

SAW MILL BUILDING.

BY J. H. MINER.

AN ITEM to be closely considered in erecting any mill, is the timber supply. Few men can look over a tract of timber and not overestimate it. It is bad policy to erect a mill on a small lot of timber, calculating to buy the adjoining timber later. It will in many cases cost two or three times the amount that you could have got an option on it at. Better keep quiet and secure plenty of timber if any money is to be made.

Erecting a mill on a stream or water course, is a different thing. Here the location of the mill and opportunities of holding logs in swift water must be closely looked at.

The amount of waste around a saw mill can in many cases be worked up very economically, in a way not known to all. Where lath are not in sufficient demand, all slabs should be worked into box boards or heading, which will command a nice profit at your nearest city. An ordinary shingle machine can be used for this purpose and all trimmings can be utilized. A boy at a small cost will work up the refuse from a mill of 15,000 feet capacity.

The care and assorting of timber should be done but once. Many large mills spend more money to take care of their product than to make it. A good edgerman and assorter are necessary. The latter in ordinary mills may be one of the hands at a salary above the rest. Bad work starts back from the sawyer; where he uses bad judgment in setting and sawing, the edgerman is compelled to spoil more to rectify the carelessness.

Lumber should be well trimmed. Defects never grow smaller. Where judgment is not used, a board may be reduced from clear to a cull for the want of one foot more in trimming, or one inch in edging. When the lumber leaves a mill it should be so graded that there are no rejected pieces and no tearing down a stack to "pick." The policy of putting in a few better boards to compensate for some worse ones, will never work with customers. The natural tendency is toward accuracy. A man wants it as near alike as possible.

By close grading is where many yard dealers make the profit which the mill man should make. The shipments are made without much attention to rigid inspection. The buyer never gives any credit for what is above the inspection, but lays aside the lower grade and culls, that the mill man may come over and see for himself. Green lumber presents a deceiving appearance, and the mill man is surprised at shakes, loose knots, stained sap and the appearance of rot. The considerate, successful merchant classifies his goods. How many customers would be had and what would he make lumping certain articles together? Nothing; yet we see mill men with competition just as sharp working on this plan.

It is safe to count a ten per cent. loss by the time lumber leaves the mill until the money is received in the office, and many mills lose much more than this—not only from rejection because of bad assorting, but from the care and abuse lumber is subjected to in many yards.

HOW TO BE A SUCCESSFUL SAWYER.

1. Acquire a sufficient knowledge of machinery to keep a mill in good repair.
2. See that both the machinery and saws are in good order.
3. It does not follow because one saw will work well that another will do the same on the same mandrel, or that even two saws will hang alike on the same mandrel. On the principle that no two clocks can be made that tick alike, no two saws can be made to run alike.
4. It is not well to file all the teeth of circular saws from the same side of the saw, especially if each alternate tooth is bent for the set, but file one-half of the teeth from each side of the saw, and of the teeth that are bent from you, so as to leave them on a slight bevel, and the outer corners a little the longest.
5. Never file any saw to too sharp or acute angles under the teeth, but on circular lines, as all saws are liable to crack from sharp corners.
6. Keep your saw round, so that each tooth will do

its proportional part of the work; if a reciprocating saw, keep the cutting points jointed on a straight line.

7. The teeth of all saws wear narrowest at the extreme point; consequently they must be kept spread so that they will be widest at the very points of the teeth; otherwise saws will not work successfully.

8. Teeth of all saws should be kept as near a uniform shape as possible, in order to keep a circular saw in balance and condition for business.

9. Frosted steel is always brittle. No intelligent woodsman will use a good chopping ax on hard frozen timber until he has taken the frost out of it, and no intelligent sawyer ought to attempt to set the teeth of any saw without taking out the frost, if there is frost in it.

AMERICAN LUMBERMEN IN CANADA.

A RECORD OF SOME RECENT OPERATIONS.

G. A. BURTON, representing the Pulp Wood Supply Company, of Appleton, Wis., spent some time during September in the Algoma district with a view to making an arrangement with a responsible party for the taking out of some twenty thousands cords of paper wood.

H. M. Sage and Hiram Emery of Bay City, Mich., have purchased a timber limit on the Serpent river, and Mr. Emery has started camp with the intention of putting in 20,000,000 feet of logs, which will be towed to the Sage mill in Michigan. Without this supply the Sage mill was likely to have been closed down.

A. J. Scott and Eli McLaughlin, of Michigan are in the Georgian Bay section looking up timber limits for William Peter to stock his mill at Bay City, Mich.

An American lumber exchange gives currency to the rumor that Merrill & Ring, of Saginaw, Mich., are talking of turning over their mills at Parry Sound, Ont., to some other operators.

Edmund Hall, of Michigan has parties prospecting for timber berths, in the Georgian Bay territories.

A consignment of 306,685 feet of pine lumber from Byng Inlet, Ont., reached Bay City, Mich., per barge *Hercules* on 8th ult. There is said to be no previous record of the arrival at this port of a direct consignment of lumber from Canada.

Howry Bros., of Saginaw, Mich., shipped on 7th ult., from White Fish river, a raft of 3,500,000 feet of logs, and will take another over immediately on her return.

Nelson Holland of Michigan is a large buyer of Canadian logs.

The Saginaw Lumber and Salt Company depends almost wholly upon Canada for its supply of logs. The company owning a large body of timber on the Vermillion and Wahnapiatae rivers, and also on Fitzwilliam island.

A BOOK FOR LUMBERMEN.

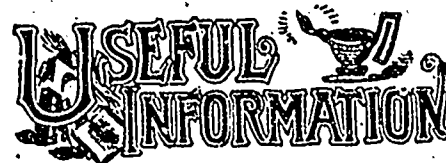
A VERY complete directory of lumbermen in Canada and the United States has just been issued by Rand, McNally & Co., of Chicago. The work contains the names of lumbermen, loggers, sash and door men—in truth of every one identified with the lumber trade. The financial rating of each firm, so far as it has been possible to cover the ground, is also given. The work besides contains much valuable information concerning the grading and inspection of lumber, legal pointers for lumbermen, and the power, style and daily capacity of the different mills in these territories. The work makes one large volume of nearly 700 pages, and the name of the veteran publishers is a guarantee of the excellent mechanical make-up of the book.

BITS OF LUMBER.

Shipments of lumber from San Francisco to South America for the first six months of 1891 fell short of those of the first six months of 1890 by over 5,000,000 feet.

More than 300,000 persons are occupied to-day in the United States in the direct manufacture of forest and saw mill products alone.

Rosewood takes its name not so much from its color as its fragrance when first cut. It still remains prince among the finer woods, being worth \$750 per 1,000 feet board measure.



When a belt breaks from a fair strain, it bursts nearly straight across at the weakest part. When a belt is broken diagonally across the solid leather, then be sure it is torn by something else than fair strain.

An expert in such matters says he has found the following the best thing he has tried for making joints against fluid pressure: Five pounds of paris white, five pounds of red lead, four pounds black oxide manganese. The whole is to be well mixed, and a little asbestos and boiled oil added. This, he says, soon becomes nearly as hard as the iron itself.

It is considered a good load for a belt to be able to manage fifty pounds for every inch in width; in fact this is considered about as much as a belt is able to stand, for seventy-five pounds for every inch in width to let the slack side run with only one third this strain, for it is the difference in tension that does the business in belt driving.

If you wish to prevent the slipping of pulleys, throw out your iron pulleys and put in wooden ones, or else cover the iron ones with leather or wood. High speed light belts should be fastened together with the strongest quality of bed ticking, torn into strips one inch wide and double lace into the belt. It will last longer than the best rawhide lacing, and when it breaks will give away all along and not tear out the holes in the belt. Those who do not believe this, just try it for any belt under eight inches in width.

A traveller has recently returned from Mexico with an idea which he hopes to utilize in the manufacture of flour. He notes that for centuries the Mexicans have been accustomed to parch their grain before grinding it, and claims to have discovered that the heat gives the flour a sweetness and fragrance unknown in the flour of ordinary brands, and at the same time adds much to its power of nutrition. Mills are to be equipped with apparatus for parching the wheat before putting it in the hopper.

One of the latest applications of electricity is to lumbering and a company has been formed for the purpose of exploiting a lumber carrier to be electrically worked. The apparatus consists simply of a clamp to be swung from trees or other supports on which hangs a cable; the cable is drawn taut, and on it run pulleys from which hangs the chains which carry the logs about three feet from the ground.

One very important cause of deterioration in boilers is due to the fact of their becoming too small to do the work without forcing, so that the pulsations of the engine cause a well marked succession of shocks on the boiler, which result in the weakening of the material. By placing one's hand on the head or shell of the boiler, the vibrations of the metal can be felt similar to the rising and falling of a man's chest while breathing.

To make elevator-cups discharge perfectly the speed of belt and size of pulley should be as follows: Of belt speed 200 to 250 feet per minute, size of pulley 24 inches; speed 300 to 350 feet, pulley 36 inches; speed 400 to 450 feet, pulley 48 inches; speed 500 to 550 feet, pulley 60 inches, and speed 600 to 650 feet, pulley 72 inches; or 35 to 40 revolutions per minute of any size pulley.

An excellent way to discover the whereabouts of pound about an engine is to place the end of a piece of rubber hose to one ear and the other at different parts of the engine. Sometimes it may be necessary to stop up the other ear, as sound travels in a very deceptive way. Some engineers put the end of a thin pine stick between the teeth, and let the other end touch the suspected part of the engine. We have always found the hose quicker and more reliable.

A shaft that is crooked, and is run in bearings that are in line, consumes power equal to the amount of strain it requires to spring it into line, and this strain is constant in any position that the shaft may be in, but as it revolves it shifts the strain to the bearings, and has a tendency to wear and loosen it. If the shaft is straight, and the bearings are out of line or level, the result is similar as to the constant strain of bending the shaft as it revolves, but the strain on the bearing will be one way all the time, and the tendency will be to wear the bearing in a direction that will allow the shaft to straighten itself. If the shaft is crooked and the bearings are out of line to the same amount, there will be one point in each revolution where there will be no strain, but opposite to that will be a point where it will be double, and the result will be a jerky motion, worse than if one or the other was right.