

Build a Curved-Front Desk

A smart approach to the joinery makes it an easier build

BY CHRIS GOCHNOUR



↑ **Online Extra**

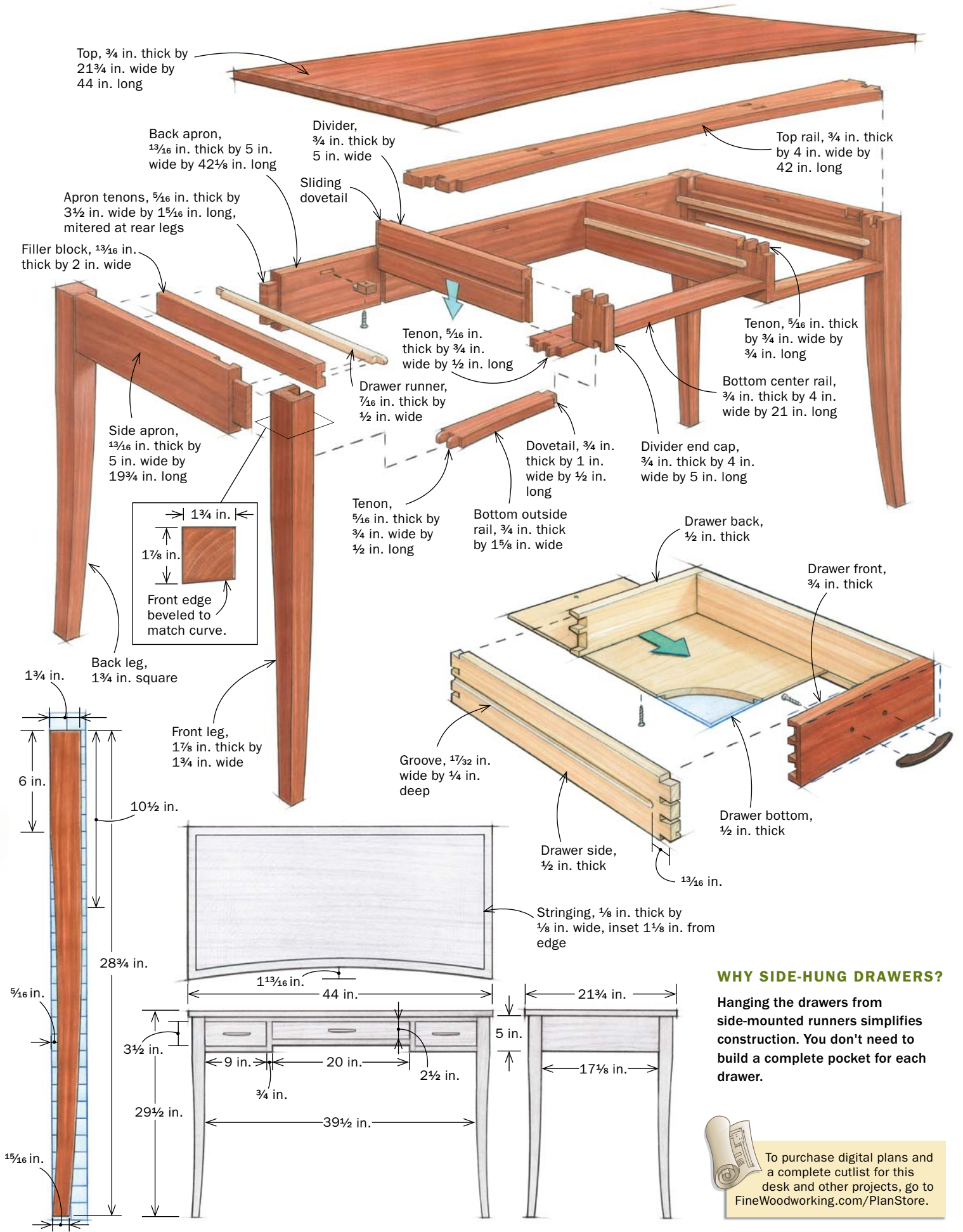


To learn how Gochnour inlaid the stringing in the top, go to FineWoodworking.com/extras.

Of all the furniture that I've designed, this desk is one of my favorites. I love its graceful lines and the inward curve of the front. The stepped drawer fronts echo that arc, but are also practical, creating space for your legs. The shape of the legs—a simplified turn on the cabriole—is curvaceous, too. And the top, which has a curved edge to match the front of the base, completes the picture.


Because it's a study in curves, I know this desk might seem too difficult for many woodworkers. Joinery on curved parts can be demanding. But actually it isn't. All of the joints are cut when the parts are still straight. The shaping is done after they're complete. That's even true of the drawers, which have curved fronts. And you'll be surprised at how easy it is to cut the dovetails, after I show you a trick that lets you treat them as if the front were square to the sides.

Another key is to make templates of all of the curves. You can use a batten or flexible ruler to make the leg template. But because the template for the front rails and top is also used for shaping those parts, I recommend Paul



WHY SIDE-HUNG DRAWERS?

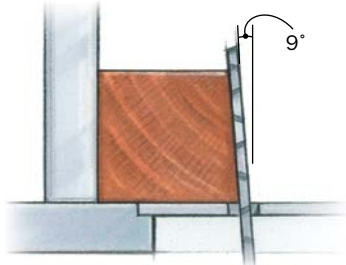
Hanging the drawers from side-mounted runners simplifies construction. You don't need to build a complete pocket for each drawer.



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

Shape the legs

The legs are curved along all four faces. Use the same template to mark the curves on the front and one side. Cut the mortises, and then proceed as follows.



Bevel the front leg. It's part of the curved front, too. Do it after the mortises are cut, but before shaping, because after it's shaped the leg can't be guided through the blade safely.



Shape the sides. Stop the bandsaw cuts about $\frac{1}{8}$ in. before freeing the waste, so you don't lose the layout you drew on the side.



Tilt the table and shape the front. Match the bevel you cut earlier, so the curved section is just a smooth continuation of the top of the leg.



Glue up the legs and side aprons. Doing it now makes it easier to build the rest of the table base.

Schürch's jig for large-radius arcs ("Drawing Big Curves," *FWW* #175), because it produces a smooth, perfectly shaped arc.

Start with the legs and aprons

The side and back aprons are standard fare, straight with tenons on both ends. However, the legs have curves on all four sides—the shape is a version of a cabriole leg. They aren't difficult to make: Just trace and bandsaw a pattern onto the two outside faces. But before you shape them, you'll need to mortise them and cut a bevel on the front face of the front legs, so that they flow seamlessly into the curve of the front rails and drawers. Also tenon the side and back aprons to fit their mortises.

Now you can shape the front legs (see photos, left). Cut the sides of the legs first by cutting the shape marked on the front. Next, cut the front and back profiles of the leg by cutting out the pattern marked on the outside face. Last, break off the waste from the first two cuts and clean up the leg with a spokeshave and block plane.

Make the top rail and connect it to the back

There are three drawers in the desk. To make fitting them easier, it's important to build the rail and divider assembly so that the drawer pockets are square. I do that by dry-fitting the back apron between the two side assemblies, clamping a precise spacer near the front, and then fitting the top rail and drawer dividers.

The top rail is dovetailed into the legs and side aprons, while the divider assemblies are tenoned into the rail and joined to the back apron with a sliding dovetail. After the rail and dividers have been dry-fitted to the rest of the base, the base is square and the drawer pockets are defined. Then the bottom center rail is fitted to the dry-assembled base. Only then are the parts shaped.

After gluing up the side assemblies, dry-clamp the back apron between them. Clamp a spacer between the side aprons on the front of the base to help locate the top rail.

Put the back edge of the top rail blank against the front edge of the spacer. It should stick out $\frac{1}{8}$ in. beyond the corner of the leg where the front and inside faces meet and be centered on the base's length. Scribe a baseline where the leg and side apron intersect the rail. Repeat the process at the other end, take the rail off, and

Make the top rail

Cut the joinery before shaping the rail. That saves you the hassle of trying to align the curves and the joints at the same time.



Dry-assemble the base. Clamp the sides to the back apron. A spacer up front keeps the base square. Place its front edge $3\frac{3}{8}$ in. from the leg's front, as a reference for locating the top rail.



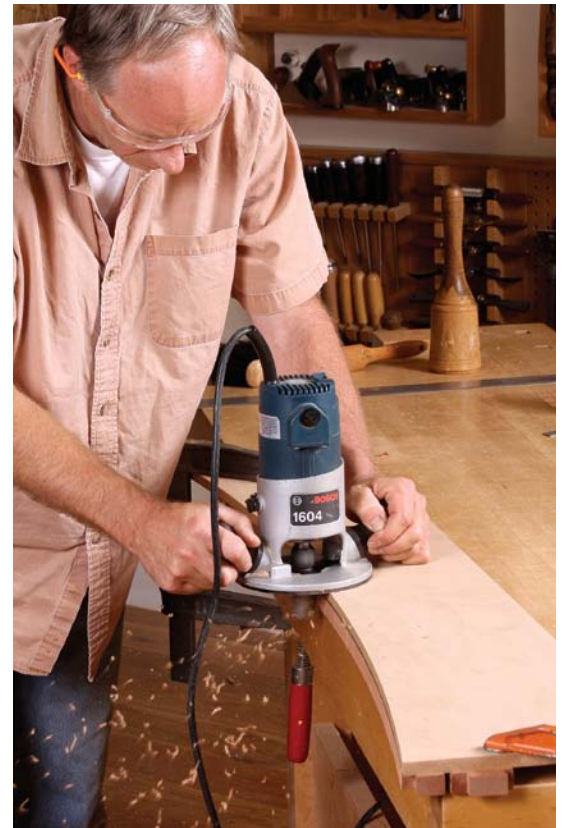
Mark the joint. Center the top rail, clamp it to the spacer, and mark a shoulder line by scribing around the leg and apron.



Double dovetail. After cutting two tails on the end of the rail, transfer their locations to the leg and apron. Make the sockets and fit the joint.



Finish the rail. Dry-fit it and scribe the arc, lining it up with the legs. Now lay out the double mortises for the drawer divider end caps. Simplify the mortising using a spacer between the rail and fence when making the second mortise (center). Rough out the curve on the band-saw, then rout the rail flush to the template (right).



Complete the front rail assembly

JOINERY IS A STEP-BY-STEP PROCESS

1. You've already made the lap dovetails that attach the top rail to the leg and apron.

2. Now cut the sliding dovetail that allows you to drop the whole rail assembly into the base during glue-up.

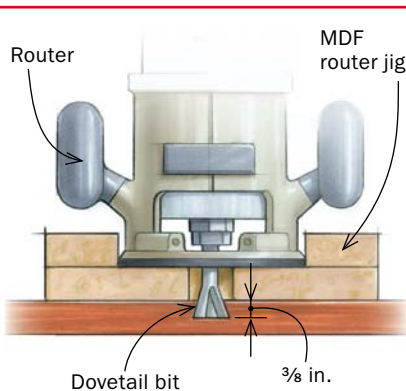
3. Then tenon the end cap into the top rail.

4. And cut the tongue-and-groove joint that attaches the divider to the end cap.

6. Afterward, rounded tenons and a lap dovetail let you pivot the outside rails into place.

5. Tenon in the center rail, and then glue up the rail system.

DOVETAIL THE DIVIDER



Sliding dovetails at the back. Using a router jig and a dovetail bit, Gochnour routs the socket in the rear apron in a single pass. After the socket is done, he routs the dovetail key, making it slightly shallower than the socket so that it's easier to get the two parts together during glue-up.

Glue the end cap to the divider. They're joined with a simple tongue-and-groove joint, similar to the mortise and tenon used to join legs to aprons. The caps are extra-wide at this point.



extend the lines around to the top of the rail. Lay out two dovetails at each end of the rail: One goes into the leg and the other into the side apron.

Cut the tails and transfer their locations to the leg and the side apron. Make the sockets. Fit the joints and put the rail in place. Lay the template on the top rail, aligning it with the inside corner of the front legs, and trace the curve. Knowing the curve's location helps with the next step.

The top rail has mortises to hold the drawer dividers in place. After laying out and cutting the mortises, set the rail aside.

SHAPE THE FRONT FROM THE TOP DOWN

Using one part to guide the shaping of its neighbor guarantees that all of the pieces end up perfectly aligned.

Bevel the end cap to match the curve. The curve intersects the end cap as a straight line. Mark the angle directly from the top rail (right) and then cut it at the tablesaw (far right) after tilting the blade to match the layout line.



Mark the center rail from the end caps. The marks show exactly where the curve hits it (above). Next, use the template to lay out the rest of the curve (right). Rough out the shape at the bandsaw and rout the rail flush to the template.



It won't be shaped until after the dividers and bottom center rail have been made.

Next up are the drawer dividers. Rout the sliding dovetail sockets in the back apron and then rout the mating keys. Cut the dividers to length and make the end caps. Finally, cut the tongue-and-groove joint that joins each end cap to its divider. Glue together the two parts. Reassemble the base and fit the bottom center rail.

Shape the parts in steps

Now start shaping the front, beginning with the top rail. Rough out the curve at the

bandsaw and then rout it flush to the template. Dry-assemble the top rail to the dividers and transfer the arc onto the top edge of the end caps. Disassemble the parts and cut that bevel. Reassemble the parts dry, this time adding the bottom center rail. Mark that rail where the dividers run into it. Pull the assembly apart and use the template to draw the arc. Rough it out and then rout it flush. That's all the shaping for now.

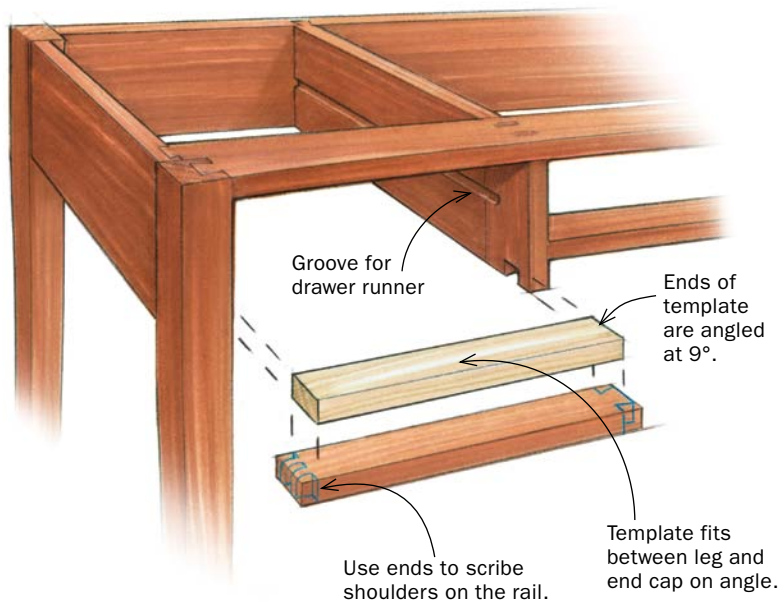
Add the bottom outside rails

You could cut the bottom outside rails from a wide blank. However, if you did this, the

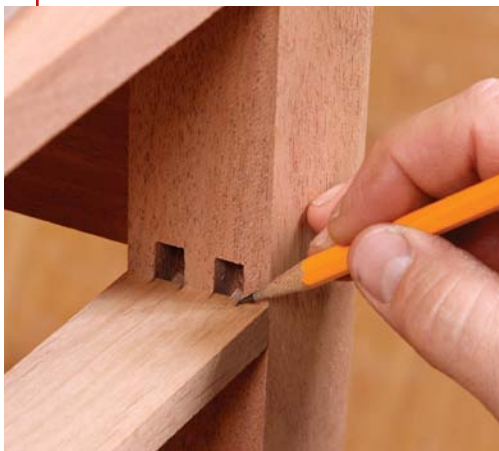
grain would run out toward the edges, creating short-grain weakness. Instead use a narrower blank, angling its ends so that it fits between the leg and the divider.

First, make a template with ends that run on a slant from the leg to the divider, giving you the distance between the shoulders and the tenon locations. Use it to lay out the shoulders and tenons of the rails. Lay out the lap dovetail, too. Cut and fit the joints. These rails are the last parts glued up during assembly. To make that work, round over the top of the tenon ends (a $\frac{3}{8}$ -in. radius works), so that you

ANGLE THE BOTTOM RAILS FOR STRENGTH



Make a template first. Use a piece of scrap, and trim the ends at 9° so it fits between the leg and end cap.



Put the tenon locations on it. Mark directly from the mortises on the leg.



Lay out the joints on the rail. Use the template to lay out the shoulders and tenons.



Round over the top of the tenons. This will let you pivot the piece into place later.

GROOVE THE DIVIDERS

The groove for the center drawer is offset. That's because it's centered on the drawer's height, which is less than the divider's.

Note: You need to rout all the grooves for the drawer runners before assembly, but don't glue in the outside grooved filler blocks until afterward.



can pivot them into the mortise as you put the dovetail into its socket. Now rough out the curve on the rails and clean it up with a spokeshave.

There is one last thing to do before you can finish gluing up the base: rout grooves in the drawer dividers for the runners.

The drawers ride on side runners

The wooden drawer runners are glued into grooves in the drawer dividers and, on the ends, filler blocks that bring the runners out past the legs. I rout all of the grooves at the router table.

The right order of assembly

Glue the side assemblies to the back apron. Then drop in the rail assembly and locate the outer drawer runners.



Add the bottom outside rails last. Put in the tenons and then pivot the rail upward, seating the lap dovetail into its socket.

The rail assembly goes in all at once. For the sliding dovetails at the back, use glue only at the bottom end of the socket and top end of the tail. Otherwise, the joint swells and you can't get it together.

After they're routed, finish gluing up the base. First glue the back apron between the two side assemblies. Then glue the bottom center rail to the dividers, and add the top rail. After that assembly is dry, glue it into the base. Finally, glue the bottom outside rails into place. Don't glue the filler blocks in yet. Do that after you've made the runners, because they are used to locate the filler blocks level with the runners in the dividers.

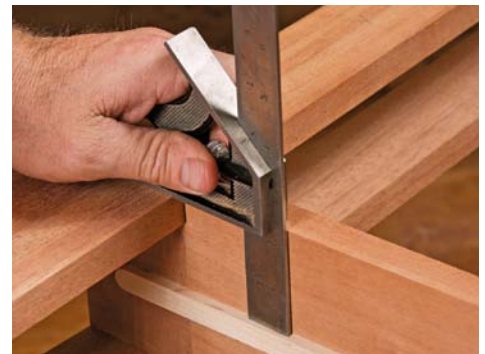
The runners aren't complicated. After rounding over one end of a wide board, I rip the runners from it and crosscut them to length. The two that go in the filler blocks need to be notched at the front and back to fit over the legs. The others just need one notch at the front to fit over the dividers. Make the notches long enough that the runners can move back and forth in the grooves (that extra space comes into play when the runners are glued in).

Now dry-fit the runners in the grooves. Place the head of a combination square on the top edge of the divider and extend the rule down to the top edge of the runner. Lock it at that distance. Use the combination square, referenced on the top edge of the side aprons, to locate the filler blocks (the runners are dry-fitted into them). This guarantees that the two runners are level with one another. Glue on the filler blocks, but don't glue in the runners. That will be done after the drawers are made,

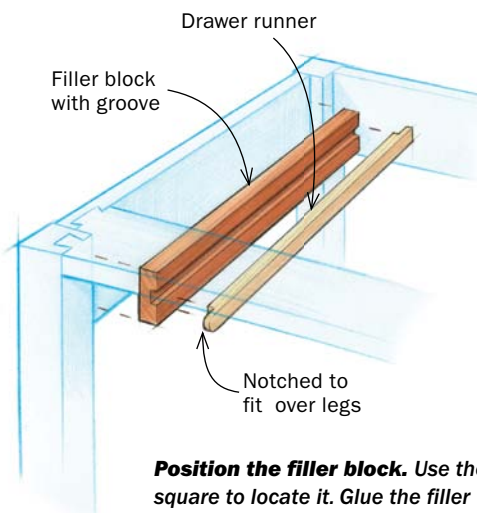
POSITION THE FILLER BLOCK TO POSITION ITS RUNNER



Notch the runners. This allows them to extend over the end caps without creating any cross-grain problems.



Measure to the side runners. Set a combination square to the top edge of the side drawer's runner that's dry-fitted into the groove on the divider (above).



Position the filler block. Use the square to locate it. Glue the filler block in place, but not the runner.



GROOVE THE DRAWER SIDES



Make a spacer block. Like the actual drawer, it should slide smoothly between the top of the runner and the bottom of the rail. Use it to set up the router-table fence for the next step.



Then rout the groove. To make the groove $\frac{1}{32}$ in. wider than the $\frac{1}{2}$ -in. runners, just reset the fence to remove extra material from the bottom edge of the groove.

because the runners also function as stops.

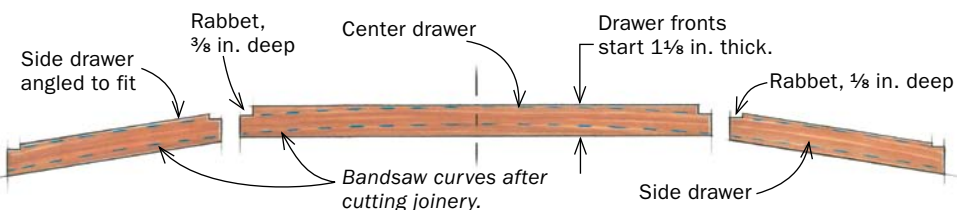
Now turn to the drawers. The curved fronts are cut from blanks after the dovetails have been cut, and their final shaping is done after the glue-up, with the drawers in their pockets so that the fronts can be blended seamlessly into the curve of the rails. Start by routing grooves in the sides for the drawer runners.

To set the router table's fence for these cuts, I make a long spacer block that fits between the top of the drawer pocket and the top of the runner. Use the block to set the distance between the fence and the bit—it should fit snugly between them. Rout the grooves, referencing the top of the drawer side off the fence.

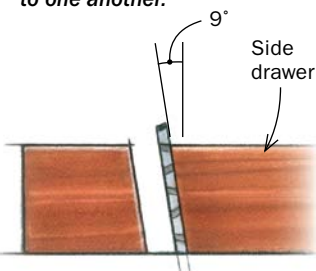
After the grooves are routed, dovetail

DOVETAIL DRAWERS BEFORE SHAPING THE FRONTS

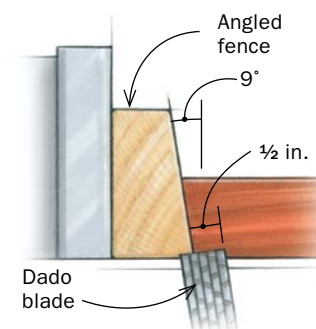
The fronts start thick to accommodate the curve. The side-drawer fronts are angled to make them stronger. Rabbets create a square recess for the joinery.



Bevel the ends of the side-drawer fronts. Use the same angle as on the bottom rails (9°). Make the two ends parallel to one another.



Rabbet the back edge. For the rabbet on the other end, you need to reverse the setup, moving it to the other side of the fence.



the drawer sides to the front and back. There is nothing tricky about the through-dovetails at the back of the drawers, because both the sides and back are straight. But the half-blind dovetails at the front can be a challenge, so I'll give you a few tips.

First, don't cut the fronts from thick blanks. Rather, make them the same way the bottom outside rails were made. Then rabbet the ends. This creates a square recess for the sides and allows you to cut the dovetails as if the parts meet at 90° .

After the joinery is done, dry-assemble the drawers and slide them onto the runners and into their pockets. Set the drawer in so that you can trace the top rail's curve on the drawer front. Do this for both the front and back curve. Take the drawers apart, rough out the curve at the bandsaw, and smooth the cuts with a spokeshave.

Now it's time to cut the grooves for the drawer bottom. I do it at the tablesaw with a dado set. The challenge here is the groove in the back of the drawer front,

DRY-FIT TO MARK THE CURVE



Assemble the drawer dry. You'll need to pull it apart after the next step to shape the front.



Mark the curve. On the back, the curve lines up with the dovetail shoulder. Then push the drawer in and mark the front curve.



Shape it at the bandsaw. Cut both the back and front proud of the lines. Smooth both with a spokeshave.

THE RUNNERS ARE THE STOPS, TOO

It's a simple matter to set them so that the drawer stops flush with the front when the ends of the grooves hit the ends of the runners.



Glue in the runners. After spreading the glue and putting it in the groove, push the runner as far forward as it will go.



Use the drawer to adjust them. Immediately after putting in the runners, slide in the drawer, stopping when the front is flush with the rails. Now remove the drawer and clamp the runners in place.

because it's curved. The groove is narrow and shallow, and the curve on the drawer's back is gentle, so it can be done safely. To ensure that the groove is the same depth along its length, rock the front as it enters the dado blades, so that the back is always on the table as it passes them.

Now glue up the drawers. After the glue dries, clean up the drawer sides with a handplane. Then make the bottoms. Start with a square panel cut to final width. Rabbit the sides and slide the panel into the

grooves as far as it will go. Then use a small spacer block and pencil to scribe the curve of the drawer front onto the bottom. Cut the curve on the bandsaw and rout a rabbet on the front end.

Now glue in the runners. Put some glue in the grooves and then insert the runners and push them toward the front. Now put the drawers on the runners and push them in so that the drawer front is flush with the rails. This sets the runners at the right location to also function as stops.

Pull out the drawer and clamp the runners in place. Let the glue dry. Make the drawer pulls and screw them on.

Then make the top. It starts as a large panel glued up from several boards. I use a template to draw the curve on the front edge, rough it out at the bandsaw, and rout it flush to the template. The top is held to the base with shopmade buttons. □

Chris Gochmour is a furniture maker in Salt Lake City, Utah.