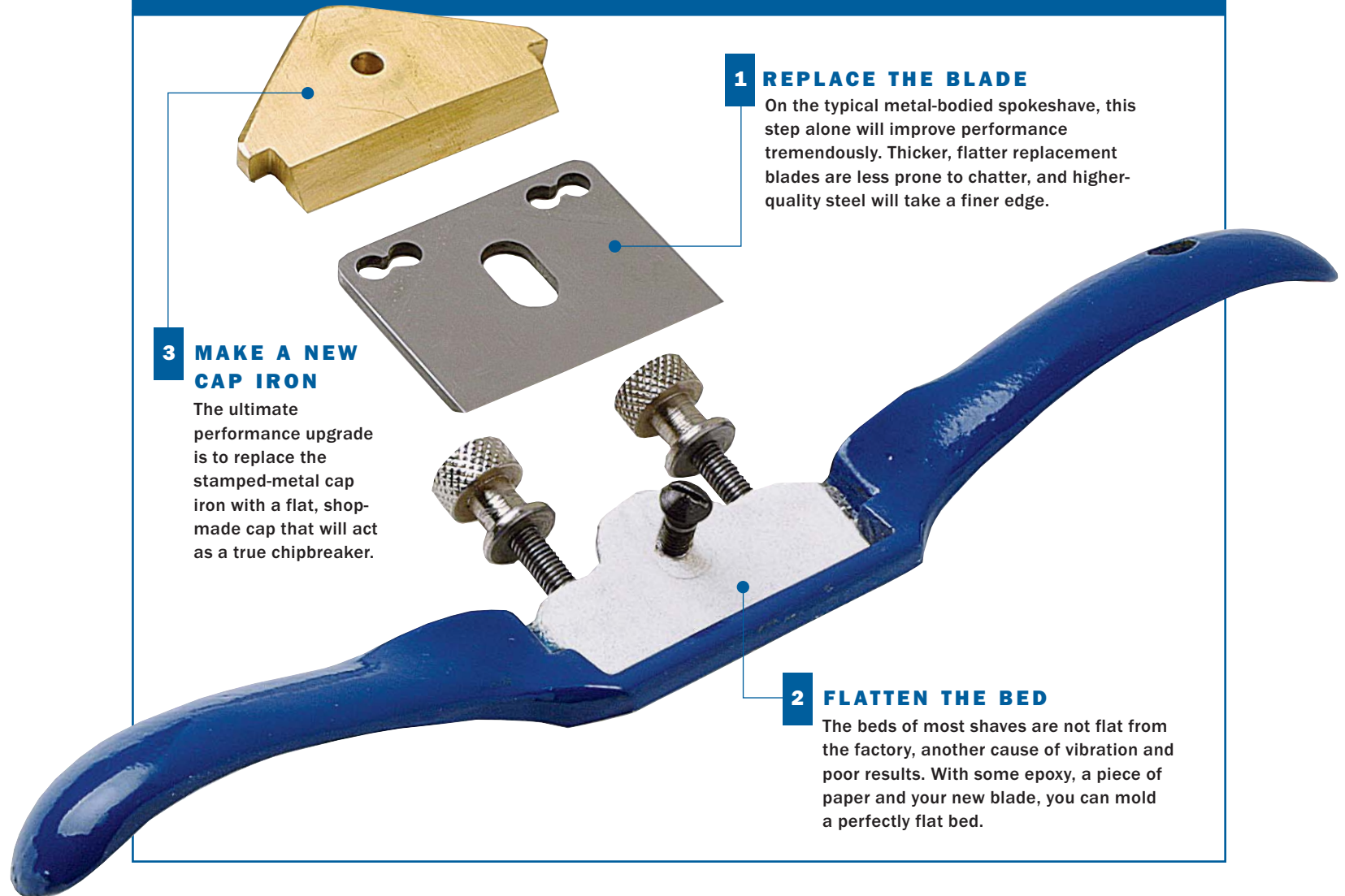


Soup Up Your Spokeshave

BY BRIAN BOGGS

Three-step process takes the tool from good to better to best



1 REPLACE THE BLADE

On the typical metal-bodied spokeshave, this step alone will improve performance tremendously. Thicker, flatter replacement blades are less prone to chatter, and higher-quality steel will take a finer edge.

3 MAKE A NEW CAP IRON

The ultimate performance upgrade is to replace the stamped-metal cap iron with a flat, shop-made cap that will act as a true chipbreaker.

2 FLATTEN THE BED

The beds of most shaves are not flat from the factory, another cause of vibration and poor results. With some epoxy, a piece of paper and your new blade, you can mold a perfectly flat bed.

The tool's name suggests that the spokeshave is for shaving wheel spokes, but chair makers and cabinetmakers have been using the spokeshave for generations in myriad wood-shaping situations. Basically, a spokeshave is a very nimble plane, with a short sole that can follow convex and concave surfaces. A good shave can follow an S-curve and leave a surface that needs little further attention.

Any time you have a part that you can't plane evenly because of its shape, there is probably a spokeshave that will help.

Think of all of the parts that you have bandsawn a curve into: a table apron, a leg for a hall table, parts for a music stand. While a

template setup for a router or a sander will smooth the curves, it takes time to make the template and the setup. I recently sold my inflatable sanding drum because I could almost always spokeshave a part to smoothness more evenly and quickly. Even when I template-rout bandsawn parts, I finish them with a shave.

Start with a metal-bodied, flat-bottomed shave

I have been using shaves to shape my chair parts for 18 years and have about a dozen or so, each with its own purpose. If you don't own a shave, you have a lot to choose from. There are flat and round-bottomed shaves, and you can buy a shave that is concave

across its width, which leaves softer facets on round parts. Then there's the whole group of wooden shaves, in which the blade rests directly on the wood for the lowest possible cutting angle. But a metal-bodied, flat-bottomed spokeshave is the most versatile and gives the greatest chip control.

This standard spokeshave is inexpensive, but it requires a tune-up. The tuning process has the obvious benefit of improving the tool's performance, but it has an even more important role in developing your understanding of the tool. You'll quickly identify problems in your shaving work, and I bet you'll keep the blade sharper after you've so lovingly refined the tool.

Although there are a number of metal shaves on the market, their tune-up checklists are the same. The metal shave that shows up most often in my students' toolboxes is the Record No. 151, so for simplicity, I'll use this one as a demonstration.

I break down a major tune-up into three manageable tasks, most of which can be accomplished quickly. You don't have to go through all three steps to improve your tool; the first two will make a big difference. But once you see how much better the tool performs, I think you'll want to go all the way.

Step 1: Changing the blade is easy and effective

Sharpening any edge tool is basic to getting it to work properly, but if the blade won't take an edge well or hold it for long, you are going to be frustrated.

Spare yourself some agony and purchase a good blade. Typically, the original blades are so warped that by the time you flatten both sides and get them to rest solidly in the bed, you'll wish you had bought a good blade to start with. I have used replacement blades from Hock Tools (888-282-5233; www.hocktools.com) as well as from Glaser Engineering (write to Jerry Glaser, P.O. Box 95, El Segundo, CA 90245). You will get a Hock blade (\$32) more quickly, but you'll save yourself some lapping time with a Glaser blade (\$28). The latter is lapped flat with the edges finely ground and honed by hand.

1. Replace the blade

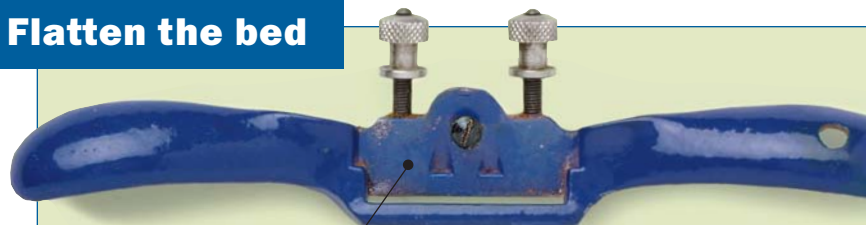
Aftermarket blades are beefier, providing a solid feel and less chatter. They are also made with better steel; even long-wearing A-2 is available.



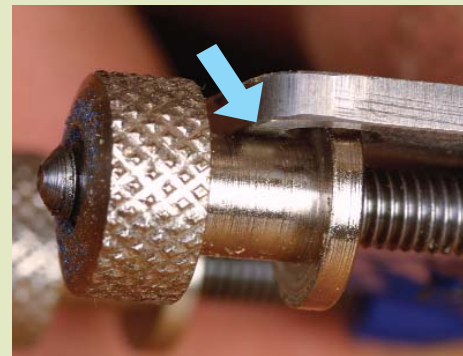
A thicker blade requires a bigger throat. File the front edge of the opening until there is an even, $\frac{1}{64}$ -in. gap or less in front of the blade.



2. Flatten the bed



A bumpy bed and crooked adjustment screws prevent a solid connection between the blade and the tool.



The blade should not ride on any part of the adjustment knob. If it does, it is being lifted off the bed of the tool.



Find the culprit and apply a bit of tape. Before putting down epoxy and clamping the blade in place, add two layers of masking tape to the highest knob so that the blade will clear it later.

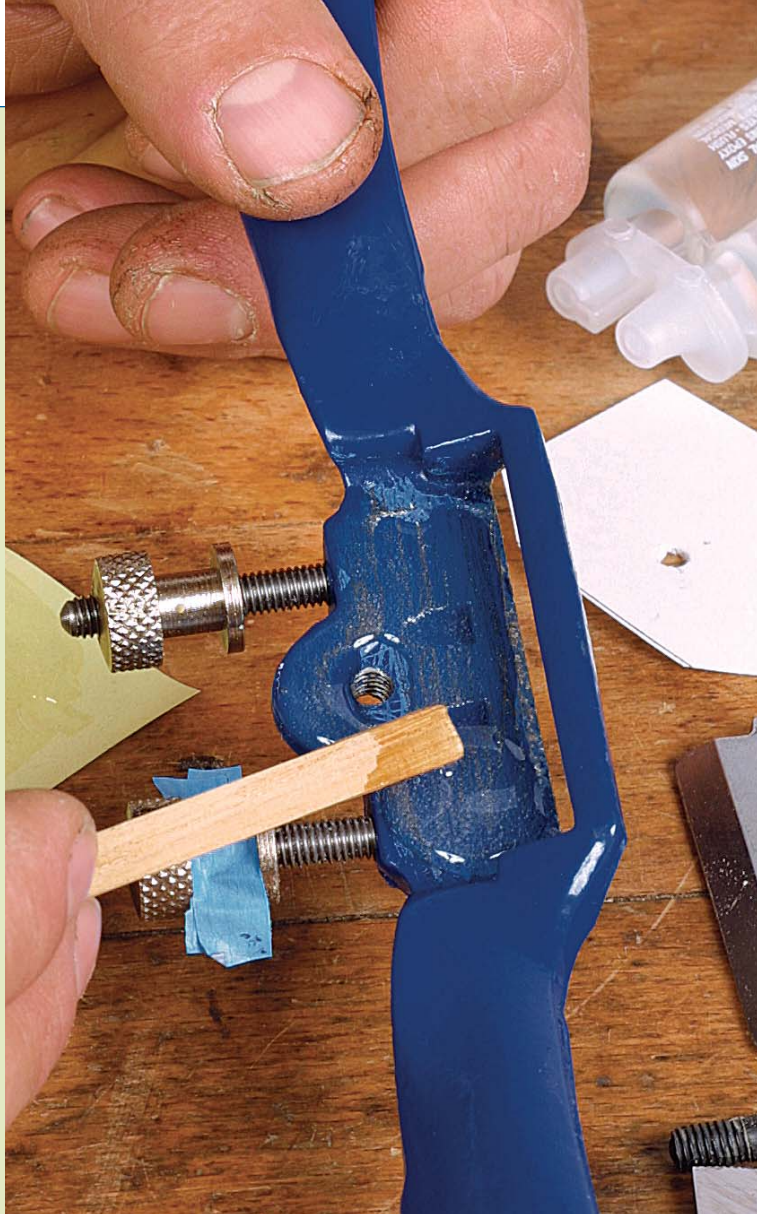
Both replacement blades are available in A-2 steel, which holds an edge beautifully. In my shop tests it holds an edge six to eight times longer than regular carbon steel but takes a very fine edge almost as quickly with the same honing techniques.

You may find that the new blades are a bit thick and won't quite pass through the throat. That's okay because it forces you to open the throat by filing it, and you can true it up in the process. This opening should be less than $\frac{1}{64}$ in. wider than the blade, just enough for a shaving to squeeze through.

Step 2: A level bed eliminates chatter

The bed, or frog, on most shaves is a painted metal surface that can be filed. But filing an area that you can't see well or hold firmly with a clamp is a fine art. I prefer to be practical here and save the art for woodworking. I simply level the bed with epoxy, using the blade itself to mold the new bed.

This method will work for any blade, but if you start with a dead-flat replacement blade you'll make a flat bed, which then will work



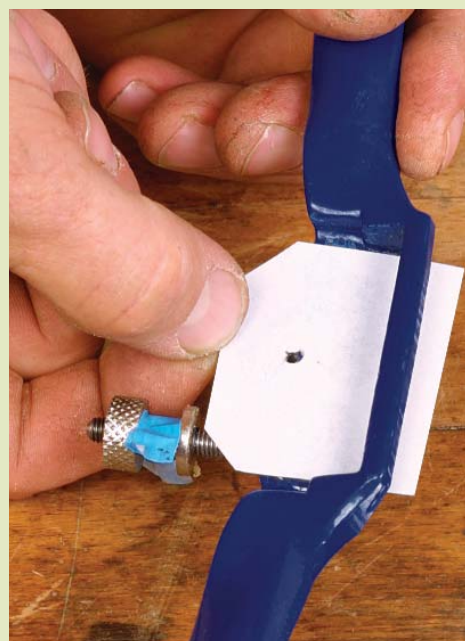
Apply a layer of epoxy to the bed. If the masking tape and the high knob are lifting the blade off the bed considerably, add a thicker layer of epoxy and allow it to firm up slightly before clamping down the blade.

for any other flat blade you use. (Hopefully, you'll enjoy using your shave enough to wear out blades.)

Often the blade-adjustment screws aren't perpendicular to the bed, and the knobs, instead of turning freely in the slots in the blade, hold the blade off the bed. Also, if the holes in the knobs aren't centered, the knobs will lift the blade in some positions but not others. Find the high spot (if there is one) on the highest knob, and wrap that spot with two layers of masking tape. The tape will hold the blade clear of the adjustment knobs.

Molding a new bed in epoxy—To start, apply a thin but complete coat of wax to the back of the blade as well as to the center (hold-down) screw. Allow that to dry, then buff. Now clean any oil off the bed with mineral spirits and dry carefully. Scratch the paint with heavy sandpaper or a file for a good bond with the epoxy.

Next, cut a strip of paper to go on top of the epoxy, making a better sliding surface for the blade. Also, before applying the epoxy, place two layers of masking tape over the front edge of the blade



Add a sheet of paper to provide a smooth surface for the blade. Have this strip cut to size beforehand, with a hole punched out for the center screw.



Use the stock cap iron to clamp the blade in place. The blade will create a flat bed to support it completely. Use the center screw to apply even pressure.



Remove excess epoxy. Some epoxy will squeeze out around the paper, but it's easy to trim and pare cleanly.

3. Remake the cap iron

The underside of the stock cap iron is the problem. Because its leading edge is rounded, it has a tendency to catch shavings. So much metal would have to be removed to flatten the bottom that it simply is easier to make a new cap iron.

Rounded edge on stock cap iron

Shopmade cap iron can act as a true chipbreaker.

to maintain an even throat opening as you clamp down the blade onto the soft epoxy.

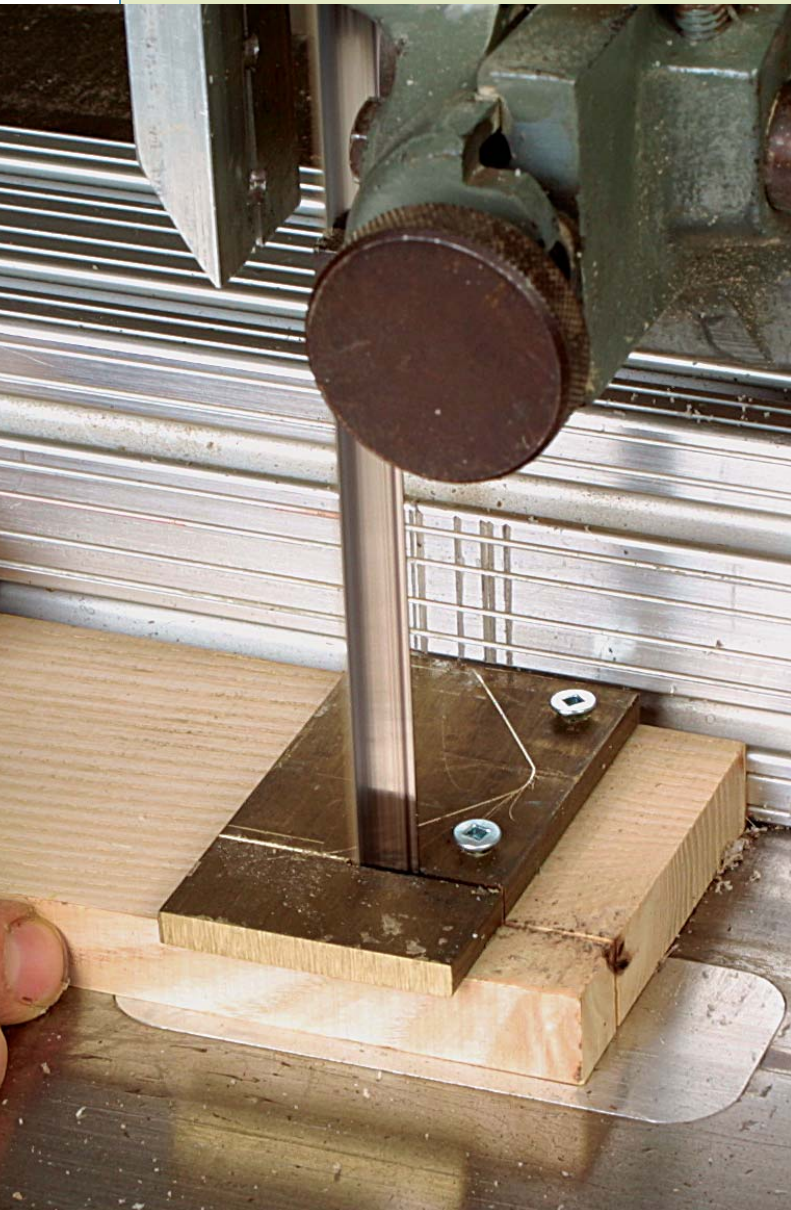
Whip up a batch of epoxy with a working time of 20 minutes or more, and apply an even layer to the bed. You could use auto-body filler here, too. Use just enough epoxy to fill the voids, unless you have crooked adjustment screws and need to raise the blade off the bed. For a thicker bed, wait until the epoxy firms up slightly before inserting the blade and clamping it down.

Place the paper carefully over the bed, centering the hole for the cap screw. Now assemble the shave, using just the center screw to hold down the blade. Use only enough screw pressure to hold things in place while the epoxy dries. Too much pressure might flex the blade and create a bowed bed. Also, if you have one high adjustment screw, be careful to lay the blade in level. Don't let it droop over the other adjustment screw. And make sure the blade is extended through the throat so that the bevel clears the bed area.

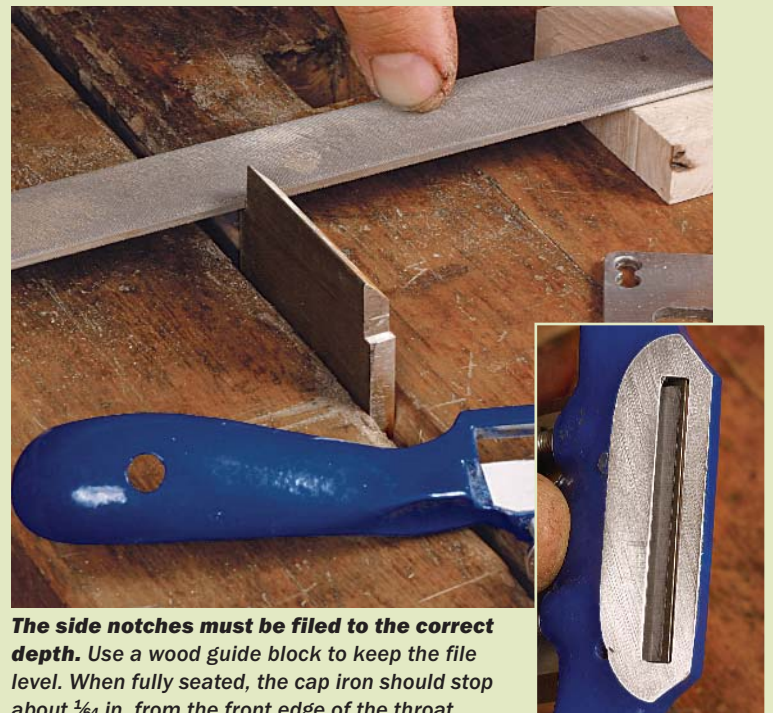
If in the first step you filed open the throat too much, use a piece of veneer or card stock instead of paper. The veneer also can be added later, glued to the paper.

Let the epoxy set up overnight. Then take apart the tool and trim the paper and any epoxy squeeze-out. Lap the bottom flat using a diamond plate or simply sandpaper glued on glass. Then file a 1/32-in. chamfer on the front edge of the bed and on the leading edge of the sole.

Done well, these first two steps will yield a fine cutting tool that will take most straight-grained woods to a beautiful finish. You might want to stop here and enjoy some woodworking for a while, but eventually you will encounter difficult areas that don't want to shave clean no matter which direction you cut. Skewing the blade will help, but to get a perfect finish all of the time, you need perfect chip control. When you're tired of sand-



If the teeth are fine, a wood-cutting bandsaw blade will cut brass. Screw the brass stock to a wood scrap for safer and easier handling. Put the screws through the waste areas. Grind an even bevel along the front edge.



The side notches must be filed to the correct depth. Use a wood guide block to keep the file level. When fully seated, the cap iron should stop about 1/64 in. from the front edge of the throat.

ing *almost*-perfect finishes, you're ready to replace the cap iron.

Step 3: Shopmade cap iron reduces tearout

On most spokeshaves the cap iron is just a crude hold-down that keeps the blade in place. But it can do more. A flat, correctly positioned cap iron can act as a chipbreaker for finer cuts with less tearout, just like the chipbreaker on a smoothing plane.

The manufacturing process used on a cap iron leaves the bottom edges rounded. But without a machinist's surface grinder, it is difficult and time-consuming to get a stock cap iron dead-flat. I think it is far quicker and easier simply to start over. A quick cap iron can be made from 1/4-in.-thick brass bar stock. A steel cap is fine too, but brass is much easier to work and can be cut at the bandsaw with a fine-toothed wood-cutting blade. Of course, you also can use a hacksaw. The best place to get a scrap of brass bar stock is a local machine shop.

You can form the back edge of your new cap iron to the shape of the stock cap iron, or you can just leave it long. The important areas are the beveled chipbreaker edge and the small ears that rest in the notches in the body. These locate the chipbreaker edge.

Before sawing the stock to width, mount it on a flat scrap of wood, as shown on the facing page. This will make it easier and safer to hold the stock for sawing, grinding and drilling. Use a



The well-tuned spokeshave. Outfitted with an after-market blade, a flat bed and a shopmade cap iron, a spokeshave—either pushed or pulled—will plane curved surfaces glassy smooth.

Watch it on the web

For video tips on using a spokeshave, go to www.finewoodworking.com.

6-tpi (or finer) blade at least 3/8 in. wide, if possible, to handle the added pressure of cutting metal. Cut the notches only roughly to size because you're going to do the final fitting with a file.

Next, grind an even bevel along the front edge. For this I clamp the stock in a vise and pivot a belt sander on its back edge. Check for square and make any necessary adjustments.

Check your fit and file the notches as needed. You won't need the slotted hole the original has; just drill a slightly oversized clearance hole.

When the cap iron is close to the edge of the blade and acting as a chipbreaker, a good seal is critical. To help this I burnish the leading edge of the cap iron just as I would a scraper, throwing a burr toward the blade. A little lapping evens out the burr.

When you assemble the tool for use, apply just enough screw pressure to keep the tool from falling apart while you use it. Tighten it only when the blade slips out of adjustment.

You should know that even a well-tuned shave requires practice to master. However, with your souped-up shave, practice should be a lot more fun. □

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Next, mark for the center hole. This simply is a clearance hole for the center screw, which threads into the body of the tool.



Mount the cap back onto the wood block for drilling. A screw clamp makes a good vise. Next, use the bandsaw to cut the corners off the back edge.



Last, burnish a very fine burr on the front edge. This will create a tight seal against the blade, preventing chips from slipping underneath. Flatten the hook slightly on a bench stone.