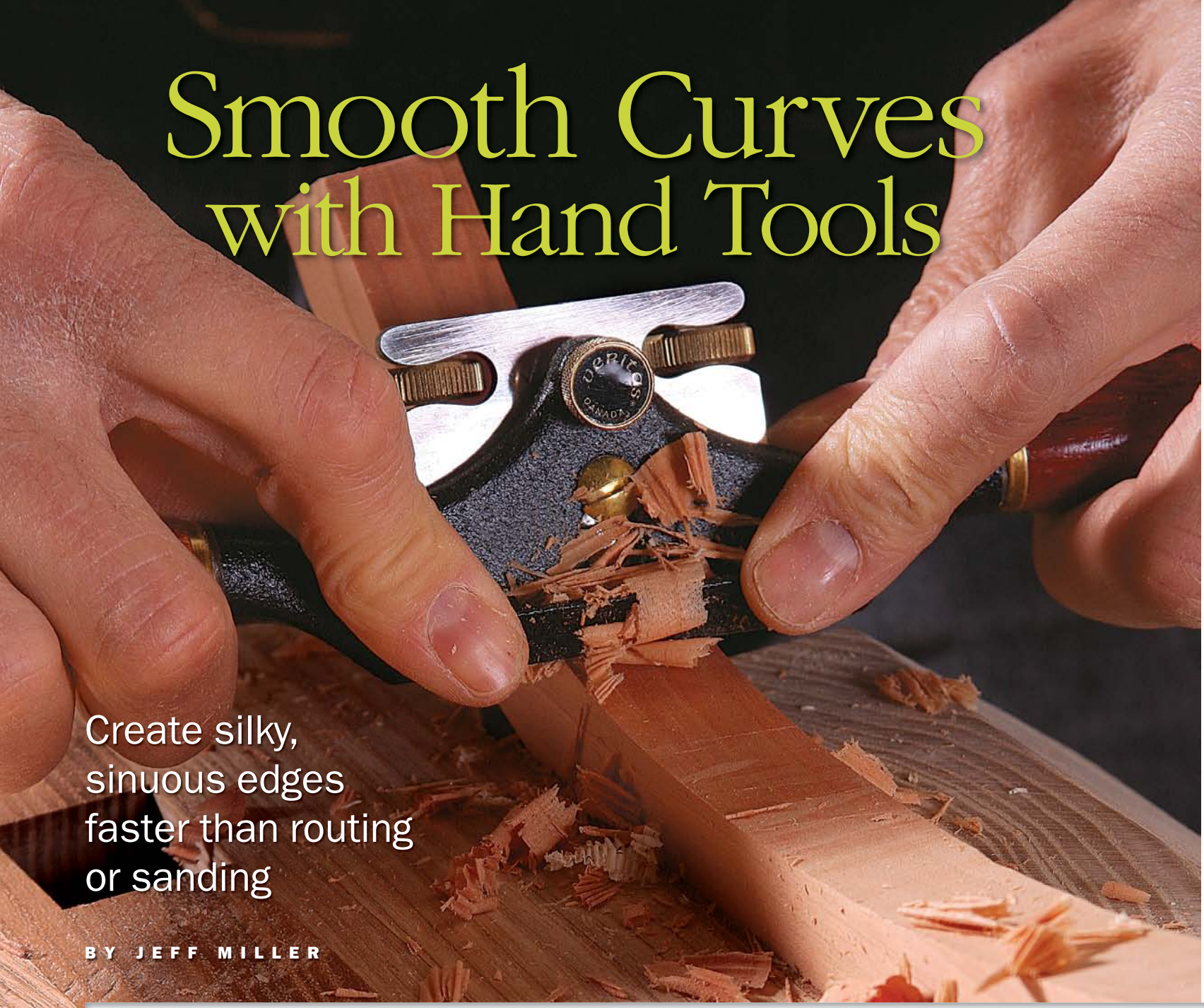
Smooth Curves with Hand Tools



Create silky, sinuous edges faster than routing or sanding

BY JEFF MILLER

Curves of every style

Every furniture style has its own visual language, and the vocabulary usually includes curves. Prime examples are, from left, the formal legs on a traditional Shaker stand, the scrolled base on Alan Turner's period dresser, and the restrained arcs on Chris Gochnour's contemporary desk or the author's modern chair.

LEGS

BASES

DRAWERS

Essential kit for curves

You can smooth curves quickly with just a bench or block plane, a spokeshave, a rasp, and a scraper. Miller keeps them all handy, and starts with the largest tool that can handle the curve. Mass equals momentum.

When I started building furniture, my designs were simple, squarish Shaker and Mission-style pieces. But as my skills grew, I began drawing curves inspired by the human body, nature, or architecture. Curves became crucial to my work, making it more expressive, more appealing to eye and hand.

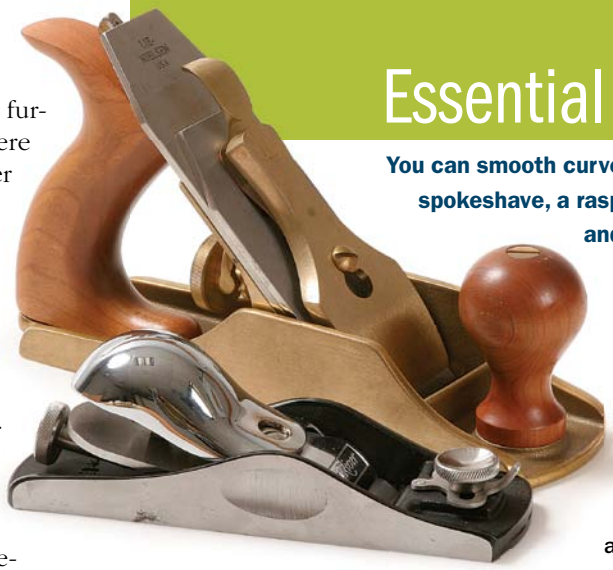
Whether you bandsaw curves or template-rout them, they'll need smoothing afterward. Many woodworkers struggle with this and resort to sanding—dusty, tedious work that doesn't yield fair curves or crisp surfaces. I'll show you a better way to smooth both convex and concave curves using a handful of basic tools: handplane, spokeshave, rasp, and scraper. You'll get smooth curves without kinks, flat spots, or bumps—surfaces that invite hands to run along the edges of your work.

Bear in mind that these tools are for flat (so to speak) edges, as opposed to sculpting freeform, rounded shapes. Alf Sharp covered those in *FWW* #208.

Handplanes can handle some curves

For gentle-to-moderate convex curves (or very gentle concave ones), I start with a sharp handplane set up for a light cut. A plane chatters less and smooths more efficiently than lighter tools.

With a bench plane, I use a standard grip on the handle and tote. I also hold a block



BLOCK OR BENCH PLANE

The popular No. 4 smoother (top) works well; a smaller bench plane perhaps a little better (Miller often uses a No. 2). Most versatile is a high-quality block plane (bottom). Miller says it doesn't need an adjustable throat opening or a low angle. Just sharpen the blade and set it for a light cut.

SPOKESHAVE

The shave's short sole lets it smooth hollows that a longer tool would bridge over. A flat-soled shave works well on steep convex curves and moderate concave ones. A convex sole reaches into tighter concave curves, but is harder to control.

RASPS

The rasp fits where edge tools won't. Miller uses a fine-grain Auriou (their No. 13) but has a coarser rasp (a 9 or 10) for heavier stock removal. There are even coarser models, but they are for 3-D shaping and rounding.

SCRAPER/SANDING BLOCK

Use a card scraper or sanding block on tearout-prone areas where grain changes direction, or for smoothing spots that have already been worked by the other tools. Set up the scraper with a light to moderate burr.

Compass plane is a curve specialist

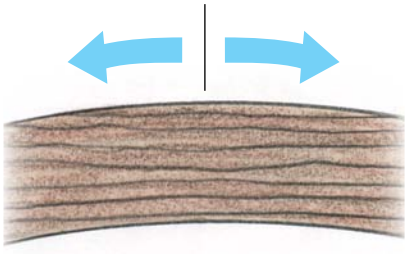
If you do curved work often, consider getting a compass plane (see "Why You Need a Compass Plane" by Paul Schürch, *FWW* #227). Its flexible sole adjusts to a range of curves. A few companies make new models, but an old Stanley 113 is fairly easy to find and is still the best.

Photos on these two pages: Mario Rodriguez (dresser), Skylar Nielsen (desk), Tanya Tucka (chair); staff (all others)

Convex curves

PLANES FOR LARGE CURVES

Miller likes to start with the largest plane that can navigate the curve. A heavier tool will chatter less and leave a smoother surface, but its longer sole requires more finesse to control.



To minimize tearout with edge tools, work in the direction of the emerging grain. Read the grain on the side of the piece to orient the work. Most often, you will find yourself planing "downhill" from the crest of a convex curve.

PLANE WITH THE GRAIN

Hold a block plane with a forefinger on the front knob and the opposite hand wrapped around the front to apply downward pressure as you move forward.

plane with two hands. On convex curves, very little of the sole rides the surface, so control the tool by balancing downward pressure, fore and aft, to keep the edge in the cut. Two things help: First, power the stroke with your lower body, not your arms. Second, roll the plane forward as you move, as if you're pushing it around a large wheel. On concave curves, skew the tool to shorten its sole. With any curve, if you can't follow the curve with a plane, it's time to switch tools.

Shaves work curves, inside and out

Spokeshaves are made to smooth curves, both convex and concave. The short sole makes it easier to follow a curve, especially when the radius is tight or changing.

Hold the tool with your thumbs pushing on or near the blade and your fingertips at the front. This lets you vary the angle of attack to follow the curve as you push with your lower body. The shave has very little mass to dampen vibration, so work slowly to avoid chatter. A sharp blade is crucial.

Skewing the tool lengthens the sole on the surface, reducing chatter, bridging high spots, and making it easier to start a cut. Be careful not to bevel the surface sideways, though. Check it periodically with a square.

To avoid tearout where the grain changes direction at the bottom of a concave curve, try rolling the tool back so that the edge stops cutting as you approach the bottom. Finish those transition areas with a scraper or sanding block to remove any tearout.

SPOKESHAVE FOR TIGHTER CURVES

A spokeshave handles steep curves more nimbly than a handplane. Control the shave with your thumbs on the back edge of the blade or the shave's body. Your index fingers regulate downward force on the front of the tool.

TIP **WATCH THE LINE**

To avoid beveling the edge, use the bandsaw marks to track your progress. Try to remove them evenly as you go. Once they're gone, switch to a square as a final check.

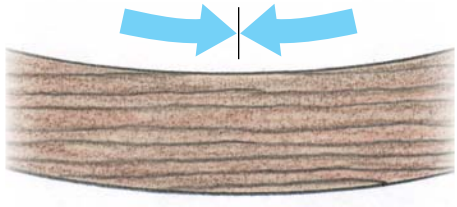
Concave curves

START WITH A SPOKESHAVE

With its minimal sole, a spokeshave can settle into concave curves that are too deep for a handplane to fathom.

WORK DOWNHILL

On a concave edge, the grain will typically change direction at the bottom of the valley.



Keep a rasp ready

On some curves, the radius is too tight, the curve dies into a corner, or the surface just can't be reached with an edge tool. A rasp's half-round face is ideal for tight inside curves and its cutting action lets you approach the work from any angle. Hold it by the wooden handle (a must) with the other hand guiding lightly at the tip. A well-sawn curve needs only a light touch with a fine rasp, but the surface will be rougher than one left by a plane or spokeshave. Follow with a scraper or sanding block.□

Jeff Miller builds furniture and teaches woodworking in Chicago.

SCRAPE OR SAND THE TRANSITIONS

After working the surface with edge tools and a sanding block, use a card scraper to remove any tool marks and refine the surface, especially in tearout-prone transition areas.

Most curved edges can be smoothed with a sanding block shaped to fit the workpiece. It's great for tight curves or where grain direction changes. Start with P150 grit.

***Two hands.** Angle the rasp slightly, push forward (rasps do not cut on the pull stroke), and lift at the end of the stroke.*

VERY TIGHT CURVES? USE A RASP

***Remove the rasp marks.** The surface left by a relatively fine-grain, higher quality rasp is easily cleaned up with a scraper.*

***Sand for consistency.** After smoothing with edge tools, you may want to give the entire edge a light sanding with P220-grit to achieve a consistent surface.*

Photos, except where noted: Steve Scott; drawings: Kelly J. Dunton