



What the Experts Don't Tell You About Turning Furniture Parts

Part 1: A smooth, even cylinder is the foundation

BY PETER GALBERT

I had almost no idea how to use a lathe when I built my first Windsor chair 13 years ago, even though I'd built plenty of furniture by then. So I set about teaching myself to turn by digging through books and magazines for more information. As a woodworker new to turning, I discovered pretty quickly there's a lot they don't tell you.

There is a learning curve in jumping from curious furniture maker to competent turner. I'll show you how to get through it quickly as you turn a basic cylinder, the starting point for any spindle, and then add some tapers and tenons.

Along the way, I'll share the tips I wish I'd known when I started turning, particularly things like how to hold the tool and move your body for clean cuts. Master the basics here, and in a future article, I'll take you through adding swells, beads, and coves to fully flesh out an endless array of crisply turned parts for fine furniture.

Luckily, getting started isn't expensive. Furniture makers turn mostly spindles (workpieces secured at both ends on a lathe), which doesn't require an especially powerful machine, although a longer one is better. And you can cut almost any shape with a $\frac{3}{4}$ -in. roughing gouge, $\frac{1}{8}$ -in. diamond parting tool, a $\frac{3}{8}$ -in. detail gouge, and a $\frac{3}{4}$ -in. oval skew chisel. Buy those four tools instead of a whole "kit" and you'll save a pretty penny. You can spend that savings on a few essential accessories I'll recommend later (and in Fundamentals, pp. 22–26).

Start from square one

Whether you're making table legs or drawer pulls, every turned piece starts as a blank. Begin with a square one at



Punch the intersection. The indentation left by an awl helps locate the drive and tail centers.

TRY A STEB CENTER DRIVE

A stub center acts like a clutch, so a workpiece won't keep spinning if it grabs a tool's edge. The design minimizes tearout, so it's great for beginners and veterans alike. Plus, the small diameter is better for turning small or thin pieces.

½-in.
"stebcentre"
\$55, highlandwoodworking.com

Mount the blank

Find the center by drawing corner-to-corner lines on both ends, and then use the marks to line up the workpiece on the lathe's centers.



Tap the drive center. To mount a spur center, remove it from the lathe and pound it into the end of the workpiece to create a pattern of indentations.



Line it up. The awl and spur marks will register the piece when you seat it between the drive and tail centers. Line everything up and then tighten the tailstock to secure the blank.

Adjust the tool rest

TIP

GIVE IT A TUNE-UP



Remove dings and divots. Tools will glide more easily over a smooth, straight tool rest, so file it smooth and polish it with diamond plates or sharpening stones. Then coat it with wax.



Keep it close. Move the tool rest about $\frac{1}{8}$ in. away from the workpiece, and keep it at about the height of the centerline.

Roughing out a cylinder

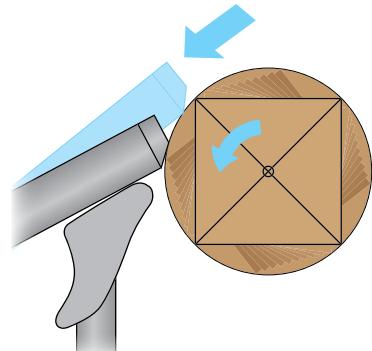
¾-IN.
ROUGHING
GOUGE

The wide bevel and deep flute make this tool easy to control while hogging out material from a blank.



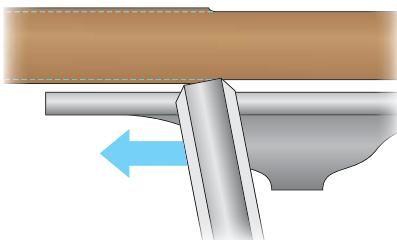
2 KEYS TO SUCCESS

Drop the tool into the cut. Let the bevel ride high on the blank before entering the cut. Draw the gouge back slowly and angle it down to drop the cutting edge into the workpiece.

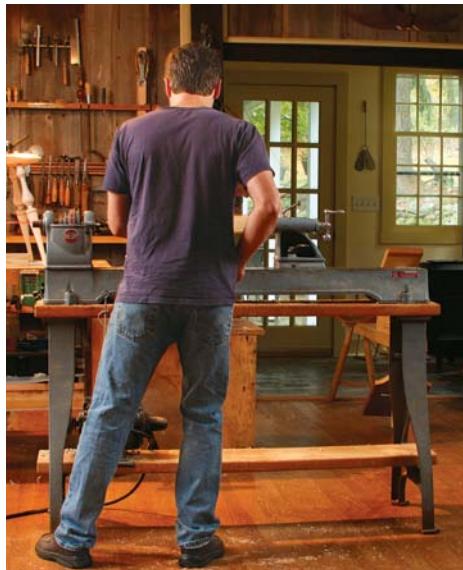


Move with the legs and hips. Galbert starts a cut with his arms, waist, and torso locked in position, and his weight on his right foot (right). This ensures even cuts because he can hold the gouge in the same position, and move by shifting his weight to his other foot (far right).

MAINTAIN A SKEW CUT



Skewing the gouge stabilizes the bevel against the already-cut section, leaving a cleaner surface and an easier-to-control tool.



SEE IT IN MOTION



least $\frac{1}{8}$ in. wider than the widest diameter of the finished spindle. That should leave room for roughing and shaping.

It's important to get the blank centered properly on the lathe because if it's off on one end, you'll remove a lot of extra material to get an even cylinder. So draw corner-to-corner lines on both ends, punch the two intersections with an awl, and use the indent to line up the lathe's drive center and tail center.

If you're using a traditional spur center, remove it from the lathe and hammer it into the end of the blank before mounting the whole piece back in the lathe. Use the spur marks to line up the workpiece. If you don't have a center yet, I recommend you buy a steb center instead. A steb center has a circle of teeth with a spring loaded-pin in the middle, and acts like clutch if a spinning piece catches a gouge. It's a more forgiving design, especially for beginners, and it's easier to mount because it stays in the lathe. Just line up the pin by eye. It's a spring, so you can always loosen the tail and move it if need be. With either type of center, tighten

the tailstock enough that the piece won't spin freely by hand. Don't over-tighten or you can damage the lathe's bearings.

Now set the tool rest about $\frac{1}{8}$ in. from the widest part of the blank, about even with the center. Rotate the blank by hand to make sure it will clear the tool rest as it spins. Keep the rest in the same relative position as you rough out the blank and the diameter shrinks.

Basic roughing technique

A perfect cylinder actually starts as a series of gentle, overlapping tapers that eventually get evened out. That initial taper ensures you're always cutting downhill later on when you smooth the surface. Downhill cuts mean you won't run the risk of catching the gouge on an exposed bit of end grain, which can pop out a wood chunk and or send the tool skittering. For both initial tapering and subsequent straightening, use the roughing gouge.

The basic strategy is simple. A right-handed turner would start

TURN A CYLINDER IN 2 STEPS



Start with a taper. Start at the headstock and cut a slight taper a few inches from the end. Repeat the cut, starting a bit farther away each time. Keep working with overlapping passes to create a rough taper along the blank (inset). Keep working toward the headstock to bring the taper closer to a straight cylinder (below) before moving the tool rest to the next section. When you are done, the whole blank will have a slight taper.

cutting at the headstock end, always working from right to left to break the edges and rough out the subtle taper. Start the first pass about 3 in. from the headstock and cut back toward the headstock. Start each subsequent pass about that same distance farther away. Once you reach the end of the tool rest, or the spindle, keep cutting lightly along the full length of the section until the edges have all broken and the piece has begun to turn round. Then slide the tool rest down the lathe's bed and repeat the process until the whole spindle tapers roughly from end to end. There may be bumps, particularly where you've moved the tool rest, but don't worry, you'll smooth them away afterward.

At this stage of bringing the piece from square to round, there are couple of important points to keep in mind.

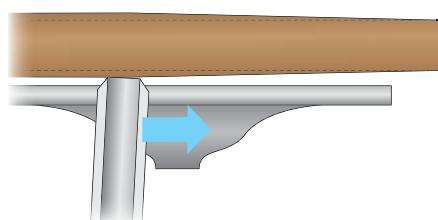
First, move with your legs. Your body position and stance are difference-makers when it comes to clean cuts. New turners make the mistake of moving the gouge by pushing their arms or rotating their waist. Those movements make the tool travel in an arc, and leave the turner constantly trying to compensate to cut evenly. Instead, keep your arms and upper body fixed in the same position and generate side-to-side movement from your legs and hips, pivoting your weight from one foot to the other. This keeps the



Finish with a cylinder. After carrying the taper to the tailstock end, Galbert starts there with a series of straight, shallow cuts to turn the long taper into a cylinder and smooth away any high spots.



Make straight cuts, starting at the fat end, to create a smooth, even cylinder.

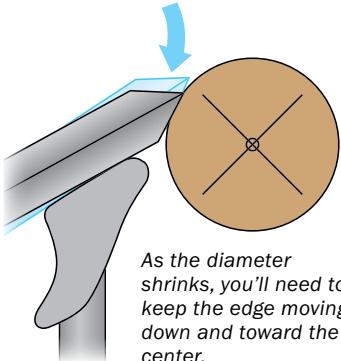


Tapers and tenons

1/8-IN. DIAMOND PARTING TOOL

USING A PARTING TOOL

Point the tool straight at the blank with the bevel riding it. Draw the edge back and down to enter the cut.



As the diameter shrinks, you'll need to keep the edge moving down and toward the center.

TAPERS ARE EASY



Set your landmarks. Galbert starts taper cuts by first sizing the diameters at the beginning and end. Set a caliper for the desired diameter, and slide it into the parting-tool cut.



Other landmarks. This turning will get tapered at both ends, with a flattish section between. Shallow parting-tool marks define the thick ends of the taper.

Start cutting at the end. Make a series of ever-widening passes to work down to your narrowest diameter without going deeper than your high point at the fat end of the taper. The taper will be a bit rough, but Galbert will smooth it with a skew chisel in Part 2.



Switch directions on double tapers.

To do the other taper, work toward the tailstock, moving left to right. Remember to skew the gouge into the cut.



gouge straight throughout the cut. This is easier to do if you align your body so that it feels comfortable at the end of the cut, rather than the beginning. Face the lathe in front of where your cut will end. Then pivot your weight to your right foot to start the cut. As you move through the cut, pivot your weight back to your left foot.

Also, never stab the gouge straight into a workpiece or it will scrape the wood instead of cutting it. Scraping leaves a poor surface and creates lots of dust and the potential for serious tearout. Instead, ride the bevel up high on the spinning piece without cutting, and slowly draw it back, lifting the bottom of the handle to drop the edge and engage the workpiece. Exit the cut the same way, by riding the bevel back up. Always skew the gouge, too. That way, the bevel rides on the just-cut surface, which will support the cutting edge ahead of it as you move. This, too, makes for cleaner, safer cuts.

Lastly, throughout the whole motion, don't hold the gouge too tightly. A heavy grip limits the range of movement and makes it hard to feel the feedback from a spinning workpiece. Grip it like a bird, just tight enough to keep it from flying away.

Even the cylinder

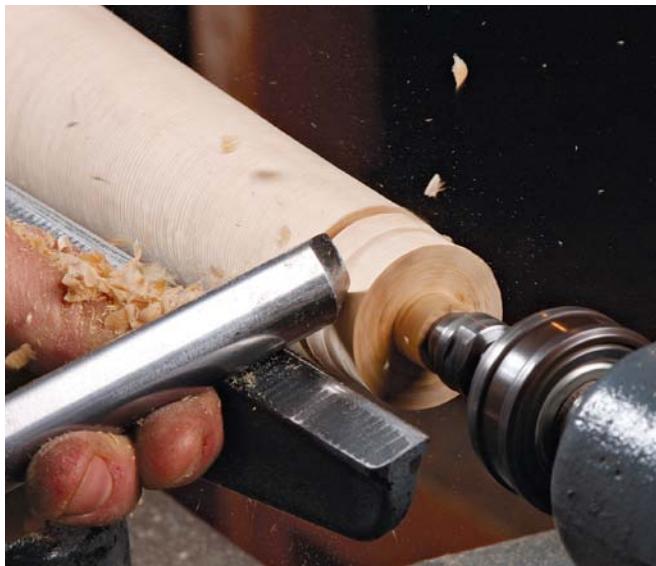
Finish straightening the taper and evening out the cylinder by taking a series of straight passes with the gouge. Start at the tailstock end and drop the bevel in so that

TURNING A TENON

Size the shoulder and ends first. Cut tenons like tapers, but with the same diameter at both ends. The parting tool works better if used slightly away from the end, supported on both sides of the cut.



Scoop out the middle. Remove the waste at the end, and then take straight, even cuts with a roughing gouge (right). The thick jaws of a wrench (far right) make it easy to find high spots, whether the piece is spinning or not.



you're taking a very light cut. This time, run the gouge straight along the tapered piece. The cutting edge will take increasingly thinner shavings until at some point the gouge's edge will naturally come out of the cut as it moves along. Keep cutting with thin, straight passes to even out the taper, trim any high spots, and leave a uniform shape. Check the diameter of the cylinder with a caliper to make sure it's thin enough. If not, keep taking long, thin passes to remove material evenly and to leave a smooth surface for cutting shapes.

Tapers and cigars

I'll cover more complicated turnings in Part 2, but we can turn your uniform cylinder into two elegant furniture parts right now, complete with precise tenons on the ends.

The easiest shape is a simple taper. Create it by sizing the beginning and end of the taper with the parting tool, checking with a caliper set to the desired dimension.

Don't stab the parting tool straight into the workpiece. Enter a cut with the bevel riding on the round, and draw the tool back slowly to engage the tip. Exit the cut the same way. It helps to wiggle the parting tool side-to-side just a bit to widen the kerf while cutting. It also makes it easier to check your progress with a caliper as the work spins.

For measuring diameter, I prefer my Galbert Caliper (\$80; petergalbertchairs.com; see Tools & Materials, FWW #205) because it won't catch the kerf's edges and reads dimensions directly without any setup.

Use a roughing gouge to remove the waste between the two parting-tool cuts, but don't cut down to the very bottom of the kerf. Leave just a little bit of material that you can remove during final smoothing with a skew chisel, which I'll cover in Part 2.

For a basic cigar shape, like those on turned Shaker legs or Windsor-chair stretchers, cut slightly rounded tapers on both ends of the cylinder the exact same way.

You can use the same technique to form accurate tenons. Just size the shoulder and ends and then gouge out the waste. Check that the diameter is even along the tenon using an open-ended wrench. Its wider surface makes it easier to see high and low spots. □

Peter Galbert makes chairs and tools in Sterling, Mass.