

it does not need it as you will put in shape by rolling where it does need it. Test with the drop-level each time you use the stretcher to be sure and not over-do the work and have to roll the edges to let out unnecessary tension.

After going over the saw on the outside, I always turn it over and give it the same treatment on the inside; i.e., level it down nicely with the cross-face hammer to fit the short straightedge, and roll all the "fast" places as previously explained, so all portions of the blade will conform to the drop-level from edge to edge. You will find, by working on the inside, the saw will be driven through a little. Then turn the saw on the bench, and, with the short straightedge and cross-face hammer, give it the finishing touches on the outside. At the same time look carefully for any "fastness" you may have overlooked, but if all previous work was done thoroughly, the test at this time will show all right. After this is done the saw is ready to go onto the brackets, to be swaged and ground.

CIRCULAR SAW EXPERIENCE.

A correspondent wants to know how fast a 52-inch saw should run with a 9 x 12 engine and 80 pounds of steam to do the best work. He does not, however state the kind of wood being sawn, and, as a general rule, the softer the wood the higher the speed should be.

Figuring on a basis of 10,000 feet of tooth travel per minute, this 52-inch saw should run 750 revolutions. It will likely be found, however, especially in cutting hardwoods, that better results can be obtained by reducing this speed to 550 revolutions, or even 500. This will give a fairly good cutting speed, and by using a larger mandrel pulley to obtain the reduced speed, instead of slowing down the engine, it gives a better power and makes cleaner cutting possible at a higher feed per revolution of saw. Say what we please about saw speeds, the fact remains that due regard must be given to the power beyond the saw and the amount of feed it will stand up to. In other words, better results can be obtained with saw running 550 revolutions on a feed of 2 inches than one running 750 revolutions on a feed of 1 inch or 1 1/4 inches; it makes coarser dust, a cooler saw, and does better generally. Not only that, but it avoids lots of trouble that becomes incident to running saws at high speed. A skilled saw-hammerer takes pride, of course, in being able to make a saw stand up at high speed and do excellent work, but the majority of operators of small circular sawmills are not skilled saw-hammerers, and instead of trying to find out just how much they can make a saw do, a more logical thing is to study ways and means of getting the best results in a practical way with the means at hand for obtaining them. It is recognized by saw experts that too low speed has its objections, but they are not attended with the same serious effects that obtain when speed is too high. In other words, it is generally better to run a saw too slow than too fast, and there are special reasons for making note of this fact these days, because the general tendency has been to increase speed right along until we are, as a rule, running our saws too fast.

FITTING BAND RESAW.

Resaws are very liable to come off the mill with short kinks, caused by knots passing between the saw and wheel. This is so, but the resaw is no more liable to come off in such shape than the log band is, for the latter is subject to large

pieces of bark, etc. I still claim it is not necessary to put the saw on the hammering bench every time it is taken off, even if the saw is only 20-gauge. There is a way of knowing whether the saw is right or not without putting it on the hammering bench every time it is brought into the filing room. After reasonable experience a filer should know the condition of his saws by the way they sound in the cut; a nice keen ring and nice, straight, smooth lumber are the surest evidences that the saw is right. When a filer becomes thoroughly practical, he pretty nearly knows what condition his saws are in, or any part thereof, by the way they feel when he is handling them in the filing room—something like the "shake" test of a circular saw. Some may not believe this, but it is a fact. By this I do not mean to say one should not use the straight-edge or tension gauge for testing tension. If saws are kinked and in bad shape every time they are taken off, it can be easily traced to careless work by the sawyer or some one, and the filer should investigate at once.

BRAZING AND TEMPERING.

After beveling the ends of saw, clean the blade 2 or 2 1/2 inches back from the braise, with fine emery cloth, to be sure that no dirt or greasy substance can flow into the joint, then clean the bevels with a good brand of borax. Now, clamp one end of saw firmly in brazing clamps, and apply acid; then clean the other end, apply acid, and clamp so that ends of bevels just match and are perfectly straight. I then clean the silver solder with fine emery cloth, to be sure there is no dirt of any kind on it, wet the solder with acid, then wipe dry with borax and a clean cloth, and place between the beveled ends. It is now ready for the brazing irons, which must be perfectly true and fitted to the brazing clamps so they will bear alike all the way across the saw. Heat the irons so they will scale, then scrape the scale off with an old file, and apply the irons to saw quickly, letting them stay until the irons turn from a red to black—say from five to seven minutes—then remove irons and apply cold water. Take two handfuls of cotton waste, wet in cold water, and apply to both sides of saw at once. I think this gives the best results. This way of brazing and tempering is the best I have tried. It makes a good, firm and perfect joint, and one that doesn't spring. My brazes don't break in or at one side, as some do that are not hardened.—C. H.

PUTTING SAW ON BENCH.

Different people have very different ideas as to how often a saw should be put on the bench. There was a time, one says, when I thought it essential to put a saw on the bench frequently, look it over, and do something to it. I might never have found out the folly of my ways had I not been compelled to "let 'em alone." I suppose I am about the slowest and fussiest filer, when it comes to rolling, that one can find in a day's journey. I keep at it until the back is just as nearly perfect as I can get it, and tension until my plate will fit the gauge, both by bearing down and by the sag test. This is not easy to do, because to get the bearing-down test one is apt to open the plate too much. There is a happy medium, though, and when that is reached I level down, finishing on the inside of the saw. I won't pretend to say that this is the best way, but a saw will certainly run well for a long time and make nice lines; and, furthermore, won't crack. I have three saws that no one but myself has ever put up. Two of them are pretty narrow now, but wholly