BY GEOFFREY AMES

Sliding-head Scratch Stock

Two fences allow you to position the cutter and keep the bead's quirk in line.

Detail work. *Intricate details with small profiles can be easily produced with a scratch stock. This two-headed version is made from a length of dowel rod, an old hacksaw blade, scrap wood and two machine screws. You can make the jig quickly then make profiles that would be challenging for any router.*

If you have ever attempted to scratch a profile onto a chair leg or other curved piece, you probably noted that a scratch tool with a single fence is difficult to keep in line, and you run the risk of ruining the profile with one slip. To avoid possible mishaps, the double fence on this version makes the process a no-brainer.

The scratch stock shown here has a round section as the tool holder. The flat cutter is slipped into a slot in the tool holder, and secured by a screw in each of the movable heads. The round shape allows you to scrape a profile from either direction so you can counter changes in grain direction. The tool is simple to make, simple to use and can be adapted to myriad shapes that you can make using an old hacksaw or band-saw blade.

I use scratch stocks or beaders to make the combination corner beaded/ogee profile of Chippendale-style chairs and sofas. It is difficult to find router bits with an appropriately sized (tiny) quirk to form these shapes. You can obtain beading cutters with fine quirks from either Lie-Nielsen or Lee Valley Tools, or you can easily make your own.

Quick profiles. *Intricate detailed profiles can be cut quickly with a scratch stock, after the shape is formed.*

Scratch tools, scratch stocks or beaders are usually used in combination with work from the shaper, router or table saw, where the work is first shaped to a rough profile then scraped to the final profile. If, for example, you are making a block-front chest, you will need to form the drawer dividers following a template, then bead the dividers on both edges. You'll need a tool that will allow you to get into the low spots, and a small hand tool is a rewarding way to form the beads.

Simple to Use, Easy to Make

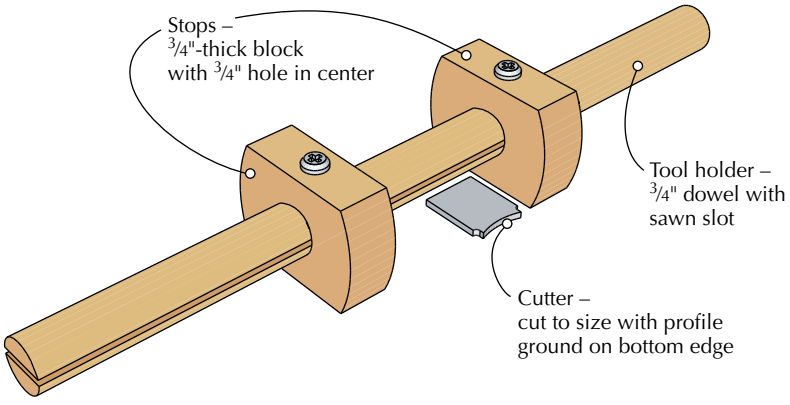
The first beader I ever used was made using a simple marking gauge with an extra head. The evolution from that tool is the basis for the sliding-head scratch tool shown here. You'll note that the tool can be made from readily available materials, and the process of making one is straightforward.

The sliding-head scratch tool is composed of a slotted 3/4" dowel, two moving heads, a cutter, some threaded inserts and machine screws. The length of the dowel should be between 10"-12", and it is partially ripped on the band saw using a V-block as shown in the top right photo on the facing page. Stop the rip at about three-fourths of the length.

The two sliding heads are made from scrap wood, about 1 1/2"- 1 3/4" wide by 2"-2 1/4" long. Rounding off the edges will make the tool more user-friendly. Drill a 3/4"-diameter hole in the center of the face, and a 5/16"-diameter hole drilled through the side and into the larger hole. This hole is then tapped for a 3/8"-16 machine screw. The 3/8"-16 machine screws act as set screws to hold the heads to the bar.

These work well if the tool is for one-time use, or is only used occasionally. I recom-

LEAD PHOTO BY AL PARRISH; STEP PHOTOS BY THE AUTHOR; ILLUSTRATION BY ROBERT W. LANG



EXPLODED VIEW

Slot in the center. *A V-shaped fixture on the band-saw table holds the dowel in position to cut a slot down the middle.*

mend that you use threaded inserts for 1/4"-20 machine screws if you plan to use the tool often. The wood parts are easy to make, but adjusting these tools can be time consuming. If you are going to use different profiles, I'd recommend that you make several scratch stocks and leave them set up.

Buy the Cutter, or Make Your Own

For the cutting tools you can use pieces of old handsaws or band-saw blades, or scrapers. You can also buy commercial cutters from Lee Valley (800-871-8158 or leevalley.com) or Lie-Nielsen (800-327-2520 or lie-nielsen.com). To shape the cutters all you need is a grinder, various triangular, flat or round mill files, and a profile sketch. Because this tool makes a scraping cut and will be used in both directions, the edges don't need to be super sharp. Dress the edge with a fine file and you will be good to go.

Place the cutter in the slot in the tool holder, and slide a head on each end. Align the set screws so they pinch the cutter between the two halves of the dowel. Adjust the position of the heads to fit the width of the stock to be beaded. The heads need to slide freely, but not sloppy enough to distort the profile.

When Push Comes to Shave

The cutter should extend just enough to complete the profile cut. The first few cuts won't cut the entire profile, but the last few will. This will take a bit of experimenting on test pieces, but once the tool is set, you shouldn't need any further adjustments. Cuts are made by either pushing or pulling the tool, and if you are working on a curved surface, you will need to cut some areas in one direction and and other areas in the opposite direction.

Start with the cutter at about a 45° angle to the surface. Tilt the cutter toward or away from you until it produces a nice shaving. You'll be surprised at how well this works, and how quickly you can produce a detailed profile that you couldn't make with a router. **PW**

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Find the magic angle. *Start with the cutter at about a 45° angle and push or pull to produce a shaving. On curved work, you will need to reverse direction often to work with the grain.*

Faster than you think. *Generating a profile doesn't take long because you aren't removing much material at a time.*