

Soften Hard Edges with a Side Bead

BY GARRETT HACK

Shakers taught me about beads, the semicircular moldings they ran along the edges of everything from peg rails to door rails. Forbidden superfluous ornament, the Shakers used beads for their practicality, rounding an edge to hide wear. Outlined by a flat-bottomed groove called a quirk, a bead softens an edge, gives it definition and draws your eye along; it can hide the necessary gaps around drawers and doors or the joint between tongue-and-groove boards. Both utilitarian and beautiful, beads are quite easily added to your repertoire.

I cut beads, properly known as side beads, any of three ways: with a Stanley No. 66 beading tool or shopmade scratch stock, with a beading plane or with a router. The method I choose depends on which tool will work best for the least effort, how many feet of bead I need and the size of the bead. With a router or beading plane, I have fewer size options than with a beading tool or

scratch stock, for which I can make any size cutter. A router and plane cut the most consistent beads, especially for straight runs, but a beading tool or shopmade scratch stock works best in difficult woods and can follow nearly any curve. Because I usually have just a few yards of bead to cut and prefer to work with hand tools, I most often use a scratch stock or plane. Both tools cut a bead with a hint of handmade irregularity and a fine quirk, more appealing to me than the consistent profiles cut by a machine.

Beading tools go easy around curves

The Stanley No. 66 beading tool (no longer made) and its derivative, the bronze beading tool from Lie-Nielsen (888-751-2106), are the most common of several manufactured versions of the shopmade scratch stock (see the left photo below). All manufactured beading tools and shopmade scratch stocks work with a high-

Use a beading tool, a plane or a router to shape this delicate detail



Beading tool. All beading tools work with a scratching action. Front to back: two shopmade scratch stocks, Woodcraft's bronze beading tool, the Veritas beading tool, Lie-Nielsen's bronze beading tool and a Stanley No. 66.



Beading plane. Antique beading planes are relatively inexpensive and widely available. They come in a range of sizes—one profile per plane—and cut straight runs of nearly polished beads.



Router. A router is ideal for cutting long runs of consistent beads. You can find bits for a wide range of bead sizes.

Many uses for a simple side bead

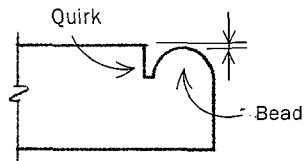
Bead shapes show up in Greek and Roman architecture and from there seep into furniture design. Colonial craftsmen cut beads along exposed beams to add visual appeal and to eliminate sharp edges, which ignite more easily than rounded ones. They also cut beads along the lower edges of clapboards, again for visual reasons and, supposedly, to shed water better. The Shakers ap-



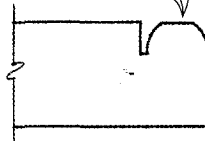
plied side beads to everything from furniture to panel doors to peg rails. Side beads are useful for creating a shadow line and softening or defining an edge, as in the table apron above, and for hiding the joint between parts, as in the panel door (right) and the flush apron drawers (above). The quirk also happens to be a fine place to hide a nail.—G.H.

Classic bead with a classic tool. The prototypical beading tool, a Stanley No. 66, cuts a bead with a pleasing hint of handmade irregularity.

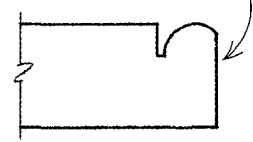
Cut bead below surface; ...



... otherwise, bead can get flattened on the top.



Plane edge before cutting bead; otherwise, bead can get flattened on the side.



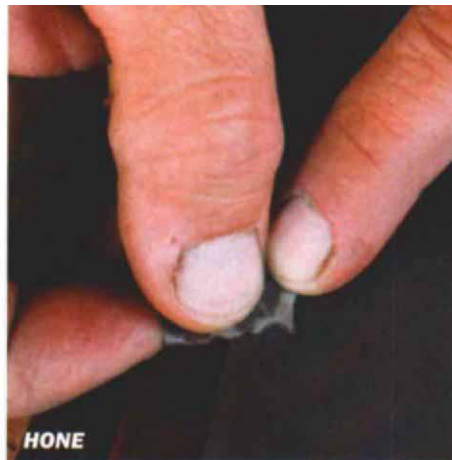
angle scraping action—different from the true cutting action of a beading plane—and although they don't cut very quickly, beading tools and scratch stocks will cut any size bead, with or against the grain, even in the most difficult woods. The Stanley No. 66 beading tool, with which I am most familiar, has a flat sole, an adjustable fence and a single cutter, which can be securely clamped into place. All manufactured beading tools come with a number of cutter profiles, as did the Stanley No. 66.

Despite the versatility of manufactured beading tools, I much prefer the control and even greater versatility of shopmade scratch stocks. I make them from worn-out, heavy hacksaw blades, which I attach to a wooden fence (see the story below). A shopmade scratch stock has several advantages over a manufactured beading

tool. One is the flexibility I have to tilt it to get the optimum cutting angle or to cut toward me or away using either side of the cutting edge. With the No. 66 beading tool, the wide sole prevents adjustment of the cutter angle, and changing direction requires resetting the fence. The No. 66 is comfortable to use, but it's guided with two hands, so it's easy to skew the cut unless you apply even pressure. With a scratch stock, you can make the fence long enough to hug the edge of the board. You can add a special fence to the No. 66 for beading along curves, something all commercial beading tools and shopmade scratch stocks do very well.

Beading tools, whether manufactured or shopmade, are not difficult to use, as you immediately get a feel for the scraping cut. (The challenge is sharpening the cutter to scrape well.) Slip the

Crafting a shopmade scratch stock



Scratch stocks are good examples of craftsman ingenuity—they are simple to make and work extremely well. A piece of hacksaw blade, bandsaw blade or similar steel makes an excellent cutter and also works as a cutter for a Stanley No. 66 beading tool.

I grind and hone shallow molding shapes into hardened steel, but I file deeper profiles only after softening the blade by heating it red hot with a torch and then cooling it slowly in ashes or sand. Chain saw or round needle files work well for shaping beads. The cutting edges of the blade must be honed very square and polished. A softened blade will cut well, but it

will dull after cutting a dozen or so feet of board. For a longer-lasting edge, I heat the shaped cutter red hot again, quench it in water and then rehone the profile.

To complete the scratch stock, I shape a small block of wood to serve both as a handle and as a fence to guide the blade. Typically, I'll chamfer the edges of the block. Then I saw a thin kerf into the block as deep as the blade and tap the blade into position. I like to test the blade on a piece of scrap and make adjustments and refinements as necessary. —G.H.

Watch it on the web!
See a video of a scratch stock in use at taunton.com



Step back and plane forward. To give the plane some bead to track on, start a plane's length in from the far end. Plane forward to the end, back up a length, then plane forward again. Continue stepping back and planing forward until you've beaded the full length. Then you can plane the entire bead to its full depth.

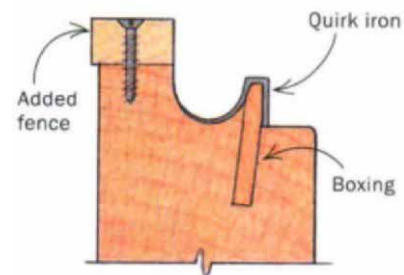
cutter in place with the top of the bead profile just proud of the sole. This will allow you to cut the bead slightly lower than the surrounding surface, which protects the bead somewhat and allows you to handplane the finished surface later without flattening the bead (see the drawings on the facing page). Align the fence with the outside of the bead. It's a good idea to plane that edge before beading, as any smoothing of the edge later cuts into the bead. But don't sand beforehand; a sanded surface will dull your cutter.

Hold the tool with the fence tight to the work and, with repeated cuts as long or as short as feel comfortable, scratch the bead to the final depth. The No. 66 beading tool stops cutting when the sole rides along the surface, but none of my scratch stocks has a depth gauge. Instead, I draw a line on the work at the top of the bead, and when I scrape the line off all along, I know I've cut deep enough. I often sand the bead lightly to even out small imperfections.

Beading planes do a smooth job

Beading planes cut much faster than beading tools or scratch stocks, and except for areas of extreme cross-grain, planes leave a nearly polished bead. A beading plane is a superior tool for cutting a run of straight beads or even for cutting beads along modest curves, as coach makers once did with short-soled planes. Over the years, I've collected a whole range of antique beading planes (see the middle photo on p. 40). The planes cut beads from $\frac{1}{8}$ in. to $1\frac{1}{4}$ in. (these measurements usually include the quirk). Old beading planes are quite common, not very expensive and, once tuned, will work reliably for years with no set-up or trial cuts. Tuning can be tricky, though, unless you buy a plane in good condition to start with.

A plane has a long sole shaped to the mirror image of the bead to guide it and an integral fence and depth stop. A half-dozen or fewer passes leave a perfectly formed bead and quirk. Clamp the work flat on a bench, with the edge you're beading just proud of the bench edge, so that the fence will clear the table. Instead of starting at the near end of the board and planing its full length in one pass, start a plane's length or so in from the far end (see the photo above). Hold the fence tight to the edge and plane forward, the short distance toward the end. Back up a length and again plane forward to the far end. Continue backing up and planing forward, working down the length of the board. The plane will track



Hone and check, hone and check.

As you sharpen a plane iron, stop frequently to sight down the plane (left). The iron should conform to the sole, but keep the quirk iron slightly wider than the quirk boxing (drawing above) to prevent binding. This plane reveals inlaid boxing as well as an extra fence, screwed on to improve tracking and stability.



Think of a quirk cutter as a miniature plane iron. Sharpen the bevel of the quirk-cutting portion of the iron on a stone, as you would a plane. Sharpen the curved section that cuts the bead itself with round and knife-edged slip stones (bottom of photo).

better if it's planing into an area that's already partially molded. Once the quirk has been started, the plane should cut consistently. The major problem with a beading plane is cross-grain, which you can't really do anything about, other than to take a lighter cut. Unusual two-way beading planes overcome this with one side that cuts right to left and another side that cuts left to right.

Tuning a beading plane involves sharpening and shaping the iron to the same profile as the sole, repairing boxing, if necessary, and adding a fence for stability. On better beading planes, thin strips of boxwood, known as boxing, are inlaid at points of wear, such as along the quirk. Boxing can wear down, come loose or break, but it can be replaced easily with any hardwood.

Sharpen the bevel of the plane iron with slip stones or fine abrasive paper wrapped around a dowel, and polish the back of the iron on a stone. The part of the iron that cuts the quirk works like a miniature plane iron and should be sharpened as one (see the photo below). Ideally, you want a sharp iron that conforms to the shape of the sole, but small differences are okay. Lightly wedge the iron in place and sight down the sole to see where the iron deviates (see the bottom photo on p. 43). Keep honing and checking—as much as your patience will allow. Finally, add a shallow fence the entire length of the plane, in line with the outside of the bead. Giving the iron a light honing is your only regular maintenance.

A router cuts miles of beads

Routers demand no tuning and cut consistent and handsome beads, as long as you can find a bit the right size and are willing to take the time to set up. You can cut beads around curves with a

router, although a router is best for long, straight runs. When I'm making a set of doors with beaded stiles and rails, I prefer a router for this consistency, as I can then make identical copes or miters and know they'll fit. My only complaint is that the part of the bit that cuts the quirk is fatter than I would like, and the bead profile is not as nicely proportioned as the one cut by a beading tool or plane. Presumably this is due to the limitations of the materials and the strength necessary for a bit spinning at 20,000 rpm.

You can cut a bead with a router either of two ways. Most beading bits have a pilot bearing for guiding the router freehand along an edge. I wouldn't recommend this method unless you have a wide edge to support the router—a bed rail, for instance—as the

A router table is safer for cutting beads than a hand-held router.

Set the bit so that the bottom of the bead is flush with the table.



A finer quirk. The author honed the quirk cutter on the router bit at right to achieve a finer quirk.



slightest slip or jiggle could easily ruin a small bead. A router table is a safer alternative.

With a router table, the face of the work is vertical against the fence (see the photo above). Be sure that the fence is high enough to support your work and that the table is flat and certainly not hollow around the bit. If it is, the bead will be partially missing as the stock spans either side of the hollow and rides up on the bit. Set the bit so that the bottom of the bead is flush with the table. You may want to remove the pilot bearing so it doesn't get in the way of cutting to the depth you choose. Set the fence (cutting depth) and height by test cuts. Cut in two light passes rather than a single, heavy one for the smoothest cut, but still expect to sand a little.

As with any detail, the more you cut and use beads, the more possibilities you'll see. I'm reminded of the Shakers' use of beads throughout their architecture and furniture. They avoided ornament, but not practical and beautiful solutions to problems. □

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