





# Turn a Spindle

The right game plan eliminates troublesome vibration and ensures crisp details

BY PETER GALBERT

Any spindle turning can be broken down into a series of recognizable shapes, but there's an art to making those shapes cleanly and with well-defined details. Over the years, I've developed a method that not only gives great results but also speeds up the process.

To demonstrate, I'll use a traditional baluster leg design from a Windsor chair. With multiple repeated details and shapes, this classic leg is the perfect candidate to illustrate all of the challenges of spindle turning. I'll use it to show the best order of operation.

After rough-turning the spindle, I start shaping the details in the center of the workpiece. Then I gradually trim away the excess material and shape the other features across the full length of the spindle, working toward the tailstock and then toward the headstock. This allows me to develop each section in relation to the others, which helps ensure good proportions. I use a full-size pattern to help me stay on track as I work. Turning a spindle this way not only eliminates troublesome vibration that can mar the work, but it also ensures accurate, repeatable results, making it a whole lot easier to turn matching furniture parts like chair legs.

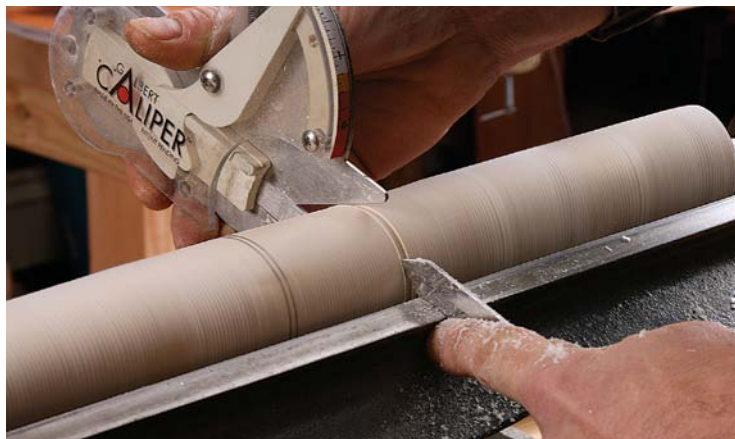
By the way, if you want to learn the basics of each tool, how to rough out a turning blank, and how to form each type of shape, check out my two-part series on turning (*FWW* #231 and #233).



# ROUGH IT TO SHAPE



**Lay out the largest parts.** Galbert marks each feature using a full-size template (above). In this case it's a Windsor chair leg. Using a parting tool and calipers, establish the diameters of the thickest parts (right).



**Then rough out the overall shape.** Begin to shape the large features with the roughing gouge. Use the same tool to remove the waste around the smaller-diameter parts. This step gets excess material out of the way, making the next step of parting easier.



## Roughly shape the spindle

You'll come out with better looking turnings if you can visualize the overall design as you work, so develop a concrete idea of what you want to make before you start. I usually use a full-size drawing to create a pattern that I keep near the lathe while I'm turning. If you're replicating an existing part, use that instead. As you develop the details, periodically check your progress against the drawing, and note the sizes and spacing between each part of the turning—it will help you maintain nice proportions.

Start with a square turning blank a little thicker than the size of the final turning. Mount it between centers on the lathe. Set the lathe speed to 1,000 rpm and use a roughing gouge to shape the blank to a completely round cylinder. Now ramp up the speed to 1,200 to 1,500 rpm and target the largest feature of the turning. In this example it's the large vase. Set calipers to that diameter, then make a few sizing cuts across the blank with the parting tool and calipers. After that, use the roughing gouge to trim the whole blank uniformly to that diameter. Next, while the blank is spinning, use a pencil and a pattern or ruler to mark the largest features along the spindle's length—here it's the "transition" and the large and small vases. Use a pair of calipers and a parting tool to cut the



## START SHAPING AT THE CENTER

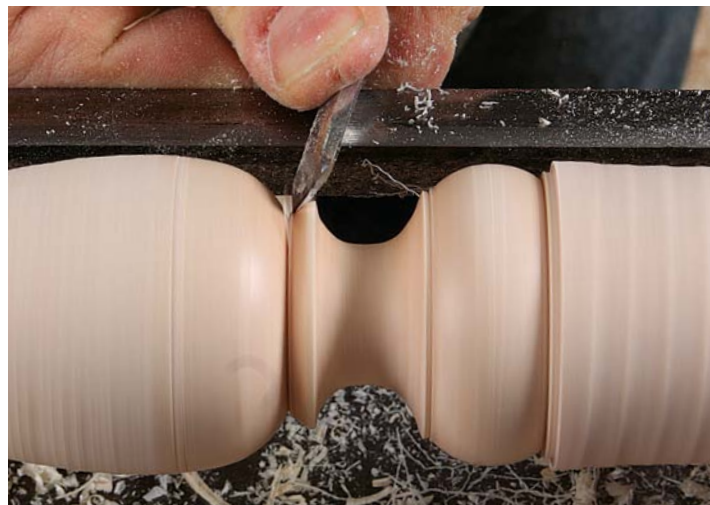


**Detail work.** With all the rough shapes established, use the pattern to mark the details (left). Part them to diameter, then slow the speed to 1,000 rpm and use a spindle gouge to start shaping the details, starting with the cove (above).

diameter of each one. In addition to trimming the diameter of each feature, you can use the parting tool's  $\frac{1}{8}$ -in. width to measure the length of details, and speed up and simplify the layout process.

Begin shaping the large features with the roughing gouge, trimming away the excess material. Starting the turning this way gets most of the roughing gouge work out of the way early and cuts down on time spent switching tools later. Be aware of how often you switch tools—it interrupts your concentration, so try to avoid it when it's not absolutely necessary. Instead, use the tool that's already in your hands for a wide variety of tasks. For example, a parting tool, spindle gouge, and skew chisel are all acceptable tools for shaping beads and V-notches. With a little practice, you'll become more versatile with each tool and work more efficiently, spending more enjoyable time “in the zone.”

Next mark the smaller-diameter details of the spindle. For the Windsor leg example, these details are the center cove, fillet, and mushroom caps. Trim most of the excess material around them with a roughing gouge. This makes the next step of parting the small-diameter features easier, eliminating the need for deep cuts that can cause the parting tool to bind. Cut



### **Skew chisel for the final smoothing.**

To finish refining the mushroom cap and fillet on each side of the cove, use a skew chisel.



**Then the bead and V-groove.** With a few light skew cuts, the bead finishes taking shape, and a clean V-groove is formed next to it.



# WORK FROM THE CENTER TOWARD THE **TAILSTOCK**



**Shape the details near the end.** Move closer to the tailstock and keep shaping the spindle's features.



**Cut deep coves before nearby delicate details.** Galbert forms the mushroom cap after the deep excavating cuts that shape the cove—avoiding the potential harm they could do to a finished detail.



**Now shape the neck.** Leaving it thick kept vibration to a minimum while shaping the small details. Now use a roughing gouge to trim down and shape the neck, and finish it off with a skew chisel.

small features to diameter with the calipers and parting tool. If you have a tapered workpiece, as is the case with the Windsor leg, cut the narrow end of the taper near the headstock last; otherwise you'll create a weak spot.

## Shape and smooth the details

With the bulk of the hard work and waste material out of the way, slow the lathe to 1,000 rpm to create the fine details. As the spindle gets thinner, it's more likely to have vibration issues, especially near the center, so it's best to start there. For the Windsor leg that means shaping the center

cove and mushroom cap with the spindle gouge. From there you'll form the cove and surrounding features near the tailstock. Before creating any fragile details, consider what's next to them, and which should be turned first. For example, in this case the thin mushroom cap next to the cove is likely to get broken while removing material from the cove, so create the cove first, then form the mushroom cap.

Once the small details near the center and the tailstock are done, finish shaping the large vase and narrow neck with the roughing gouge and then the skew chisel, blending the two elements into a graceful,

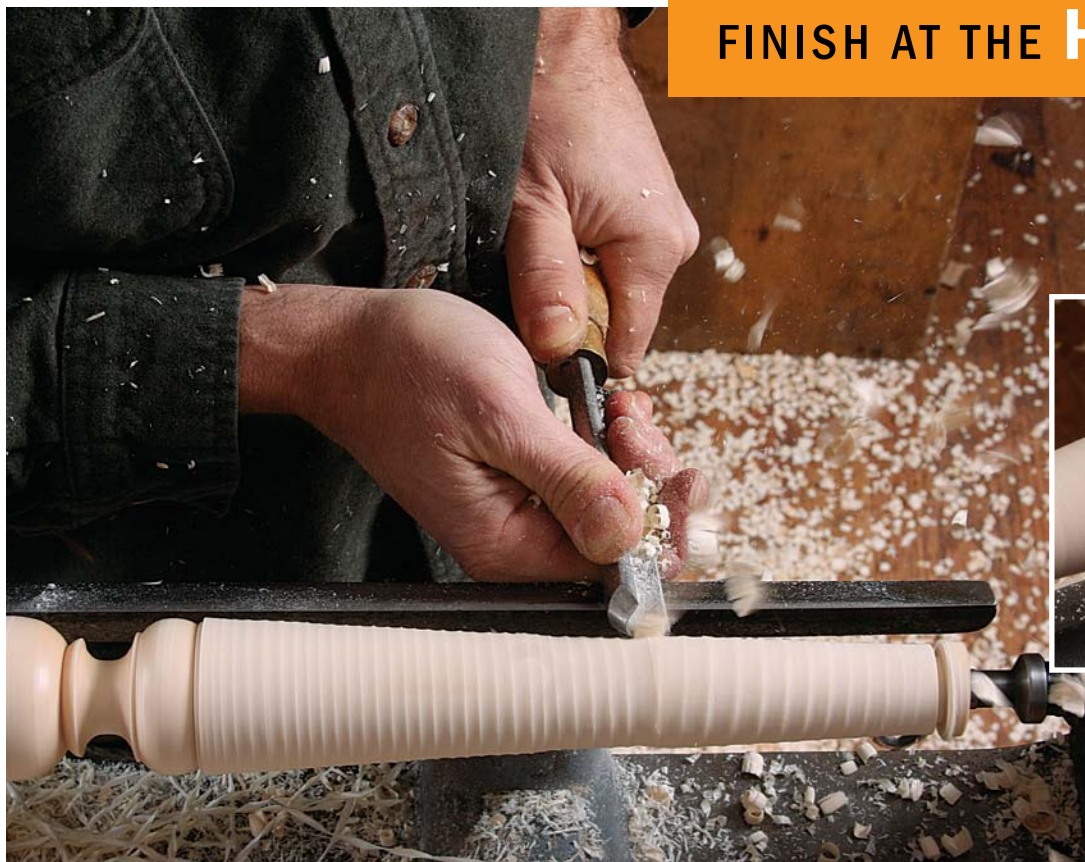
flowing shape. Finish them with a smoothing cut using the skew chisel.

Now move back to the center of the turning and bring the tapered end down to size with the roughing gouge. Use the parting tool and calipers to cut the small end of the taper to diameter. Next do the final shaping and smoothing of the taper using planing cuts with a skew chisel. Before taking the turning off the lathe, remove the tool rest and sand the spindle with fine-grit paper to smooth out any tool marks. □

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## FINISH AT THE HEADSTOCK



**Shape the taper.** After sizing the small end with a parting tool and calipers, use a roughing gouge to remove the excess material and trim it to shape.



**This skew has smooth moves.** Next make a long planing cut, working downhill with the grain to smooth the tapered section of the spindle. Use a light touch with your other hand to steady the tool and dampen any vibration.

## Sand it smooth

To prep turnings for finishing, sand them while still on the lathe. First remove the tool rest and speed up the spindle, then use a light touch and let the lathe do the rest.



**Smooth out the bumps.** With the tool rest removed, use 220-grit sandpaper to smooth out leftover tool marks. Sanding has an added benefit—the texture it leaves behind helps the finish adhere better.



**Curl it for the coves.** Folding the paper several times beforehand will add a little strength to the sandpaper.



**Clean up near details.** Fold a piece of sandpaper to sand right up to the details without rounding corners.