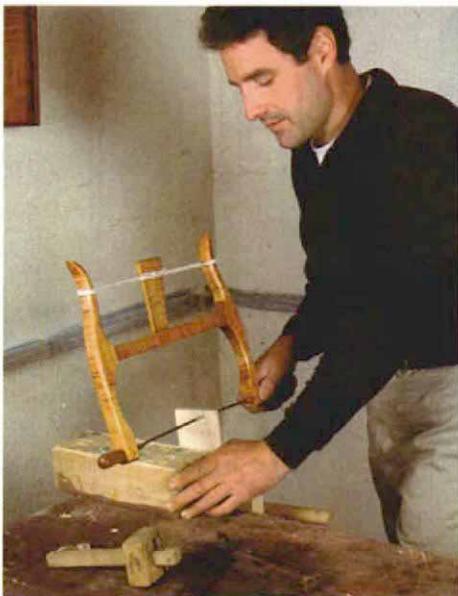


Build a Bowsaw



This classic tool
still has a place in the shop

BY J. CRATE LARKIN



As a full-time woodworker, I have a lot of power-tool options in my shop. But there are occasions when it's simply faster and easier to use a hand tool to get the job done. And one I reach for all the time is the bowsaw, a tool that's been serving woodworkers for centuries. At first glance the saw might seem charmingly primitive. Yet the engineering is remarkably ingenious.

Over the years bowsaws have been made in various sizes. This one is an adaptation of several 18th-century English and Continental designs. With a 12-in.-long blade, it's both compact and light, so it gets used in all sorts of ways. For example, it's the tool I reach for when I need to crosscut a few parts quickly to rough length. I also use it like a scroll saw to cut curved shapes.

The bowsaw also lends itself to cutting angles. And with the blade turned 90°, I sometimes even rip a board with the saw.

You can get the steel blade from a couple of mail-order outfits (see Sources on p. 84). The blade is available with either 8, 9, 12 or 16 teeth per inch (tpi). For most cuts, the 8-tpi or 9-tpi blade works just fine.

Tensioning the blade is easy. A thin, tapered piece of wood—called a key—twists a length of leather cord, which pulls together the top ends of the saw's two long arms, called brackets. That action forces apart the bottom ends of the brackets, putting the blade under tension.

Start by making the wood parts

The bowsaw is made up of just six wood parts: the two brackets and the key, plus a

BRACKETS ADD STRENGTH AND STYLE



Scribe the curved profile on the brackets. Using a paper pattern of the bracket profile, transfer the curved shape to $\frac{7}{8}$ -in.-thick stock.

stretcher, handle and knob. You'll need about 2 bd. ft. of $\frac{7}{8}$ -in.-thick stock and an 8-in.-long piece of $1\frac{3}{4}$ -in. square stock.

When the saw is assembled and tensioned, all of the parts end up under some stress, so it makes sense to use hardwood stock. Maple, birch or beech are good choices, but to make the saw look as nice as it works, I went one step further and used curly maple.

The brackets are first—Begin by cutting out two pieces of stock for the brackets. They'll be cut to final shape on the bandsaw, so make them a little wider and longer than necessary.

Now transfer the bracket pattern (right) to a piece of heavy paper or cardboard. Cut the pattern to shape with scissors, then place it on the bracket stock and trace the profile with a pencil.

It takes just a few minutes to cut out the brackets on the bandsaw. Make the cut just outside the scribed line, then sand the parts to the line.

Give all sharp edges a good rounding over with a spokeshave, then follow with a file. Finish up by sanding each bracket up to 220 grit.

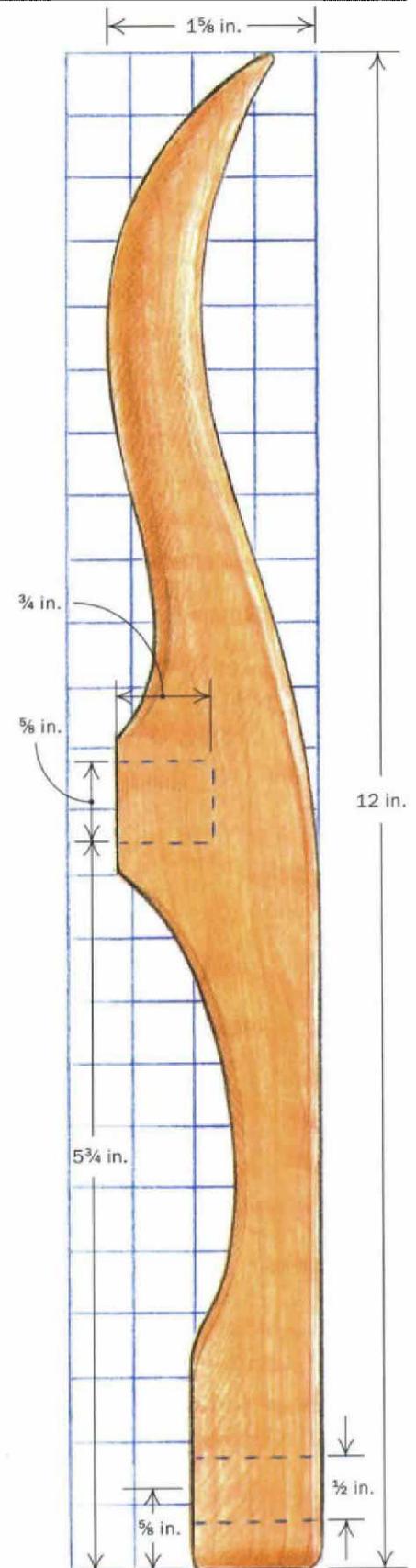
With the rounding and sanding completed, lay out the location of the single mortise in each bracket.



A spokeshave softens the edges. The bracket is kinder on the hands if the edges are well-rounded.



Each bracket has a single mortise. Cutting the mortise is a two-step process. First drill a couple of holes to remove most of the waste material, then use a sharp mortising chisel to clean up what remains.



THE PARTS OF A BOWSAW

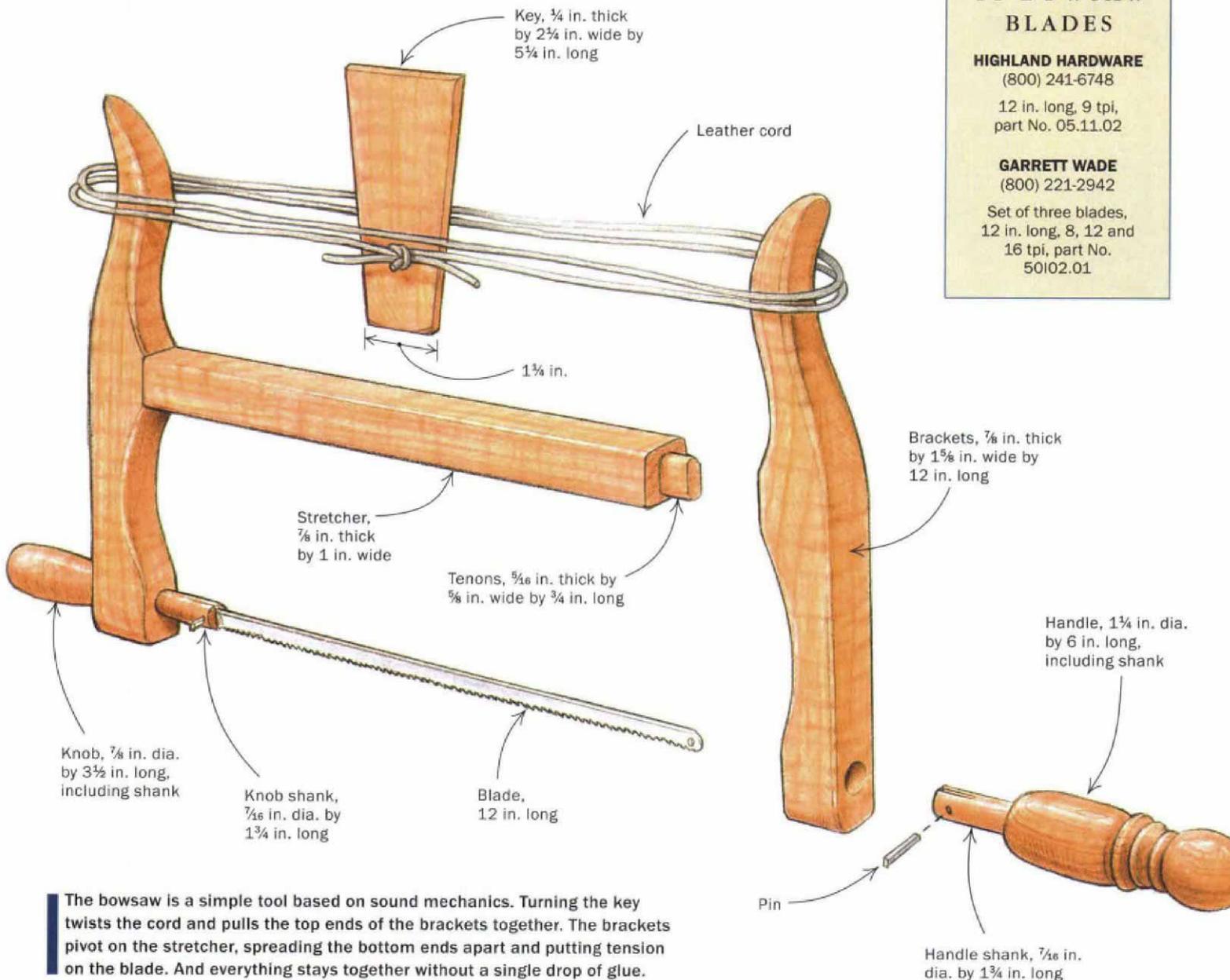
SOURCES OF BOWSAW BLADES

HIGHLAND HARDWARE

(800) 241-6748
12 in. long, 9 tpi,
part No. 05.11.02

GARRETT WADE

(800) 221-2942
Set of three blades,
12 in. long, 8, 12 and
16 tpi, part No.
50102.01



The bowsaw is a simple tool based on sound mechanics. Turning the key twists the cord and pulls the top ends of the brackets together. The brackets pivot on the stretcher, spreading the bottom ends apart and putting tension on the blade. And everything stays together without a single drop of glue.

locations have been marked, use a drill bit to remove most of the waste. A little work with a mortising chisel cleans up what remains.

At this point, the work on the brackets is just about completed. You just need to bore a 1/2-in.-dia. through-hole near the bottom of each one. Later, when the bowsaw is assembled, the shanks of the handle and knob are going to slip into these holes.

Stretcher connects the two brackets—The stretcher is simply a narrow length of

stock with a tenon on each end that fits into a mortise in each bracket. I cut the tenons by establishing both the cheeks and shoulders on my bandsaw. The distance between the shoulders of the stretchers should be such that, when the stretcher is assembled, the ends of the blade will just meet the inside face of the lower end of the bracket.

One point to keep in mind here: Because the brackets must be free to pivot on the shoulders of the stretchers, the stretcher tenons are not glued into the bracket mor-

tises. To allow the bracket to pivot just slightly, you need to make the tenons a little undersized.

The handle and knob anchor the blade—It takes only a few minutes to turn the handle and knob on the lathe. Make the shanks extralong, and keep a close eye on their diameters. You want them to slip smoothly into the holes that you drilled in the brackets.

Remove the handle and knob from the lathe, then trim the shanks to final length.

Simply slip the shanks into the bracket holes and mark the cutoff point. I generally like to have at least $\frac{3}{4}$ in. extending through the bracket.

Once the shanks have been trimmed, use the bandsaw to cut a kerf in each one so that they will accept the ends of the blade. Then test-fit the blade in the kerfs. If the fit is too tight, you'll have to do some sanding to open the kerfs a little.

The blade is held in place by two pins that slip through each shank and then through the corresponding factory-drilled holes in the blade. For pins I prefer to use old-fashioned, $\frac{1}{2}$ -in.-long cut nails, but 4d finish nails are an adequate substitute. By the way, it's not a bad idea to file down the pointed end of the pins. Sharp points always seem to attract soft skin.

Position the ends of the blade next to the shanks, and mark the hole locations on the shanks with a pencil. Then drill holes just big enough to accept the pins. Be sure to drill the holes at right angles to the kerfs in the shanks. After that, line up the holes in the shanks and blade and tap the pins through. There is no reason to worry about the pins falling out when you're using the saw. When the blade is under tension, the pins stay put.

The key is a crank—It's just a thin, tapered piece of wood, but the key is an important part of the bowsaw. It works like a simple crank, providing the leverage needed to twist the leather cord and apply tension to the blade. And after the blade has been tensioned, the narrow end of the key slips behind the stretcher, preventing the cord from unraveling.

Once the stock for the key has been cut to size, use a bevel gauge to scribe the two tapers along the edges. Then cut the tapers and plane the edges smooth. I also like to round all of the edges. That way, when I'm cranking the key, it feels a little more comfortable in my hand.

Apply the finish

After the key has been made, it's time to apply a finish to all of the wood parts. First, though, do some final smoothing with 0000 steel wool.

To make the figured grain really stand out, I applied a single coat of aniline dye (early American maple).

When the dye dries, I like to apply at least three coats of Minwax Antique Oil Finish. It

MAKE THE HANDLE



Shape it on the lathe. Once a blank for the handle has been mounted in the lathe, it takes just a few minutes to turn a profile that's both interesting and comfortable.

builds to a smooth, lustrous finish that looks great on a tool like this.

Assemble the saw

Slip the handle and knob into the holes in the brackets, then add the blade and pins. If you prefer to cut on the push stroke, the teeth of the blade should face away from the handle. If you like to cut on the pull stroke, as I do, face the teeth toward the handle. Once the blade has been installed, insert the stretcher tenons into the mortises in the brackets. Remember, though, there's no glue used here.

Now add the cord. I've used rawhide shoelaces in the past, but they don't hold up well. I've had better luck buying $\frac{1}{4}$ -in. leather cord from a local fabric retailer.

Wrap the cord twice around the tops of the brackets. Pull the cord slightly taut, and tie the ends in a square knot. Next, slip the key between the rawhide, and turn (the direction it's turned doesn't matter) until the tension on the blade is enough to prevent it from bowing when making a cut. Slide the narrow end of the key behind the stretcher to keep the cord from unwinding, and you're ready to work. □

J. Crate Larkin builds furniture and hand tools in Woodsboro, Md.



The shank gets a narrow slot Feeding the end of the shank into the bandsaw creates a near-perfect kerf for the bowsaw blade.



Mark the holes for the blade pins. Use the blade to determine the exact locations of the holes on the shanks.