

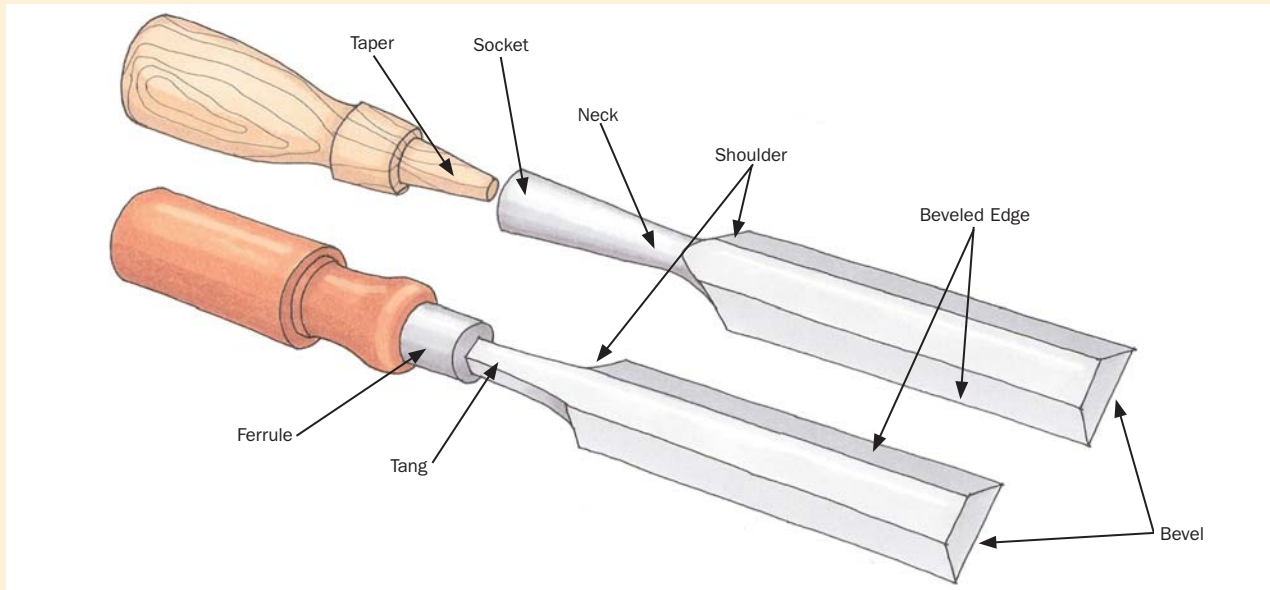
# 7

# Chisels



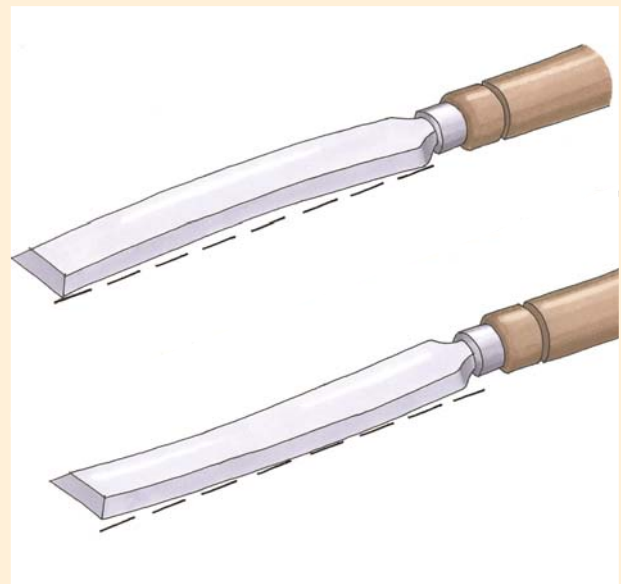
CHISELS MAKE UP A LARGE AND IMPORTANT part of the woodworker's tool kit. The apparent simplicity of a chisel — a blade on a stick — belies the numerous variations on that theme. At the very least, a well-tuned chisel will help you do the work intended with a minimum of effort. And a well-tuned chisel, performing the task for which it was designed, is a truly pleasant and confidence-building experience.

A set of Dovetail Paring chisels from Blue Spruce Toolworks ([www.bluesprucetoolworks.com](http://www.bluesprucetoolworks.com)).

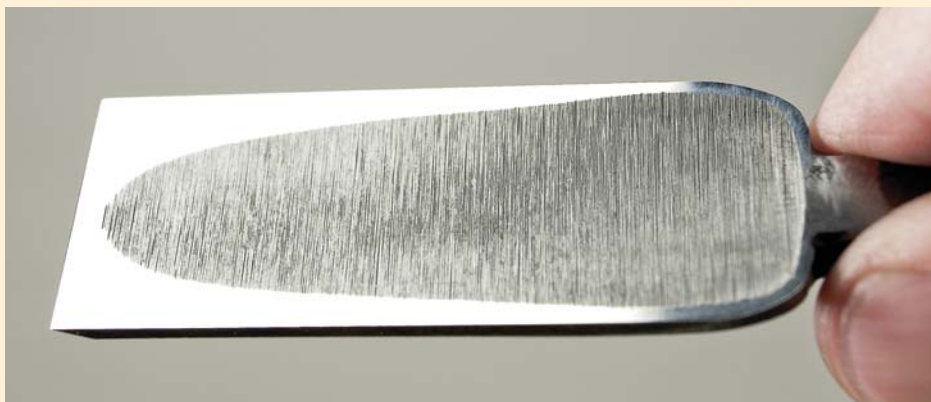


Proper honing of a chisel relies on properly flattening the back. As with plane irons, a flat, polished back is essential to a sharp edge. A chisel is frequently used by sliding it on its flat back so that the edge can clean a chip out of a corner or flatten a surface. If the chisel's back is not flat, the cutting edge will arc up and off the surface, so in order to get to and cut that last bit of chip, you'd have to lift the handle or it will just ride up and over the bumps you're trying to shear off.

A concavity on the back is not as serious a problem as a convexity. In fact, Japanese chisel-makers grind a hollow recess on the backs of their chisels to reduce the effort required to sharpen them. If the Japanese chisel-maker went to all that trouble, the least we can do is to use only hand-honing methods on our Japanese chisels. Powered grinders, certainly the high-speed variety, are too harsh for steel that is often very hard and brittle.



A concave or convex chisel blade are both problems that require attention in order for the chisel to work properly.



Japanese chisels are hollow ground on the back to reduce the amount of steel that needs to be removed during sharpening.

A convex back is much more difficult to remedy than a concave one. There is a tendency to rock the convexity to and fro as you slide across the stone, which means you will either polish it as it is, or actually exacerbate the convexity. You need to hold the chisel steady so that your efforts on the abrasive are consistent — unwaveringly parallel to the stone — no rocking as you work the blade back and forth. This is a good job for power tools. A slow disc grinder like the Lap-Sharp, Veritas or the side of a slow-speed Tormek-style wheel can help by allowing you to concentrate on the high-spot you're trying to grind down. A Dremel-type hand grinder can also be used, allowing you to grind down the convexity and even create a concavity on the back like a Japanese chisel. Use a marker to color the entire back surface so you can readily see what's being ground away. Hold the bump in the blade against the abrasive, grinding it down a little at a time, checking your work often with a straightedge, or by rubbing the chisel's edge on a flat stone. The marks left by the stone will clearly indicate how you're progressing.

Some new blades will come with a protective coating that you will need to remove with acetone or lacquer thinner. After that, a new chisel will normally require removal of the grinding marks left on the back by the factory. Choosing the first, coarsest grit is a matter of judgment as some factory grinding marks are deeper than others and will require more aggressive treatment. You can get a sense for what may be needed by starting with 800 grit or 1000 grit to see how things go. If you're simply polishing the tops of the grinding ridges, you may need to step down to a coarser grit to get the job done in a reasonable amount of time. Removing honing scratches usually takes less time using subsequently finer grits than it does when you do all the initial flattening on a stone that is too fine. The edge on a new



The “before” photo of a chisel in need of restoration.



After a short time on the flat grinder.

chisel will probably be reasonably square but check it anyway and correct it if it is out-of-square while you hone the bevel.

Rescuing an abused chisel requires similar evaluation. Often the backs of used, flea-market chisels were never flattened properly in the first place. You'll need to do the 800 grit test to see how much work you will have to do, then proceed from there to prepare the back. The old chisel's bevel is undoubtedly trashed after opening all those paint cans (or was it scraping gum off the sidewalk?) and may benefit from a proper grinding.



Hold the blade of the chisel flat on the stone allowing the rear part of the blade and handle to hang off the stone's edge.

### FLATTEN THE BACK

Start with the finest grit that will get the job done in a reasonable amount of time. Be very careful to keep the blade flat on the abrasive surface at all times. Avoid any rocking motion that would round an edge or corner. Once the chisel is flat end-to-end you can concentrate on the cutting end of the back. Because even a slight back bevel is undesirable in a chisel, don't be tempted to use the plane iron "ruler trick" to save time. Let the rear of the chisel's back ride off the side of the stone while honing it and you'll get the front part polished and properly sharp without having to do the entire back.

Clean the blade and your hands and change the angle of the tool on the stone when you change grits (see page 70). When all the old grit's scratches have been replaced with the new grit's scratches, you're ready for the next, finer grit. Continue with finer grits until the back has the polish you want. Prep-work on



This flattened and polished back shouldn't need honing ever again unless it's damaged or allowed to rust.

the back is, for the most part, a one-time chore, and depending on how much of the back you polish, you won't have to worry about it again for a long time. So proceed through the subsequently finer grits all the way to your finest stone for a mirror-like, polished surface. I don't recommend a strop for chisel backs because they tend to slightly round off the edge.



Use a felt-tip marker to color the blade for scribing.



Scribe a guide line square across the blade.



Grind to the line to remove nicks in the edge.



The edge is ground square across, ready for bevel grinding.

## HONE THE BEVEL

Now is the time to decide on a bevel angle. For a paring chisel the bevel can be as low as  $20^\circ$  (some woodworkers like the bevel angle even lower, like  $15^\circ$ , but you sacrifice edge strength with a bevel that low). Standard bench and butt chisels are traditionally ground at the factory to  $25^\circ$ , and this is fine for most work, but the edge will last longer if you add a  $5^\circ$  microbevel to make a  $30^\circ$  cutting angle. Some chisels will perform better with a shallow-bevel/microbevel combination, like mortising chisels (more later) but

often microbevels are added just to save time. With most powered sharpening systems, adding a microbevel may actually add time to the process. So, unless you believe the tool will indeed work best with a microbevel, just leave it off when using a powered sharpener.

If the edge is in dire need of help – chipped, rusty, out-of-square – the easiest thing to do is to mark a line across the width of the chisel at the extent of the damage, then blunt-grind the edge back to that line and reshape the bevel to your chosen angle.

Establish the bevel angle by setting the blade's



The distance from the guide determines the edge angle. This is a side-clamping, Eclipse-style honing guide.



Establishing the bevel angle on a grinder requires a combination of blade extension and the articulation of the two joints of this Veritas grinder table.



Avoid overheating while grinding the bevel.



Your finished bevel should be even and straight across the blade.

extension from the honing guide, setting the tool rest the correct distance from the grinding wheel, or adjusting the table on the belt grinder.

Low-speed grinders such as Tormek, Veritas, Work Sharp and Lap-Sharp have specific tool holders and angle gauges to help set the bevel angle correctly.

Mortising and firmer chisels take a lot of impact stress as they're chopping and prying – their edges will tend to last longer with a higher bevel angle. Grind a primary bevel of 25° and add a 10° microbevel for strength. If the edge holds up well, you

may be able to reduce the microbevel and improve the cutting action. If the edge doesn't seem to last long, a higher bevel should help. As you strike these chisels, keep in mind that the narrower ones do not need to be hit as hard as the wider ones. The concentration of force discussed in Chapter One is perfectly illustrated here. The same force of impact that you impart to a 2" chisel translates to a force eight times greater when you apply it to a quarter-inch chisel. So adjust your hammer blows accordingly – your chisels will thank you.

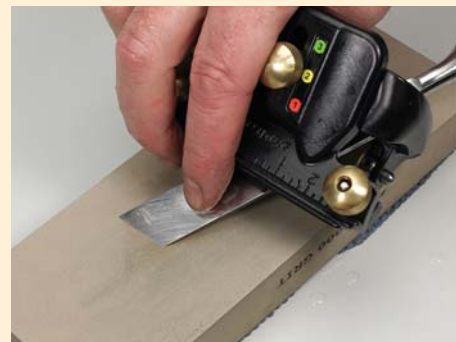


ABOVE The chisel on the right has an edge that is half as wide as the other. It only requires half as much force to make the same cut as the one on the left.



LEFT Hold the edge securely against the stone while honing with a guide.

Establishing the bevel is easiest with a powered helper but a simple honing guide will enable you to quickly grind the bevel to the angle you want. Unless you are sharpening a skew chisel, you will probably want to ensure that the edge is square to the sides. While it is not difficult to compensate for an out-of-square edge when using a chisel, most woodworkers prefer that the edge be square. A skew chisel was ground that way for a reason – the edge angle should be maintained. A properly set honing guide can help in either case.



Veritas has a skew alignment jig available for their honing guide that allows you to accurately and repeatably set both skew and bevel angles.