

cross-face hammer may cause a crack. A sawyer may run a saw too long, and by forcing it, when dull, cause a crack. Loose spruce knots have been known to tear out teeth and cause a crack. Gum, slivers, spikes, etc., will cause cracks, under certain conditions.

There is a shop where the 6-inch resaws are tensioned from edge to edge and then crowded for all they can stand. They saw pine, spruce, hemlock, fir, etc., and admit that their saws are short-lived. Have they cracks? Well, occasionally. Can't very well help having them. Some time ago I went into a place where they run a 6-inch band saw and do some custom sawing as well as the usual routine work. I learned that, on an average, they run the resaw from two to three hours a day, but employ no regular sawyer. Going into the filing room, I found saws in all stages of "consumption." One lay on the bench, and if there was one crack there were fifty, anywhere from $\frac{1}{4}$ to $1\frac{1}{4}$ -inch long, and from an inch to several feet apart, all on the tooth edge. Another lay on the floor, in several pieces, ready to be brazed. Another had just been sheared and brazed; and there were lots of pieces in the corner, showing that they did "a little" brazing now and then. There were plenty of hammer marks on the saws, showing that they were troubled with twists, or used the tensioning hammer more or less. I remarked that I was not bothered with cracks, and the foreman said he wished I could tell him how to avoid them. Wanted to know if I was looking for a job, and, on learning I was an amateur, offered to show me anything I did not know, besides paying me \$18 for eight hours' work per day. Seems that he was not very well up on filing, or he might have avoided so many jobs of brazing and had better looking saws.

However, whether the filer, sawyer or saws are at fault, it is true that once in a while a saw will begin to crack, and keep cracking in spite of all one can do. Seems to be brittle and sensitive to little strain. Such is the case, at present, where I am employed. One saw developed nine cracks, while the rest give no trouble at all. Does it pay to shear a saw having two cracks $1\frac{1}{4}$ -inch long, while the rest are $\frac{1}{2}$ -inch and less? I think it would be better to cut and braze at the two cracks, for then one still has a 6-inch saw. I generally leave $\frac{3}{8}$ -inch on the tooth edge and about $\frac{1}{4}$ -inch on the back, when I tension. I don't believe in edge-to-edge tension. I always go over my saws every time they come off the wheels, as one can keep them in better shape and do it easier. Never allow two or more to get ahead of me.

Speaking of brazing, I have three ways of doing it, according to size of the job. For saws $\frac{1}{8}$ to $\frac{1}{2}$ -inch, I use the blowpipe kit, and for saws $\frac{1}{2}$ to $1\frac{1}{2}$ -inch, use the tongs and thumb-screw clamp. For all wider than $1\frac{1}{2}$ -inch, I use the regular 6-inch clamps and irons. When I braze a $\frac{3}{8}$ -inch saw, I put solder between the laps and on top, then heat to almost a white heat, and squeeze tightly several times. This method suits me, and rarely fails. Referring to cracks, I don't believe there is a filer living who has not had a crack to contend with some time during his saw-filing career. And, again, I say that a crack does not always indicate bad fitting.—J. H.

FILING AND TENSIONING OF BAND SAWS.

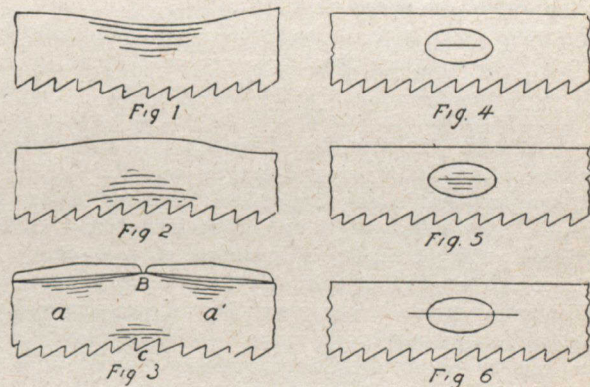
A nicely-finished tension is the first thing for a filer's consideration. It must be put in evenly from the gullets of the teeth to the back edge. Filers disagree to some extent as to the amount of tension that should be used. I have used tension levels ground to a 32, 34, 36 and 38-ft. seg-

ment, and proved a 36 to show the right tension for 19 and 20-gauge re-saws, from 4-inch to 6-inch wide, where the lumber to be re-sawed is a mixture of spruce, hemlock, fir, basswood and occasionally some hardwoods, such as many box manufacturers are using now.

Before commencing on the tension I always go over the back of the saw with the back gauge, and if the back does not conform to gauge, I roll along the back edge where it shows a hollow under the back gauge, like Fig. 1, and along the front, like Fig. 2, where it shows high for the back gauge, or is too convex along the back.

In making tests with the back gauge one should move the gauge along only half the length of the gauge at each test; for by looking at Fig. 3 you can easily see how you might be led into the error of rolling *a* and *a'* and putting a long swell in the back of the saw, that would require a lot of skill, patience and hard work to do anything like a nice job in getting back straight again; while, by placing the middle of the gauge on the high point *b*, as you would do if you placed the gauge forward half the length, and found where the saw was actually out of place, and rolled along the lines *c*, you would have fixed it right in much less time than you would spend in making *a* and *a'* conform to the back gauge, which, of course, would be entirely wrong.

Many filers use a crowned back and are very successful,



while others think the straight back best, and have equal success. If I receive a saw from the factory with either straight or crowned back, I continue to keep it as received, as the difference between them is a very small item—which I will explain some time in the future.

After getting the edges to fit the back gauge, the saw is ready to be tensioned, and if one is careful the edges will not have to be touched again for a long time. I have worn a 19-gauge 5-inch re-saw down to 4 inches, and have had to touch only the back edge, and to keep that along with the toothed edge, as the grinding and work of cutting made it longer.

Before putting in the tension, I go over a portion of the saw with the short straightedge and make it all as nearly level as possible with the cross-face hammer. After levelling, I raise a portion of the saw from the bench with the left hand, and with the right hand make a test with the tension level. Where I find a portion between the extreme edges that touches the drop-level and shows light on each side, it is a "fast" place, and I run the rolls over the centre of it, like Fig. 4. If that does not prove enough, I roll it on each side, like Fig. 5, repeating the treatment between the lines until it conforms perfectly to the drop-level, always confining the work within the bounds of the "fast" place, and not running over, like Fig. 6, for in doing so you are liable to put as much of the saw out of place by rolling where