Triangle Table

Jigs and tips for innovative joinery

BY RAY FINAN

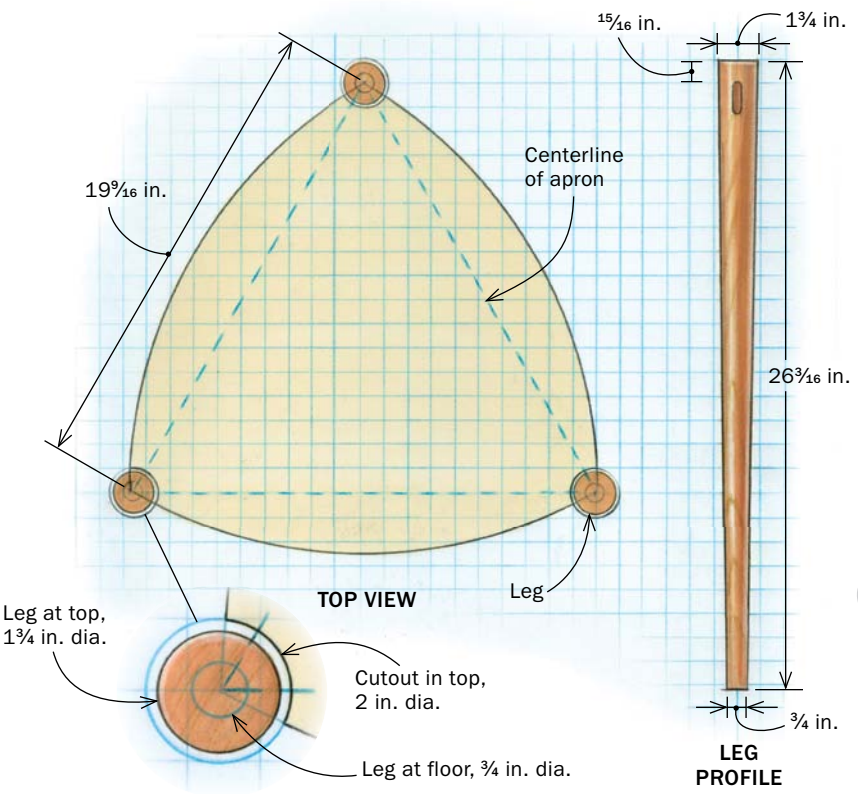
After 25 years of hopscotching from state to state working for a large company that makes paper for magazines like *Fine Woodworking*, I recently settled in Vermont and turned my woodworking hobby into a second career. To help launch my business, I decided to produce some pieces of furniture inspired by the Art Deco and mid-century modern styles. This little table was one of those pieces. I was eager to make a successful start, so of course I wanted my table to be distinctive in its design, but I also wanted it to be straightforward to make.

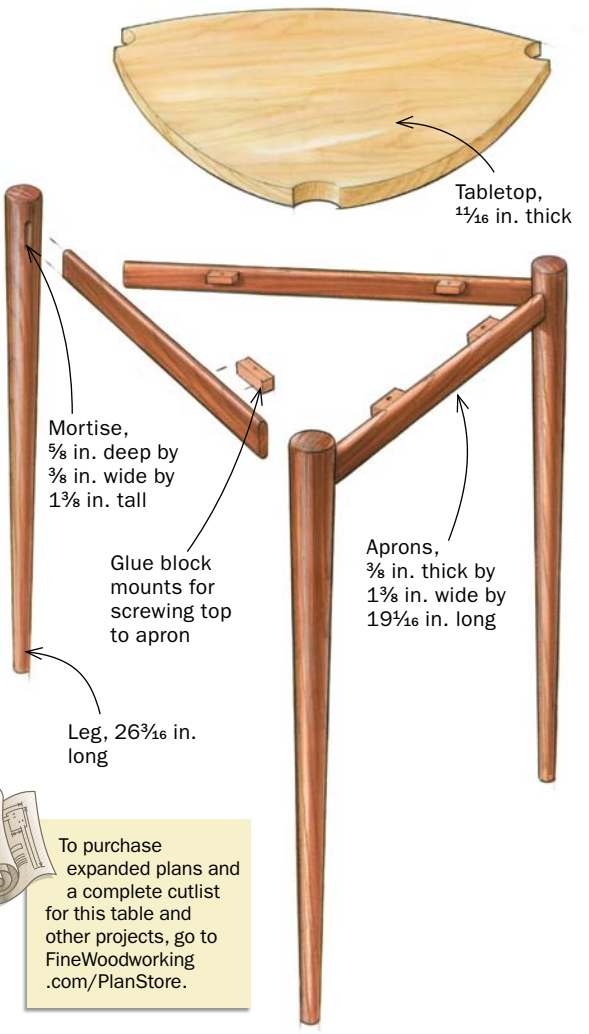
A few key decisions helped streamline the building process. When I hit on the idea of a curved-sided triangular shape for the tabletop, I found a simple way to generate the shape full size, first on paper and then on

Photos: Jonathan Binzen

FULL-SCALE LAYOUT IS KEY TO SUCCESS

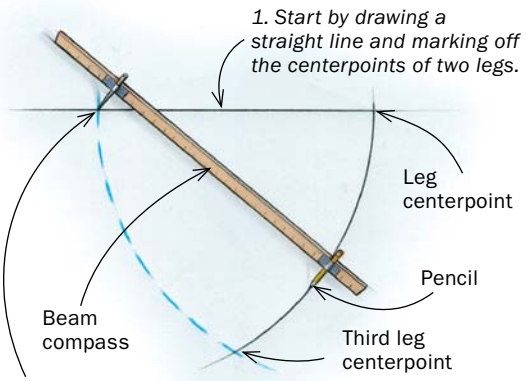
Finan draws a top view of the table full-scale on paper and uses the drawing at several critical points as he builds. A full-scale front view of the leg, drawn on a thin piece of MDF, guides him on the lathe.



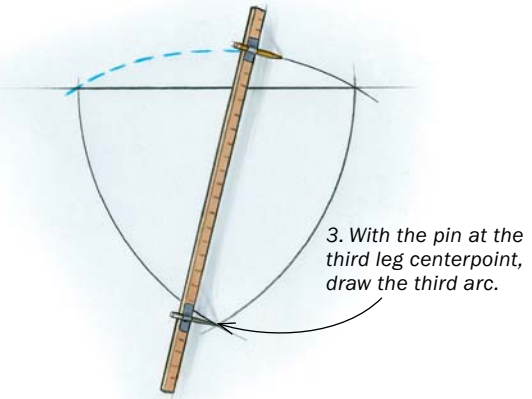


To purchase expanded plans and a complete cutlist for this table and other projects, go to FineWoodworking.com/PlanStore.

EXERCISE IN GEOMETRY



2. Place the pin of a beam compass on the first two leg centerpoints and draw crossing arcs to find the third leg centerpoint (above).



Two compasses create the plan. *Finan uses a beam compass (left)—in this case simply a yardstick fitted with a movable pin and pencil—to lay out the curve-sided triangle of the top. He uses a regular compass (above) to establish the circumferences of the legs and the corner cutout of the tabletop.*

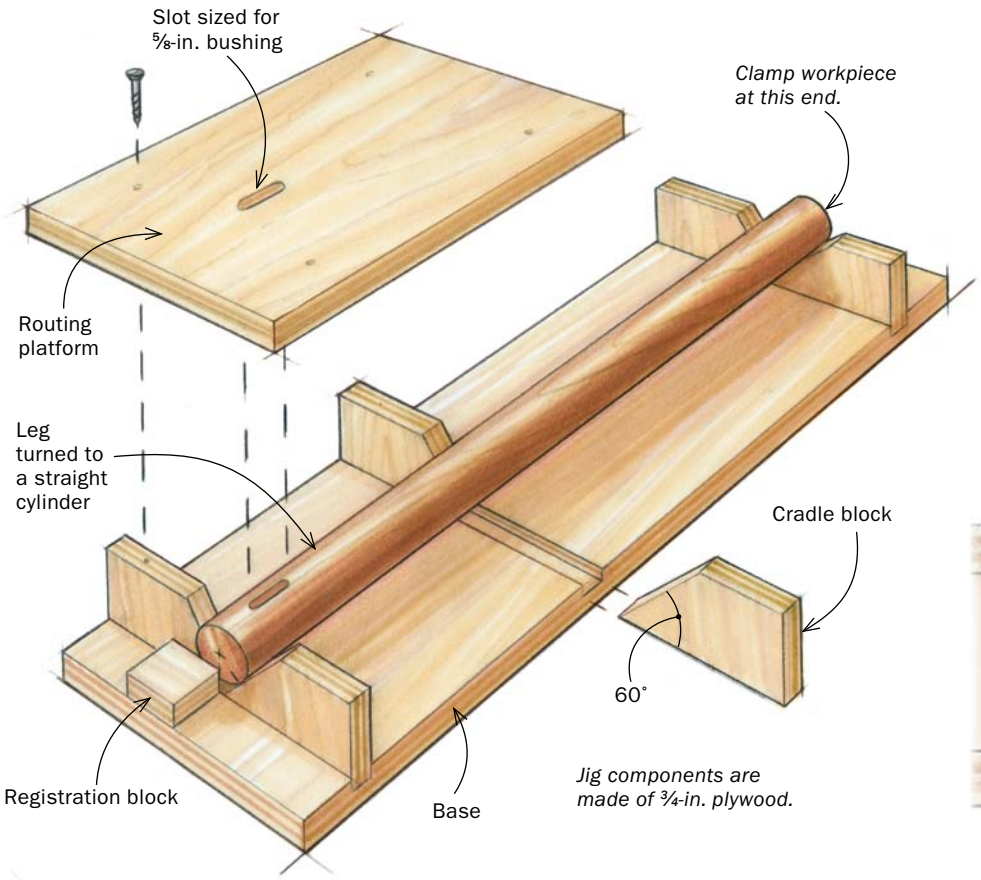
Drawings: Bob La Pointe

Do the leg work

1. TURN A CYLINDER

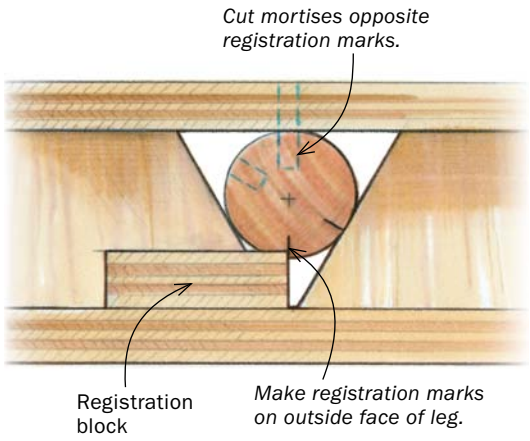
And mark the mortises. *After turning the leg blank to a 1¾-in.-dia. cylinder (not tapered yet), Finan puts it in place on the drawing and transfers the apron centerlines (far right). These will register the leg in the mortising jig.*

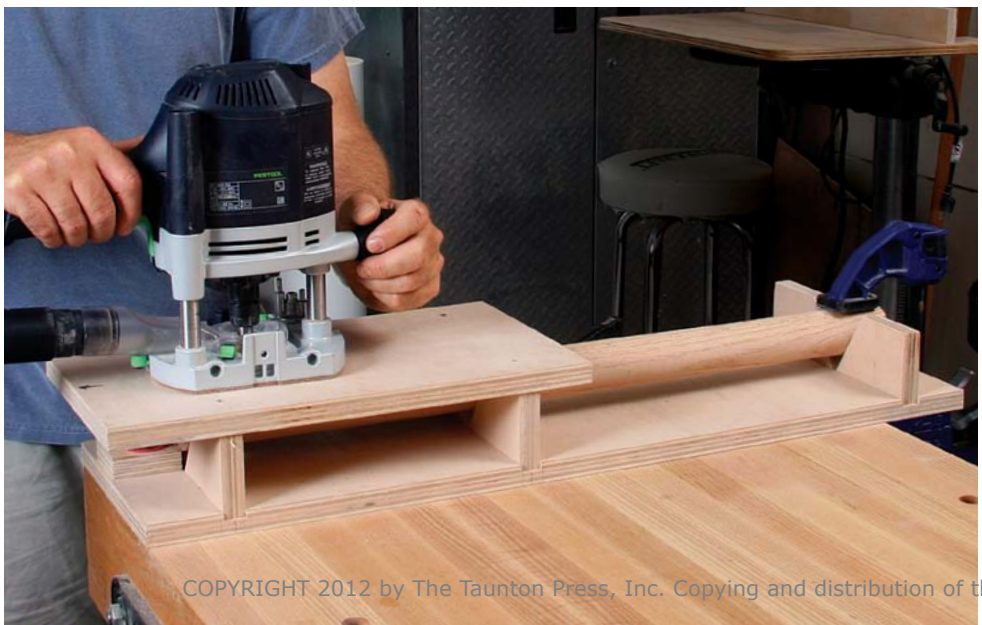
2. ROUT THE MORTISES



Snug in the jig. *A clamp at the far end is critical, but the mortise jig is sized so the leg is also held firmly between the routing platform and the cradle blocks. If necessary, Finan unscrews the platform to insert the leg.*

ALIGNMENT IS EASY





Plunge with a bushing. *Using a ⅝-in. guide bushing and a ⅜-in. spiral upcut bit in his plunge router, Finan cuts the mortises in a series of progressively deeper passes.*

3. NOW TURN THE TAPER

Tapering tricks. *To achieve a consistent taper, Finan starts by cutting a series of grooves with a parting tool, using his full-scale leg drawing to set his calipers. He uses a roughing gouge (above) to remove the waste between the grooves, then smooths the taper (right) with a long, straight sanding block.*

the workpiece. When it came to the legs, I thought turning and tapering them would nicely complement the shape of the top. But wouldn't that make for challenging leg-to-apron joinery? I greatly simplified the matter by dispensing with shouldered tenons and mortising the aprons full-size right into the legs. On a small, light table like this, that would give me plenty of joint strength. To cut the mortises, I built a router jig that took the guesswork out of what might have been a tricky process.

It takes very little wood to make the table, so this could be an opportunity to use some favorite scraps kicking around your shop. I made the top of mine from a beautiful small board of curly ash I'd been saving.

Round the top. *After shaping the top of the leg with the parting tool, he sands it smooth.*

Lay it out full scale

Although this is a fairly simple table, I found it beneficial to build it from full-size drawings. They made it a snap to lay out precise mortise locations, helped ensure that the legs didn't splay during assembly, and provided a controlled method for tapering the legs, even for a novice turner like me. Two drawings are needed: a plan view and a leg profile. The good news is that the drawings are very quick to make and you'll soon be building furniture.

I drew the plan view on drafting paper. I used a beam compass to draw the curved outlines of the top and a straightedge to draw the equilateral triangle that represents the centerlines of the aprons. Next, with a regular compass, I drew three concentric circles at each point of the triangle. The small circle is the circumference of the leg where it meets the floor; the middle circle is the circumference of the leg at the top; and the large circle represents the edge of the table where it is cut away to allow the leg to penetrate the top.

I drew the full-scale leg profile on a scrap of ¼-in. hardboard so that I could use it as a frequent reference when turning the legs to a taper. After drawing the tapered elevation, I added a series of lateral lines across the leg. While turning, I took caliper measurements at these points and transferred them to the leg.

Three legs, three stages

Cutting mortises in the legs after they had been tapered would have been a challenge. I simplified matters by making the legs in three steps. First, I turned the square blanks to 1¾-in. cylinders. Then I mortised the cylinders in the router jig. And last, I remounted the cylinders and turned them to a taper.

Since I had the full-scale plan-view drawing, marking the mortise locations was easy. I simply stood the cylinders in place on the drawing and transferred the apron centerlines to the leg. I carried those marks around to the top of the leg and used them to register the leg in the router jig. One important thing to note is that the mortises will be cut on the face opposite these marks—so be sure to make the registration marks on what you want to be the outside face of the leg.

Add the aprons

The apron is a tenon. *Finan shapes the aprons with a roundover bit on the router table, preparing them to be inserted fully into the leg mortises. This means he won't have any shoulders to fit to the round, tapered leg.*

After cutting all the mortises, I put the leg cylinders back between centers on the lathe and shaped the tapered profile. I don't do much turning, so I tried to make things as foolproof as possible. I started by using a parting tool to cut a series of evenly spaced, progressively deeper grooves along the leg. I used calipers to transfer measurements from the leg profile drawing to the appropriate grooves. Then, using a ¾-in. roughing gouge, I removed the waste wood between the grooves. I faired the leg with a long block of wood with 100-grit self-stick sandpaper adhered to it. Then I finish-sanded the legs to 400-grit while they were still on the lathe. With the sanding finished, I used the parting tool to form a slight crown at the top of the leg, paring back at a slight angle until the leg separated from the drive center.

The base comes together

After thicknessing and ripping the apron stock to size, I rounded over all four long edges with a quarter-round bit on the router table. I used a test piece of apron stock and a test mortise to sneak up on a snug fit. After applying glue and getting the pieces knocked together, I stood the base up on the drawing and tweaked the stance until the tips of the legs stood precisely in the small circles. Then I cinched the band clamp, rechecked the stance, and let the glue cure.

Perfect placement. *Because there are no shoulders on the aprons, the legs can be adjusted vertically. With the joints just glued, Finan tweaks the legs until they stand within the ¾-in. circles on the drawing.*

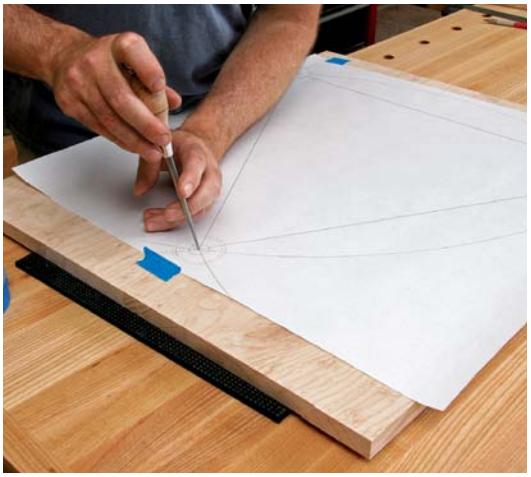
A little belt tightening. *After adjusting the stance of the table, Finan cinches up a band clamp. He checks the stance once more and then leaves the table on a flat surface to cure. He will remove the blue tape (which makes glue cleanup easy) before the glue dries.*

Screw blocks. *Preparing to attach the top, Finan rubs on screw blocks, holding them in place with finger pressure for a minute or two until the glue stiffens.*

Top it off

The full-scale drawing came in handy again when it was time to lay out the tabletop. I taped the drawing to the tabletop blank and used an awl to mark the centerpoints of the three legs. Then I removed the drawing and used the beam compass—with its pin in the holes made by the awl—to draw the curved sides of

Curves complete the top



Good point. *Finan tapes the full-scale drawing to the tabletop blank and uses an awl to transfer the center-points of the legs (above). The awl holes allow him to quickly lay out the outlines of the tabletop (right).*

Drill first, saw later. *Using a Forstner bit, Finan drills the cutouts for the legs at the corners of the top (above). Then it's on to the bandsaw (right) to cut the curved sides of the tabletop.*

the top. I used the regular compass, its pin in the same awl holes, to draw a 2-in.-dia. circle at each point.

I bandsawed out the long arcs of the top, but before I did so I used a Forstner bit at the drill press to create the tightly curved cutouts for the legs. To get a clean cut, it's a good idea, especially in wood with difficult grain, to make the blank large enough to allow full contact of the Forstner bit. I cleaned up the bandsawn arcs with rasps and files.

Different finishes for top and base

To showcase the spectacular grain pattern of the curly ash, I applied multiple coats of Waterlox Original, wet-sanding it in with 600-grit wet-or-dry paper. I wanted a sharp contrast between the light-colored top and the white-oak base, so I darkened the base with a recipe from Teri Masaschi that produces a look reminiscent of lightly fumed white oak—without the ammonia fumes. I let the finish cure for a week, then lightly wet-sanded the top and base with a 2,000-grit Abralon pad and a 50/50 blend of mineral spirits and paraffin oil, and gave it a light coat of paste wax. □

Ray Finan makes furniture in Arlington, Vt.