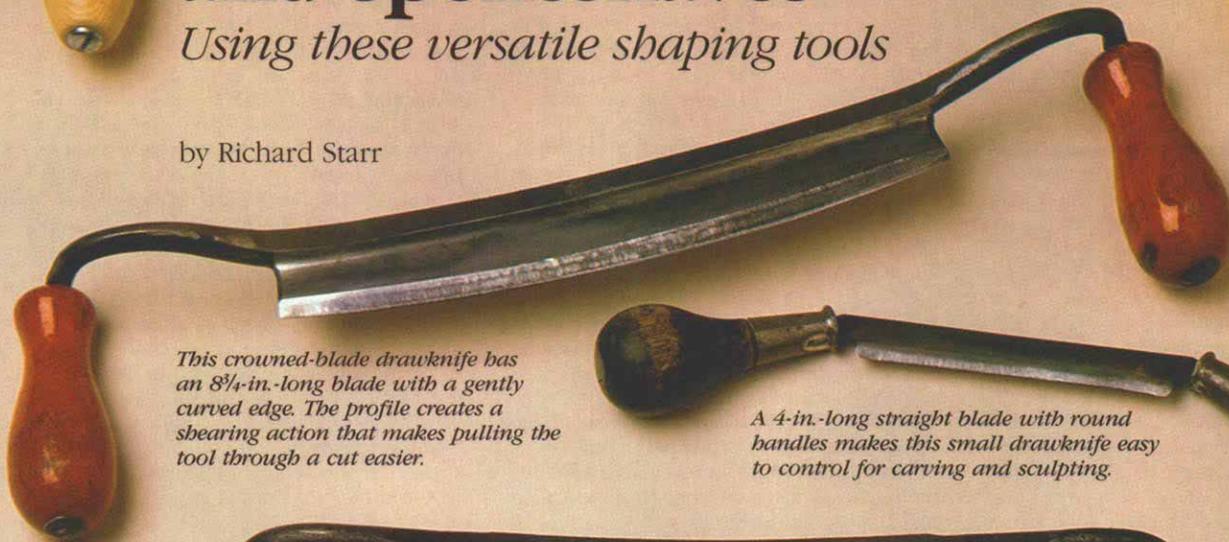


With its sturdy 10-in.-long blade and large, comfortable handles, the straight-blade drawknife is ideal for removing lots of wood quickly. It's a choice tool for shaving all types of furniture parts.

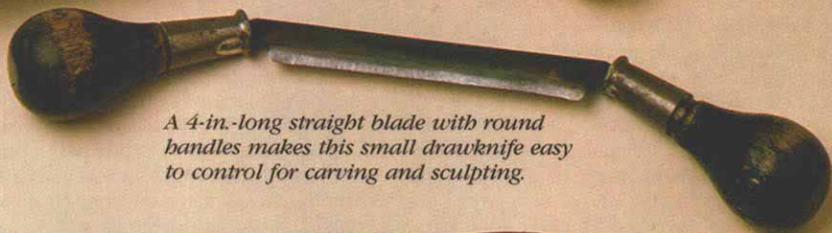
Drawknives and Spokeshaves

Using these versatile shaping tools

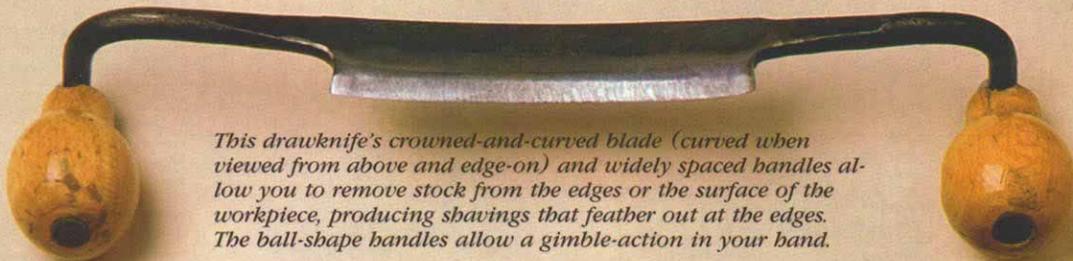
by Richard Starr



This crowned-blade drawknife has an 8 $\frac{1}{4}$ -in.-long blade with a gently curved edge. The profile creates a shearing action that makes pulling the tool through a cut easier.



A 4-in.-long straight blade with round handles makes this small drawknife easy to control for carving and sculpting.

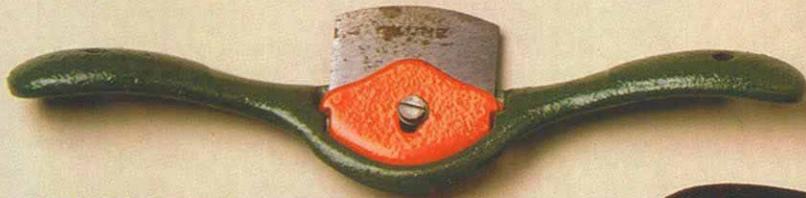


This drawknife's crowned-and-curved blade (curved when viewed from above and edge-on) and widely spaced handles allow you to remove stock from the edges or the surface of the workpiece, producing shavings that feather out at the edges. The ball-shape handles allow a gimble-action in your hand.

Concave spokeshaves, with their negative profile blades, are great tools for shaping a spindle or for putting a rounded edge on a tabletop or carcass.



This straight spokeshave has a flat sole and a 2-in.-wide blade that uses two knurled screws on top to adjust the depth of cut and the parallelism of the blade to the sole.



For hand-shaping a concave surface on a table leg or hollowing out a seat, the convex spokeshave is a very handy tool.

Instead of moving the blade up and down for a finer or heavier cut, this straight spokeshave adjusts via the wing screw on top, which pivots the front portion of the sole.



Drawknives and spokeshaves have always been tried-and-true tools for riving and shaping green wood for folk crafts and rustic furniture. But they're also great tools for many jobs in fine furniture or cabinet shops because you can shave wood with efficiency and a fluidity of motion that makes you feel as if the tool is an extension of your own hands. Drawknives excel at all sorts of jobs that require fast stock removal, such as roughing out tapered legs prior to handplaning them smooth. Spokeshaves are better suited for chamfering the edge of a tabletop, rounding the armrest of a chair and other finer shaping or smoothing jobs. Regardless of what kind of woodworking, carving or sculpture you do, I'll bet there are plenty of uses for both tools in your shop.

Comparing a drawknife to a spokeshave is like comparing a chisel to a plane. The drawknife's bare blade allows you to control the thickness of the shaving, but as with a chisel, you must carefully guide the tool to keep the cut smooth and prevent the blade from digging in. Once you master a drawknife, you'll be able to hew away huge quantities of wood, as well as slice off thin shavings. Unlike a drawknife, a properly set spokeshave can't dig in too deeply or split the wood because its blade is enclosed in a sole—like a handplane. And the distance that the blade protrudes beyond the sole dictates the depth of cut. Spokeshaves can do much the same work as drawknives, but they are somewhat easier to use. Further, with certain specialized spokeshaves that have shaped soles, you can create effects that would be difficult with any other tool. Even if you have already used a drawknife or spokeshave, there are many different styles you should be aware of, as well as safe methods when using the tools and techniques for sharpening them. Let's look at drawknives first.

Drawknives—A hundred years ago, dozens of specialized drawknives were made for many trades, including boatbuilding, timber framing and coopering. The various drawknives differed mostly in the size and shape of the blade and the shape and position of the handles. Many of these knives are still manufactured today, and they are readily available from most mail order tool supply companies. Also, you can often find good, older tools at flea markets, auctions or antique tool dealers.

The handles on drawknives are designed to make specific jobs easier (see the photos on the facing page). Cylindrical handles, found on many larger drawknives, fill your whole hand and help you get a good grip to control a large blade while hogging off a lot of wood. Smaller drawknives often have ball-shape handles that aren't practical for heavy work, but really shine for carving. The grip is like a ball-and-socket joint: You can quickly swivel the blade into almost any position, even push the tool instead of pull it, to deal with changing grain direction. Regardless of style, all handles must be securely fastened to the knife. It's best if the tangs come all the way through the handle and are bent or peened over, preferably through a metal cap or washer on the end of the handle. A ferrule where the blade joins the handle reinforces a heavy drawknife and prevents the handle from splitting.

Another consideration in choosing a drawknife is the position and angle of the handles with respect to the blade. This relationship affects your hand position and, therefore, your comfort and control while using the tool. A drawknife must fit your work style just like a good shoe fits your foot: You should try a knife in every position you expect to use before you buy it. For all-around work, bent handles offer a more natural hand position as you draw the knife toward your belly. However, if you are inclined to use the tool with the bevel down, as I am, deeply bent handles may point upward and be uncomfortable to hold and

tiring to use. If you work a lot of green wood, you may prefer handles that are level with the blade. They provide better control with heavy cuts because the tool is less likely to twist upward as you pull. Carvers and sculptors often choose drawknives with so-called "dropped" handles, where the handles are below the plane of the blade. These offer more control in precision work because the hand position allows you to twist the blade up and down easily.

Blade designs—The shape of the blade determines the cut the tool will take. A straight-edge drawknife is a good all-purpose tool, useful for shaping and surfacing. A crowned blade appears straight when you look edge-on, but curves forward when viewed from above. This blade can take a wide shaving that gets thinner at the edges and leave a smooth surface relatively free of marks from overlapping cuts. Another design is the crowned-and-curved blade, which dips in the middle when viewed edge-on. Like a crowned blade, a crowned-and-curved blade takes shavings with feathered edges, but it is better for shallow carving and hollowing a surface, for say shaping the backrest of a seat. Another kind of drawknife, the inshave, has a thick, U-shape blade that's great for hollowing out a solid-wood chair seat.

Working safely with a drawknife—Although it may appear dangerous at first glance, a drawknife's long, exposed blade is relatively harmless, if you follow a few simple precautions. I've been teaching woodworking to children for more than 20 years and I have no problem putting a drawknife in a kid's hands. The tool is actually much safer than a carving knife. Most drawknife cuts occur on the back of your free hand when you lift the tool off the wood to brush away shavings or to adjust your work; therefore, the first rule is to be extra careful when one of your hands is not on a handle. Put the tool away as soon as you are done with it, preferably in a rack made from a scrap strip of $\frac{3}{4}$ stock with crosscut slots about $1\frac{1}{2}$ in. apart to hold each knife blade down. The rack protects the blades and separates the tools. Also, never leave a drawknife in a jumble of tools. It's a bad risk for your hands and not so good for the blade either.

Beginners often worry that they will cut their bellies as they shave toward their bodies. However, this isn't a problem as long as you keep your body at a reasonable distance from the work. If you hold your work in a shaving horse, make sure your knees are clear of the drawknife's path. When using very small drawknives, grind the corners of the blade edge blunt, to prevent cut thumbs.

Using a drawknife—Unlike a handplane's or spokeshave's housed blade, a drawknife's long, open blade allows many different cutting possibilities. The easiest way to take a shaving is to angle the drawknife's blade and pull with the blade skewed relative to the workpiece. In this manner, shavings come off in corkscrews, and the shearing action is less likely to tear the wood than if you pulled the blade straight through. To cut dense woods with roed or curly grain, it's best to take a slicing cut, moving the knife sideways while pulling it, as though you were slicing bread. Place your stronger hand on the handle near the leading edge of the blade and draw the knife across the wood as you pull. It's a natural and comfortable motion, and using the entire length of the blade keeps the edge from dulling in only one area.

A drawknife's blade can be used with the bevel up or down. For most work, I prefer keeping the bevel down, facing the wood, because I can easily adjust the depth of cut by rotating the handle ends up or down. However, the blade can be hard to control and tends to come out of the work when the drawknife

is pulled hard. If this occurs, flip the tool over and work with the bevel up, away from the stock.

Pulling a drawknife makes the best use of your muscles, hence the name *drawknife*. But many times you'll want to push it instead. Pushing lets you exert more force by putting your weight behind the drawknife, especially if the stock is held vertically or at a steep angle. Although pushing a drawknife with precision may take a little practice, it's worth mastering. If you shape curved surfaces, as when carving a wooden spoon, changing grain directions may require alternating cuts in several directions.

If the grain in the workpiece is straight and clear, you can split off large chunks of wood by starting a deep cut, and then twisting the blade by raising the ends of the handles (see the left photo below). This uses the back edge of the blade as a fulcrum and gives you considerable leverage. If a split starts running out of control, you can stop it by shaving the waste above the split or pushing the drawknife and shaving back toward the open end of the split. When shaving green stock, be sure your stock is well secured in the vise or shaving horse.

Sharpening drawknives—As with all other tools, drawknives work best when they are kept razor sharp. Unfortunately, even a straight drawknife blade can be difficult to sharpen because the non-removable handles tend to get in the way. Probably the easiest way to keep a drawknife cutting smoothly is to touch up the edge every once in a while with a hand stone. I prefer a round Norton axe stone (Norton Co., 1 New Bond St., Worcester, Mass. 10615-0008), which has a groove around its edge that keeps your fingers clear of the blade. To sharpen, hold the knife like a fiddle, with the bevel up and one handle nestled in your shoulder, as shown in the right photo below. Since the middle of the blade does the most work, you need not sharpen the whole length of the blade every time you touch it up. Touch up the back of the blade as well, espe-

cially when it's pitted or nicked. It's worth noting that while the backs of most drawknife blades are dead flat (like a chisel), some woodworkers prefer to dub a small counterbevel (5° to 10°) on the flat side. This counterbevel can make the tool a little easier to control when working bevel up, and it makes the edge easier to touch up because you don't have to stone the entire flat side unless it's really bad. When the edge has its share of nicks, it's time to regrind the bevel. Drawknife blades, like chisels and plane irons, are single-beveled tools ground at an angle on one side and usually flat on the other. This bevel is typically between 30° and 40° on a new drawknife, and I usually maintain this angle and the original shape of the blade when I regrind.

Unfortunately, when grinding the edge of a full-size drawknife, the handles usually won't clear the motor on a bench grinder. One solution is to dress the wheel's face at an angle so you can grind with the handles out of the way. Just don't create a sharp peak on the face of the wheel, which may cause the wheel to fracture in use. A stationary belt grinder, or a belt sander held upside down in a vise, also works very well, especially on curved or crowned blades that are a challenge to grind to shape. I start with a 60-grit belt, and then hone with the axe stone and finish with a cloth buffing wheel charged with emery compound.

Spokeshaves—In my school shop, kids who have trouble learning to control a drawknife, or lack the strength to do heavy work with one, can usually accomplish the task more easily (but not as quickly) with a spokeshave. A sharp and well-adjusted spokeshave can skim a crisp, even shaving almost automatically, leaving a clean, smooth surface. Spokeshaves can be used for many shop tasks, from chamfering, trimming a door and wood sculpting, to more traditional tasks, such as shaving spindles. The tool is usually smaller and lighter than a drawknife because the blade is shorter, thinner and removable, not to mention replaceable.



Left: A large, straight-blade drawknife is tops for quickly hogging away large amounts of stock, especially in green wood. With a workpiece secure in the shaving horse, the author twists the knife as he pulls it through the cut, using leverage to split off the waste. Above: Holding the drawknife in his arms like a fiddle, Stair uses a round axe-sharpening stone to touch up the edge.

A spokeshave is actually a very short plane with handles on its sides. The blade is enclosed in the body of the tool, protruding through the sole just far enough to take a shaving. A single screw usually holds the cutter in place. To adjust the depth of cut, you loosen the screw and tap the blade in or out, for a lighter or heavier cut. Some spokeshaves feature a lever cap, which presses down on the blade just behind its edge, that stiffens the blade to prevent chattering, like the cap iron of a handplane. Spokeshaves made by Stanley and Record have two adjusting screws on top that make setting the depth of cut a matter of simply turning the screws on top.

Different kinds and shapes—Like drawknives, spokeshaves traditionally were specialized tools that are still available in a variety of styles and shapes. Most spokeshaves have straight blades anywhere from 1 in. to 2 in. or more in width, with either straight handles or raised handles shaped like gull wings. Straight handles make it easier to take heavier cuts while keeping the sole flat on the work. Raised handles keep your hands clear when shaving on a flat surface, but the tool has a tendency to chatter and roll as you cut. Therefore, place your thumbs on the front of the tool just above the blade, to stabilize the tool.

My favorite straight spokeshaves have adjustable throats, for more sensitive control of the cut. Unlike a smoothing plane's adjustable throat that doesn't change the depth of cut when it's set, an adjustable-throat spokeshave increases the thickness of the shaving as you open the throat and expose more blade. Conversely, closing it down yields a very fine cut, which is great for curly grained woods. With this single control, you can adjust the cut without moving the blade up and down. I really appreciate this feature when, for instance, I chamfer the edges of a round stool, as shown in the top photo at right. As I work around the circle, I can set a deep cut when working parallel to the grain, and then adjust for a very fine shaving when I come around to the endgrain.

Spokeshaves also come with concave- and convex-shape blades. The hollow or half-round spokeshave is concave across the blade. The tool does a nice job of cleaning up the facets left after roughing out the workpiece with a drawknife, producing a smooth, evenly rounded surface on a spindle or rounded chair part, as shown in the bottom photo at right. Unfortunately, the short sole makes the tool hard to control and the blade has a tendency to dig in and tear the edge-grain when, for instance, rounding the edges of a tabletop or carcase side. The radius spokeshave has a convex-shape blade with about a 3-in. radius, and is good for shaping shallow grooves and cleaning up other concave surfaces, such as the seat of a chair that's been scooped out with an inshave. Like the hollow spokeshave, the radius shave can be hard to control and is especially subject to chatter if it's not really sharp and pressed down firmly during cutting.

Modifications—It's possible to modify adjustable-throat spokeshaves for better performance and cutting control. First, remove the D-shape adjustable sole and, with a flat file, slightly undercut the throat, and round and smooth the inside edges. This reduces the tool's annoying tendency to jam with shavings. For finer adjustments, and shavings of even thickness across their width, the throat must be ground evenly across the sole. Mount the blade in the shave and temporarily pin the adjustable sole back in, without the springs. Then, adjust the blade's edge so it is parallel with the adjustable sole when viewed from the front, and check the throat opening for evenness all the way across. If it is not even, use dividers to scribe a line on the adjustable sole, and then file to the line. Finally, reassemble the spokeshave with the springs



A straight spokeshave is a great tool for quickly beveling the underside of a tabletop or, as shown above, a stool seat. The author first marks the grain direction, and then cuts the bevel by either pushing or pulling the tool. The half-round spokeshave is the perfect tool for rounding and smoothing the surface of a chair leg after it's been roughed out with a drawknife (right). The edge of the spokeshave blade is ground to a slightly larger radius than the sole.



in place. Each time you replace the blade after sharpening, adjust the throat to its smallest setting, lock the blade in place slightly above and parallel to the sole, and then adjust the throat setting for the desired cut.

Sharpening a spokeshave—Sharpening the blade on a straight spokeshave is identical to sharpening a small plane blade. If you have problems holding the small blade during grinding, use a pair of locking-jaw pliers. Sharpening the blade on a half-round or radius spokeshave is a tougher matter. Besides the difficulty of sharpening the curved edge, the profile of the blade doesn't even match the sole because the blade passes through the sole at an angle. Fortunately, you don't need to grind a perfect match. Instead, grind so that the blade's curve is more gradual than the sole's, so that the blade protrudes only at the center of the sole, which produces shavings with feathered edges. Dress an old grinding wheel to fit the shape of the curve and occasionally check the blade profile by setting the blade in the tool and sighting from the front. □

Richard Starr is a teacher and the author of Woodworking with Kids, published by The Taunton Press, 1982.