Spokeshaves

Cool tools for curved work

By Craig Bentzley

In case you haven’t noticed, there’s a hand-tool revolution going on. Well, actually, it’s more of a hand tool rediscovery. After decades of enjoying the efficiency of power tools, many woodworkers have come to realize that most machines simply cannot finesse work the way certain hand tools can.

For example, there’s a good chance you’ve discovered the benefits of using a well-tuned hand plane to remove the machine marks left by your thickness planer. But unless all your work is straight and flat, there’s another valuable tool you’ll want to add to your arsenal: the spokeshave. When it comes to curved work, a properly set up spokeshave will perform a variety of tasks ranging from simple smoothing of arched edges to shaping of spindles, cabriole legs and other curved forms unsuited to hand planing.

Spokeshaves are available in a multitude of configurations, including models with concave or convex blades and models dedicated to chamfering. However, unless you’re a chairmaker or have specialized needs, straight-bladed models will handle most common jobs. In this article, I’ll explain how to get a straight-bladed spokeshave into good working order and how to put it to use.
Types of spokeshaves
Spokeshaves can be categorized into two basic types based on blade orientation: bevel up and bevel down (Figure 1). First is the traditional bevel-up shave, originally manufactured with a wooden body. If you frequent antique tool sales and flea markets, you'll find these tools in abundance, but be aware that most of them are worn beyond their useful life cycle, suffering from misshapen soles and wide-open mouths that compromise control. At the very least, you'll usually have to install a new throat plate to close up the mouth. These old models also lack blade depth adjustment screws, instead incorporating friction-fit tapered tangs, which can be fussy to adjust. With new models available in both wood and metal (Photo A), it makes sense to forego troublesome vintage spokeshaves.

Because of their lower cutting angle, bevel-up spokeshaves excel at rapid stock removal of straight-grained woods. They're also great at slicing end grain. Although the low angle tends to tear out areas of reversing grain, the mouth on most new spokeshaves can be set for a fine opening to minimize the problem.

Bevel-down spokeshaves are the most commonly available. These metal spokeshaves have a blade configuration much like a hand plane and are manufactured with either a flat or slightly convex sole (commonly called a round-bottom spokeshave) (Photo B). The flat-soled versions will handle convex and long, sweeping concave...
Tuning a spokeshave

Contemporary bevel-up spokeshaves—whether wood or metal—rarely require as much tune-up work as their bevel-down counterparts. Since the blade on a bevel-up shave serves as a large portion of the sole, make sure to flatten and polish the entire underside of the blade. Also, ease a blade’s sharp trailing edge with a file or honing stone to prevent it from scarring your work on the backstroke. The wear plate on a wooden bevel-up shave should be as smooth as possible, as should the adjustable shoe on a metal bevel-up shave. Whether you buy new or used, most bevel-down spokeshaves don’t come ready to use. For one thing, the castings on inexpensive models often suffer from poor quality and sloppy machining. This may mean an out-of-flat sole or a blade that doesn’t seat properly, contributing to control problems and chatter marks on your work. Blades may be improperly sharpened or, in the case of an old shave, sharpened so often that little usable blade is left. Fortunately, it’s not difficult to

Blades: Bigger Is Better

The blade that came with my secondhand spokeshave was totally used up and could not be advanced any further to take a shaving. This was actually a blessing in disguise because it gave me an excuse to replace it with a thicker, aftermarket blade. Thick replacement blades by IBC or Hock Tools are available through Woodcraft (woodcraft.com).

The thicker IBC blade (top) will replace a stock blade (bottom), reducing chatter and closing up the mouth in the process, which helps reduce tear-out.

Flatten the sole on 100-grit sandpaper on a dead-flat surface, using firm, short side-to-side strokes.

If necessary, file the screw slot to allow the cap-iron shoulders to contact the body notches.

curves, but you’ll need a round-bottom shave to get into tighter curves such as the ankle area of a cabriole leg. The steep cutting angle makes bevel-down spokeshaves the best choice for working figured woods. In general, they’re used for fine shaving, not gross stock removal.

The venerable Stanley model No. 151 and its various imitations are readily available new and used. Blade adjustment on these models is very user-friendly and allows you the option of skewing the blade slightly to take heavier cuts on one side of the tool and finer shavings on the other.
perform a complete tune-up, rewarding you with a tool that cuts smoothly and cleanly.

For this article, I purchased a used Stanley No. 151, typical of those found at flea markets. I began by disassembling the tool and putting all the parts in a rust-removal bath for a few hours. Then I flattened the sole by rubbing it aggressively side to side on a piece of 100-grit aluminum oxide sandpaper affixed to a granite slab (Photo C). I followed up by polishing it in the same manner using fine emery cloth. To polish a round-bottom spokeshave sole, I back up emery cloth with a piece of ¼"-thick cork and scrub with a side-to-side motion.

Next, you'll want to attend to the cap iron. To minimize blade chatter and to prevent chips from jamming under the cap iron, the bottom of its leading edge needs to make solid contact with the blade. Flatten that section using the same technique used to flatten the sole. Also smooth and polish the top of the cap iron's leading edge to allow chips to break away cleanly and smoothly. On some shaves, the “ears” on the cap iron won't contact the shoulders on the body as they should. In that case, elongate the cap iron screw slot using a chainsaw file as shown in Photo D. To avoid lengthening the slot any more than necessary, check the fit frequently with the blade inserted.

On a metal-bodied spokeshave, the blade bed often requires some work. Heavy, uneven japanning or bad castings can prevent a blade from seating solidly against the bed, inviting chatter in use. With sloppy japanning, you can often scrape away the paint blobs. An out-of-flat casting can be smoothed and leveled with a mill file, working in the diagonal fashion as shown in Photo E. Check your progress frequently, and continue filing away high spots until the blade doesn't rock while in place.

Finally, the blade needs to be flattened and sharpened. Because it’s so short, a blade can be hard to hold for sharpening. Instead of using a grinding wheel, I suggest sharpening with honing stones. Begin with as coarse a grit as is necessary to restore the edge and then move through progressively finer grits. For bevel-up blades, maintain an angle of 20-30°. If you work primarily in softwoods, a 20° angle works fine. For hardwoods, a 25-30° angle is best. When honing the blade on a bevel-up shave, the posts can get in the way. To do the job, pinch the blade at both ends while straddling a narrow stone and rubbing the blade back and forth and sideways. Alternatively, take diamond paddles to the bevel.

For bevel-down blades, maintain an angle of about 25°. To help with honing the bevel, I made a simple plywood blade holder that fits into my honing jig (Photo F). If the back of the blade is rough, I’ll hone it using a progression of waterstones, finishing up by polishing it with 8000 grit.

Adjusting a spokeshave
As with a hand plane, you’ll want to adjust a spokeshave to take a cut that’s appropriate for the job at hand. But setting a spokeshave can be tricky. Unlike a hand plane, a spokeshave provides very little sole to serve as a sighting reference.
It’s of little use trying to set a blade by feel because a cutting edge that projects far enough to feel will probably create too coarse a cut. The best approach is trial and error, making test cuts on a piece of scrap.

Shaves with depth adjustment knobs are easiest to set, but be sure to take up any backlash after adjustment by advancing the adjustment knobs until they contact the bottoms of the blade slots. Spokeshaves without adjustment knobs require a different approach. For these, place the tool on a flat surface, bottom out the blade, and then snug up the cap-iron locking screw, but not too tightly. Tap the blade lightly (Photo G), secure the cap-iron locking screw, and make a test cut.

I own a number of spokeshaves and set them differently. For some, I like to skew a blade to take a fine cut on one side, and a slightly heavier slice on the other. This creates a sort of two-in-one shave that’s great for preliminary work. I follow up with a shave that’s set to take fine, uniform shavings for a more refined surface.

**Using a spokeshave**

Using a spokeshave requires concentration, especially if you’re new to it. Because the handles are so long, beginners have a tendency to grab them out at their ends. However, this type of grip will not allow your wrists to control the cut. Instead, I place my thumbs and forefingers as close to the blade as possible, with the handles simply serving as a resting place for the remainder of my fingers (Photo H).

Spokeshaves can be pushed or pulled. It’s a good idea to master both techniques so you don’t have to reposition yourself or your work frequently. That said, I find that pushing gives me the most power and control, especially with unruly woods.

Even the most highly tuned spokeshaves can chatter during certain cuts. If this occurs, try skewing the tool as shown in Photo I. Skewing the shave

**Shaving Kits**

Making a wooden bevel-up spokeshave from a kit is an affordable way to make a tool that’s anything but cheap. I’ve been using mine for over 10 years, and I love it. Dave’s Shaves (ncworkshops.com) offers a complete $65 kit, including a Hock blade, pre-marked wooden blank, and comprehensive instructions. It takes maybe an afternoon to build the shave. For those more adventurous souls who want to build the body from scratch, a Hock blade with locking screws can be purchased directly from Hock Tools (hocktools.com) for about $36. With it you’ll find instructions for making the tool body.
lowers the blade’s angle of attack and usually results in a cleaner cut. It also helps combat resistance on end-grain.

Use a flat-bottom shave to cut convex areas, and a round-bottom shave for concave surfaces. (Bear in mind that you can’t cut a concave radius that is smaller than the radius of the spokeshave bottom.) Always work in the “downhill” direction of the grain, as shown in Figure 2. Tight radii are particularly challenging, and you may have to work the shave in side-to-side slicing cuts to finish the bottom of a curve. If you can’t perfectly smooth the tangency point where the grain reverses, you may need to resort to a scraper. In any case, you’ll probably want to refine the spokeshaved surface with a scraper and/or sandpaper to remove any chatter marks and to smooth everything out prior to assembly and finishing.

Once mastered, the spokeshave is an indispensable tool, so join the shaving revolution. Chances are, once you learn to handle the tool, you’ll depend less on your oscillating spindle sander.

About Our Author
Craig Bentzley has been restoring antiques and building furniture for nearly 40 years. In addition to writing, Craig also teaches at guilds, woodworking shows, and at Woodcraft stores.

For best control, hold a spokeshave close to its blade, pinching it firmly at the base of the handles.

Reduce blade chatter by skewing a spokeshave. Here, the shave is being pulled downhill with the grain.
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