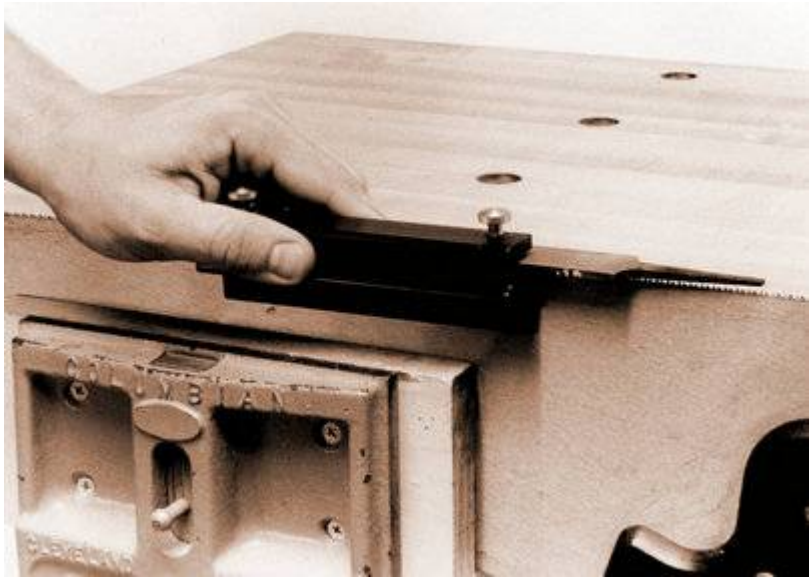
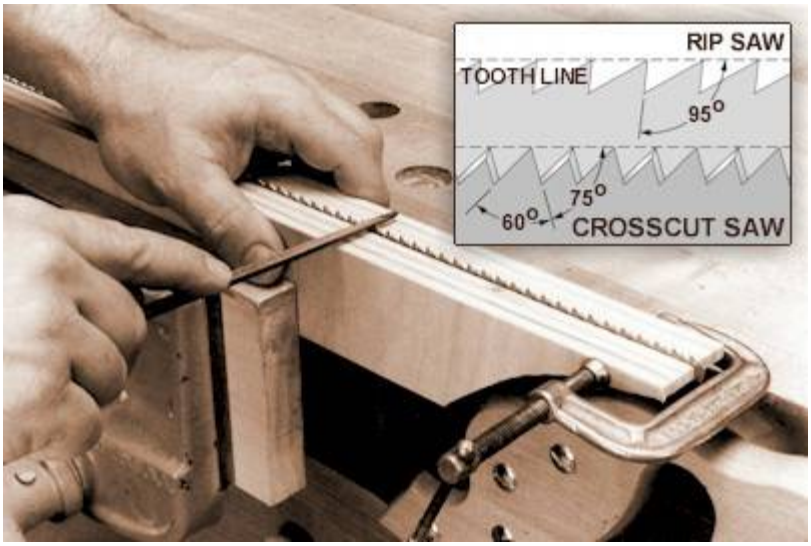
Saw Sharpening



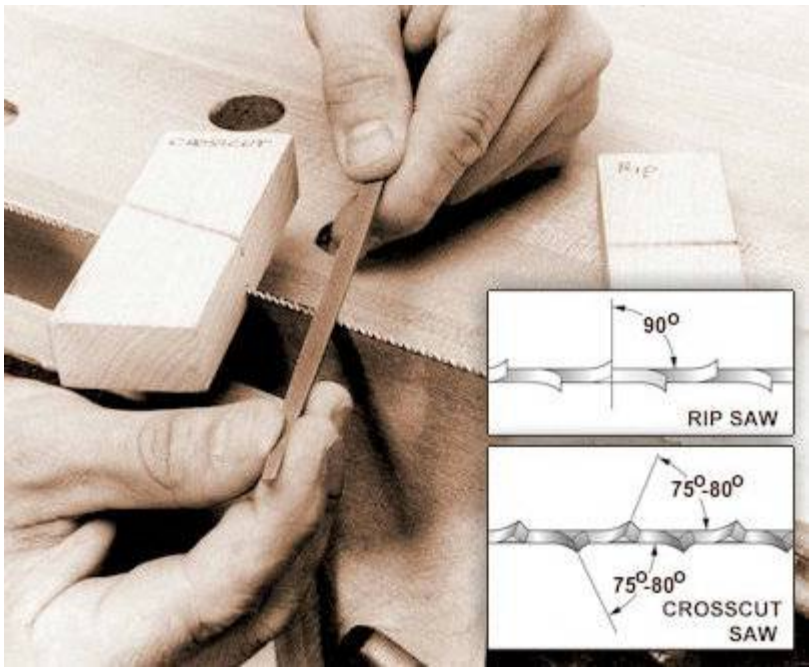
Clean the handsaw and inspect the teeth. Compare the lightly used teeth near the heel of the saw with the heavily used teeth near the middle. If the middle teeth are worn down, or any teeth are damaged, joint the teeth with a mill file. Clamp the file in a saw jointer and run it along the saw until there's a small, shiny spot at the tops of all the teeth. When this happens, all the teeth are the same height.



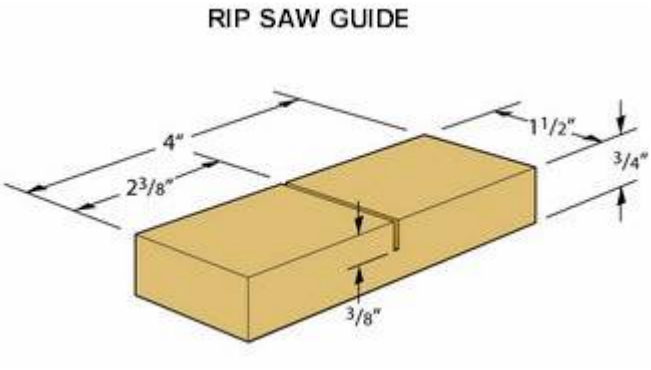
When jointing removes more than a third of the height of the teeth, re-cut the shapes with a three-square file. Clamp the saw between two long scraps and align the scraps about 1⁄16 inch below the old gullets. If you're sharpening a rip saw, cut hooked teeth with faces 95 degrees from the tooth line. For a crosscut saw, cut sloped teeth with the faces 75 degrees from the tooth line. Stop cutting when the file reaches the scraps. Inspect the teeth — they should all be pointed with no shiny flat spots.

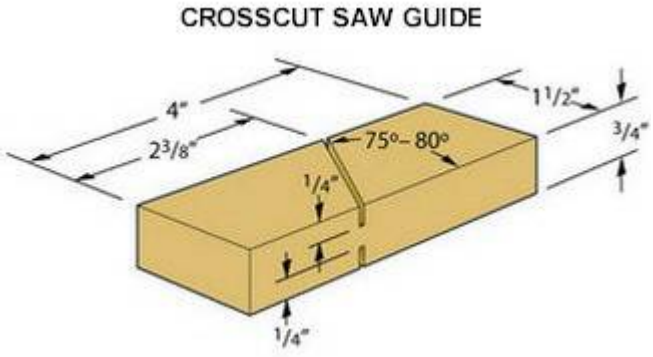
Saw teeth are bent slightly right and left so the kerf will be wider than the blade. This prevents the saw from binding in the cut. Bend the teeth with a saw set, adjusting it to bend each tooth about one-third of the blade thickness. Bend every other tooth to the right, then bend the teeth in between to the left.

After setting the teeth, sharpen them with a triangular file. File rip saw teeth straight across, perpendicular to the saw blade. For a crosscut saw, work at a 75 to 80 degree angle to the saw body. First file the teeth that are set to the right, working from the left side of the saw. Then switch sides and file the teeth that are set to the left.



To help maintain the correct angle when sharpening a handsaw, make a guide block for a rip saw and a crosscut saw. Position the guides over the saw teeth and hold the file parallel to the guide as you work.





The primary concern is to keep the file face constant with respect to the teeth. The easiest way to do this is by making a simple jig out of piece of wood. Take a thin piece of stock, about twice as thick as the diameter at the non-handle end of the file. By diameter, I mean if you scribed a circle that the triangular end of the file would just fit into. Make the piece of wood about 1" wide and 1 ½" long. Align the grain along the longer dimension. Use a dense piece of wood, like hard maple. Next bore a hole into the edge of each long side. If you are using a drill press, bore it all the way through. Otherwise, bore from each side and meet in the center. The hole should be about the same size as the pointed end of the file. You will be driving the file into this hole, and you want it to securely grip the wood and not slip.

The next step will require you to decide on a rake angle. Remember, that good rake angles for crosscut saws are 12-15 degree. Rip saws work best from 0 to 8 degrees. Take an adjustable protractor and set it to the required rake angle. Adjust the beam so it is tilting to the right of 90 degrees by the amount of rake that you have decided to use. Align the bottom of the protractor with the bottom of the block and so the beam just touches the right side of the hole. Scribe a line with a sharp knife. Before going on, mark the right side of the block with the words "***Handle***" and add an arrow pointing to the right. In addition, mark the very top of the jig with the word "***Top***". This will ensure that you always use the right side of the jig and have the top facing up. If you use the wrong side, you will ruin the teeth on your saw.

Now, flip the block around to the other side, tilt the beam of the protractor an equal amount in the other direction. Position the beam so it just touches the left side of the hole and scribe a line with a sharp knife. When you are done, if you sight through the hole, the lines you scribed should both be tilting the same way when viewed from the same side, not crossing. As before, write the word "***Handle***" on the left side of the hole, with an arrow pointing to the left. While you are at it, make as many guides as you think you will need for various size files and rake angles