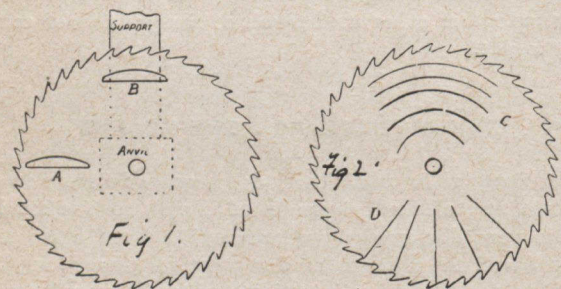


think in nine cases out of ten the tension will be mostly in a 6-inch strip about half way between eye and rim, and the short straightedge will rock if applied clear out to the teeth, and also near the eye. A saw in this shape will run worse than one that shows perfectly flat. A saw properly hammered ought not to show any high places, even if tested with only a 6-inch straightedge applied at right angles from its supports.

I don't believe in standing a saw perpendicular when testing it for lumps. After hammering it until I am satisfied, on both sides, with test as shown at A, Fig. 1, always trying from eye to rim, I test it for lumps at B, Fig. 1, moving always from rim to eye. Any high place I find I hit as nearly as possible right on the head. I have met old saw experts that talked about "tire" (a flat space 6 to 8 inches wide) in a circular saw at the rim, and notice that band saw



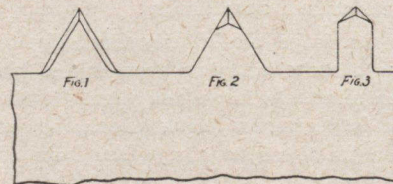
men also want tire. I don't know anything about tire, and am sure that I don't want more than 2 inches at most, if any at all. I try to get an even tension from outside the collars clear up to the teeth.

I run my saws with just enough tension that you can shake the centre when saws stand on the floor and you take hold with both hands on top, whereas the old filers were compelled to use so much tension that with the saw standing on the floor it could be tilted to an angle of nearly 45 degrees before the centre would fall through. A saw in proper shape will cut frozen and unfrozen timber, hard or soft wood. It is often simply out of the question to think of sorting the logs; one customer may have all basswood, and the next one maple, with oak or hickory, or what I consider the toughest and worst of all, soft or swamp elm. As long as the saws are sharp they will cut any of this stuff without even adjusting the guidepins. I do all my leveling on the anvil, and use the round-faced hammer nearly always. In hammering for tension, the blows should be opposite as nearly as possible. Laying out a saw as shown in Fig. 2, in circles or segments C and D, will help get the blows over each other.—C. H.

#### FILING A CROSS-CUT SAW.

There are various ways of filing a cross-cut saw. Some men who cut timber for from five to ten years can not keep a saw in respectable condition, and, no doubt, never will be able to do so, no matter how long their experience. Such men need hardly try any other way of filing a saw but the one they are accustomed to, for no matter if they bevel a saw much or little, no saw will cut for them, for a saw must be filed with care to do good work. It must also be understood that if one wishes to do a large day's work with a saw, he must buy the right kind of a saw to start with, and not look for a saw that has only cheapness to recommend it; a good many prefer what is known as the "Tuttle" tooth. Usually this saw is filed the whole, or nearly the whole length of

the tooth, the only difference being in the amount of bevel put on the tooth, which brings it to a needle-like point, as shown in Fig. 1, and which will cut fairly well for a time, but will not cut as fast nor hold its points as long as the same tooth filed as shown in Fig. 2. To file as shown in Fig. 2, the file must be held at an acute angle; this will bring the point



Cross-Cut Saw Teeth.

down thinner, and more like a knife blade. Some prefer the "Diamond" tooth for this style of filing, as this tooth is nearer the shape as it comes from the maker, as shown in Fig. 3.

No matter which way a saw is filed, it will not cut fast unless the cleaners are filed just the right length. We usually expend twice or thrice the time on them that we do on the cutting teeth, for if your cleaners are just a trifle too long or too short it will make a difference of from 25 to 50 per cent. in the cutting of your saw, and for hardwood, of which we cut by far the most, they must be just so that you can nicely see daylight between them and a rule placed edgewise on the two cutting teeth next to them, one on either side, and all of uniform length.

Nearly all men, after filing a saw, will side-dress it by running a file along the teeth to take off the wire edge, so saw will cut smoothly. But this not only takes off the wire edge, but also makes a flat surface on the cutting tooth, which means more friction, and consequently more force to pull the saw through the log. All saw teeth should be the widest at the extreme points, and by such methods of side-dressing this is not possible. A fine, small file, taking one tooth at a time, and holding the file at the same angle of the tooth, is a very nice way of side-dressing, depending on the sense of touch when it is time to stop, by feeling with the finger on side of saw away from one, and thumb on side near one. Do not rub finger up and down the tooth, for if much of a wire edge is there it might cut your finger; but simply touch it; one soon can tell if there is any left or not.

#### HOW TO FIGURE LUMBER.

There are several ways of keeping account of material used in the shop, but the following method is given as one of the best and quickest we have seen:—

The usual way to figure the number of feet board measure in a plank is to take the length in feet, times the width in inches, times the thickness in inches and divide by twelve. This requires considerable figuring. If we should express the width in feet also we would cut out the division and make the problem a simple one which with a little practice can be calculated mentally.

First size up the width in inches and change it to feet, thus six inches equal  $\frac{1}{2}$  foot; 8 inches equal  $\frac{2}{3}$  foot; 9 inches equal  $\frac{3}{4}$  foot; 10 inches equal  $1\frac{1}{4}$  foot; 14 inches equal  $1\frac{1}{2}$  feet; 15 inches equal  $1\frac{1}{4}$  feet; 16 inches equal  $1\frac{1}{3}$  feet; 18 inches equal  $1\frac{1}{2}$  feet, and so on. For example, a board 16 feet long, 15 inches wide by 3 inches thick is  $16 \times 1\frac{1}{4} = 20$ , and  $20 \times 3 = 60$  feet. A board 15 feet long, 8