighteen inches width by six inches thickness.

A MILL WHERE BELTS ARE NOT USED.

A NEW Belgium factory uses electricity to transmit its power instead of belting. The dynamo is of 500 horse-power, and forms the fly-wheel of the compound Corliss engine. The shop is supplied with sixteen motors, among them ten 16 horse-power, one 21 horse-power, and one 37 horse-power motors. Their average efficiency is 87.2 per cent. On some of these motors the load is very variable, and several are exposed to dust and dirt, so that with 90 per cent. efficiency of the dynamos, 98 per cent. of the conductors, 87 per cent. of the motors, the net result is 76.6 per cent. power delivered. As the lost work in belt driving is practically a constant quantity for all loads, or at least is usually considered to be, the power required to turn the shafting, pulleys, etc., at the normal speed when no work is being done on the machines, it follows that taking 79.4 per cent. as the final output in two cases, one of electrical and the other of mechanical transmission, we find that at a load of 20 per cent. the electrical system would still give 47.2 per cent. useful effect and the mechanical nothing at all. From careful experiments which have been made in actual practice, it has been clearly proven that to drive all the machines idle needs more power than to drive the shops in the ordinary course of work; whereas eleven electrical horse-power is required when driving all the tools idle, only about seven electrical horse-power is needed in ordinary work, of which four electrical horse-power is used to drive the shafts, belts, etc., alone; this clearly shows how small a part of the power produced by the engine is actually used in useful work at the tools.

Such satisfactory results of the application of electricity to factory driving must attract attention, and will doubtless lead to great changes in transmission. Whether in the case of large machine tools it would not be better to discard shafting and belts altogether and supply a special motor to each tool, is a question which must be settled for each individual case which may arise: the current could be switched on or off just as easily as the belt is now thrown from the loose to the fast pulley, and vice versa.

NEWS AND NOTES.

Fred. W. Bonness, a Minneapolis lumberman, is in New Brunswick, spending a few weeks with his brother, J. D. Bonness, of St. Stephen. Fred has been absent from the province for about 25 years.

It is stated that the property of the late John A. Morrison, of Fredericton, N.B., will not realize sufficient to liquidate the debts. For this reason his son, John A. Morrison, jr., has declined to accept the bequest of the will, which gave him the mill property contingent on his paying the debts. The mill property has been bought by James Murchie & Sons, of Calais, and Ned Murchie will move to Fredericton to take charge of the business.

WANTED AND FOR SALE

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

WE WANT ALL KINDS OF HARDWOODS. Will pay cash. ROBERT THOMSON & CO., 103 Bay Street, Toronto.

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

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

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

LUMBERMEN

EXPERIENCED SHIPPER OPEN FOR EN- gagement middle of May. Good bookkeeper and correspondent. Competent to take charge of mill. References furnished. Address: "Inspector," care CANADA LUMBERMAN, Toronto.

RAILS FOR TRAMWAYS

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

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

TO EASTERN STATES LUMBERMEN.

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

WANTED FOR CASH.

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

WANTED FOR CASH

Ash and Soft Elm

MOSTLY ONE-INCH, SOME ONE-AND-A- quarter and one-and-a-half inch, strictly first and second; also common. Furthermore, Ash and Oak squares from one-and-a-half to four inches thick. Red Birch Lumber, 1 and 1 1/2, all thickness; also Red Birch Squares 5 x 5 and 6 x 6, ten feet and over long. Address all particulars as to dryness, quality, quantity on hand and price, to P.O. Box 2144, New York, N.Y.

AUCTION SALE

OF CANADA

PINE TIMBER LIMITS

IN ORDER TO WIND UP THE AFFAIRS OF "The Georgian Bay Consolidated Lumber Company," the following Timber Berths will be sold by public auction in the City of Toronto, during the early part of August next.

Berths Nos. 41, 45, 60 and 61, each containing 35 square miles, more or less, tributary to the Wabigoon River.

Berths (south halves of 41 and 49), each containing 18 square miles, more or less, situated on Lake Wabigoon.

These Limits are in the District of Nipissing, on the North Shore of the Georgian Bay. The waters of Lake and River Wabigoon empty south into the French River, thence into the Georgian Bay. The licenses give the right to cut all kinds of timber. The ground rent is \$1.00 per square mile, and the Crown dues are \$1.00 per thousand feet 15 m. for pine saw logs.

Notice will be given later on of the time of sale, and the terms and conditions will be made known on the day of sale.

THE GEORGIAN BAY CONSOLIDATED LUMBER CO., 74 King Street West,

Toronto, April 2nd, 1893. Toronto, Canada.

VALUABLE

Timber Lands
—AND—**Saw Mills**
FOR SALE
AT PARRY SOUND

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

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

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

Price: Twenty-five thousand dollars. Terms as may be agreed upon.

WM. BEATTY, Parry Sound.

CANADA
(PROVINCE OF NEW BRUNSWICK)

SALE OF TIMBER LICENSES

Covering a large portion of the Crown Lands of the Province.

THE RIGHT OF LICENSE TO CUT AND carry away all classes of timber or lumber from the principal timber lands of New Brunswick, will be offered for sale at the Crown Land Office, Fredericton, N.B., on

Tuesday, August 29th, 1893

and following days.

The timber licenses to be sold will cover an area of about 4,400 square miles (or 2,201,000 acres) of Crown Lands.

These Licenses will be for one year, with the right of renewal for a term of 25 years from the 1st day of August, 1893, on fulfilment of all conditions of license.

Licenses will be offered at an upset price of \$2.00 per square mile, and conditions being complied with, may be renewed from year to year during the term, on payment of \$4.00 per square mile; this mileage being in addition to stumpage dues.

The stumpage payable on lumber to be cut has been fixed for the present at the following rates:

| | |
|----------------------------------|-----------|
| On Spruce, Pine and Hardwood Saw | per M. |
| logs | supp. ft. |
| Cedar logs | \$1.00 |
| Hemlocks | .20 |
| | .30 |

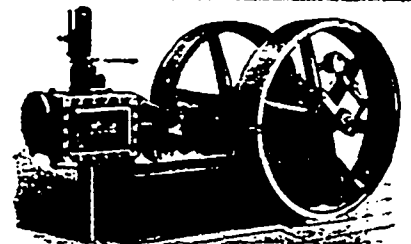
Other lumber as per regulations.

Copies of the regulations to govern this sale, and any further information required, may be had on application to

L. J. TWEEDIE, Surveyor General,

or W. P. FLEWELLING, Lumber Agent.

Crown Land Office, Fredericton, New Brunswick, 14th July, 1893.



ROBB-ARMSTRONG ENGINES

All parts interchangeable, Governor either Automatic or Throttling.

Monarch Economic Boilers
Economical
Portable
Durable

MILL MACHINERY AND SUPPLIES,
WOODWORKING MACHINERY,
ETC.

ROBB ENGINEERING CO. LTD.

AMHERST - NOVA SCOTIA

3½ Cents a day—

That isn't much money, is it?

About twenty-five cents a week or so.

And a man must be pretty hard up if he hasn't that much to spend every week.

Times are hard, they say; but if they are hard now to your family and yourself, what will they be to your family without you?

That's worth thinking about.

We think that no man should be without life insurance when it can be had at such a low rate as 3½ cents a day from the Manufacturers' Life, Yonge Street, corner Colborne, Toronto.

Write to us and we will give you all particulars.

DONOGH & OLIVER



WHOLESALE DEALERS IN

LUMBER



OFFICE
Nos. 213, 214 and 215
Board of Trade Building
Toronto, Ont.

Representative Lumber Manufacturers and Dealers

| TOWN | Railway, Express, or nearest Shipping Point | NAME | BUSINESS | Power, Style and Daily Capacity |
|-----------------------|---|--|--|--|
| Ottawa, Ont. | Ottawa | Booth, J. R. | Lumber, Wholesale and Retail. | Steam, Circular and Band Mill |
| Ottawa, Ont. | Ottawa | Bronson & Weston Lumber Co. | 2 Sawmills, White and Red Pine, Wholesale | Water, Gang and Band, 4500 |
| Ottawa, Ont. | Ottawa | OTTAWA LUMBER CO. | Lumber, Pine, Spruce, Hemlock, Wholesale | Water, Gang and Band, Saw 4000, |
| Ottawa, Ont. | Ottawa | Peiley & Pattee | Saw and Lath Mill, Pine, Wholesale | Lath 7000 |
| Parry Sound, Ont. | Utterson | Conger Lumber Co. | Lumber, Wholesale and Retail. | Water, Gang, Circular, Saw 600, |
| Parry Sound, Ont. | Parry Sound | Parry Sound Lumber Co. | Saw, Shingle and Lath Mills, Pine, Wholesale | Shingles 7000, Lath 1000 |
| Muskoka Mills, Ont. | Penetanguishene | Muskoka Mill and Lumber Co., Head Office, Arcade, 24 King st. w., Toronto | W. Pine Lumber, Lath and Bill Stuff, all lengths | 2 Mills, Water, 1 Band, 2 Gangs and 3 Circulars |
| Alexandria, Ont. | Alexandria | McPherson, Scheil & Co. | Cheese Box Factory, Pine, Spruce, Cedar | Circular, 300 |
| Almonte, Ont. | Almonte | Caldwell, A. & Son | Sawmill, Pine, Lumber, Hemlock, Hardwoods | Steam, Circular, 400 |
| Barrie, Ont. | Barrie | Dymont & Mickle | Saw, Shingle and Heading Mill, Pine, Cedar | Steam, Circular, 1600 |
| Barrow Bay, Ont. | Warton | Barrow Bay Lumber Co., Limited | Oak, Oak Railway Ties, Paving Blocks | 2 Stm., Band, Cir., S. 7500, Sh. 6000 |
| Blind River, Ont. | Blind River | Blind River Lumber Co. | 2 Saw, Sh. and Lath Mills, Pine, Hem., Bl. Birch | Lumber, Shingles, Wholesale |
| Bolsayson, Ont. | Feuelon Falls | Boyd, Mossom & Co. | Lumber, Wholesale and Retail. | Pine only |
| Bracebridge, Ont. | Bracebridge | DOLLAR, JAMES | Lumber, Wholesale and Retail. | Waukegan mill, 8000; Pt. Severn mill, water, 12000 |
| Barrie, Ont. | Barrie | Burton Bros. | Lumber, Wholesale and Retail. | Steam, 2 Circular, 800 |
| Waukegan, Ont. | Waukegan | Georgian Bay Consol. Lumber Co. H.d. office arcade 24 King st. w., Toronto | Lumber, Wholesale and Retail. | Steam, Circular, 600 |
| Calabogie, Ont. | Calabogie | Carswell, Thistle & McKay | Lumber, Wholesale and Retail. | Steam, Cir., Saw 1400, Sh. 2000 |
| Callander, Ont. | Callander, G.T.R. | John B. Smith & Sons | White and Red Pine Lumber, Bill Stuff, Lath and Shingles | Steam, 2 Circular, 800 |
| Collins Inlet, Ont. | Collins Inlet | Head Office, Stradlan Ave., Toronto | Lumber, Pine, Oak, Ash, Birch, Whol. and Ret. | Steam, Circular, 600 |
| Cumber, Ont. | Cumber | Collins Inlet Lumber Co. | Saw and Stave Mill, Pine, Hardwoods | Steam, Cir., Saw 1400, Sh. 2000 |
| Clammy, Ont. | Pinkerton | Ainslie, J. S. & Bro. | Saw, Shingle and Lath Mill, Timber Laths | Lumber, Wholesale and Retail. |
| | | McIntyre, N. & A. | Hemlock, Pine, Lumber, Hardwoods | Lum., Tim., Pine, Hem., Hwds. Whol. and Ret. |
| Hamilton, Ont. | Hamilton | BRADLEY, MORRIS & REID CO. | Sawmill, Pine, Spruce, Hemlock, Hardwoods | Steam, Circular, 2500 |
| Huntsville, Ont. | Huntsville | Heath, Taft and Turnbull | Sawmill, Pine, Spruce, Hardwoods | Steam, Circular, 400 |
| Huntsville, Ont. | Huntsville and Kaurine | Thomson, Robert & Co. | Sawmill, Pine, Hardwoods, Wholesale | Water, Band and Circular, 1000 |
| Keewatin, Ont. | Keewatin | Dick, Banning & Co. | Saw, Lath, Sh. and Pl. Mill, Moving Posts, Pine | Steam, Circular, 2500 |
| Keewatin, Ont. | Keewatin | Keewatin Lumber & Mfg. Co. | Lumber, Wholesale and Retail. | Steam, Band and Circular, 1000 |
| Lakefield, Ont. | Lakefield | Lakefield Lumber Mfg. Co. | Sawmill, Pine, Ash, Birch, Oak | Steam, Circular, 2500 |
| Little Current, Ont. | Sudbury | Conlin, T. & J. | Lumber, Wholesale and Retail. | Steam, Band and Circular, 1000 |
| London, Ont. | Sudbury | Howry, J. W. & Sons | Exp. and dlr. in Am. Hwds. made to specification | Steam, Circular, 400 |
| Longford Mills, Ont. | Longford | Gordon, James | Saw and Plan. Mill, Hemlock, Hardwoods, Whol. | Steam, Circular, 400 |
| Mount Forest, Ont. | Mount Forest | Longford Lumber Co. | Cherry, White Ash, Hardwoods, Wholesale | Steam, Circular, 400 |
| Norman, Ont. | Norman | Greensides, W. S. | Saw and Plan. Mill, Tim. Laths and Legs, Pine | Lumber, Wholesale and Retail. |
| Norman, Ont. | Norman | Cameron & Kennedy | Hardwoods, Shingles, Lath, Handles | Steam, Circular, 2000 |
| Norman, Ont. | Norman | Minnesota & Ontario Lumber Co. | Lumber, Wholesale | Con. |
| Louise, Ont. | Elmwood, G.T.R. | S. B. Wilson & Son | Lumber, Wholesale | Con. |
| Toronto, Ont. | Toronto | Campbell, A. H. & Co. | Lumber, Wholesale | Con. |
| Toronto, Ont. | Toronto | F. N. Tennant | Lumber, Wholesale | Con. |
| Toronto, Ont. | Toronto | Donogh & Oliver | Lumber, Wholesale | Con. |
| Toronto, Ont. | Toronto | Victoria Harbor Lumber Co. | 1 Saw, Shingle and Lath Mills, White Pine, Whol. | Con. |
| Toronto, Ont. | Toronto | W. N. McEachren & Co. | Lumber, Wholesale | Con. |
| Toronto, Ont. | Toronto | James Tennant & Co. | Lumber, Lath, Shingles, etc., Wholesale | Con. |
| Warton, Ont. | Warton | Miller, B. B. | 3 Sawmills, Lumber, Barrel Heads | Steam and Water, Circular, Portable and Stationary, 1000 |
| Buckingham, Que. | Buckingham | Ross Bros. | 2 Sawmills, Pine, Spruce, Hardwoods | Circular, Gang and Band, 1500 |
| Toronto, Ont. | Toronto | DeLaplante & Bowden | Pine and Hardwood Lumber, Whol. and Retail. | Steam, Circular and Gang, 600 |
| Cookshire, Que. | Cookshire | Cookshire Mill Co. | Saw, Shingle, Planing, Stave and Heading Mill | Steam, Circular and Band, 900 |
| Montreal, Que. | Montreal | Dutresse, O. Jr. & Frerc | Sawmill, Pine, Spruce, Hemlock, Hdwds., Whol. | Steam, Circular, 2000 |
| Montreal, Que. | Montreal | Roberts, Joseph & Fils | Saw and Planing Mills, Sash, Doors and Blinds | Int. Fin. Spruce, Hardwoods, Wholesale |
| Montreal, Que. | Montreal | SHEARER & BROWN | 1 Sawmills, Oak, Ash, Elm, Pine, Hem., Dim. | 2 Stm., 2 Wat., Band, Cir., 400 |
| New Westminster, B.C. | New Westminster | MOODYVILLE SAWMILL CO. | Sawmills, P. Fir, Spruce, Cedar, Hardwoods | Steam, Circular, 200 |
| New Westminster, B.C. | New Westminster | Brunette Sawmill Co. | Saw and Planing Mills, Sash, Doors and Blinds | Steam, Gang and Circular |
| Canterbury, N.B. | Canterbury Sim. | James Morrison & Son | Fir, Cedar, Spruce, Hardwoods | Steam, Circular, 350 |
| Hildgewater, N.S. | Hildgewater | DAVIDSON, E. D. & SONS | Sawmill, Pine, Hardwoods | Water, Circular and Gang, 2000 |

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

LUMBER TRUCK WHEELS

The Montreal Car Wheel Co.

... MANUFACTURERS OF ...

Charcoal Iron Gilled

RAILROAD WHEELS

OFFICES:

NEW YORK LIFE INSURANCE BUILDING, MONTREAL

WORKS: LACHINE, QUEBEC

We make a specialty of Wheels suitable for the requirements of Lumbermen and Street Car Service, and can supply them direct, finished and balanced.

CORRESPONDENCE SOLICITED

OAK TANNED BELTING

TORONTO
20 FRONT ST EAST
TELEPHONE 475

THE J.C.M^cLAREN BELTING CO MONTREAL

MACHINERY

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

- ONE BOILER, TO BRICK IN, 44 IN. DIA. x 11 ft. 7 in. long, 41 3/4 in. tubes, in first-class order.
ONE BOILER, TO BRICK IN, 44 IN. DIA. x 11 ft. 8 in. long, 38 3/4 in. tubes, in first-class shape.
THREE 25 H.P. PORTABLE LOCO. FIRE BOX BOILERS, in good order.
ONE 20 H.P. RETURN TUBULAR BOILER, to brick in.
TWO 6 H.P. FIRE BOX BOILERS FOR cheese factories.
ONE 12 x 16 SLIDE-VALVE ENGINE, BECKETT'S MAKE.
TWO 8 x 12 SLIDE-VALVE ENGINES, Goldie & McCulloch and Morrison makes.
ONE 6 1/2 x 9 SLIDE-VALVE ENGINE, COPP BROOK, & HARRY MAKE.
TWO 3 1/2 x 9 SLIDE-VALVE ENGINES, BECKETT'S MAKE.
ONE 6 H.P. ENGINE, UPRIGHT, with 9 H.P. boiler combined on one cast iron base.
ONE 15 H.P. ENGINE, English make.
ONE 14 H.P. LEONARD MAKE ENGINE, nearly new.
ONE 12 H.P. HORIZONTAL PORTABLE ENGINE and boiler on skids; Ames & Co., makers, Oswego, N.Y.

MACHINERY:—

- ONE 24-INCH MCGREGOR, GOURLAY & CO. make heavy surface planer, almost new.
TWO 24-INCH CANT, GOURLAY & CO. MAKE light surface planers, in good order.
ONE GOLDIE & McCULLOCH THREE-SIDE moulder.
ONE ONE-SIDE MOULDER.
TWO 34-INCH WHEELS BAND SAWING machines.
ONE ALMOST NEW VERTICAL SPINDLE boring machine, McGregor, Gourlay and Co.'s make.
ONE ALMOST NEW IRON TOP JIG SAW, Cowan and Co., makers.
ONE GOOD SHAPER.
SIX GOOD SAW TABLES.
ONE NEARLY NEW GOLDIE & McCULLOCH tenoner, with double copes.
ONE WOOD FRAME TENONER IN GOOD shape.
TWO UPRIGHT SWING SHINGLE OR heading machines, with jointers.
ONE ALMOST NEW GENUINE "BAILEY" gauge or handle lathe, with countershaft.
ONE ALMOST NEW SPINNING LATHE FOR making spun metal work, with countershaft.
FOUR DOWELL MACHINES.
ONE 20-INCH WATEROUS CHOPPER COMPLETE with double elevators, equal to new.
FULL PARTICULARS CHEERFULLY GIVEN upon enquiry at the Canada Machinery and Supply Co., Brantford, Ont.

SECOND-HAND MACHINERY FOR SALE

One right hand 12 x 14 straight line engine, our make run a very short time.
One pair of engines, right and left, 16 x 20, can be used separately or together, with two large pulleys and fly wheel and connecting shaft.
Three boilers 48 x 14 with large domes, full fronts all fittings, fixtures and stack.
One 60 x 14 ft. 6 in. steel boiler, with 64 3/4 in. x 1 1/2 in. tubes, boiler made of 6 sheets double riveted on side seams, furnished complete with all fittings, fixtures and stack, boiler and fixtures are in perfect order having been run but three months.
One 36 x 14 boiler, comparatively new, has been in use less than a year.
One right hand iron saw frame, with mandrel, pulley, boxes, three 2 1/2 in. saws, 35 to two teeth in each, and one 64 in. saw, suitable for steam or independent friction feed.
One 3-hack heavy saw carriage, Sewry's make, with box, 40 x 5 V and flat track, frame and carriage are in good order, have averaged 3500 to 4000 ft. per day, only discarded to put in a hand mill and carriage suitable for same.
One left hand 3-hack light medium sized saw carriage with V and flat track.
Several portable engines from 12 to 20 horse power.

WATEROUS, BRANTFORD, CANADA

FOR SALE

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

WATEROUS, BRANTFORD, CAN.

GANG SAW FILERS

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

FOR SALE

50,000 Acres well-selected Timber Limits

IN COAST DISTRICT OF BRITISH COLUMBIA, close to tide water, together with a complete Saw Mill Plant. This valuable property can be bought at a bargain and on easy terms.

For information apply to or correspond with

H. H. SPICER, Vancouver, B.C.

AN ARTICLE FOR

LUMBERMEN AND LOGGERS

IN THE JUNE NUMBER OF

SCRIBNER'S MAGAZINE

ARTHUR HILL, President of a Saginaw Lumber Company, who began his career as a landlooker, has written the truest and most graphic account ever published of LIFE IN A LOGGING CAMP.

DAN BEARD, the well-known artist, made a special journey to a great lumber camp last winter to sketch the SHANTY BOY at work. Twenty of his realistic pictures appear in this article. Among them:

- THE SWAMPER THE LAND LOOKER
CHOPPER AND SAWYER
SHANTY BOY WITH CANT HOOK
SNAKING A LOG WITH SKIDDINGTONS
DINNER HOUR THE SKIDWAY
A LOG TRAIN A MOSS BACK
COOK'S DEVILS SUNDAY IN CAMP
A BANKING GROUND

This article is in the series on MEN'S OCCUPATIONS, which will run through the year, and includes The Sailor, The Actor, The Printer, The Journalist, and The Machinist. Each article elaborately illustrated.

25 CENTS A NUMBER \$3.00 A YEAR

CHARLES SCRIBNER'S SONS

743 BROADWAY, NEW YORK

THE

NORTH SHORE NAVIGATION CO.

Royal Mail Line of Steamers

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

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

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

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

Commencing Thursday, May 4th

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

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

CANADIAN

LUMBERMAN'S DIRECTORY

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

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

TO THE PUBLISHER OF

THE LUMBERMAN'S DIRECTORY

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

1893

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

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

Card of Enquiry to Lumbermen.

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

Power, style and capacity of mill:
Class of manufacture:

Post Office: Shipping Point:

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

Wholesale or Retail: Class of stock handled:

Post Office: Shipping Point:

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

Power and style:

Class of manufacture:

Post Office: Shipping Point:

(Signed) P.O.

Province:

Address all communications to

DIRECTORY DEPARTMENT, CANADA LUMBERMAN, TORONTO, ONT.

REGISTERED STAR BRAND PORTLAND CEMENT

Our own manufacture and unexcelled.

Its use is authorized by Province of Ontario and Toronto City Engineers.

Quality GUARANTEED, and always the same.

WORKS AT NAPANEE MILLS The Rathbun Co'y MANUFACTURERS, Deseronto, Ont.

F. REDDAWAY & CO. MANUFACTURERS OF CAMEL BRAND BELTING... LINEN FIRE HOSE... 57 ST. FRAS. XAVIER ST. MONTREAL

H. G. ROSS & CO. Real Estate, Fire and Life Insurance SHIPPING AND GENERAL COMMISSION AGENTS... NEW WESTMINSTER, B.C.

EVERY LUMBERMAN WANTS IT 35 CENTS BUYS IT Scribner's Lumber and Log Book SAVES TIME SAVES MISTAKES SAVES MONEY

BRIMFUL OF EVERY-DAY, PRACTICAL INFORMATION Address: THE CANADA LUMBERMAN, Toronto

35 CENTS BUYS FISHER'S GRAIN TABLES

The book contains more valuable information and useful tables for Farmers, Millers, Traders and others than any similar book of its kind ever published...

J. D. SHIER MANUFACTURER OF Lumber, Lath & Shingles BRIDGE, ONT.

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

WHY BAND SAWS BREAK

SIXTEEN REASONS, AND HOW TO AVOID THEM



Being instructions to filers on the care of large hand saw blades used in the manufacture of lumber. A book filled with valuable information on the care of hand 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.

Address— CANADA LUMBERMAN, Toronto, Ont.

ROBIN & SADLER Leather Belting SPECIALTIES DYNAMO BELTS WATERPROOF BELTING MONTREAL TORONTO

POROUS TERRA COTTA

Proved by actual and thorough tests to be the best fire-proofing material in use. Unequalled for making buildings, vermin, heat, cold and noise proof. For partitions, costs no more than brick; weight, one-third that of brick.

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THOS. McGRACKEN (Member Toronto Stock Exchange) BROKER & FINANCIAL AGENT DEALS SPECIALLY IN TIMBER LIMITS No. 2 Victoria Street, TORONTO, ONT.

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HALF-TONE CUTS made direct from photos our speciality. LINE CUTS for Newspaper and other advertising purposes. Send for Catalogue and Prices. MOORE & ALEXANDER, Props. TEL. 2158

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MACHINE KNIVES

OF EVERY DESCRIPTION FOR

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MAITLAND, RIXON & CO.

OWEN SOUND, ONT.

Saw Miller's and Lumber Dealers

All kinds of Building Material kept in stock

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

Quotations furnished on application

The Rathbun Company

DESERONTO, ONT.

MANUFACTURERS OF

Doors, Sash, Blinds, Stairs

And all kinds of House-Finishing Materials

VENEERED DOORS a specialty

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CANADIAN WOOD GOODS

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Canoe, Yacht and Boat Sails made to order. Perfect Fits Guaranteed.

Every description of Lumbermen's Supplies and Waterproof Clothing.

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LUMBER, LATH AND SHINGLES

... CORRESPONDENCE SOLICITED ...

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Obtained in Canada.

UNITED STATES AND FOREIGN PATENTS A SPECIALTY.

Engineering Drawings Furnished.

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Toronto

Lumbermen

YOUR BUSINESS IS HELPED BY ...

.. ADVERTISING ..

... IN ...

CANADA LUMBERMAN

.. .. WRITE FOR PARTICULARS

Dauntless Shingle and Heading Machine

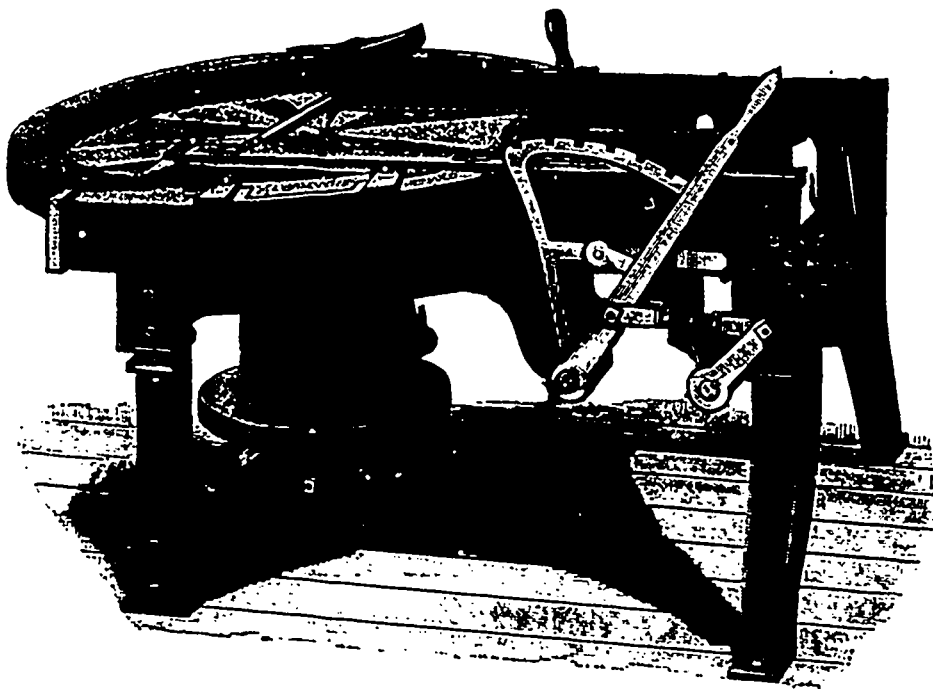
.. WILL make more Shingles per day than any self-acting machine with vertical saw in existence, and more Shingles from the same quantity of timber.

THE FRAME

... Is of Iron throughout, very heavy and rigid, strongly bolted and braced.

THE CARRIAGE

... Is very light and strong, made of forged Cast Steel Plate, running on steel ways or tracks. Will take in a block 18 inches wide and 19 inches long, adjustable for 16-inch or 18-inch shingles.



—CAPACITY FROM 25,000 TO 50,000 PER DAY—

[cont.]

LINDSAY, May 16th, 1893.

Mr. F. J. DRAKE, Belleville.

Dear Sir, The shingle machine we bought of you over a year ago is doing well. Last year we averaged over 37,000 shingles per day all through the season. We did not lose 15 minutes' time from all stoppages, and all repairs so far have not cost you. We expect to make a still higher average cut this year.

All our other machinery purchased from you is as good as the shingle machine. Your drag saw, with friction drive, cannot be beaten. We run ours 180 strokes per minute; with 6 1/2 ft. saw it would easily make blocks for two shingle machines. The splitter, with balance wheel 4 feet diameter, weighing 1,000 lbs., is perfect and runs without the least jar. The iron frame shingle jointer with 40-inch saw is the only good jointer we ever saw. In fact, all your machinery, line shaft, pulleys, etc., give us the best satisfaction.

We expect to require another mill in a few days, and, if we do, will send you the order for complete outfit.

Truly yours,

M. DONEY.

P.S.—If any one wants to see a good working shingle mill send them to me.—M. D.

F. J. DRAKE

PATENTEE AND ... MANUFACTURER OF SAW, SHINGLE AND LATH MACHINERY
BELLEVILLE, ONT.

Do You Lack Steam? We Can Help You THE CANADIAN HOLLOW BLAST GRATE

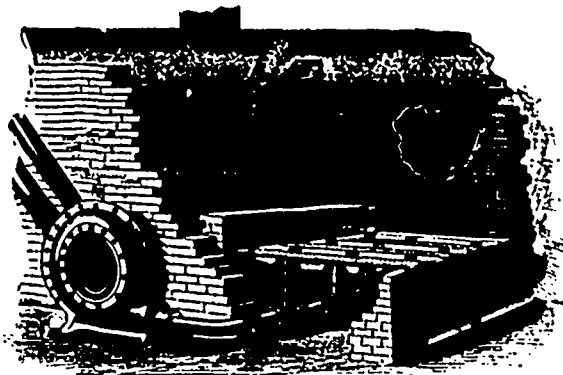
The Hollow Blast Grate supplies the furnace fire with a blast of hot air sufficient at all times to insure the rapid and perfect combustion of fuel of every sort.

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

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

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

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



Furnace Fitted with Hollow Blast Grates and Apparatus.

HUNDREDS OF TESTIMONIALS LIKE THE FOLLOWING:

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

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

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

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

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

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

IT COSTS YOU NOTHING TO TRY THEM

FOR INFORMATION, PRICES OR ESTIMATES, ADDRESS

WE GUARANTEE SATISFACTION OR NO SALE

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

A. ALLAN, President

J. O. GRAVEL, Secretary-Treasurer

J. J. MCGILL, Manager

F. SCHOLES, Managing Director



Canadian Rubber Company

Capital, \$2,000,000.00

of MONTREAL, TORONTO and WINNIPEG

MANUFACTURE



SUPERIOR QUALITY

RUBBER GOODS

for Mechanical Purposes

RUBBER BELTING, PACKING, HOSE



FORSYTH

Seamless Rubber Belting

Seamless Tube Hose

These Patents we control for Canada

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Western Branch: CORNER YONGE AND FRONT STREETS

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J. H. WALKER, - - Manager



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

FROM
Port Huron and Detroit

Is the Short Line to

SAGINAW AND BAY CITY

(Centres of the vast lumber interests of Michigan)

MT. PLEASANT, CLARE, REED CITY

BALDWIN, LUDINGTON, MANISTEE

AND

MILWAUKEE AND MANITOWOC, WIS.

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

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

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

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

A. PATRIARCHE, Traffic Manager.

GENERAL OFFICES: - SAGINAW, MICH.

Actual Results

NET PREMIUMS
PAID TO THE

ONTARIO MUTUAL LIFE

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

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| In 1872... Paid \$26.57 | In 1882... Paid \$13.20 |
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Total Paid in 20 years... \$321.29

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MACHINERY
ILLUSTRATED CATALOGUE FREE
H.W. PETRIE
TORONTO CANADA

USE SPINDERS HONOR BRIGHT
GOPPERINE
BEST MACHINERY BOILING EXTRACT.
CANADIAN MADE. STUMPS THE WORLD.
QUALITIES TO DO ALL YOUR WORK.
HARDWARE TO DO ALL YOUR WORK.
COOL BEARINGS. ALL SELL IT.
LASTS AS LONG AS YOU WANT IT.
GENUINE. NO HOT BOXES.
FOR ENGINES. SAFEGUARD
HIGH CLASS
METAL

Rochester Bros.

: : COMMISSION AGENTS

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

36 Rochester St. **Ottawa**



SCRIBNER'S LUMBER AND LOG BOOK

OVER ONE MILLION SOLD
Most complete Book
of its kind
ever published

Gives measurement of a kinds of Lumber, Logs, Planks, scantling; cubical contents of square and round timber; hints to lumber dealers; wood measure; speed of circular saws; care of saws, coldwood tables; felling trees; growth of trees; land measure; wages, rent, board, interest, stave and heading bolts, etc. Standard book throughout the United States and Canada. Get the new illustrated edition of 1882. Ask your bookseller for it. Sent post paid for 15 cents.

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Box 236, Rochester, N.Y.

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FIRE PROOF
ROOFING
ILLUSTRATED CATALOGUE FREE
METALLIC ROOFING CO.
MANUFACTURERS TORONTO

A FEW SUGGESTIONS

..... REGARDING THE SUCCESSFUL

Drying of Lumber, Shingles, Heading, etc.

It is a difficult matter to set forth in a brief communication the reasons why some kilns are faultless and others worthless. Arguments may be convincing to those who have had experience, and yet bear no weight with those who have not. It is a fact accepted by all, however, that lumber can be dried without injury if the passage of the interior moisture to the surface precedes or keeps pace with surface evaporation. If the operation is uniform and extends to all parts of the material, uniform results will be obtained without warping, twisting or injury. Restrict the application of heat to one side or one edge of a board, for instance, and it will be unevenly dried and left in a warped, crooked and strained condition. Hasten the surface evaporation without expediting the escape of interior moisture proportionately, and the exterior will contract more rapidly than the interior, and checking and injury will result. Heat will drive the interior moisture to the surface, but too much heat or too little or an uneven application of it, is disastrous. If evaporation is properly controlled, most lumber one inch or less in thickness will stand a temperature of 100 deg. at the start and an increase of 1 deg. per hour until evaporation is completed. Time is saved by applying as much heat as lumber will stand. We pipe our kilns the entire length, graduating the heating surface so as to increase the temperature 1 deg. to the foot, measuring from cold end. In a kiln 100 feet long with a temperature of 100 degrees at the receiving end, this gives 200 deg. at the unloading end. Whether temperature be higher or lower, and kiln loaded or empty, the graduation of heat remains uniform. Pipes are so placed that the lumber feels the direct radiation of heat. The circulation is upward through the lumber, and downward at sides between brass condensing plates and inner partitions. Thus an absolutely even and progressive heating is secured. A circulation lengthwise of kiln is wholly avoided, a humid or saturated atmosphere can be maintained about lumber while heating up, and during the entire process heating precedes evaporation. As might be expected, the highest results are obtained, and never anything else. We avoid engines, fans, chimneys and additional heating rooms, having a natural and perfect circulation in a vertical direction, the only one that will secure even heating. The kiln is fire proof and more durable and sightly than any other. The last degree of economy is reached as we supply only the heat absorbed by the lumber, and that lost on the condensing plates. Among those who have bought and used all the kilns that have come upon the market, certain facts are accepted as satisfactorily proven.

1st.—That condensing kilns have a clear advantage over all ventilating systems of 30% to 50% in running expenses—fuel and attendance.

2nd.—That lengthwise or horizontal currents of hot air in a long kiln cannot possibly be made to heat or dry lumber evenly. If entrance and departure is at top of kiln, the body of heat will be at top, and bottom lumber will mildew. If entrance and departure be at bottom under the two end cars, the heated current will rise in centre taking a rainbow shape. An augur would be better adapted to rounding and truing billiard balls than such a current to even heating and drying of lumber.

3rd.—That all fans, blowers and power methods of creating circulation are worse than useless, because expensive, dangerous and destructive to even circulation.

4th.—That properly graduated heating appliances placed the entire length of kiln so that lumber will feel direct radiation of heat, is the only stable or unvarying or satisfactory means of securing or maintaining a progressive system of heating in a lumber dryer.

In conclusion, we can say this, we are prepared to give a valid guarantee to each purchaser, that our kiln will do more work in less time, at less expense, and in better condition than any other. When any other kiln will fill this guarantee, we will refund the cost of ours. We shall be pleased to furnish plans and estimates. Believing that purchasers need no other inducements than our guarantee, our references and our prices, we leave them to call on us, if they desire an interview instead of sending an agent to them, unless in exceptional cases. We shall be glad to have you call on us, and if you will to have you make our offices headquarters while in the city.

..... SEND FOR DESCRIPTIVE CIRCULAR OF THE

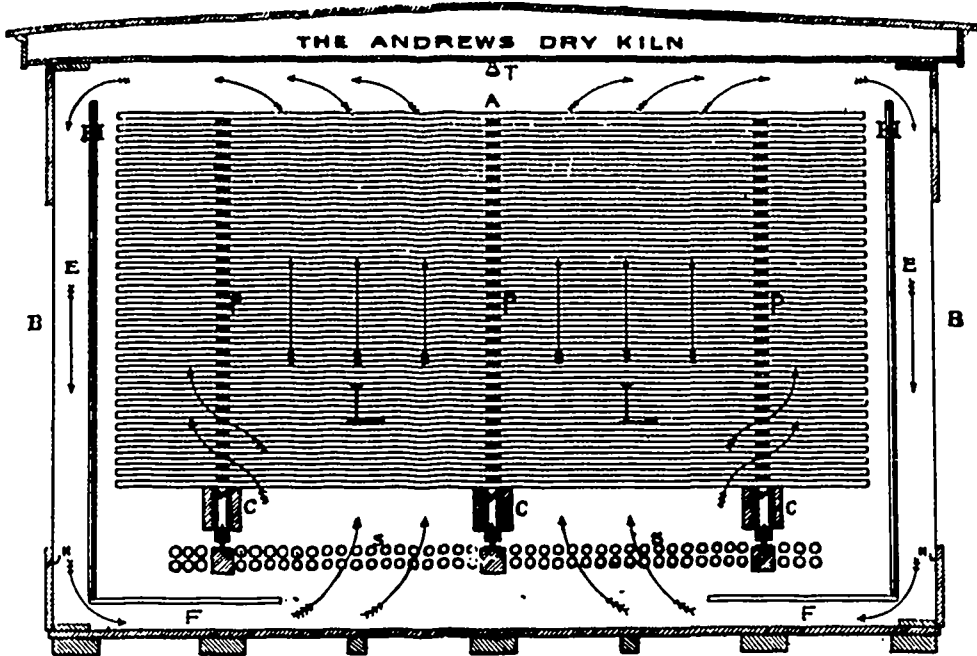
ANDREWS LUMBER DRYER

TO THE DOMINION DRY KILN COMPANY

TORONTO, ONT.

THE ANDREWS DRYER

For Lumber, Shingles, Staves, Heading, etc.



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

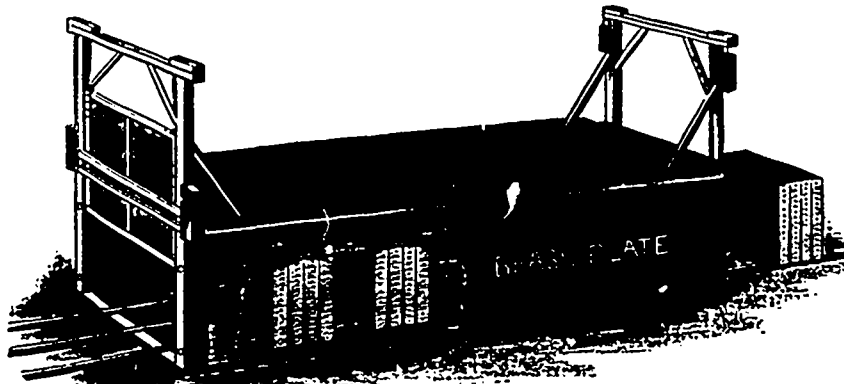
THIS DRYER

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

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

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

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



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

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

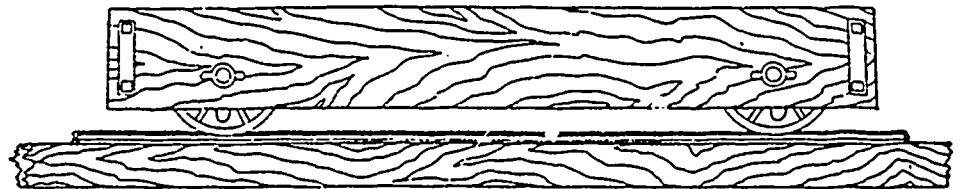
This is the verdict of a Quebec lumber firm, and we can give equal results every time.

The Andrews Lumber Dryer

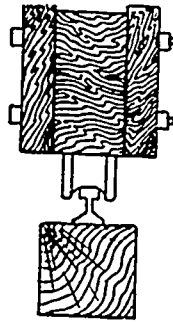
Has been proved to possess the following points of excellence:

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

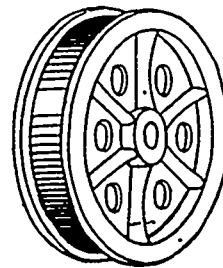
SEND FOR CIRCULARS



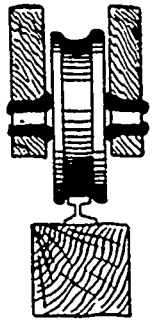
SIDE VIEW OF CAR AND TRACK.



DOUBLE FLANGE WHEEL ON SINGLE TRACK



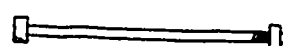
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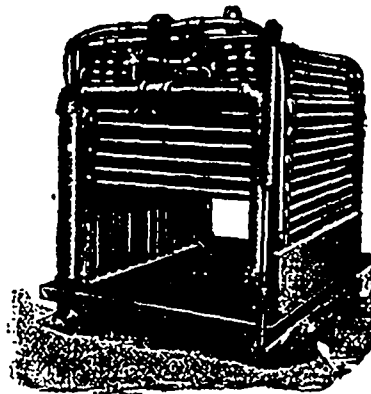
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