

The secret to better chiseling

TAKE LIGHT CUTS TO INCREASE PRECISION AND PRESERVE THE KEEN CUTTING EDGE

BY MICHAEL PEKOVICH

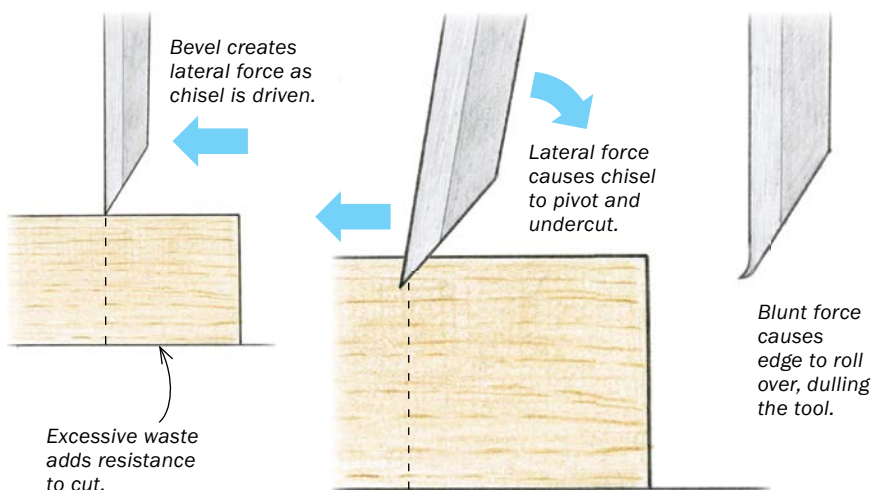
A lot of woodworkers I talk to aren't that happy with their chisels. And, typically, the more they paid for them, the less satisfied they are. The common complaint: "They just don't hold an edge like I thought they would." The problem is often not the chisels themselves, but how they are being used. In short, the chisel is a tool designed to take a thin shaving. When you take heavy cuts, a chisel dulls quickly. But if you stick to thin cuts, the tool will perform wonderfully and stay sharp for a long time. I'll explain why the chisel acts like it does and how to use it for maximum efficiency.

How a chisel cuts—it's all about geometry

Because the chisel is such a familiar tool in the workshop, we tend to take its shape for granted, but it's actually an odd design when you think about it. With a flat back and a steep bevel, the chisel is an asymmetrical tool that imparts

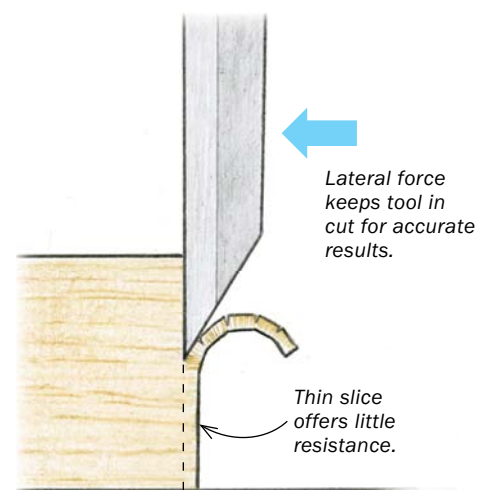
HEAVY CUTS CAUSE HEADACHES

The bevel of a bench chisel is designed to clear waste as the tool is driven. Leaving too much material on the waste side makes the job harder and less precise.



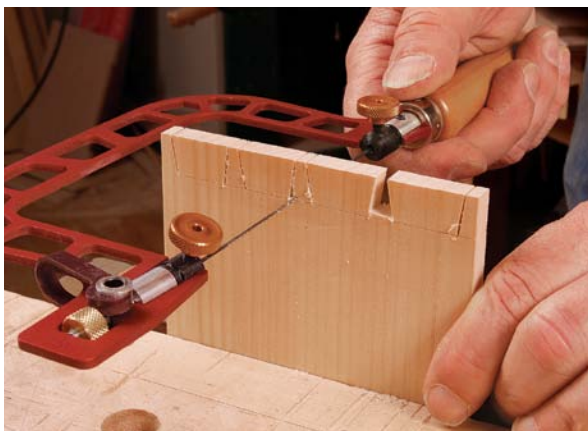
THIN CUTS ARE THE WAY TO GO

Leaving $\frac{1}{16}$ in. or less of waste lets the bevel clear the waste easily and precisely and prolongs the cutting edge.



Get rid of the waste

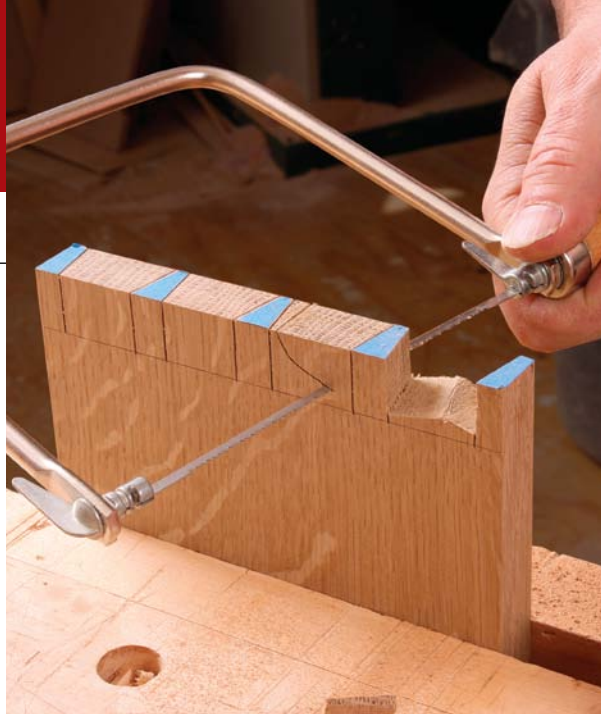
SAW BETWEEN DOVETAILS



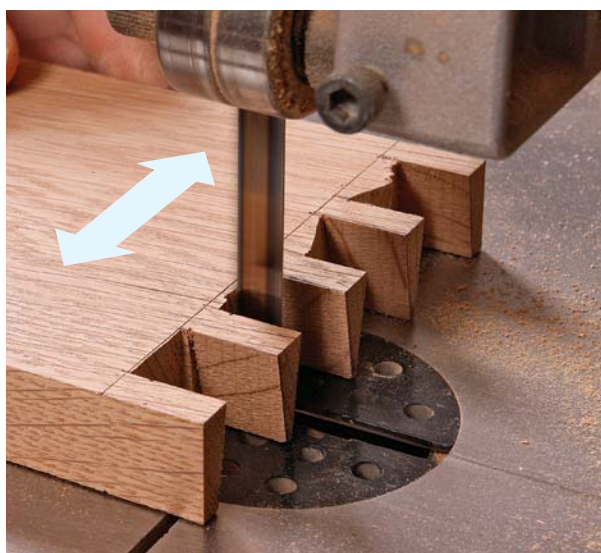
Use a fretsaw for thin stock. The narrow blade can slip down the sawkerf, allowing you to cut straight across the baseline. Try to leave no more than $\frac{1}{16}$ in. of waste.

asymmetric forces in use. Simply put, if you place a chisel in a scribed line in the center of a board and give it a whack, a lot of bad things happen. As you chop, the flat back wants to cut straight down, but the beveled edge gets pushed inward by the excess material. This can cause the chisel to pivot and inadvertently undercut the baseline you're trying to chop to, resulting in a gap. Finally, a heavy cut causes the leading edge of the chisel to roll over in the direction of the force, effectively dulling the cutting edge.

The solution is simply to take a lighter cut, whether paring by hand or chopping with a mallet. A thin slice offers very little lateral resistance, so the



For thick boards, go with a coping saw. The wider blade can power through hard or thick stock, but requires multiple cuts to clear the waste.



Bandsaw gets you close to the finish line. Skate the workpiece side to side and slowly chew away to within $\frac{1}{16}$ in. of the baseline.

DRILL OUT MORTISES AND DOVETAIL SOCKETS



Drill in a line for a long mortise. Use a fence and a bit that's the same diameter as the mortise width. Overlap the holes slightly.



Drill out the corners of a square mortise. Drilling multiple small holes rather than one large hole in the center removes more waste.



Drill near the baseline on half-blind dovetails. A row of holes makes it easier to remove the waste.



Grip it low for control. Pinch the blade near the tip and rest your hand against the stock when placing the chisel.

CHOPPING

For chiseling to the baseline in thick stock or hard woods, a hammer or mallet can speed the process.



Thin slices, even when chopping. Work back to the baseline, taking $\frac{1}{32}$ -in. cuts. Angle the chisel to undercut the joint slightly to ensure the joint seats fully. Work halfway, then flip the stock and finish up from the other side.

chisel edge remains engaged in the cut for a thin, even shaving. In addition, the edge of the tool will not roll over and dull in use. Note that you need a razor-sharp chisel to take a thin slice, so be sure your tool is sharp before you put it to wood (see p. 83).

Clear the waste to get a head start

To ensure success, you should remove as much waste as possible before you begin. Depending on the joint, I go about this in a few different ways.

When dovetailing thicker stock, say for casework, I use a coping saw to cut out the waste between the pins and tails. If you don't get as close to the baseline as you'd like, you can remove most of the remaining waste at the bandsaw. Slide the workpiece from side to side using light pressure to scrape to the baseline (see photo, p. 79). For thin stock like drawer sides, it's faster to use a fretsaw. Just slip the thin blade down the sawkerf and cut along the baseline. I try to

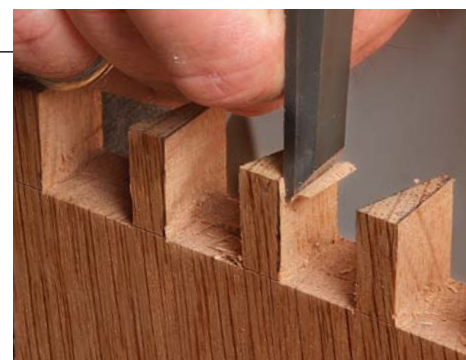


PARING

For fine-tuning joinery in any wood, and baseline work in thin stock or soft woods, hand power is all you need.

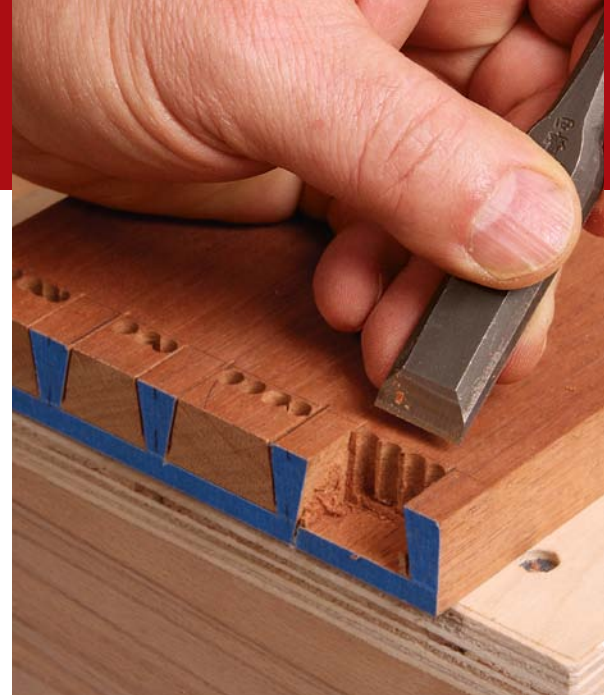


Hand power. When paring by hand, place the chisel with your forward hand and drive it with your rear hand. Keep your body weight behind the tool to help (left). It is especially important to take thin cuts so the chisel won't bog down in the cut (above).



Pare down if the grain allows it. When cleaning up pins, it's easiest to pare straight down (top). To prevent tearout when the grain is angled in, pare side-to-side across the grain (bottom).

MAKE QUICK WORK OF HALF-BLIND DOVETAILS



Pop, chop, and pare. Predrill near the baseline first (see p. 79). Place the chisel at the wide point of the holes where the most end grain has been severed (left) and chop down $\frac{1}{8}$ in. Pare in from the end grain to pop out a layer (right) and continue chopping and paring until you reach the bottom of the socket.

Now work back to the scribe line. With most of the waste removed, continue toward the shoulder line, taking thin slices as you go (above). Work to within $\frac{1}{32}$ in. of the shoulder line before placing the chisel in the scribe line for a final cut (below).

leave only $\frac{1}{32}$ in. to $\frac{1}{16}$ in. of waste to chisel away.

Drilling is another great way to clear waste. For mortises, I clamp a fence to the drill-press table and drill one row of holes along the length of the mortise. On half-blind dovetails, drill a row along the baseline while staying clear of the line by $\frac{1}{32}$ in. to $\frac{1}{16}$ in. There's no need to drill out all of the waste. Once the long-grain fibers are severed, the majority of the waste pops out easily. I use the same technique for through-mortises, drilling holes along the end-grain walls of the mortise.

Paring by hand

There are two ways to chisel through the stock. You can pare by hand using your body to drive the chisel, or chop with a hammer or mallet. Chopping tends to undercut the joint as you cut. To compensate, you must work in from each face. For a truly flat surface, I pare by hand.

When paring, it's important to get your mass behind the tool. When the work is flat on a bench, this means getting over the tool; when it's clamped in a vise, bring your stance lower and wider. In each case, the aim is to start the chisel exactly where you want it and drive it at a precise angle so that it neither skips out of the cut nor digs in too deep.

Sometimes it's necessary to pare along the grain, such as when trimming



 **Online Extra**

Learn how to get to most from your bench chisels in a video at FineWoodworking.com/extras.

dovetail walls for final fitting. This can be a little tricky depending on how the grain is running. If it's nice and straight, paring down works well. But if the grain is at an angle to the pin wall, the only option is to pare across the grain.

Techniques for chopping

With a hammer or mallet providing the power, the key is controlling the chisel. Rather than gripping the handle, hold

the blade near the tip. Pinch the blade between your thumb and fingers and rest your hand on the surface of the workpiece. This low grip lets you place the chisel more accurately and allows your chisel hand to act as a brake to keep the chisel from exiting the workpiece and contacting the benchtop.

Just as when paring by hand, take thin cuts. Work toward the baseline until you're within $\frac{1}{32}$ in. Then place the

handwork continued

chisel right in the scribe line and angle it slightly forward for the final chop. This purposeful undercut helps the joint seat tightly, but you must stop halfway through the cut, flip the workpiece, and finish chopping from the baseline on the opposite side.

On through-mortises and half-blind dovetails, drill a row of holes as shown in the photos. Start chopping at the widest part of the holes and work back to the baseline.

Working this way, you'll be surprised at how little force is needed and how controlled and precise the process is. It's more of a surgical tap-tap-tap than the brute-force excavation that the term "chopping" implies. Once you've cut to the baseline, it's easy to pare the sides of the mortise or dovetail socket by hand. □

Michael Pekovich is a furniture maker, instructor, and FWW's executive art director.



Tenons

Machines handle most of the tenon work, but fine-tuning shoulders is a perfect task for a chisel.



Get low for more power and control. Widen your stance and use a two-handed grip to lock your upper body into a single unit (left). This lets you drive through the cut using your body mass and maintain a consistent chisel angle for the entire cut. Take narrow passes and register the blade on the previously cut portion of the shoulder for an even cut (above).

Mortises

Drilling out most of the waste makes chopping mortises fast and precise.



Start at the ends. For long, narrow mortises, begin by establishing the ends (above). Start chopping at the widest part of the hole where there's the least amount of end wood intact, and work back to the scribe line (above right). With the ends cut, use a wide chisel to cut the long walls. Start at the center and work toward the scribe line, using the drilled holes as a guide to keep the chisel vertical (right).



Technique is the same for square mortises. Chop the ends of the mortise first (top), then the sides (bottom). For through-mortises, work halfway down from one face and then flip the stock and complete the mortise from the opposite face.

Easy method for sharpening chisels

To do good work, your chisel must be sharp. Over the years, I've tried a variety of products and techniques and have settled on a simple method that's fast and reliable. My sharpening kit consists of waterstones in three grits, 1,000, 4,000 and 8,000, as well as an inexpensive honing guide. With them, I can get sharp in just a few minutes.

For a truly sharp chisel, you must flatten and polish the back of the tool as well as the bevel. Depending on the quality and condition of your chisel, flattening the back can take some time and elbow grease. The good news is that it's a one-time effort.

On a new chisel, I start flattening on my 4,000-grit stone. If that stone can't remove all of the mill marks, I go to a coarser grit. Rather than use the 1,000-grit stone, which is soft and dishes quickly, use 400-grit sandpaper spray-mounted to a flat surface like plate glass or granite. Once the mill marks are gone, move to 600-grit sandpaper, then on to the 4,000- and 8,000-grit stones.

With the back flat and polished, the bevel is next. Most bench chisels come with a bevel ground to 25° or 30°. To avoid having to remove too much material, I hone at a steeper angle, 35°, so that just the tip of the blade is in contact with the stone. To maintain a consistent angle and avoid rounding the edge, I mount the blade in a side-clamping honing guide available for under \$20 from any woodworking catalog. For tough-to-clamp chisels, try the narrow-blade honing guide from Veritas (see p. 17). Set the angle of the blade with a protractor or digital angle gauge. To make setup easier the next time, mark the amount of blade projection on a scrap of wood and keep it near your stones.

Start on the 1,000-grit stone, as shown in the photos, then move on to progressively finer stones. The last step is to flip the chisel and polish the back to remove the burr. After a few honings, the polished portion of the bevel will become too wide (more than $\frac{1}{16}$ in.). When that happens, you'll need to regrind it at the original bevel angle using coarse sandpaper or a grinding wheel.



Flatten the back first. Start on the 4,000-grit stone, working across the surface of the stone to keep from dishing it out. Only the area adjacent to the edge of the chisel needs to be polished, so don't waste time trying to polish the entire back. Rest just an inch or so of the blade on the stone and keep it dead-flat to the stone as you polish (left). When the back shows an even scratch pattern (right), repeat the process on the 8,000-grit stone for a final polish.



A honing guide helps with the bevel. Mount the chisel at 35° to hone a thin bevel. Start on the 1,000-grit stone, working on the backstroke (left) to avoid gouging the stone. Once you have a continuous line of polish (right), move progressively through the finer grits, finishing on the 8,000-grit stone.



Remove the burr and get to work. Finally, flip the chisel and polish the back on the 8,000-grit stone to remove any burr caused by working the bevel. Paring the end grain on a piece of pine is a good test to see how sharp you are (right). A thin shaving and a glass-smooth surface means you've done well.