

Sharpening Handsaws

It's a matter of knowing all the angles

by Harold H. Payson

Years ago, a visitor to my father's shop in Rockland, Me., spying the half-dozen or so heavily chewed file handles sitting on his filing bench, paused his conversation for a moment and asked, "You got rats?"

No, my father, Herman W. Payson, didn't have rats in his shop. What he had was the best reputation around for sharpening saws of any kind, especially handsaws—an honor not to be taken lightly. Many of the best ship and house carpenters in our area brought their handsaws to him and returned faithfully, time and time again. The handles on his files were chewed up not from rats, but from years of being lightly "thunked" on freshly sharpened sawteeth to remove the burr left by the file. If removal of the burr showed a tooth not brought up to a sharpened point, then that tooth received another swipe or two with the file until it did.

My dad's heyday was back in the 1930s, in the era before circular saws replaced handsaws as the common tool for cutting lumber on the construction site and shipyard. The handsaw that cut fast and true to the line without binding or rattling in its kerf was much admired and well remembered. Handsaws aren't as widely used as they once were, but that's no excuse for using a dull one or not knowing how to sharpen one properly. A properly sharpened handsaw is handy for jobs where a circular saw is dangerous or just unwieldily to use. If sharpened correctly, they make short work of most cutting tasks; improperly sharpened, they're drudgery to use.

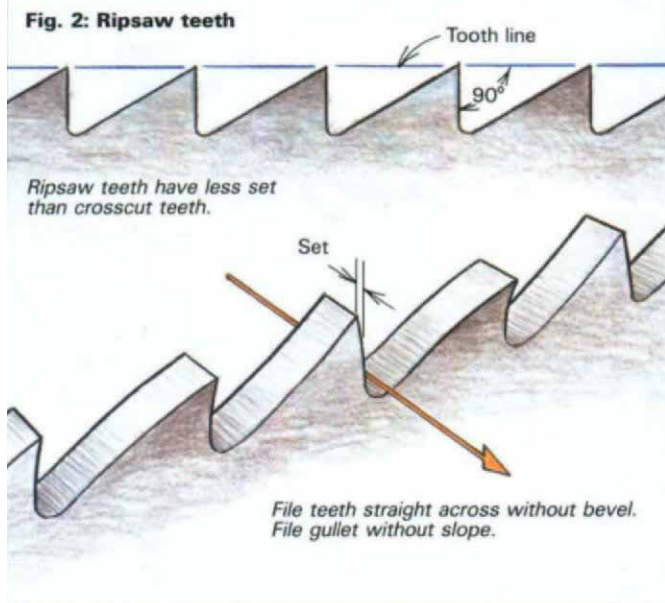
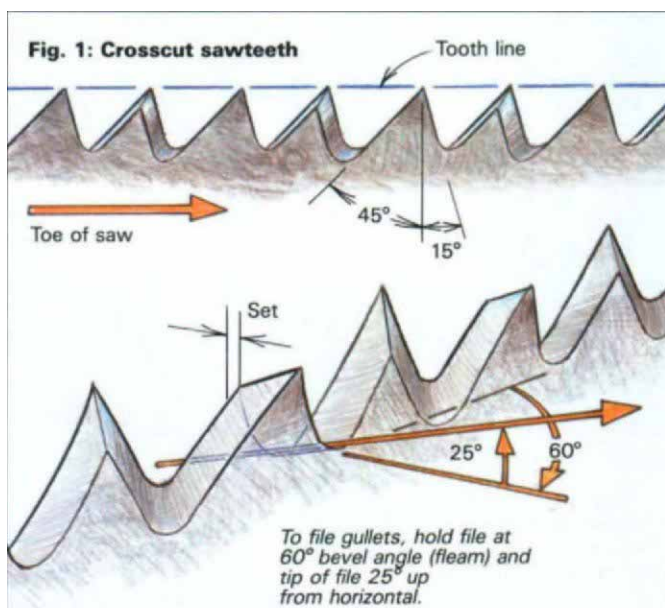
Learning how to sharpen a handsaw isn't difficult, just time consuming. My father developed his reputation for sharpening handsaws over many years, and it took me a year of practice filing before he squinted down the teeth of my best efforts and

declared, "That's as good as I can do." Words I never thought I'd hear. Was it worth it? You bet.

It's rewarding to know that I can remedy a saw's problems myself with little fuss or lost time. I'll never have to put up with lame excuses from a saw-sharpening shop that they can't get around to sharpening a saw until next week. True, I can't match the precision of a saw-filing machine, but why should I? Small variations between teeth don't detract from a saw's cutting ability. A machine-sharpened saw does the job, but a saw sharpened by hand is a pleasure to use.

The problem with saw-filing machines (at least the ones I'm familiar with) is that each tooth is sharpened based on the profile of the tooth ahead of it. A dogged lever drops over each tooth and pulls the saw into position for a swipe of a file. If the saw was newly re-toothed and the teeth perfect, a machine does fairly well. But teeth damaged after hitting nails throw the machine off. The machine will position a tooth for a swipe of the file based on the shape of a damaged or misfiled tooth. The result is a saw with teeth spaced too wide or too close. In the process, some teeth may be filed to oblivion, in which case the saw has to be re-toothed. New teeth are stamped or filed on the saw, and more metal is removed from the blade in the process than a year's worth of sharpening would take.

Incidentally, I feel the same way about saw-filing gadgets as I do about filing machines. A friend of mine bought one that held a file on a slide. The entire contraption slid over the saw and the file was moved precisely back and forth over the teeth to produce any tooth angle wanted. However, it didn't allow you to file



sloping gullets, one of the chief advantages of hand filing. Also, there was no way of controlling side pressure on the file to correct teeth that were too large.

Before I tell you how to sharpen a saw, I'll outline the basic process. First, the saw is clamped in a saw vise. The teeth are jointed so their tops are flat and at the same height. Using a saw set, the teeth are then set (bent) left or right of the sawblade. The teeth are filed with identical cutting angles. Consequently, the teeth should all be the same in profile, with all their points at the same height. I will describe sharpening rip and crosscut saws, but the same techniques are used on backsaws and dovetail saws.

Don't be overconcerned about tooth pitch or bevels in this process. They are bound to vary slightly when you are first learning—you'll become more consistent with practice. Having said that, here's how to set yourself up for saw sharpening.

The filing bench—My bench is a 10-in.-wide by 5-ft.-long plank, and its top is belly-button height off the floor. For comfortable stand-up saw filing, each bench must be tailored to the filer, however. You can't sit while filing handsaws, you must stand and put your whole body into the stroke of the file, rocking back and forth while using your arms. This gives you better control over the file stroke and makes the job less tiring. I painted the bench-top flat black to ward off unwanted glare.

My filing bench is positioned in front of a west facing window. My father's bench was in front of a south-facing window—other filers work best with a north-facing window. I don't give a hoot what direction the window faces, I just want all the light I can get as long as it falls on the sawteeth and not in my eyes. What about artificial light? Even when my eyesight was good I couldn't do a decent job under it. I don't recommend it now.

I lower a curtain partially over the window until a comfortable amount of light comes through, and improve the visibility of the sawteeth by tacking up a piece of tar paper above the window apron. When I look across the saw, the black background contrasts with the teeth, making burrs or minor irregularities more apparent.

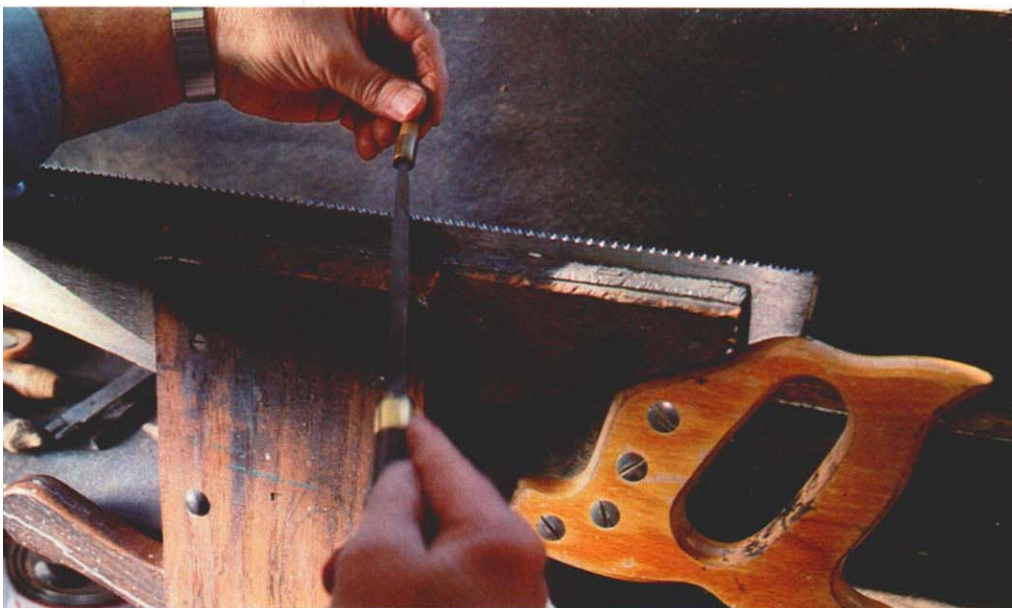
The filing vise—Position the top of your vise at chest height to allow for proper visibility and arm comfort. While you can buy saw vises through many woodworking catalogues, you can make your own out of scrap wood, as I did. Each half of the vise consists of a vertical leg with a long jaw attached perpendicular to it, to form a "T". The two halves are bolted together with a fulcrum between them. A swinging handle is bolted between the halves, too. As the handle is swung up, an arc-shaped dome on the handle pushes against the vertical leg, tightening the vise. To loosen the vise, the handle is knocked down. The jaws don't have to be the same length as your sawblade, but they should be long enough so you can do significant filing before reclamping the saw. The jaws on my vise are about 20 in. long, and the legs are about the same. The vise legs are set into a notch in the bench and clamped in place. The vise leans away from the filer 10°, which helps the file leave sloping gullets between teeth. A diagonal brace behind the vise makes it rigid against the push of the file.

A final tip about the filing vise: Line the jaw with lead sheet flashing, available from roofing and industrial suppliers. Wrap the lead so it folds over the outside of the jaws and staple through it on the outside so the staples don't mar the sawblade. The lead deadens the vibrations of the file. Combined with the brace behind the vise, this makes for a rock-solid filing vise.

Saws are rated in points of teeth-per-inch, the more teeth per inch, the finer the saw. The type of file you use depends on the



Begin the saw-sharpening process by leveling the teeth with a jointer (left). Though the author is shown using a commercial model, you can make one from a wood block grooved to accept a file. The jointer holds a file level and perpendicular to the sawteeth. Moving from handle to tip, draw the jointer down the blade's length until a small flat is filed at the top of each tooth. A saw set (right) bends alternate teeth to the left or right. Set every other tooth in one direction first, reverse the saw and set the remaining teeth in the opposite direction.



To begin filing a handsaw, clamp the saw in the vise with the handle to your right (above). Using a three-corner file, start at the toe and work to the heel, filing the teeth facing away from you. Reverse the saw, start at the toe again, and file back to the heel. The photo at left shows the 10° slant of the saw vise that contributes to the sloping gullets filed into the sawteeth. Note that a grip is also attached to the file's tip for more comfort and stability. The final step is to lightly dress the side of the teeth with a three-cornered file tipped on edge (right). This step removes burrs on the side of the teeth, making for a cleaner cut. Dressing the sides also removes a slight amount of set and can remedy saws that rattle because their kerf is slightly too wide.



saw's teeth size. A 10-point saw has 10 tips and nine full teeth (not 10 teeth) per inch and is sharpened with a 7-in., extra-slim taper, three-cornered file. All saw-sharpening files are three-cornered and taper slightly along their length. These files get progressively thinner in cross section and are rated as: taper, slim taper, extra-slim taper and double extra-slim taper. A six- or seven-point rip saw has coarser teeth than a 10-point crosscut saw and thus would require a larger file; a 7-in. slim taper will do nicely for this saw. If you're having trouble deciding which file to use, bring the saw to the hardware store and fit the file between the teeth. Saw files are also available from: Home Lumber Co., 499 W. Whitewater St., Whitewater, Wis. 53190. Be fussy when choosing a file, because

one that is too large for the saw will file one tooth to oblivion while you are concentrating on getting the other one sharp. A file too small will rattle in the gullet, cutting only one side of a tooth when it should be cutting the face of the adjacent tooth as well. Add a wood handle to the file's tang and another at the tip. The two handles provide better control and more comfort than one handle.

Sawtooth jointer and saw set—A jointer is simply a jig for holding a flat-mill bastard file. When drawn along the length of the sawblade, from the handle to the toe, it files teeth down to a uniform height. You can buy a commercially made jointer or make one out of a wood block with a slot cut in it to hold the file.

A saw set is a forming tool that bends the tooth against a miniature anvil. The set in a saw's teeth makes the kerf slightly wider than the saw's body, and hence reduces drag on the saw. There are a couple of different styles of sets, but the one with a pistol grip works the best. Stanley Tool Co. still makes them, and they come with a numbered screw-knob adjustment—available from: Frog Tool Co. Ltd., 700 W. Jackson Blvd., Chicago, Ill. 60606. Mine is numbered from 4 to 16, with each number corresponding to the points-per-inch of a saw. To set the teeth of a 10-point saw, roll the set's knob to 10 until it lines up with the anvil. Hold the saw handle under your arm and, starting at the toe of the saw, place the first tooth leaning away from you between the anvil and the set's punch block and squeeze the set's handle. Set every tooth leaning away from you from there to the handle. This completes one side. For the other side, tuck the handle between your knees and work from the toe again, repeating the procedure.

How much set to use is based on experience; the numbers on the sets act as a guide, but don't go entirely by them. Green wood puts greater drag on the saw and hence requires more set; dry wood requires less set. If the saw is dragging, increase the set.

Watch for saws that are taper ground, their blades are thicker at the teeth than at their back and require less set. This feature was found in the more expensive saws, but is seldom seen now.

Sharpening crosscut saws—I'll explain how to sharpen an 8-point crosscut saw because these are relatively common. First, joint the teeth down. This is done in the handle-to-toe direction until you see flats form on the tops of the teeth and the teeth shine. You can hold the saw in your hand during jointing rather than locking it in a vise.

Set the teeth if they need it. It's possible to set your saw after it's sharpened, just do it carefully so as not to damage any of the cleanly-filed teeth. I have received saws for sharpening with teeth so badly out of shape that both the teeth and gullets had to be rough filed before setting.

Put your saw in the vise with the toe either to your right or to your left. In the photos, the saw has its toe to the left. File the face of the first tooth leaning away from you at the toe. Hold your file with its handle angled back to the saw's grip about 30° to produce sloping sides on the teeth known as fleam. Tilt the file's handle down from horizontal toward you about 15°. The downward slope of the vise, combined with the slope of the file, produces a gullet slope of about 25°. This produces deeper gullets than saws filed on machines where the file moves in a horizontal line, leaving level gullets. I'm inclined to agree with my father, who claimed this aspect of hand sharpening makes a saw cut better, because the deeper gullets chamber more sawdust—the gullets are capable of handling what the teeth bite off.

The profile of a crosscut saw's tooth is best described in this manner: If you drew a line along the tips of all the saw's teeth, and then struck a perpendicular from that line across the width of the blade, each tooth front would have a 15° slope from the perpendicular. Each tooth back would slope at a 45° angle from the perpendicular. If the front angle is more than 15° to the perpendicular, the saw will not cut as quickly. If the angle is less than 15°, then the saw will have a tendency to bite off too much wood and it will chatter.

In addition to the angles of tooth profile, fleam angle affects cutting ability as well. Fleam angle bevels the front of each tooth, giving each a shearing effect. Think of sharpening a chisel as you file each tooth. Too much bevel results in a sharper tooth that cuts faster, but dulls sooner. Too blunt, and it's slow cutting.

In this process, you are filing the front of one tooth and the back slope of another at the same time. Watch the tops of the teeth so you file only half of each jointed flat—the remainder of the flat is filed away when the saw is turned around and the opposite-set teeth are filed. Don't try to bring them to a point the first time across.

When you reach the handle, turn the saw so its toe is to the right and start filing at the toe again. This time bring each tooth to a point. Think each tooth as you're finished with it to remove the burr, otherwise the point will be hidden by the burr and you won't be able to tell whether it needs more filing.

File the teeth with long strokes without wobbling. Go at it as if you mean it; avoid timid jabs. By using side pressure on the file stroke, you can take more off the larger teeth (these require the removal of more metal), while easing up on the smaller ones.

Take the saw out of the vise, lay it on a flat surface and dress the teeth with a triangular file tipped up slightly so it is removing material on the set portion of the teeth only. This step evens the set by removing the burrs hanging off the side of the teeth and helps ensure a clean-cutting saw.

Take a look at your handiwork to see the results. Check the height of the teeth to see how uniform they are. If a few teeth are below the height of the other teeth on the blade, don't refile the saw until all teeth are the same height. The low teeth will come up to the correct height as the surrounding teeth are lowered by subsequent sharpenings. Hold the saw with the toe just a little to the side of your nose, and eyeball the row of teeth on that side. If they look like a nice, even picket fence, congratulate yourself. Then, with the saw toe in line with your nose, look down the teeth again. You should see a nice, clean V-groove formed by the alternating set of the teeth. Carefully place a fine sewing needle in the V. If it slides the length of the blade without falling off, you can drink with the masters.

The process I described above is open to variation. Each filer has his own style regarding tooth angle, set, where to start, where to finish and so forth. Filing techniques are as individual as fingerprints. Some saw filers put less slope on the gullet, some prefer none. Some put slightly more slope, in profile, on the front of the tooth and decrease the rear slope. After you get the hang of it, sharpening a saw becomes fast and easy. A first-class job can be done in about 20 minutes, providing the saw hasn't hit a nail or been damaged in any way. A damaged saw needs a complete overhaul, and this may take twice that amount of time. However, saws that are only "wood dull" can be sharpened two or three times without jointing or setting.

Sharpening ripaws—You file a ripaw differently than a crosscut saw, though the process of jointing and setting the teeth is the same. If you are right-handed, put the saw in the vise with the toe to your right and file from the toe to the handle. Move the file perpendicular to the long axis of the saw and hold it horizontally (if you have a vise that tips back 10°, hold the tip of the file down 10° to compensate for this). Unlike a crosscut saw, the teeth on a ripaw have neither fleam nor sloping gullets. If you are so inclined, you can start at the toe and, with each stroke, file the front of one tooth and the back of another, whether it slopes toward you or away. You can also file a ripaw like a crosscut by filing only the teeth sloping away from you, then reverse the file and repeat the process.

A ripaw is given less set than a crosscut of corresponding points per inch. The profile of a ripaw's teeth differs from a crosscut as well. To describe their profile, revert back to a per-

pendicular drawn along the saw's teeth. The front of the tooth coincides with the perpendicular, while the back of the tooth slopes at 60°.

Trouble-shooting a saw—If you find the saw binding, don't keep pushing or you'll put a kink in it. Keep a chunk of paraffin on hand to give the body—not the teeth—of your saw a rub. You can also use silicone spray. This lubrication may save your saw and your temper until you can put more set in the teeth.

If your saw rattles and wobbles in the kerf, it has too much set. Lay the sawblade on a flat surface and side dress the teeth with a three-corner file. I snapped off an old three-corner file to 5 in. long, because they are easier to hold with one hand like this. To break the file, hold it in a vise and then whack it with a hammer close to the vise jaws (wear eye protection while doing this). Break off the file's tang and tip. The teeth are given two or three gentle swipes with the shortened file canted with the set of the teeth, not held flat to the blade.

What saws are worth owning and sharpening? Since handsaws are likely to last a lifetime, it is worth taking the time to pick a good, new saw or repair an old one. I prefer the latter option, because the old saws are generally of better quality. Yet there are old saws that are of poor quality or so badly damaged that you'd best pass them over. Below are some of the criteria I use for judging a saw and some of the techniques I use to salvage a good old one. You can find plenty of old saws hanging in sheds, in barns and for sale at flea markets and auctions. Among the best of these, I feel, are the old Disstons. The saws of Henry Disston, the company's founder, will probably live forever. And they should. Despite the fact that they came in various grades, I've never met up with a bad, old Disston or seen a better saw, though I'm sure there are saws that are just as good. Best of all, old Disstons are still relatively plentiful. I suggest snatching them up before the antique tool collectors do.

The key to their quality lies in their combination of hardness and ductility—two characteristics often at odds with each other. Other saw manufacturers couldn't match Disston's Rockwell hardness of 52-54. "They didn't know the secret of how to roll a new saw sheet so the teeth would not break during setting at that hardness," Bill Disston, Henry's great grandson, once told me. That explains why many of the saws made by the competition have a Rockwell hardness of only 46-48.

Don't pass over a saw that has a moderate amount of rust on its blade. Often this can be sanded off with wet-or-dry sandpaper

lubricated with mineral spirits. If the saw is badly pitted from rust, pass it by, because pitted teeth are likely to break off during setting and will never have a sharp, clean edge, even after filing.

Pass over stainless steel and chrome alloy saws. When these first appeared, they were well-received by forgetful carpenters who left their saws out overnight. That they wouldn't rust was the only thing they had going for them. After many attempts during my 10 years of commercial saw sharpening, I gave up on them. Their steel is simply too soft.

It's hard to say whether you should buy a saw with a kinked blade. You'll have to judge it for yourself. A really bad kink may be difficult or impossible to remove, while a moderate one can be removed in a few minutes. There are two kinds of kinks: the slow, gradual kind and the abrupt kind. To remove a gradual kink, bend the sawblade in the opposite direction of the kink and then let it spring back. An abrupt kink is very hard to get rid of because the metal has been stretched almost to the breaking point, but if you work carefully, even these kinks can be removed. I've had good luck using the following technique. First, open the jaws on a large machine vise wide enough to span the area of the kink. Lay the blade flat on the vise with the jaws spanning the kink. Lightly hammer the kinked portion of the blade, while gradually closing the vise jaws. This supports the blade while working toward the kink's center. This is hit last and has to be hammered a bit more than the other areas to stretch the metal far enough so the blade will pop back straight.

It's worth having a saw with a good handle, even if you have to make the handle yourself. A saw should hang comfortably from your hand. I wouldn't reject a good saw with a bad or damaged handle, I'd repair it. This makes sense, because many old saws have missing or damaged handles and many new saws have uncomfortable handles. The handle should position your arm so it puts as much power as possible behind the saw in each stroke. The perfect grip should feel like a natural extension of your arm. I prefer a grip that rakes forward slightly. A grip that cocks your grasp too far backward, or too far forward for that matter, makes a saw feel awkward and tiring to its user.

So there you have it, a lifetime of my father's experience passed along to me and now to you. The rest of it is just practice. □

Harold "Dynamite" Payson builds boats in South Thomaston, Me., and writes on saw sharpening and boat building. His book, Keeping the Cutting Edge, is available for \$7.95 (plus postage) from WoodenBoat, Box 78, Brooklin, Me. 04616; (800) 225-5205.

Handsaws and how to use them

by Henry T. Kramer

I love handsaws. Sure, I use power saws most of the time. But every once in a while I grab a handsaw off the rack and save a lot of time and trouble. Yes, I know a power saw cuts a lot faster, but that's only part of the story. Sometimes the work is too big, too long or unsteady, and the power saw can't be used without risking damage or injury, or rigging up jigs, braces or heaven knows what. Another reason for handsawing is that I like to do it. A good, sharp saw, properly set, is a joy to use.

Traditionally, saws came in three sizes, measured along the teeth from heel to toe: rip saws, 30 in. long; handsaws, 26 in. long;

and panel saws, 16 in. to 24 in. long. The average saw today measures 26 in. long, though saws 16 in. to 22 in. long seem to be selling well—probably because their shortened length makes them less expensive.

There is no advantage to a shorter saw, however, except the paltry difference in price, which itself is a false economy. It takes more work to saw through a board with a short saw, so the few dollars saved will be of no advantage in the long run. A longer blade means fewer but longer strokes and fewer return strokes. Since you're not sawing lumber on the return stroke, it pays to saw as much

lumber with as few return strokes as possible. Also, sawing with long, smooth strokes is more comfortable and more satisfying than sawing with short, choppy strokes.

Saw with one hand only, as using two hands will require an awkward position toward the board. The one exception is ripping thick stock, where you literally may find yourself standing on top of the stock.

Position yourself for maximum mechanical advantage when sawing. Your sawing arm and that shoulder should be in line with the cut. In most cases, you'll want to position yourself so you can see the line you are

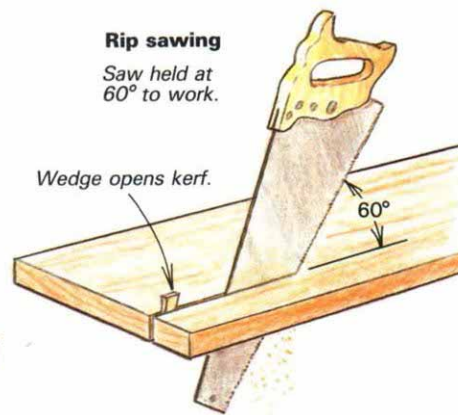
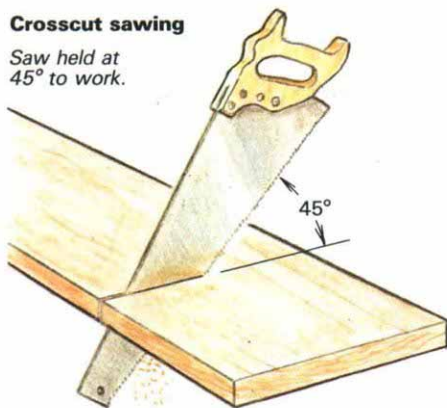
cutting to without looking over the sawblade. Position the stock at a height you find comfortable and efficient—this will require some experimentation, depending on how tall you are and the kind of cut you're making. You can crosscut thin stock by clamping it to a typical 30-in.-tall workbench. Sawing thick stock requires considerably more force, however, and you may find a standard-height workbench is simply too high to allow you to get enough force behind the saw. A pair of short (24 in. tall, or so), sturdy sawhorses is a definite advantage with these cuts.

For crosscutting, hold the saw with its tooth line at 45°. Stand with your feet about shoulder-width apart and your forward foot pointing ahead. For fine cutting, make your mark with a knife on the face and edge of the board, but for rough work simply mark the board across its width with a pencil. Grip the board over the edge with your free hand and steady the saw when starting the cut by butting the thumb of that hand up to the blade. The saw should rest just slightly on the scrap side of the line—the more proficient you get, the closer you'll be able to saw to the line. Draw the saw back, putting light pressure on the saw to make it cut slightly. In softwood, using a sharp saw, it may take just one back stroke to get the saw started. In hardwoods, it may take three or four. Also, the coarser the saw's teeth, the more difficult it is to start the cut. Finally, watch your thumb, if the saw jumps out of the kerf in the beginning of the cut, you could get a nasty cut—don't underestimate the damage a saw can do just because it's powered by hand and not electricity.

Cut with long and smooth strokes using as much of the sawblade as possible. Be careful, though, that you don't draw the saw right out of the kerf on the return stroke. Western saws don't cut on the back stroke, so lift the saw slightly when drawing it back. It will take some practice before you can crosscut a board so it's square across the face and edge. A saw that is properly sharpened and set will easily saw to the line. A saw that wanders from the line, despite your best efforts, has too much set on the side it wanders to.

Though it's virtually impossible to correct a cut that has gone significantly awry, a small deviation can be corrected by flexing the handle toward the line and working the saw back after a few strokes. But if it looks like the saw is going to run off significantly, let it wander where it chooses rather than twist and jam the saw in an attempt to get it back on track. Support the board with your free hand when you get to the end of the cut. Don't saw as aggressively as you near the end, rather ease the saw out to reduce splintering.

There are a couple of different ways to crosscut a board. Some woodworkers dip the saw below 45° slightly while drawing it back to start it; others dispense with this. Once started, you can saw straight across the board without altering the pitch of the saw or you can provide a kerf for the saw to follow by sloping the saw down slightly, making a few cuts, and then resuming the



45° sawing angle. Either method works, it just depends on which you like more.

A rip saw is held at 60° while cutting, and it requires a lighter touch to get started because of its coarse teeth. Start a rip saw by holding it nearly parallel to the face of the workpiece (about 5°), and very lightly push it forward so it just begins to nick the edge. The configuration of a rip saw's teeth means that it has hardly any scoring effect pulling it backward, hence it has to be started on a forward stroke. Some older rip saws have finer teeth at the toe to overcome this problem—I suggest you snatch up one of these if you find it. Bring the saw up to 60° after you get it started and saw as you would with a crosscut saw, using long, rhythmic strokes. Rip saws have a tendency to jam in the kerf as the cut progresses and the kerf closes on the saw. Correct this by inserting a thin stick or wedge in the kerf, not enough to spread it significantly, but just enough to keep it open. You can also keep the kerf open by spreading a wooden parallel-jaw clamp over it and tightening it down.

Before sharpening or tuning the teeth of a new saw, remove the anti-rust coating it will almost certainly have. This coating is an effective rust inhibitor, but it reduces the effect of set on the saw's teeth and also creates a fair amount of drag. It's not easy to remove. You can remove it from the body of the saw with a sharp razor, rub it off with steel wool and lacquer thinner, acetone, or benzene (*not* "benzene," which is toxic). If all these methods fail, try using paint remover or brush cleaner. In any case, wear protective gloves and a respirator.

Remove a saw's handle and give the blade under the handle a good coating of grease to inhibit rust, then replace the handle.

Finally, set and sharpen the saw. The machine sharpening that saws receive at the factory is inadequate and often badly done. I lubricate the sawblade before I use it. I apply sparingly a thin coat of machine oil and rub it in well. Some woodworkers apply paste wax, others use paraffin. Regardless of which you use, don't let a residue of wax, sawdust and dirt build up on the blade. Remove this gunk every so often by lightly wiping the blade with steel wool and mineral spirits. Some don't use a lubricant on the grounds that it

may stain the work. I haven't found this to be a problem, because a sawn surface is always cleaned up with a plane or sanded smooth.

Don't toss handsaws in a drawer or on a pile where they can rub together and become dull. A wall rack or a rail with pins to hang saws on works well. If you can't take them to the job site, make a separate canvas sheath for each saw.

Because sharpening handsaws is more work than sharpening a chisel or a plane iron, it's tempting to use them dull. Don't do it. A dull handsaw will jam in the kerf and bend, and a bent handsaw is much more difficult to repair than a chipped chisel or plane iron. Take the time to sharpen a dull saw, you'll thank yourself for it while you're using it. You don't even have to use a handsaw to tell if it's dull; if the teeth tips reflect light as a line, then you know its time to refile it.

When using backsaws, you have to be careful. Given a chance, they'll "getcha," and you'll wind up with more of them than you ever thought you would. For a long time I never thought much about them, but I discovered I like their small size and fine teeth (you can get them with as many as 20 or more teeth per inch). Backsaws take their name from the rigid back or spine attached to the blade. The added weight of the back is a help, I've found, in keeping the saw on track, but its primary use is to make the blade more rigid to further reduce the tendency of the blade to wander during critical cuts.

A backsaw is an instrument used for fine joinery and not rapid cut-off work. I own half a dozen or so in 8-in., 10-in., and 12-in. sizes, each filed in crosscut and rip patterns. Backsaws come from the factory as crosscuts, and converting them to rip saws is something you should try only after you become an experienced saw filer. Converting a crosscut to a rip saw sounds radical at first, but the practice is more widespread than you might think, finding such advocates as Tage Frid, woodworking professor emeritus of the Rhode Island School of Design. A backsaw filed with rip teeth makes sense, since you are mostly ripping when you saw a tenon or a dovetail joint. □

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