



The Power of the Simple Scratch Stock

Low-tech tools
do things that
routers can't

BY DAVID MOORE

The router is a wonderful tool for creating moldings and decorative details. There are bits that produce roundovers, ogees, ovolos, scotias, and astragals, to name a few. But despite the growing field of router jigs, bits, and accessories, there are still times when a router just won't do. Some details are too delicate for a router to achieve, and there are times when no bit's profile looks quite right. These are times to reach for a scratch stock, a shopmade tool that furniture makers have wielded for hundreds of years.

Basically a wooden holder and a flat metal blade, a scratch stock works surprisingly quickly, creating custom molding profiles and other decorative details as well as voids for stringing and other inlay. Unlike a router, the scratch stock can be customized and—if



you have a little scrap material on hand—can be had without leaving the shop.

I'll take you step by step through making this simple tool and show you some great ways to use it.

Low-budget and easy to make

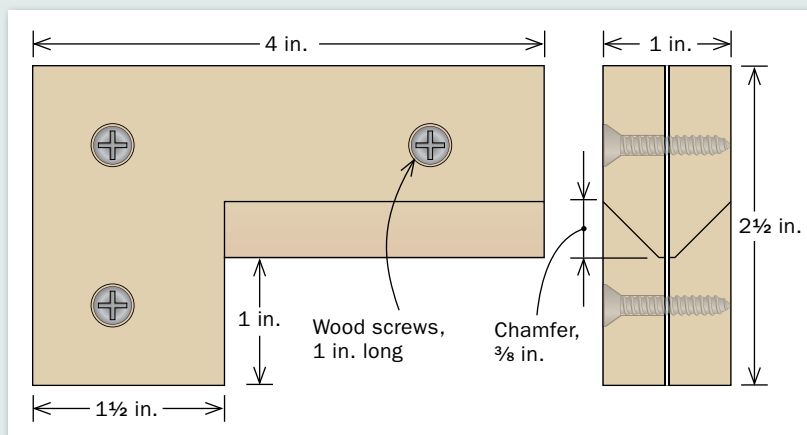
I make scratch-stock holders out of maple because it's long-lasting and produces minimal friction. I make them from two pieces, screwed together to hold the cutter between them. Two 1/2-in.-thick strips, 12 1/2 in. long and 2 1/2 in. wide, provide enough stock to make three holders. I lay out all three on the top blank, leaving 1/8 in. between them to allow for the tablesaw kerf.

For best alignment, pre-drill for the screw holes with the blanks clamped together. Be sure to drill the hole in the top blank slightly wider than the diameter of the screw's threads. This way, the threads won't bite in the top half of the holder, making it easier to loosen and tighten the cutter. Last, countersink the holes so the screw heads are flush with the face of the top blank.

With the blanks screwed together, use the tablesaw and then the bandsaw to cut them out. Once the holders are separated, lay out the chamfer angles on the end of the holder and carry the lines down the length

Make a few holders

It's easier to make the holders in a batch of three or more, and it's nice to have more than one scratch stock on hand and ready to go. Two pieces of maple, screwed together first and then sawn to shape, form each holder. The chamfered body lets the user tilt the tool to control the cutting depth.



Better in batches.

A 1-in. vertical cut creates each holder's fence (top). After cross-cutting to separate the holders, free the waste from each with a stopped ripcut on the bandsaw (left). To chamfer, use a hand-saw to make angled cuts in the body where it meets the holder's fence, then pare away the waste with a chisel (bottom left).

How to make a cutter

Lay out the profile.

Moore uses a drawing of the profile as a reference and a scratch awl to make fine but distinct layout lines. Circle templates help create curved shapes.



of the body. Use a handsaw to make angled stop cuts where the chamfers die into the holder's fence. Then use a chisel to pare away the waste.

Making the cutter—The blank for a scratch stock's cutter can be had from a variety of sources, but the most common is a piece of an old scraper or blade from a handsaw or bandsaw, about 1/32 in. thick. Use tin snips or a hacksaw to cut a blank large enough to hold easily at the grinder. I typically leave my cutter blanks a couple of inches long, which makes them easier to adjust in the holder. Grind away the sawteeth, quenching the metal often in water to keep the steel from overheating, which will cause it to dull more quickly.

When you're done grinding, two adjacent edges of the blank should be straight and square to one an-

FILES MAKE QUICK WORK OF SHAPING



Follow the layout lines. Moore uses several files of different shapes and diameters to remove material from the blank and create the cutting profile. Be sure to work with the files at a 90° angle to the blank, to keep the cutter's edges square to its faces.



Hone both faces.

Lapping on the 1,000-grit stone removes burrs from the cutting edge, and ensures that the scratch stock will cut cleanly in both directions.



other. The next step is to lap both faces smooth on a 1,000-grit stone.

Once this is done, lay out the cutter's shape on the blank. First, scribe a line parallel to the cutting edge to mark the full depth of the profile. Then scribe the cutting profile onto the metal's surface.

To cut the profile, I secure the blank in a vise and use a set of inexpensive round files designed for sharpening chainsaw blades (mcmaster.com; part No. 4246A). Any file that can produce the shape will work, but having round files in a variety of diameters helps make quicker work of complex shapes.

The cutter's edge should be square to its face and—unlike a card scraper—free of any burr. The burr on a card scraper helps it cut aggressively but requires a specific angle of attack. The scratch stock must cut cleanly when used in either direction and at all degrees of tilt. To help get a square edge, try to posi-

Online Extra

To watch Moore make and use a scratch stock to create a mirror frame, go to FineWoodworking.com/extras.

Tips for custom moldings

SIMPLE BEADS

Tailor-made tool. This bead is sized to match the delicate proportions of a small drawer front. Unlike a router bit, a scratch stock can have a fine quirk, and also stop cleanly where the grooves meet in the corners.

Quirk



Finish rounding the outside edges. Moore uses a rasp to make the rounded outer profiles meet.

tion the blank at a working height that makes it easy to keep the file parallel to the floor (and square to the work) for the full length of each stroke.

When your filing gets close to the layout lines, take the blank back to the 1,000-grit stone to lap the burrs away. Now file with less-aggressive strokes, repeating the whole process until the lines have been reached.

Now it's time to fit the cutter. For best support, install the cutter as close as is practical to the fence and top of the holder. Tighten the screws and then take a few test passes on scrap stock to determine whether you need to adjust the cutter's position or tweak the shape of the cutter itself. Now it's time to put your cutter to use.

Four ways to use a scratch stock

Here are four practical applications where a shopmade scratch stock can prove invaluable.

Decorative beads—With a router and a beading bit, it's easy to cut a clean bead on parts like drawer fronts or table aprons. Trouble is, the available bits don't always yield a bead whose proportions fit the overall size of the piece. A scratch stock can be sized much more precisely, and with much more delicate details.

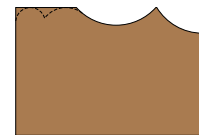
The cutter profile is easy to create with small-diameter round files using the process described earlier. The chamfers in the holder let you control the depth of cut by tilting the tool forward or back (as you push or pull the scratch stock) for a shallower pass. Start with shallow passes and increase the angle of the tool to make deeper passes. When the tool reaches full depth, it will stop cutting and the profile will be done.

Custom molding profiles—The scratch stock can also be used to cut a completely unique molding profile or, in the example shown at right, to help blend together the router-cut elements of a larger profile. As

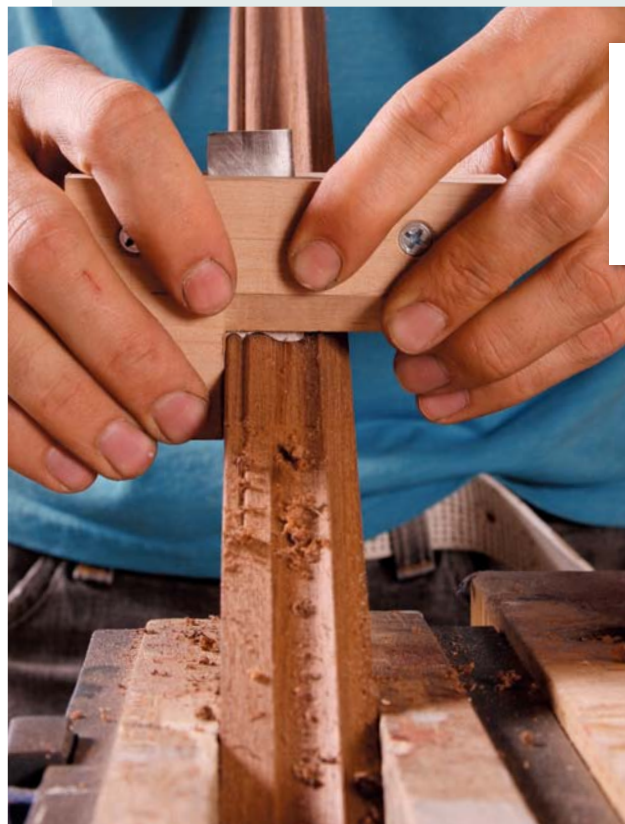


LARGER PROFILES

Router bits are the starting point. Let the power tool do the heavy work. In this case, a core-box bit makes the first two cuts.



Router profile

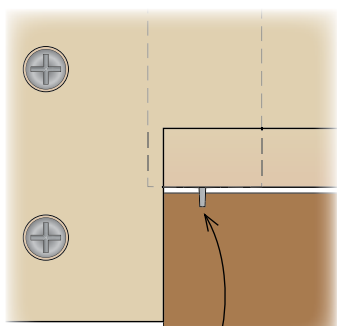


Finished scratch-stock profile

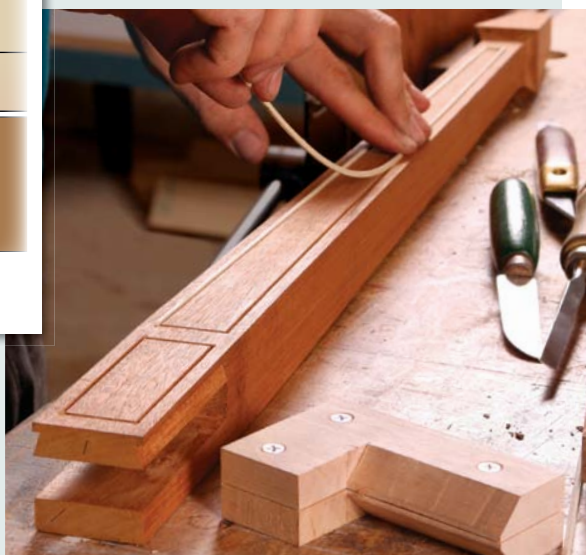
Scratch stock completes the job. With much of the waste hogged away by the router, Moore uses the scratch stock to add a bead and to smoothly blend the hand-cut and machine-cut portions of the molding.

Best tool for inlay grooves

Well balanced. The scratch stock works well on narrow stock, even at the end of a workpiece where guiding a small router would be more challenging. The cutter is shaped precisely to fit the stringing stock.



The cutter is sized to match the stringing.



much as possible, use machines or other hand tools to remove the bulk of the waste before switching to the scratch stock. To complete the profile shown, I used a router to cut the coves. I then used a scratch stock to create the bead and ease the transition from the bead to the cove.

When designing profiles, consider the diameters and shapes your tools make. In this case, I chose a 1/2-in. radius core-box bit and two different-diameter files (3/8 in. and 5/64 in.) to create the final shape.

Grooves for stringing—When working parallel to an edge, the scratch stock is a quickly adjustable and convenient way to cut stringing grooves. File the cutter to ensure the material fits snugly in the voids it creates. In my case, I shape the cutter into a slightly tapered “V” so the groove more closely matches the shape that my stringing cutter produces. (For more on stringing, see Master Class: “Line-and-berry inlay,” *FWW* #196.)

Begin making test passes with the cutter while it is still oversize, filing away more material as needed and using stringing to check the fit.

Reference lines for carved details—There are times when you’ll want to chamfer the scratch stock’s vertical fence as well as its horizontal one. Doing so lets the tool closely follow a tightly curved edge like the one on the dresser base shown below.

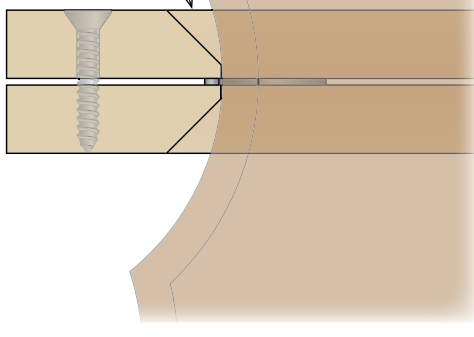
In this case, I use the cutter as a layout tool, creating a deep stop line against which I can reference a carved detail on the workpiece. A standard marking gauge, with its broad, flat fence, would not be able to navigate the curve.

The cutter is basically a single, sharp point that is spaced a given distance from the fence. I used a round file to cut it, even though I had no plans to use it for shaping. It’s a good way to get a very fine cutting point. □

David Moore is a furniture maker in St. Louis, Mo.

Ready the fence for curves

Chamfer the fence to follow inside curves.



A nimble marking gauge. On this dresser base, the scratch stock’s knife-like point makes a line parallel to the sharply curved edge. Chamfers on the fence let the tool make sharp turns (left). Moore uses this stop line as a reference for carved details on the face of the workpiece (above).