

Kitchen STOOL

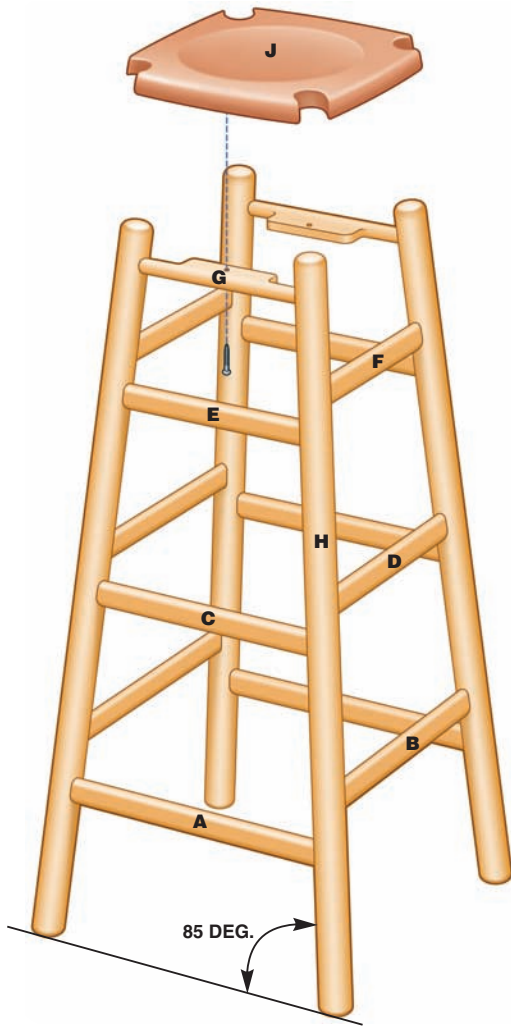
Round legs
without a lathe

by Seth Keller



Few stools are as clean and elegant as this one. I built it with splayed legs to provide a stable footing. The multi-level rungs offer a variety of foot perches to satisfy just about anybody, no matter how short or tall they are. I topped it off with a gently scooped seat that's comfortable enough to permit lingering over a satisfying meal. I used contrasting wood for visual interest. I really like how the light-colored legs peek up through the dark seat. The legs and stretchers are made from strong, durable beech. The seat is made from cherry and reminds me of old, soft leather.

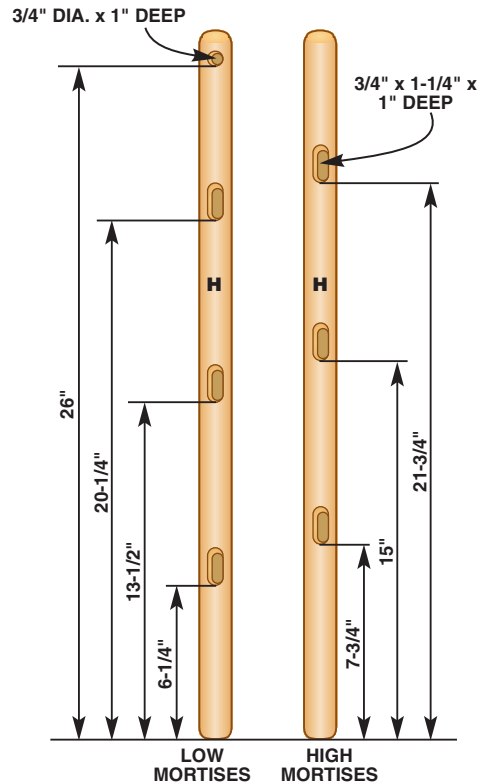
FIGURE A EXPLODED VIEW



PROJECT REQUIREMENTS AT A GLANCE

Special Tools:	Plunge Router
Lumber qty. and price:	4 bf. 8/4 Beech, 4 bf. 4/4 Beech, 3 bf. Cherry. Approx cost: \$65.00

DETAIL 1 LEG MORTISE LAYOUT



EVANGELINE EKBERG

CUTTING LIST

OVERALL DIMENSIONS:
28" x 16" x 16"

Part	Name	Qty.	Material	Dim. (Th x W x L)
A	Rung	2	Beech	3/4" x 1-1/4" x 14"
B	Rung	2	Beech	3/4" x 1-1/4" x 13-3/4"
C	Rung	2	Beech	3/4" x 1-1/4" x 12-3/4"
D	Rung	2	Beech	3/4" x 1-1/4" x 12-1/2"
E	Rung	2	Beech	3/4" x 1-1/4" x 11-9/16"
F	Rung	2	Beech	3/4" x 1-1/4" x 11-5/16"
G	Stretcher	2	Beech	3/4" x 1-1/4" x 10-5/8"
H	Leg	4	Beech	1-7/16" x 1-7/16" x 28"
J	Seat	1	Cherry	1-1/4" x 13" x 13"

This project will keep your router humming and uses some very clever jigs to simplify and speed up construction. It's almost as easy to make half a dozen stools as it is to make one. Our stool is sized for a 36-in. counter height.

There will be a lot of parts floating around your shop as you build this stool and a lot of mortises to keep track of. So take my advice and mark your parts clearly as you go to avoid mix-ups.

Mortise the Legs

1. Mill the leg blanks (H) and cut them to length.
2. Lay out the mortises (Fig. A, above)(Photo 1). The mortises are offset so one set of rungs (B,D and F) are

positioned higher on the leg than the other set (A,C, E and G). Mark the higher mortises first, then rotate the legs and mark the lower ones (Photo 2).

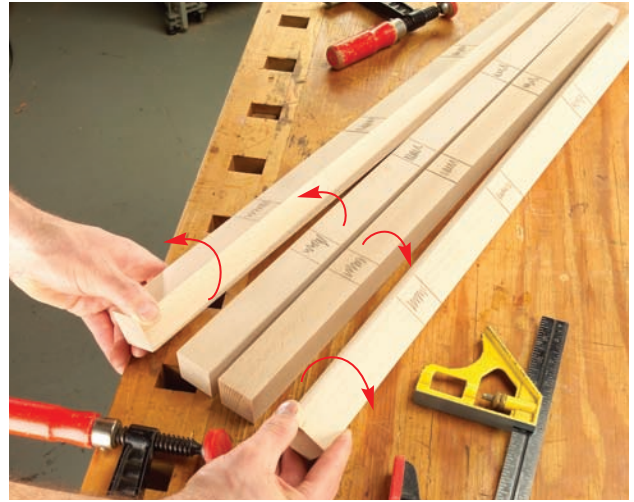
3. Rout the mortises using a jig and a 3/4-in. plunge router bit(Fig. B, p. 57) (Photo 3). Orient each leg in the jig in the same manner: the top of each leg should stick out of the jig's indexed end. Make the round seat stretcher mortise with a single plunge.
4. Roundover the edges of the legs with a 3/4-in. roundover bit (Photo 4.) Round over the ends of each leg with a 3/8-in. roundover bit (Photo 5.)

Rungs and Stretchers

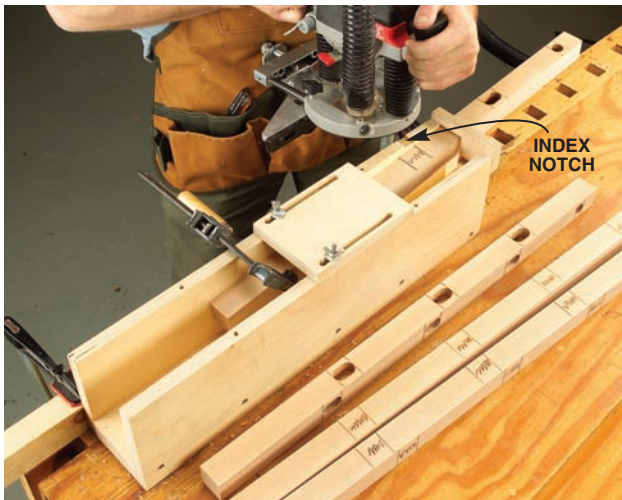
5. Round over four 5-foot long pieces of rung stock with



1 Begin building the stool by laying out mortises on the legs. The mortises are offset with one set higher than the other. Clamp the legs together and lay out all the high mortises first. I like to shade each mortise to avoid mistakes.



2 To layout the lower mortises, rotate the two outside legs 90-degrees away from the center. Then roll the two center legs away from the center as well. This automatically positions the correct face of each leg.



3 Cut the angled mortises with a jig and a plunge router. To position the leg, line up the top of the mortise with the top of the index notch on the jig.



4 Round over all four corners on the legs. When you're done, they'll almost look like they were turned. A featherboard maintains consistent pressure against the fence.

FIGURE B MORTISING JIG

CUTTING LIST: MORTISING JIG					
Part	Name	Qty.	Dim.	Th x W x L	
A	Bottom	2	3/4" x 3-1/4" x 24"		
B	Side	2	3/4" x 6" x 24"		
C	Clamp Rail	1	1" x 1-1/2" x 30"		
D	End Stop*	1	3/4" x 1-3/4" x 4-3/4"		
E	Ramp**	1	3" x 3-1/4" x 18"		
F	Adj. Stop	1	3/4" x 4-3/4" x 6"		

* Cut the notch to accommodate leg stock.
 ** Ramp tapers from 3" to 1-1/4"

With the end stop in place (D), rout an index notch on the jig to ensure proper alignment of the leg in the jig. For more details on using this versatile jig, see AW #120, March 2006, p. 44.



5 Round over the ends of each leg. Hold the leg tight against a stop block as you feed it into the bit. When the leg contacts the bearing, rotate it slowly to complete the roundover.



6 Mill roundovers on long lengths of rung stock. Cut the rungs and seat stretchers to length afterward. This is more efficient and safer than shaping short lengths. Featherboards produce a clean, consistent cut.



7 Shape the seat stretchers on the bandsaw. It's best to make two cuts. Cut the short angle first, then make the long straight cut.



8 Cut the round tenons on the seat stretchers. When the cut hits the wide part of the stretcher, let it ride on the bearing until it contacts the fence on the outfeed side.

a 3/8-in. roundover (Photo 6). The ends of each stretcher fit like tenons into the leg mortises. As you mill the rungs, use some extra stock to test and fine-tune your cuts by adjusting the bit height or fence position. You should be able to insert the rungs into the mortises by hand.

6. Cut the rungs and seat stretchers to length and label them. Shape the seat stretchers on the bandsaw (Photo 7).
7. Create the 3/4-in. round tenons on the seat stretchers (Photo 8). Drill pilot holes for the screws that attach the seat (Fig. A).

Assemble the Base

8. Dry fit all of the base parts.
9. Glue up the base in stages (Photo 9). Place a straight-

edge on the seat stretchers to make sure they lay flat to support the seat (Photo 10.) Be sure to measure the top diagonally for square.

Make the Seat

10. Glue up a cherry blank. When the glue is dry, trim the blank to 13" square.
11. Draw diagonal lines from each corner on the underside of the seat and drill a 1/4-in. hole in the center for the index pin in the seat-scooping jig (Fig. D, p. 60).
12. Lay out the top of the seat blank (Fig. C, p. 59).
13. Drill the leg holes in the seat blank (Photo 11).
14. Cut the seat to shape on the bandsaw: sand it smooth.
15. Place the seat blank in the seat-scooping jig (Fig. D) and screw the rails into place so they put firm pressure on the seat.

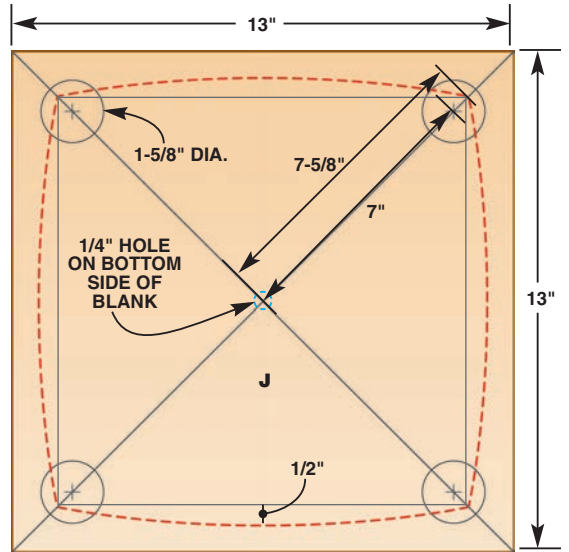


9 Glue up the base in sections. Have all of your parts labeled and laid out in sequence. Glue up the two halves with the three mortises first. When they're dry, glue the whole stool together with the seat stretcher and remaining rungs.



10 Clamp up the base on a flat surface. Angled blocks will prevent the clamps from slipping. Use a straightedge to make sure the wide section on the seat stretchers lies flat.

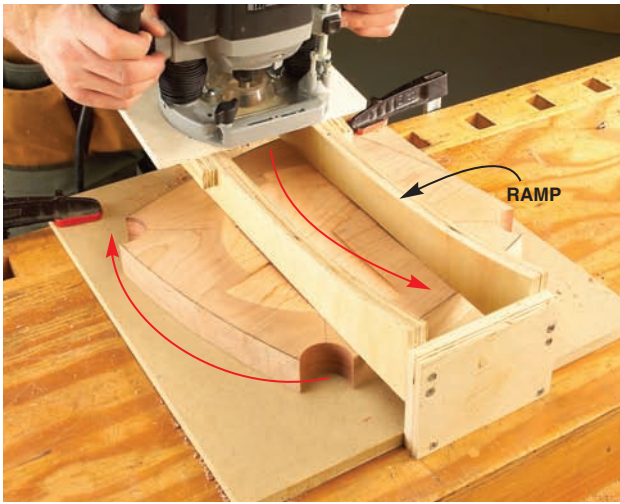
FIGURE C SEAT BLANK LAYOUT



To layout the leg holes, draw diagonal lines on the seat blank and measure 7" from the center out to each corner. This marks the center of each hole. Measure 7-5/8" to mark the four corners of the finished seat. Use a flexible stick to mark the 1/2" bow on the four edges.



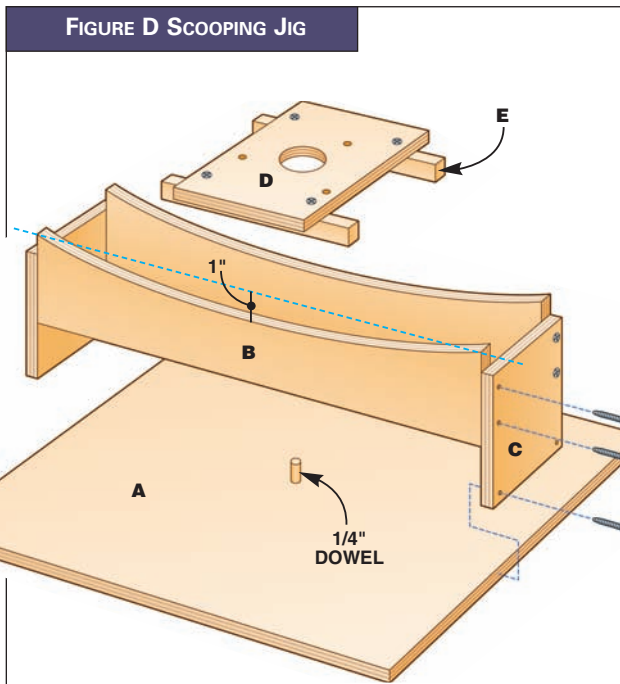
11 Bore leg holes through the seat blank. Clamp the blank to a sacrificial table to prevent blow out. Cut the curved sides on the bandsaw after drilling the holes.



12 Scoop the seat with a router and a simple jig. Slide your router across the curved ramp. Rotate the seat a router bit's worth after each pass. Keep the cuts shallow.



13 It's best to pre-finish the seat and base before final assembly. Then simply attach the seat to the stretchers with screws.



Set the seat blank on the dowel. Screw the two ends (C) to the base (A). Then hold the ramp (B) down on the seat and screw in place. The ramps should put enough downward pressure on the seat to hold it while its routed, but loose enough to rotate the seat between passes.

CUTTING LIST: SCOPING JIG

Part	Name	Qty.	Material	Dim. Th x W x L
A	Base	1	Plywood	3/4" x 18" x 18"
B	Ramp	2	Plywood	3/4" x 2-5/8" x 18"
C	End	2	Plywood	3/4" x 3-3/4" x 5-1/8"
D	Sub-base	1	Plywood	1/2" x 6" x 8"
E	Runners	2	Plywood	3/4" x 1" x 8"

16. Scoop out the seat using a long straight bit (Photo 12) (see Sources below).
17. Round over the edges of the seat around the leg holes with a 3/8-in. roundover bit. Use a 3/4-in. roundover bit on the outside edges of the seat.
18. Sand the entire stool to 180-grit if you'll be finishing the stool with varnish or lacquer. Use 220-grit if you plan on an oil or a wipe-on varnish finish.
19. Attach the seat to the base (Photo 13).

Sources

Woodcraft Supply, (800) 225-1153, www.woodcraft.com
 1/2" x 4-1/8" Straight Cut Double Flute Bit, #815761, \$25.00.
 MLCS, (800) 553-9298, www.mlcswoodworking.com
 3/4" Plunge Router Bit, #7755, \$14.00.
 3/4" Roundover Bit, #8656, \$21.00.
 3/8" Roundover Bit, #8654, \$16.00
 1-5/8" Forstner Bit, #9223, \$12.00.