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**ON THE MANAGEMENT OF LOG BAND SAWS.**

The first and most important point in the management of band saw mills is to have the saws in perfect order, and to have them in perfect order it is imperatively necessary for the man having charge of them to know what is needed to be done to them to put them in proper shape for running.

1. You must have a good, solid, steel-faced anvil, as is commonly used for hammering saws. Put up a bench the height to suit operator, with anvil in centre. You must have two hammers, one a cross peno, about 2½ pounds in weight, the other round-faced, with face a little oval, weight about two pounds; also a straight edge made of steel, one-eighth of an inch thick, five or six feet long, and about four inches wide in the centre, perfectly straight on one edge. Put the saw on the bench with the back next to you, and straighten the back of the saw perfectly straight, using round-faced hammers, hammering on back edge if the saw is hollowing, on teeth edge if rounding. Continue around the saw until it is perfectly straight.

2. Put the saw on the bench so the bottom side will be on the bench, and top side on the hangers above. Take a short straight-edge in the left hand and a piece of chalk in the right, or vice versa, as suits operator. Go to end of the bench where the saw bends up to the hanger: put the straight edge crossways of the saw, holding it so as you can see plainly; then move the saw around, always keeping the straight-edge on the bent part of the saw; observe closely, and where the saw is a little rounding, say one-sixteenth of an inch in width of four inch blade, that part is right; but where it is not, mark with chalk on the inside in such a way as you will know when you come to the mark in hammering. Be careful to mark so you will know where to hammer light. Go all the way around the saw in this way, marking where the saw is tight and where it is loose.

3. Take a cross peno hammer (be sure, first, to have it nice and smooth, and just a little rounding, so as not to cut the saw in hammering) and commence hammering at the weld or mark where you start, so you will know when you get around. Strike the saw with long way of hammer crossways of the saw, and be sure not to strike closer than one inch of either edge; hammer around the saw in this way, striking light and heavy or not at all, according as your chalk marks indicate, being sure to always strike with your hammer square crossways of saw, otherwise you might put a twist in the saw.

When you have got around the saw as described, change the saw, putting the side on the bench under it, and side on the hangers on the bench, first marking on the outside of the saw opposite to the mark on the inside so as to show where you hammered on the inside; then take

a round faced hammer and go over the saw and hammer back where you hammered from the inside; after you have done this, take a short straight edge and a round faced hammer and go over the saw, taking out all bumps on both sides, always hammering the last time on the outside. When this is done, examine the back of the saw to see if you have made it crooked. If so, straighten it up, and then examine the tension wherever you straightened the back.

You will readily understand from the above what is intended, is to open up the saw in the centre, or in other words to make the saw long in the centre. When the saw is thus opened up nice and even and at the same time straight on the back, it is in perfect shape for running, so far as hammering is concerned; and I will say just here that that is the most important point in the management of band saws. Without this a band saw cannot be made to cut quantity and quality.

Filing is not the most important part, as I have said, yet it is necessary to have them filed well also. The more perfect you can keep them the more and better lumber you can cut. Consequently, I would recommend in all kinds of timber to swage about full, setting every other tooth right and left just a little, as to swage full and side file takes too much time. When the saw is swaged and set, I would recommend an automatic saw sharpener to do the sharpening, as that makes every tooth exactly alike and also of uniform length. The welding, as it is commonly called, though brazing is more proper, seems to bother a great many. My experience in that has been as trying as most men I guess, though of late I have no trouble whatever. I have tried brass, spelter and silver solder, with hot and cold tongs, cooling with water and letting them cool off themselves, with borax and muriatic acid. Some advocate the use of stencil brass on account of its cheapness, but my experience is that the heat does the saw more harm than the difference in cost of brass and silver, as it takes a white heat to melt brass while a live cherry red is sufficient for silver solder.

In brazing, first file ship lap on each end of saw, about three quarters of an inch long, and so as to fit perfectly together, and make the lap the same thickness as the rest of the saw; then clamp the saw in such a way as to hold it rigid on each side of lap, leaving room for tongs above and below; then cut a piece of sheet solder a little larger than the lap, put it on between the lap, and pour on chemically pure muriatic acid (use no other), use it freely, it doesn't cost much; have your tongs made five inches wide, and half inch thick. Be sure to have them true on the inside. After you have prepared the lap in the way described above, put your tongs in the forgo and heat them to a live, cherry red, then take them and scrape up all dust from inside and apply them to the weld

pinching them down well on both edges of saw with two pinch tongs, and hold them in that way until the red has all died out of the tongs, and then remove them, letting the saw stay as it is until cool; then put it on the bench, take a file and hammer and true it up so it will be like the rest of the saw, and your work is done. By following the above instructions closely you will keep your saws in proper shape for running right.

Then, in connection with this, it is necessary to have the mill in proper shape to receive the saws. To do that, put the wheels in perfect line with each other, tipping each wheel just a little, so as to make the tooth edge of the saw a little the tightest. When the saws and mill are kept in perfect shape as I have described above, with a pushing sawyer, a band mill cuts in good logs any reasonable amount of lumber—say from 15,000 to 30,000 feet in ten hours, owing to the kind of timber.

My reason for writing this is, that I know the scarcity of experienced band saw men, and as we are selling quite a number of mills I take this plan of enlightening all who do not not thoroughly understand band saws. The handling of band saws is very tedious, yet very simple, when once understood properly.—  
*D. Hanson, in Southern Lumberman.*

**THE ELM TIMBER BUSINESS OF NORTHERN MICHIGAN.**

Getting out and shipping elm timber is a growing industry in the Grand Traverse, Mich., region. The Grand Traverse Herald, which has been investigating the business, and collecting facts and figures concerning it, says:—

"This elm timber is found scattered through the other hardwoods, the maple, beech, etc., in some localities the elm of all varieties forming the principal growth, but in most cases ranking third or fourth, while in other localities but little is to be found. The buyer's prospects as he does for pine, with the difference that his object is to purchase the timber only, and not the land. In very rare cases the timber is bought to be delivered at point of shipment, the farmer receiving so much per thousand cubic feet delivered. The plan almost always adopted is to buy the timber in the tree at so much per tree, or in some cases by the thousand feet as sealed, the purchaser taking all there is upon a given track of land suitable for the purpose. The price varies from \$1.00 to \$1.50 per tree, depending upon the quality, locality, length of the haul, etc. The usual price is \$1.25 per tree, or \$30 per thousand cubic feet. A few years ago the going price was 75 cents to a dollar per tree. Only rock elm can be taken. Grey or soft elm, or other varieties often met with, cannot be made use of. A yield of 30 to 40 trees to a 50-acre lot of rock elm, of suitable size, is considered a good yield. Sometimes it is less and in some cases may be more, but the average

is hardly up to the above, and this is found scattered with the other hardwoods named.

"After the farmer need have no further care or thought in the matter, unless he wishes to contract for cutting or hauling. The operator usually furnishes his own cutters and hovers, as this work requires experienced hands. Frequently, however, these are not to be found here. The length of the stick varies with the tree, and runs from about 20 feet for the shortest to 60 or 65 feet for the longest, sometimes, but not often a little longer than this. It may, if desirable, be squared with a slight taper, to measure not less than 9 or 10 inches at the top end. In such cases the measurement of the stick is taken in the centre.

"The timber so prepared is ready for removal and is hauled to the nearest place of shipment. If along the line of the railroad it is brought to Traverse City by rail. At this point it is piled on the banks of the river, below the depo bridge, and in June or July is rolled into the river, taken out into the bay and loaded into vessels prepared especially to receive such freight, the huge timbers being taken into the vessel through great port holes near the water line. The experiment of rafting has been tried, but several wrecks of valuable rafts in crossing Saginaw bay have made shippers cautious, and they generally prefer paying the large additional cost of freighting to the much cheaper but more risky mode of rafting. As \$5,000 to \$10,000 in a single season or even more may be saved in rafting, there is a strong temptation to shippers to adopt this plan. A vessel of 300,000 feet lumber capacity will carry 18,000 to 20,000 cubic feet of square elm timber. These vessels carry their cargoes to Kingston, Ont. There the timber is unloaded and made into large rafts, known as drams. These drams are about 50x200 feet in size, three logs deep. These drams are then run through the St. Lawrence river by 25 to 30 men to each dram, using oars. At Montreal the drams are taken in tow by steamers to Quebec, and there the timber is usually sold to dealers, or, in some cases, shipped to Europe direct by the operators. The ultimate destination is either Liverpool, Dublin or Glasgow, an occasional shipment going to some other port.

"Upon reaching its European destination the timber is carefully sawed, with scarcely any loss in sawdust, as every square inch saved is valuable. The lumber so made is put to various uses. Some of it is used in shipbuilding, and much of it is used in wagon shops and the like. The value of this timber in the European market is about \$600 per thousand cubic feet."

On April 3rd Fred Carroll, of Missouri, Ontario, had his leg broken by a tree falling on it while chopping in a bush. It was amputated below the knee.