A Table for 2, 4, or 6

Gate-leg design expands from small to large in a jiffy

BY CHRIS GOCHNOUR

This gate-leg table is perfect for those living in tight spaces and for anyone who doesn't always need a big table. With the leaves down, it's a table for two (top). Pull up a leaf and swing out the gate leg for support and you have room for four in no time (above). Open the second leaf and you can fit two more friends around the table (opposite).

With their fold-down leaves, gate-leg tables are wonderfully versatile, making them perfect for a small home or apartment. With the leaves down, the table can be pushed against the wall to be used as a buffet or just kept out of the way, and it works as a nice table for two. Raise a leaf and swing out a gate leg, and the table comfortably seats four. Raise the second leaf and pivot the other gate leg to support it, and the table now seats six with ease. This versatility, combined with the warmth of cherry and Shaker design, brings beauty to any room.

For the most part, the base of a gate-leg table is nothing strange. This one has four legs, side aprons joined to the legs with mortise-and-tenons, and a long drawer that can be accessed from each end. All of this can be constructed separately from the gate-leg assemblies on each side, which consist of a leg and a separate apron that swings on a wooden hinge. This sounds complicated, but it's not so tough.

The oval top has three pieces. Attached to the base, the center is sandwiched between two leaves that raise and lower on hinges. A rule joint between them looks clean and attractive whether the leaf is up or down. I make the joint with two router bits, and rout the hinge mortises with a jig that takes the hassle out of layout and ensures that the hinges don't bind.

There's no doubt that this gate-leg table is a mechanical marvel, but don't be intimidated. With the techniques I'll demonstrate, you're sure to make one that works as beautifully as it looks.

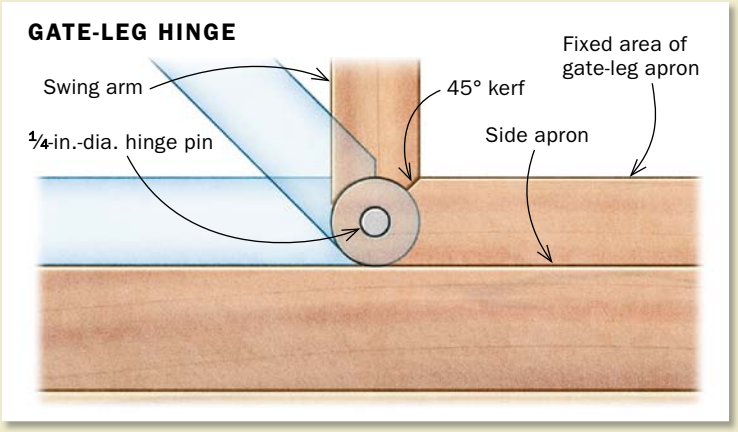
The gate leg swings on a wooden hinge

Start by making all of the legs, including the gate legs. Because there are two aprons on the sides of the base, the base

Photos: Matt Kenney

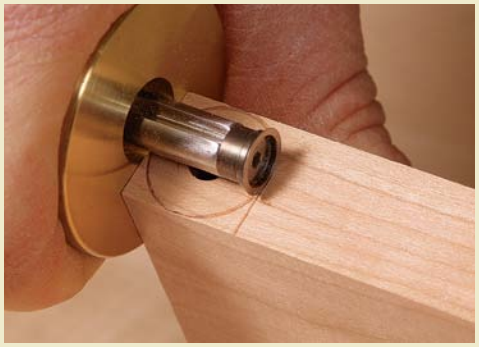
MAKE A WOODEN HINGE

Each side of the table has a gate leg that swings out on a hinged arm to support the raised leaf. This wooden hinge may look intimidating, but it's only a modified finger joint—it is not hard to make.



Mark the center and circumference. *A ¾-in.-dia. Forstner bit does both at once. Use scrap to dial in the location of the fence and stop block so that the bit's cutters hit the end and two sides.*

Drill for the pin. *For the joint to work without binding, this hole must be straight and parallel to the end grain. Use a slow feed rate and drill halfway from each edge.*



Lay out and cut the stop. *Use a marking gauge to scribe a line across the board's edge and across its outside face (left). Then, with the blade angled 45°, cut a kerf on the outside face at this cut line. Repeat for the other half of the joint to create a 90° stop.*

Round over the end. *Gochnour uses a ⅜-in.-radius bullnose bit to form the rounded knuckle in one pass. This allows the joint to swing open and closed.*

Clean up the stop. *The blade of a shoulder plane removes the bit of waste left between the rounded end and the stop cut into the face.*

legs need two mortises on those sides for the apron tenons. After cutting the joinery, turn the legs. Set aside the gate legs for now, and build the base, whose construction is straightforward. Once it's glued up, you can start the gate-leg assemblies.

The gate-leg apron has three parts: a fixed arm, a swing arm, and a filler block. Cut these parts to their final width, but leave them long. For the two hinged arms, the extra length gives you a quick way to recover if you make a serious mistake—just cut off the joint and start again. The filler block is trimmed to length after the gate leg has been installed.

The wooden hinge is cut like a finger joint, but the ends of the knuckles are rounded over to fit concave sockets in the mating part.

Set up a drill-press fence and a stop block to center a ¾-in. Forstner bit on the arm's thickness and ⅜ in. from its end. The

Get symmetrical knuckles with a gauge. *Lay out the knuckles from both edges of the board. Two settings will produce four lines and five knuckles.*

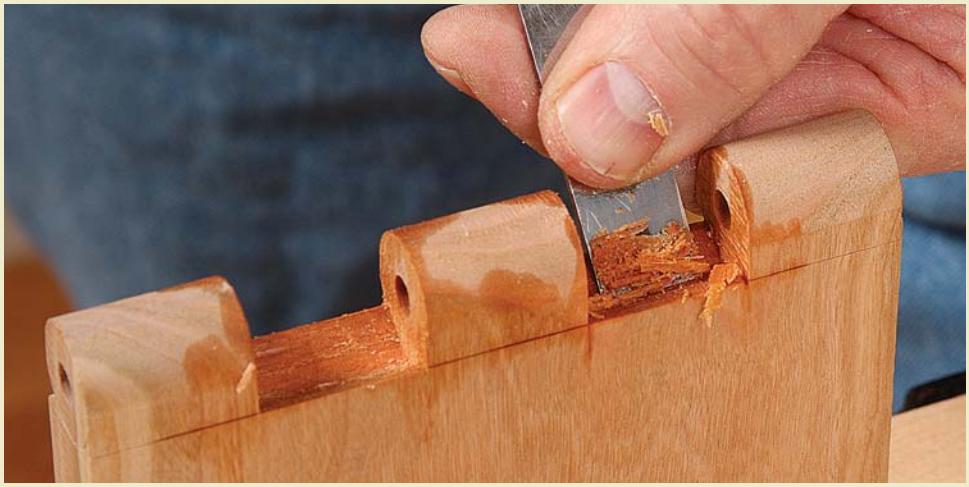
Straight shoulder for now. *After defining the knuckles with a backsaw and removing the waste with a coping saw, pare down to the stop. A straight shoulder helps when you transfer the knuckles to the mating piece.*

Transfer the knuckles. *After making a small tick with a knife (left), use a marking gauge to complete the layout (right). To do this, put the gauge's blade in the tick mark, set the fence against the board's edge, lock it, and scribe. Repeat for each tick mark.*

Drill where you can. *The swing arm has sockets at both edges that need to be scooped out. Do this at the drill press with a ¾-in. Forstner bit, using the same fence and stop block setup as before.*

bit's cutters should just touch both faces of the arm and its end. When the alignment is correct, drill slightly into the board. This gives a starter hole for the ¼-in. brad-point bit used to drill for the hinge pin, and cuts a perfect guideline for the knuckle's rounded shape. Switch over to the ¼-in. bit and drill for the pin.

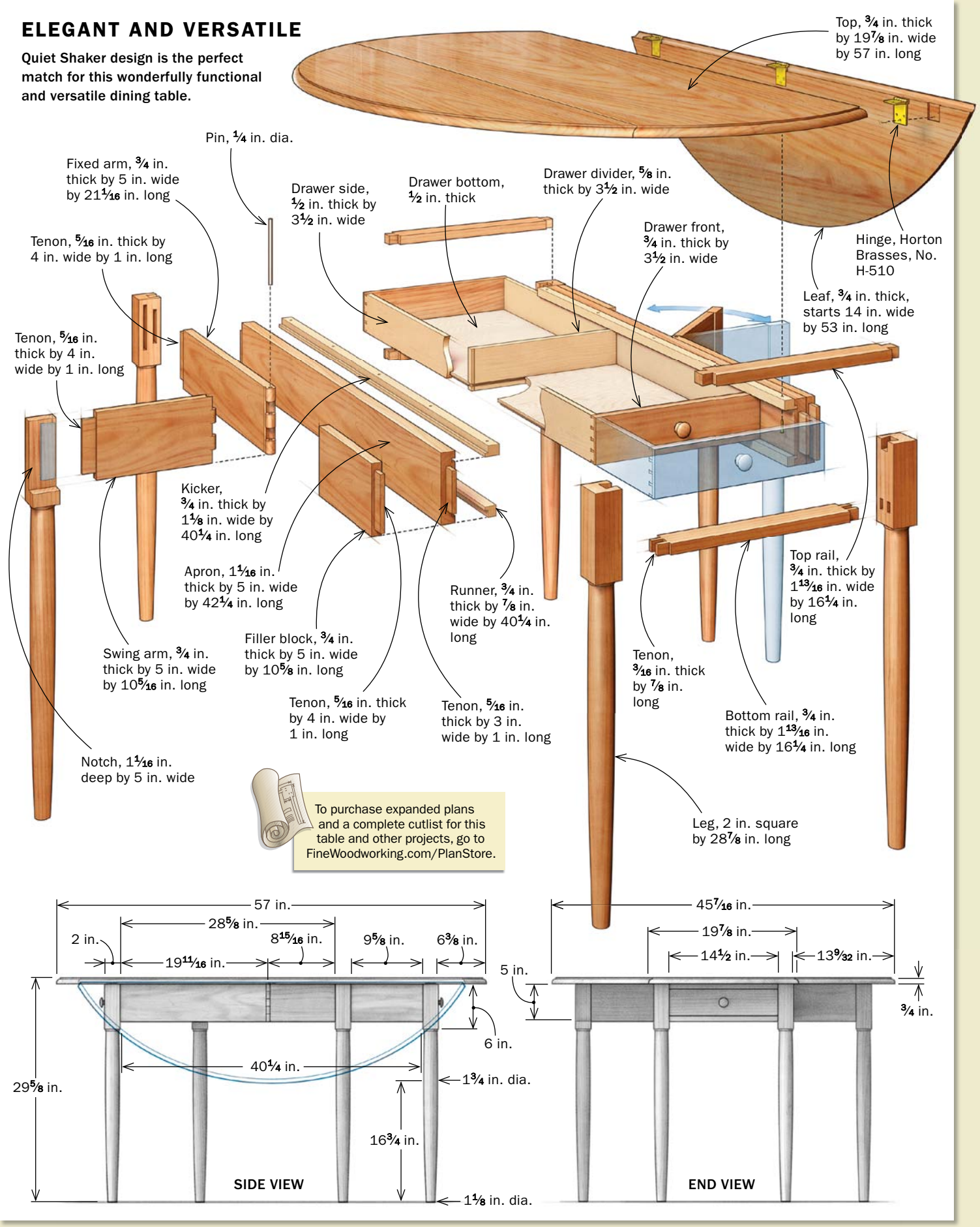
The hinge has a stop to prevent the leg from swinging out more than 90°. To create the stop, angle the tablesaw blade to 45° and cut a kerf across the arm's outside face. Locate the kerf by cutting a line with a marking gauge that's tangential to the circular guideline you cut at the drill press (see left center photo, p. 32). Next, head to the router table and round over the end of the arm with a bullnose



Handwork where you can't drill. *Use a chisel, bevel down, to scoop out the area between knuckles. Gochnour moistens the fibers with mineral spirits—an old carver's trick—to soften them and get tearout-free results.*

ELEGANT AND VERSATILE

Quiet Shaker design is the perfect match for this wonderfully functional and versatile dining table.

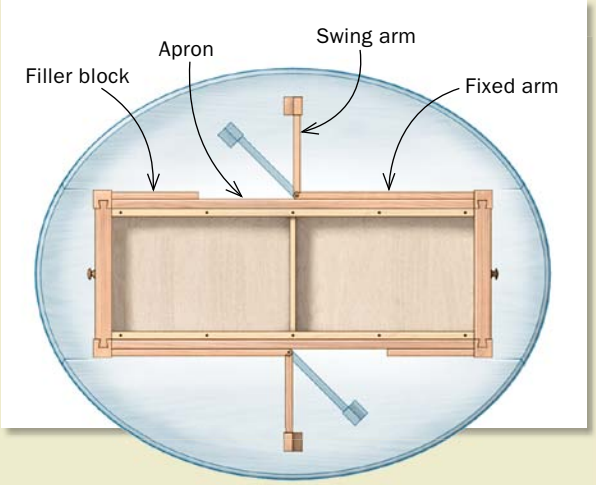


To purchase expanded plans and a complete cutlist for this table and other projects, go to FineWoodworking.com/PlanStore.

Drawings: John Hartman

INSTALL THE SWINGING LEG

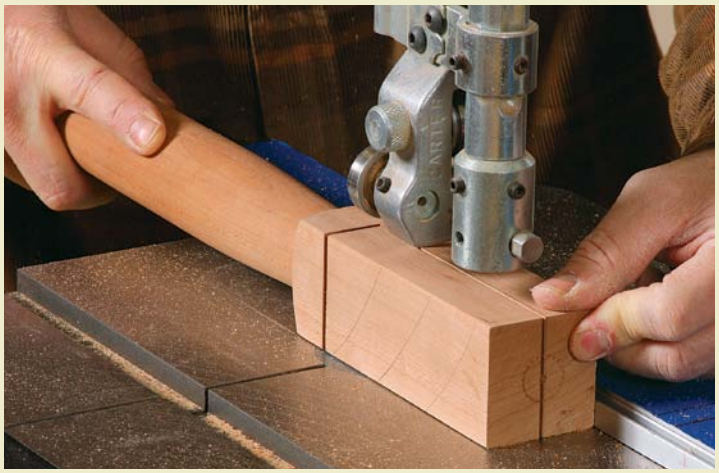
The gate leg is part of a second apron on each side. The apron has a filler block, a fixed arm, and a swing arm that attaches to a pivoting leg.



bit. There will be some waste left between the kerf and the rounded end. Clean that up with a shoulder plane.

Now lay out the knuckles of the joint. There are two knuckles on the swing arm and three on the fixed arm. Start with the fixed arm. I define the knuckles with a backsaw, clear the waste with a coping saw, and pare to the baseline with a chisel. The area between knuckles will be hollowed out later.

Transfer the knuckles to the swing arm and complete the joint. At this point you



Notch the leg. *This allows the leg to fit under the inside, continuous apron. Cut the shoulder at the tablesaw, then the cheek at the bandsaw.*

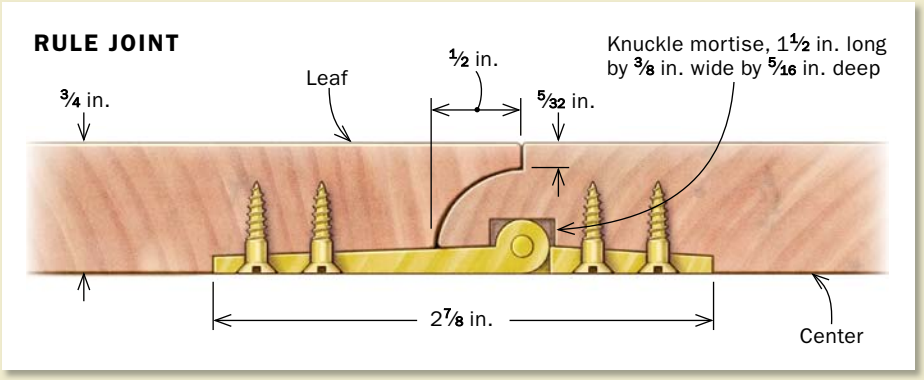
Trim it flush. *After gluing the swing arm to the gate leg, trim the notch's cheek level with the arm.*

Glue on the fixed arm. *Spread glue on both the tenon and the inside face of the fixed arm (left). Leave it in the clamps for several hours. Attach the gate leg (above). Put the two halves of the knuckle joint together and then drive a ¼-in.-dia. steel rod into the hole. Gochnour grinds a chamfer on the ends of the rod.*

ROUT THE RULE JOINT

A cove cut along the leaf's edge mates with a roundover along the top to create an attractive joint that hides the hinges whether the leaf is up or down.

Press down hard. *It's critical that the routed edges of both sides of the joint be uniform and smooth, so use push pads and a featherboard to keep downward pressure on the tabletop and leaves when feeding them through the bit.*



can cut the hollow between the knuckles. On the edges of the swing arm, use a ¾-in. Forstner bit and the same fence and stop block setup as for the hinge-pin hole. Between knuckles, you'll have to scoop out the waste with a chisel, used bevel down. Check your progress with a ¾-in.-dia. dowel. When it sits flush with the rounded end of the knuckles, you're done.

Now you can notch the gate leg, glue it to the swing arm, and trim the notch flush. To install the completed gate-leg apron, start with the fixed arm. Glue its tenon into the mortise and its inside face to the apron. Slide the hinge together and drive in the pin. Now dry-fit the filler block and close the gate leg. Trim the filler block until the gate leg closes flat against the apron, and glue it in place.

Rule joint has leaves falling smoothly

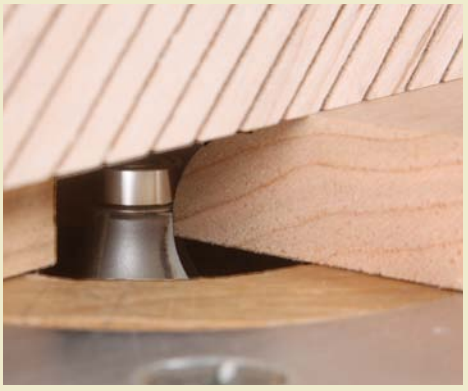
The hinged leaves that make up the sides of the elliptical top pivot on a rule joint.

The first step in making the top is to cut the rule joint at the router table. The leaves get a cove down the underside of their inside edge. The middle section of the top gets rounded over along the top surface of both edges (see drawing, left).

Next, clamp the three pieces together and lay out centerlines for the hinge mortises. Each leaf gets three hinges. The centerlines should extend the full width of the top and are used to align a hinge mortise routing jig. This jig stretches across the top and allows you to rout the leaf mortises and the deeper barrel mortises for two hinges without unclamping the jig.

The jig is a long piece of MDF with two rectangular holes that match the dimensions of the open hinge. With a flush-

Two bits make the joint. *Rout a cove into the underside of the leaf, using a ⅜-in. radius cove bit and leaving a 5/32-in. flat on the edge (left). Then, put a ⅜-in. roundover bit in the router table and rout both edges of the center section of the tabletop (right).*



Round off the bottom corner. *Flip the top over and slightly ease the bottom corner of the edge.*

MORTISE FOR THE HINGES

There are six hinges on the underside of the tabletop. Gochnour uses a jig that accurately locates each hinge mortise and a channel for the hinge barrel. It also allows him to rout two mortises with one setup.

Place the jig on the top. *A centerline on the jig aligns with a centerline on the tabletop to locate the hinge mortises.*

Rout the mortise for the leaves. *After clamping the jig in place, rout both mortises (left), using a short, bearing-guided flush-trimming bit (above).*

trimming bit in a router, use the opening as a guide and rout the mortise for the hinge leaves. You'll have round corners, but the opening also serves as a chisel guide, so you can square them. Next, drop a spacer in the opening and switch to a bushing and straight bit. The bushing rides against the spacer and allows you to cut the narrow but deeper mortise needed for the hinge barrel. Square the ends of this mortise before removing the jig.

Install the hinges. They'll hold the three parts of the top together as you turn the top into an ellipse with the help of a routing template (for more on that method, see Master Class, pp. 82–85). After the top is done, make the long drawer. It's accessible from both ends of the table and provides storage space.

The last thing to do is apply a finish. Use something durable for the top. I prefer an oil-based polyurethane. The base sees less abuse, so I use lacquer there. After that, put the table to good use and enjoy a nice meal. Whether you're joined by one friend or several, your new gate-leg table is up to the task. □

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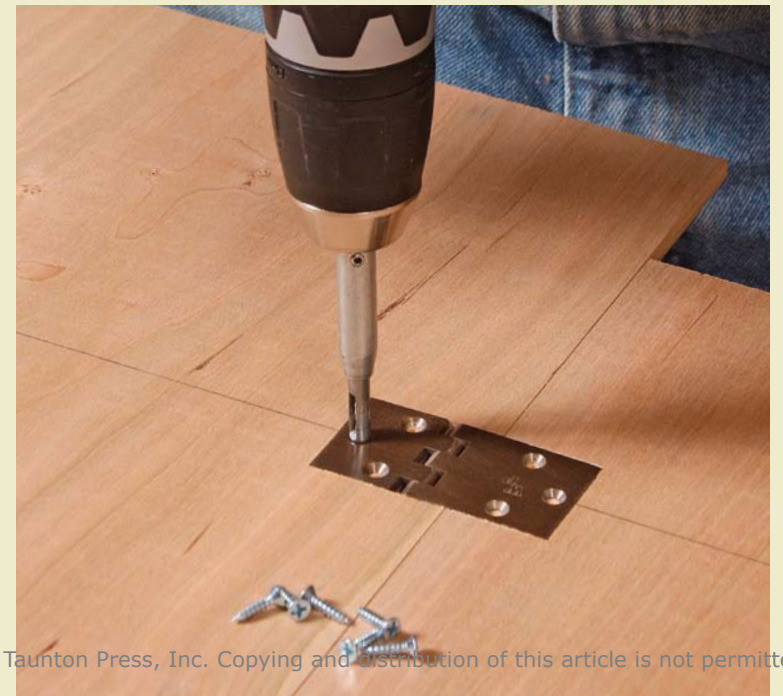
Add a spacer for the barrel mortise. *The spacer snaps into the jig (left), and provides a bearing surface for a bushing, allowing you to rout the narrow mortise for the hinge barrel.*



Drill for the screws. *Use a Vix self-centering bit to ensure that the pilot holes are centered in the leaf's screw holes. Gochnour saves the hinge's brass screws until after the table is finished. Steel screws the same size are more durable and can be driven in and out during construction without damage.*