

the edges are much worn, strike a centre and use that. Square this with a line or a long straightedge; if a straight-edge, it must be perfect. In squaring these lines use a triangle, as a square is too short to do accurate work, but is close enough to make a mill run.

Square the bottom wheel with this line by using two more lines, fastened on suitable supports. If straightedge is used, they can be fastened to that—one line for each edge of the wheel towards the log deck. When you have moved the wheel so that each edge measures the same from these two lines, the wheel will be in line with the track. I do not like to line from the face of the wheel, as sometimes a wheel will wear more on one edge than on the other, and one edge will measure more in circumference than the other, hence the wheels will hardly be alike on the face, unless just ground.

When this lower wheel is in line with the track, it is easy to line the top wheel with it. I fasten a stick on each edge of the wheel—towards the log deck—put a line on these, each exactly the same distance from the edge, and let it drop past the edges of the lower wheel, then move the top wheel until both lines measure the same distance from the edges of the lower wheel. In lining up I always have a saw on the wheels, under full strain, same as when running; this draws the wheels and boxes into the same position as they are in when running. I have found considerable difference when the strain was on and when it was not.

After getting the lower wheel in line with the front half of the track, I run the carriage up to the other end, out of the way, put my line on the back half of the track and see if it lines up exactly as the front half did. If not, there is a bend in the track, probably caused by the pounding of the nigger; this will show it quicker than a line the whole length of the track. Some prefer to line the top wheel with the track first, then set the bottom wheel with that, saving one set of lines, but I prefer to set the lower wheel first.

A number of writers speak about changing saws for hardwood or for hemlock, instead of having them able to cut both. One seems to think we change saws every time we change logs. The fact is, the saws will cut any kind of timber, no matter how mixed, at any time of year; but is that any reason to think they are doing their best in any one kind of timber? It is all right if you are always sawing mixed timber, but if you have a run of six months all on one kind of timber, and you do not experiment with any changes in your saws, how do you know that the saws are doing their best in this particular kind of wood? My saws will stand 16-inch feed in all kinds of mixed woods—maple, birch, ash, oak, hemlock and pine—but they will stand a great deal more than that in either of these woods when fitted for it. But for a few days' sawing I never make any changes no matter what the timber is, not even in the swaging. To-day we have cut at least a dozen different kinds of timber, all with a hemlock saw, and it was no trouble to find feed marks that measured 20 inches; but some of these logs could have been cut on much faster feed with a saw fitted for it. For these reasons I shall continue to change my saws whenever the timber is changed for any considerable length of time.

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#### THE BAND SAW FILING MACHINE.

The filer and the setter are both most excellent machines. The setter cost \$15, the filer \$50. If I had to get along with only one and could not have the other, I would keep the setter, and file by hand. There are two styles of setters, one that strikes a hammer blow, and the other presses the tooth over

to one side. Each machine has its champions, but I prefer the pressure set, which seems to me can be more accurately adjusted for setting small teeth, and after it is once adjusted, which takes not over ten minutes, you can operate it quite rapidly, more so, I believe, than the hammer-set machine. I have frequently adjusted machine and set a 20-ft. blade in less than twenty minutes.

We have our filer and setter both in line on a bench, so that saw may be fed through one machine and then the other while it is on the wheels. The setter is fastened on a block which is hinged to table so as to drop down out of the way when not in use. I would not be without these two machines for many times their cost. No man can file and set a small band saw and continue to keep it in as perfect condition as can be done on these machines, and when the question of time enters, then hand-fitting has to take a back seat. I know there are some men who have become expert at band saw filing, and aside from the time lost in loosening up the vise and slipping saw along there is not much difference in the length of time it takes to file by hand or by machine, unless your machine runs pretty fast, and it is not well to speed it up too fast, for a file does not do as well when pushed quickly over the work as when it goes at a moderate speed.

Someone said once that these machines are like a mischievous child and need constant watching. That is so to a certain extent on very small blades and fine teeth, but on the ordinary saw, if machine is properly adjusted and saw has been kept in order so there are no very long spaces between teeth, you can go away and let it work and come back to find your saw filed to the queen's taste.

There is only one point in which the filer is not perfection; that is, all teeth are filed from the same side, which naturally makes them a trifle sharper on one point than on the other. In this connection I have often thought it a pity that the really perfect machine which the inventor and maker told us of a year or so ago was never put on the market, for lack of friends, and because it was somewhat complicated and required that an instructor go along with each one sold to show the purchaser how to use it. It seems to me that if the machine was perfect it was the only one made, and that some manufacturer would have jumped at the chance to make it, also that it might have been possible to send out a book of instructions so the purchaser could have learned how to operate it. I have always been sorry it died, for I would like to have had one.—C. H.

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#### INSTALLING A BAND SAW.

I have been having some experience with band resaws in setting up and starting them that may be of interest. The first one is a 72-inch machine, with the greatest amount of "overhang" that there is to any now built that I know of. This feature of the machine is so pronounced that if the foundation bolts were loosened, the machine would fall over on the wheel side of its own weight, and that is a good deal of overhang. Before the machine arrived, I was given twenty-four pieces of 12 by 12 oak, 12 feet long, of which twelve were for the new machine and twelve for a smaller resaw then in the factory but a much lighter machine and one that was properly balanced on the frame. I decided that I would rob the lighter machine for the benefit of the heavier one, and took eight of the timbers for the small foundation, and sixteen for that of the larger machine.

Owing to the peculiar nature of the soil I supported the bottom timbers by the ends only and ran a bedding of cement about two feet wide under each timber. The other timbers