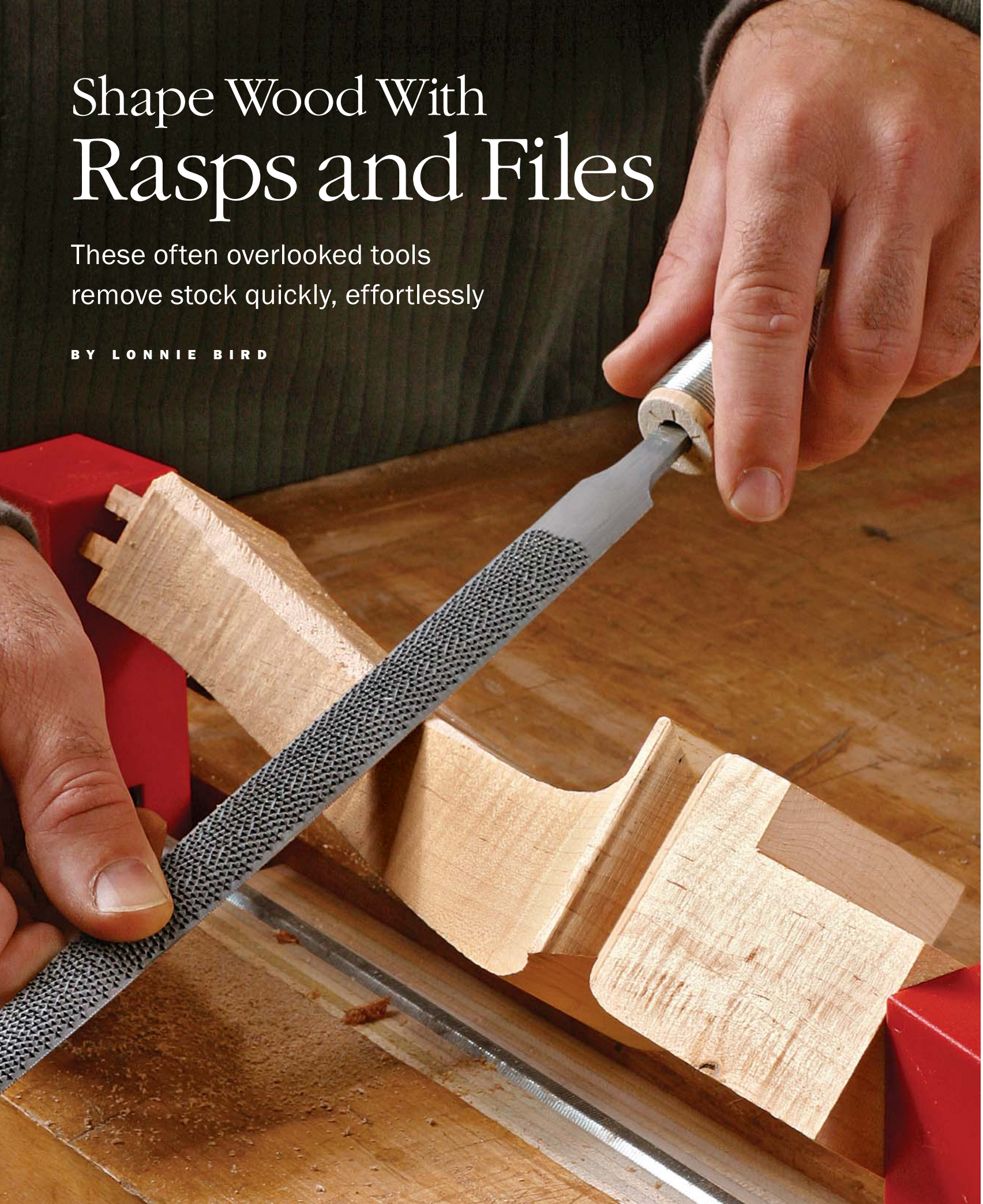


# Shape Wood With Rasps and Files

These often overlooked tools  
remove stock quickly, effortlessly

BY LONNIE BIRD





There's probably no other group of hand tools more overlooked than rasps and files. They're humble in appearance, lacking the rosewood handles or brass fittings found on many other bench tools. Yet they are among the most useful hand tools in the shop for shaping and smoothing wood.

I use rasps and files for a variety of tasks—from shaping the fluid curves of a chair arm to smoothing the sinewy talon detail of a ball-and-claw foot. Each tool has a specific function, and the nature of the work determines which rasps and files are best suited for it. I recommend starting with a basic collection and then adding to it according to your needs. Technique, maintenance, and an understanding of the various profiles and grades of coarseness will help you get the most out of these useful hand tools.

### Rasps remove stock aggressively

Like a spokeshave, a rasp is used to shape and to refine sawn curves. But unlike a spokeshave, a rasp won't catch and tear out the grain, even when working a difficult wood such as curly maple. Using a rasp requires skilled hand-eye coordination, so it's a good idea to practice on inexpensive stock such as poplar.

The teeth on most rasps are made from hard high-carbon steel, and it is the size of the teeth that determines the coarseness of the

tool. The wood rasp is the most coarse, and the cabinet rasp is less coarse, followed by the fine patternmaker's rasp, which has two grades—second cut and smooth.

The teeth on a rasp can be oriented uniformly in rows or set in a random pattern. Both patterns cut aggressively, but rasps with teeth set in straight rows or columns tend to create a more ragged surface on wood than rasps with randomly set teeth. I often use the Nicholson #49 patternmaker's rasp, which has teeth that are hand-cut in a random pattern. The tool cuts aggressively yet leaves behind a relatively smooth surface.

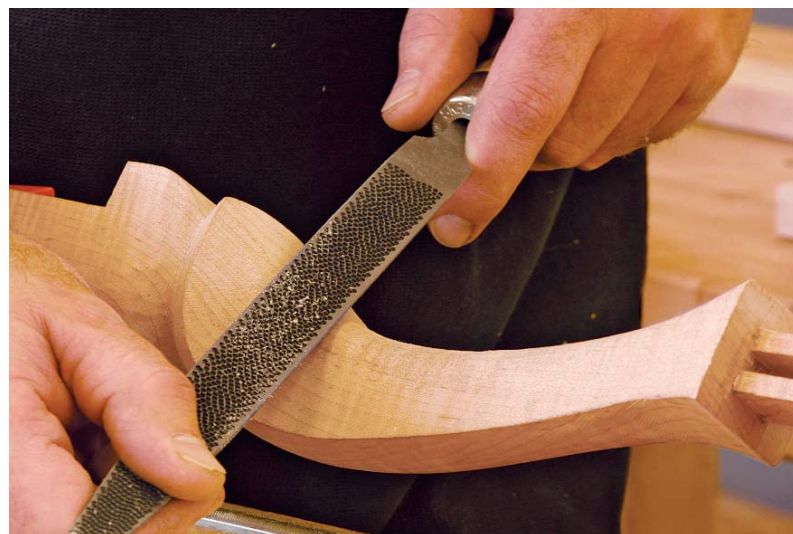
Rasps are available in a number of shapes that include flat, round, and half-round profiles. The Nicholson #49 patternmaker's rasp has a half-round profile on one side and a flat profile on the other. Having both profiles on the same rasp allows me to work more efficiently than with a rasp with only one profile. If I encounter a changing contour as I work, I can just flip the tool and continue to shape the workpiece without stopping to pick up a different tool.

### Files remove coarse scratches

For finessing the compound curves of a leg shaped by rasps or smoothing intricate

## RASPS ARE FOR SHAPING

Rasps are ideal for removing a lot of material fast without the risk of tearout. Because of their aggressive cut, care must be taken when shaping parts. The surface left by the rasp, although not as rough as you might imagine, will need to be cleaned up with files, a card scraper, or sandpaper.



**Various grades of coarseness and tooth patterns.** Three common types of rasps, ranging from coarse to fine, are the wood, cabinet, and patternmaker's rasps. Rasps with teeth cut in a random pattern, such as those on the patternmaker's rasp, leave a smoother surface. For versatility, Bird prefers a rasp with a half-round profile. The flat side can be used on flats and convex curves (facing page), and the rounded side can take care of most concave shapes (left).



WOOD RASP

CABINET RASP

PATTERNMAKER'S RASP

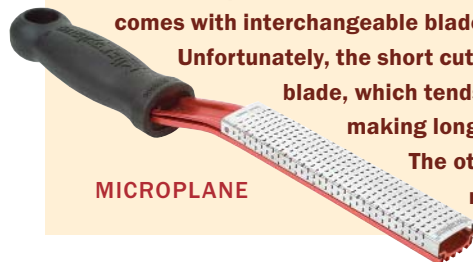
### NEW CHOICES IN RASPS

Two new contenders for your woodworking dollars are the Microplane and Shinto rasp. The Microplane's stainless-steel blade is perforated with rows of razor-sharp teeth and comes with interchangeable blades with various profiles.

Unfortunately, the short cutting area and the thin blade, which tends to flex, prevent you from making long and powerful strokes.

The other option is the Shinto rasp, which is like a bundle

of hacksaw-type blades that are woven in a pattern and held in place with rivets. The long cutting surface allows for long, powerful strokes. However, both the coarse and fine faces are flat, so the tool is not useful for shaping the compound curves of furniture. But for shaping broad, convex curves, you may find that the Shinto rasp is a useful tool.



MICROPLANE



SHINTO RASP



## FILES ARE FOR SMOOTHING

Files have teeth that are smaller than those on rasps. They are used to smooth away the shaping marks left by rasps or the bandsaw.

**BASTARD**

**SMOOTH**

**Half-round files for broad curves.** Both the bastard and smooth half-round files are used to clean up rasp and bandsaw cuts on easy-to-reach surfaces. But the smooth half-round file, with its small teeth and tight rows, leaves a smoother surface.

**BASTARD**

**SMOOTH**

**Round files are best for tight curves.** The bastard and smooth round files are small and coarse enough to clean out tight concave areas.



bandsawn contours, a file will do the job. Available in many sizes, types, and profiles, files are similar in appearance to rasps but have smaller teeth. These short, unbendable, and hard teeth, made of high-carbon steel, allow files to cut through wood, aluminum, brass, and even mild steel, such as the dull burr along the edge of a cabinet scraper.

Files cut with rows of tiny teeth. Because the size of the teeth limits the cutting depth, you can achieve a controlled cut with no tearout. Single-cut files have a series of single rows of teeth, and double-cut files have sets of two opposing rows. Generally, single-cut files cut smoothly and slowly, whereas double-cut files cut quickly and aggressively, leaving a rougher surface in their wake.

### SOURCES OF SUPPLY

**MSC**  
800-645-7270  
[www.mscdirect.com](http://www.mscdirect.com)

**Lee Valley**  
800-871-8158  
[www.leevalley.com](http://www.leevalley.com)

**Garrett Wade**  
800-221-2942  
[www.garrettwade.com](http://www.garrettwade.com)



Most files are available in three grades, or tooth sizes, which dramatically affect the cutting action. Bastard files feature the largest teeth and give the coarsest, most aggressive cut, followed by second-cut files with smaller teeth, and then smooth-grade files. Although second-cut and smooth files create smoother surfaces than bastard files, their small tooth patterns also clog quickly and require frequent cleaning.

Files are available in lengths from 4 in. to 16 in., but I seldom use any that are longer than 10 in. The shorter files, those in the 4-in. to 6-in. range, allow you to shape and smooth tight, intricate contours. Larger files provide greater control when smoothing broad curves. Like rasps, files are available in a number of different shapes that include flat, round, and half-round profiles. A good selection for the workshop includes 10-in., 6-in., and 4-in. half-round and round files in both bastard and smooth grades.

### Rifflers get into tight spots

Another classification of rasps is rifflers. These tools are curved along their length and can access areas that ordinary rasps and files can't. Rifflers are particularly useful for shaping small or tight curves such as those found on flame finials and ball-and-claw feet. Like standard files and rasps, rifflers also are available



in various grades of coarseness. Owing to the variety of shapes and to their costs, I recommend acquiring one riffler at a time, according to your needs.

### Tips for using rasps and files

When shaping a curve with a rasp, cut away the high spots first. Position the rasp slightly askew and use long, smooth strokes. You can control the amount of stock removal by adjusting the degree of downward pressure. As with all edge tools, you'll create a smoother surface if you cut downhill with the grain. As the curve and grain change direction, reverse the rasp and pull it toward you, starting at the opposite end of the piece. If you have a half-round rasp, use the flat face to shape the convex surfaces. As you move from the convex surface to a concave profile, flip over the rasp and use the convex side.

Once the curves of the workpiece are flowing smoothly, begin to round the corners. This is where the actual sculpting begins. It's best to sketch boundary lines on the workpiece to act as a guide. As you push the rasp forward, roll it sideways, and remember to use long, smooth strokes that follow the grain and curves of the workpiece. Stop periodically and examine the curves at arm's length, looking carefully for balance and continuously flowing lines.

Once the curves of the piece look pleasing to the eye, switch to a bastard file to smooth the surface. Use the same technique with the file that you used with the rasp. After filing, smooth the surfaces further with a card scraper and sandpaper. □

*Lonnie Bird teaches woodworking in Dandridge, Tenn. For information on classes, go to [www.lonniebird.com](http://www.lonniebird.com).*

## RIFFLERS ARE FOR TIGHT SPACES

Rifflers are small rasps that cut aggressively yet smoothly.

Rifflers come in a variety of shapes (right) and are ideal for intricate work such as shaping a ball-and-claw foot (below).



### CARE AND STORAGE OF RASPS AND FILES

The steel in these tools is very hard and will hold an edge for many years with proper care. Files and rasps should be stored separately and kept away from moisture; allowing them to bang around inside a drawer or a tool chest will dull them, as will rust, which attacks the thin cutting edges first.

The cutting ability of a file will be reduced dramatically if the teeth become clogged with debris; the fine teeth of a smooth file are especially prone to clogging. A file brush is the answer. The short, stiff, angled wire bristles are perfectly designed for cleaning between the teeth.

Although most new files and rasps come without handles, fitting them with handles is a good idea. A handle will protect your hand from the pointed tang and provide greater leverage and control during use. Although a simple wooden handle serves the purpose, I prefer a threaded handle that screws onto the tang (Lee Valley; [www.leevalley.com](http://www.leevalley.com)) because it holds tightly to the file or rasp and does not loosen with aggressive use.

