

CRAFTSMAN END TABLE

This narrow end table isn't just a traditional Craftsman project. For a woodworker, it's got a few features that are worth a closer look.



At first glance, this appears to be a traditional Craftsman-style project. It's built with quartersawn white oak, features four sturdy legs and small, square spindles, and is joined with mortise and tenon joints. But there are a few surprises in store if you're willing to take a closer look.

Take the spindles, for instance. There are eighteen of them, which can make for a lot of tedious drilling, chiseling, and fitting. But that's not the case here — I used a shortcut.

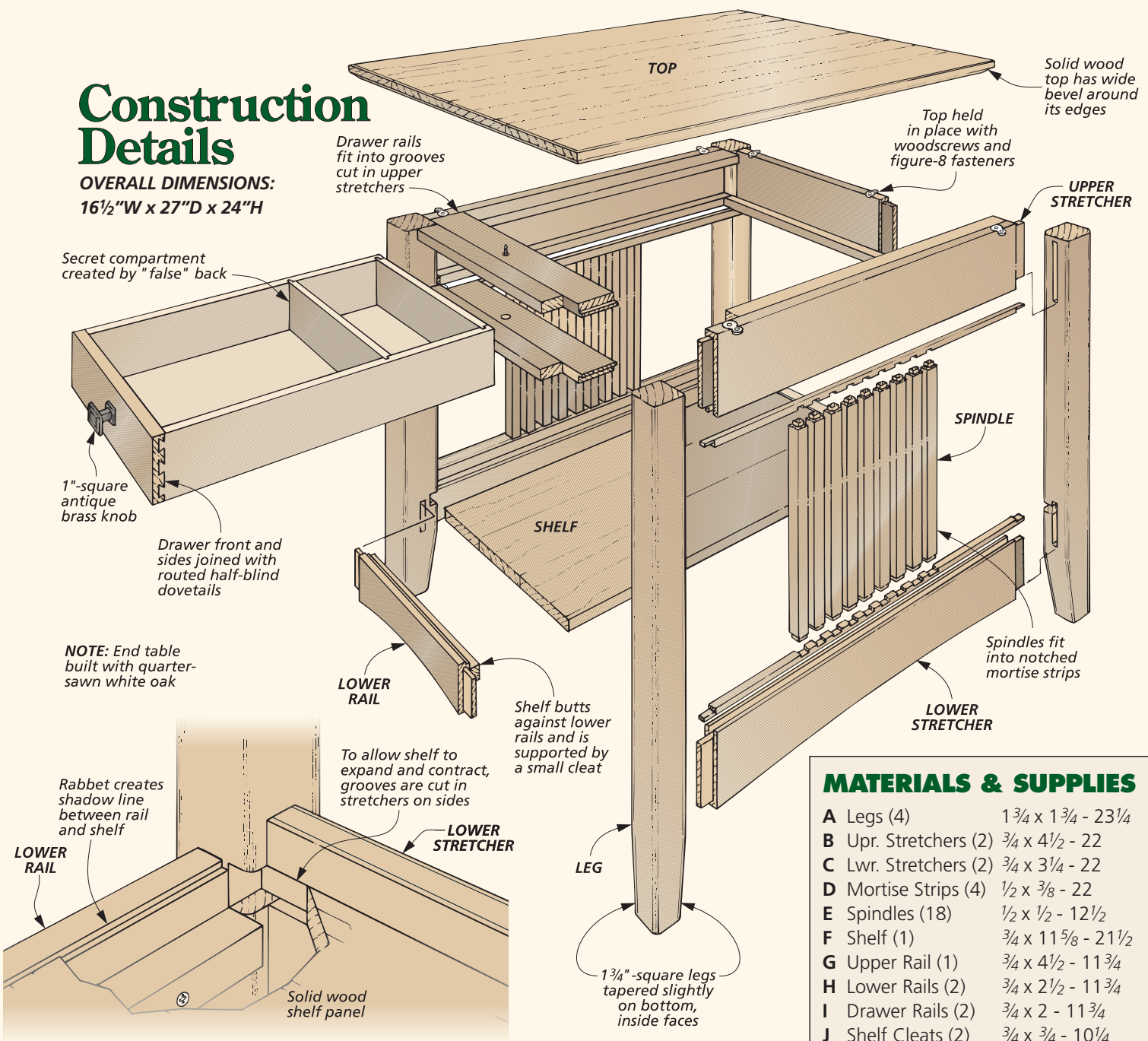
It's as simple and quick as gluing a notched strip into a groove. But a little more on that later.

Another place that deserves a close look is the shelf. This solid wood panel appears to be trapped between the legs and the stretchers on the sides. What you can't see are some hidden grooves and notches. (For a peek "inside," take a look at the detail on page 7.) These provide the shelf with a little bit of "breathing room" when it expands and contracts.

The last surprise is my favorite: a secret compartment. And it's no trouble to build. All I did was take advantage of the rectangular profile of the table. Instead of making a traditional panel drawer, I built a longer one that has two backs. When you pull the drawer out, there's a catch that stops it at the first back. But reach underneath and release the catch and you can pull the drawer all the way out to reveal the compartment. For more on this, see page 13.

Construction Details

OVERALL DIMENSIONS:
16½"W x 27"D x 24"H



MATERIALS & SUPPLIES

A	Legs (4)	1 3/4 x 1 3/4 - 23 1/4
B	Upr. Stretchers (2)	3/4 x 4 1/2 - 22
C	Lwr. Stretchers (2)	3/4 x 3 1/4 - 22
D	Mortise Strips (4)	1/2 x 3/8 - 22
E	Spindles (18)	1/2 x 1/2 - 12 1/2
F	Shelf (1)	3/4 x 11 5/8 - 21 1/2
G	Upper Rail (1)	3/4 x 4 1/2 - 11 3/4
H	Lower Rails (2)	3/4 x 2 1/2 - 11 3/4
I	Drawer Rails (2)	3/4 x 2 - 11 3/4
J	Shelf Cleats (2)	3/4 x 3/4 - 10 1/4
K	Rail Trim (2)	3/4 x 1 1/4 - 10 1/4
L	Drawer Rnrs. (4)	3/4 x 1 3/8 - 18 1/2
M	Drawer Guides (2)	3/4 x 9/16 - 20 1/2
N	Top (1)	3/4 x 16 1/2 - 27
O	Drawer Front (1)	3/4 x 2 5/8 - 10 1/8
P	Drawer Sides (2)	1/2 x 2 5/8 - 20 1/2
Q	Drawer Btm. (1)	1/4 ply. - 9 5/8 x 20 1/2
R	Drawer Backs (2)	1/2 x 2 1/8 - 9 5/8
S	Drawer Stop (1)	3/4 x 7/8 - 10 1/8
T	Catch Tongue (1)	1/8 x 1 - 4 3/4
U	Catch Block (1)	1/4 x 1 - 1 3/4

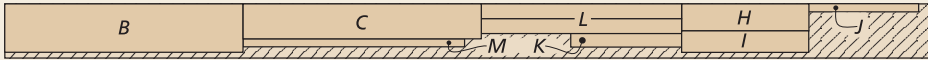
- (1) 1" -Square Brass Knob
- (1) 1/2" Nylon Guide Tape (40" rgh.)
- (6) Figure-8 Tabletop Fasteners
- (12) #6 x 1/2" Fh Woodscrews
- (7) #8 x 1 1/4" Fh Woodscrews
- (1) #6 x 3/4" Fh Woodscrew

CUTTING DIAGRAM

1 3/4" x 4" - 48" Quartersawn White Oak (2.7 Bd. Ft.)



3/4" x 5" - 84" Quartersawn White Oak (Two Boards @ 2.9 Bd. Ft. Each)



3/4" x 4 1/4" - 84" Quartersawn White Oak (Two Boards @ 2.5 Bd. Ft. Each)



3/4" x 4 3/4" - 48" Quartersawn White Oak (1.6 Bd. Ft.)



1/2" x 4" - 64" Quartersawn White Oak (1.8 Sq. Ft.)



1/2" x 3" - 72" Maple (1.5 Sq. Ft.)



ALSO NEEDED:
One 12" x 24" piece of 1/4" plywood for drawer bottom

Legs

Like many pieces of Craftsman furniture, this table has four sturdy legs. And since most everything on the table is connected to these legs in one way or another, I built them first.

LEGS. The first thing to do is cut the four legs (A) to size from 8/4 stock (1 3/4" thick), see the Leg Exploded View.

Next, you can begin on the mortises for the stretchers and rails. Even though these mortises are centered on the thickness of the legs, it's still easy to get confused. (I know this from experience.) And I've learned that it's worth a little extra time to label each leg carefully, orienting them in the same direction as they will be on the table, see the Leg Exploded View and details at right.

After laying out the leg mortises, I typically set my pencil and rule aside and stand the legs up on my workbench. This way, I can double check that each pair of mortises will be the same size and will line up.

When you're sure all the mortises have been laid out correctly, you can begin work on them. I like to rough out the mortises at the drill press, drilling overlapping holes with a Forstner or brad point bit. Then all that's left is to spend a bit of time back at my workbench, cleaning up the sides and squaring the ends of the mortises with a chisel.

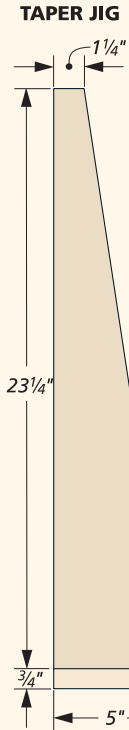
TAPER. Besides the mortises, each leg also has short tapers cut on its inside faces, see Exploded View and detail 'b'. A table saw makes quick work of this, see Figs. 1 and 1a. And if you don't already have an adjustable taper jig, a quick taper jig for this project is easy to make, see drawing in margin.

TAPER JIG. To make the jig, you'll

need to cut a long taper on a piece of scrap. (You can use either a band saw or sabre saw to do this. And don't worry. This tapered edge doesn't have to be perfectly straight.) After the taper has been cut, all you need to do is glue a small cleat to the end.

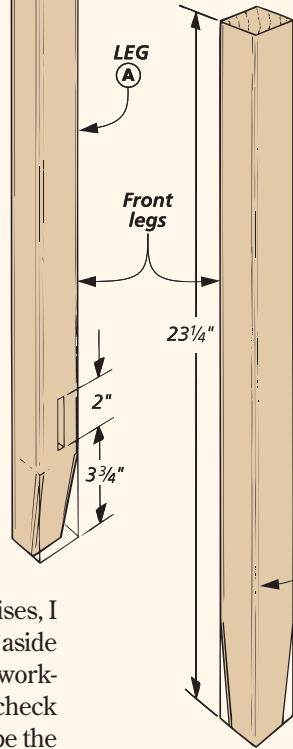
I use this jig like an angled spacer. As you feed the leg through the blade, the jig rides in between the leg and the fence, holding the leg at the correct angle. (To set the rip fence, draw the taper on one of the legs. Then set the jig and leg in place and position the fence so the blade aligns with your layout mark, see Fig. 1a.) After cutting the first taper, rotate the leg so the other mortised face is toward the blade and make a second pass.

Before moving on to the stretchers, the last thing to do is rout a 1/4" roundover on each edge of the legs. And to prevent the bottom of the legs from splintering, I rounded over the bottom edges with sandpaper.



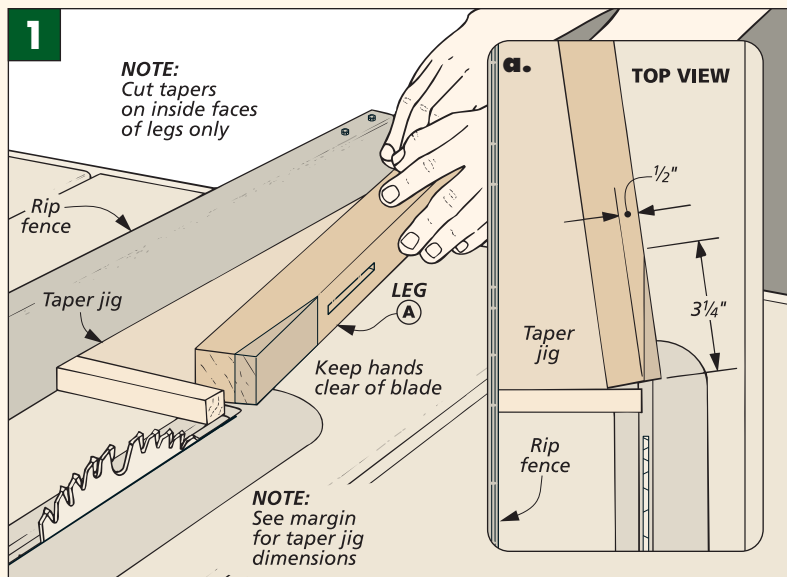
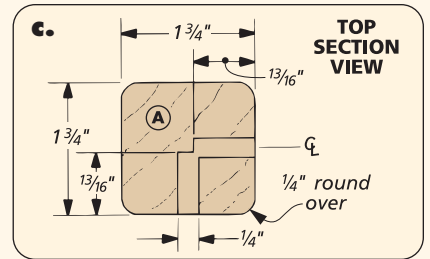
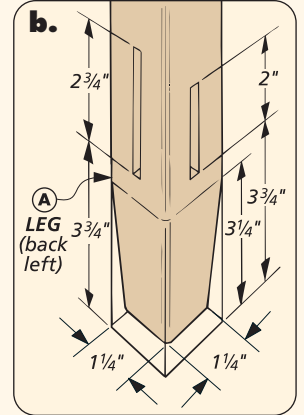
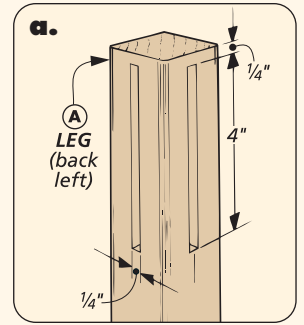
LEG EXPLODED VIEW

NOTE: Legs cut from 1 3/4" -thick stock



NOTE: All mortises centered on width of legs

Rout 1/4" round over on all four edges of legs



Stretchers

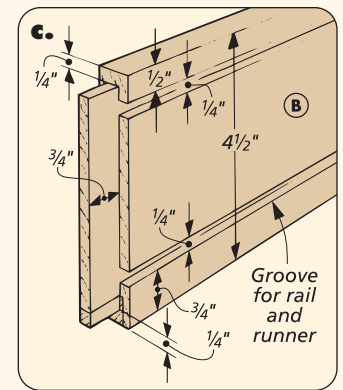
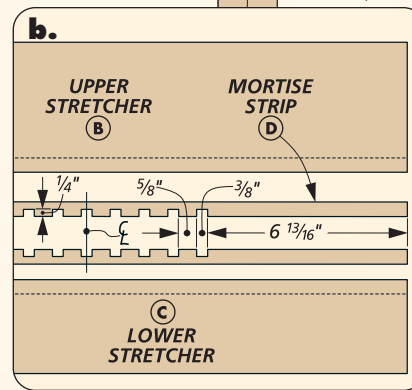
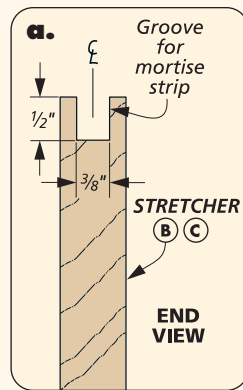
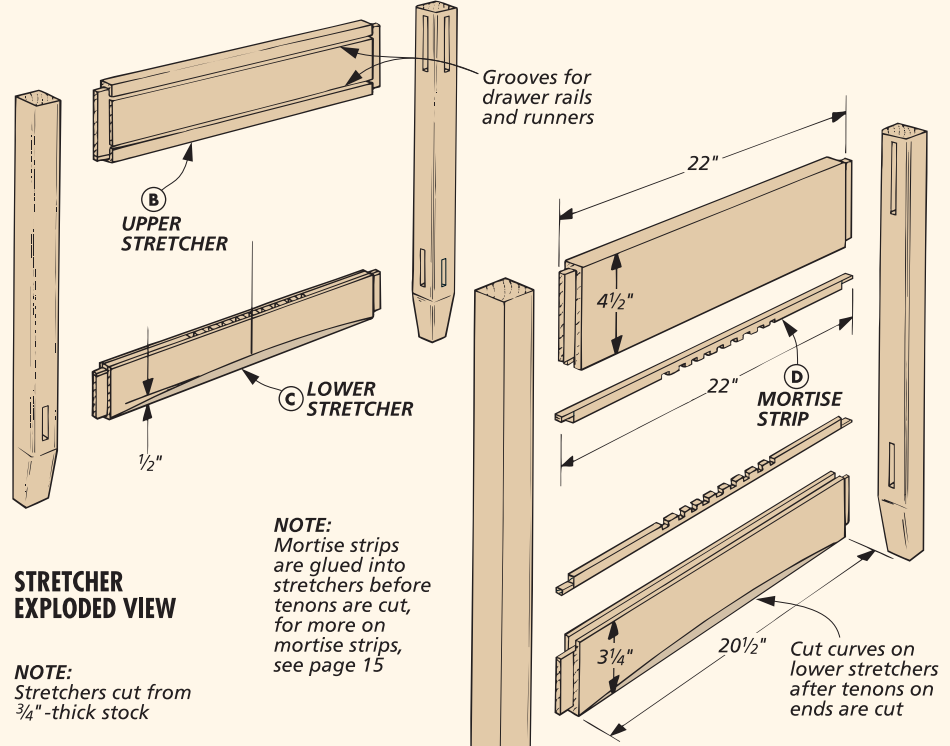
Now that the legs are basically complete, I turned my attention to the sides of the table. The first pieces to make here are the **upper (B)** and **lower stretchers (C)**, see the Stretcher Exploded View at right. These pieces fit between the legs and will also trap the spindles later.

MORTISE STRIPS. After cutting these pieces to size, the first thing I did was make the mortises for the spindles. This time, however, there's a neat trick so you can avoid drilling and chiseling all these small mortises. Instead, you cut a groove along the inside edge of each stretcher and glue in a notched **mortise strip (D)**, see details 'a' and 'b'. But I'll go through this process step-by-step on page 15.

With the mortise strips glued in place, check to see if they're flush with the edges of the stretchers. (If not, simply sand them flush.) Then you can cut tenons to fit the mortises in the legs, see Figs. 2 and 2a below and detail 'c' at right. There's nothing unusual here. To allow for excess glue, the tenons should be cut $\frac{1}{16}$ " shorter than the depth of the mortises. And it's a good idea to sneak up on the size of the tenons for a snug fit.

RAIL GROOVES. At this point, there's one more thing to do to the upper stretchers (B). Each one gets a pair of grooves on its *inside* face, which you can see in detail 'c'. Later, when the table is assembled, these grooves will hold drawer rails and runners.

CURVES. Now the upper stretchers can be set aside, but there's still some work to do on the lower stretchers. These stretchers (and later the lower rails) have a gentle curve that's cut

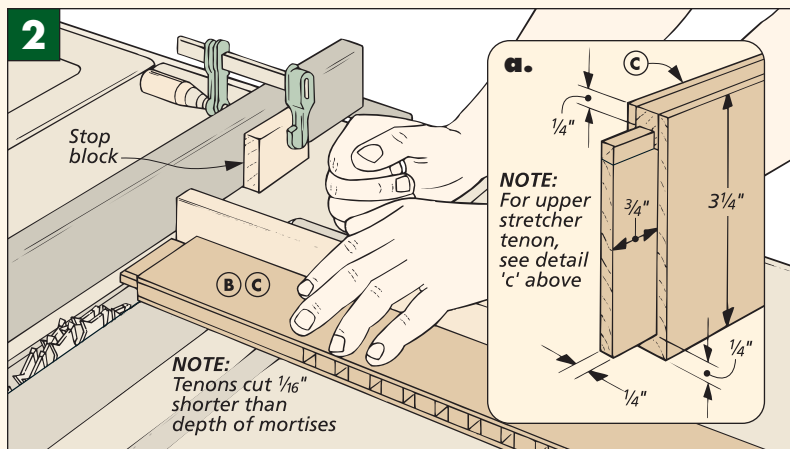


along their bottom edges, see the Stretcher Exploded View.

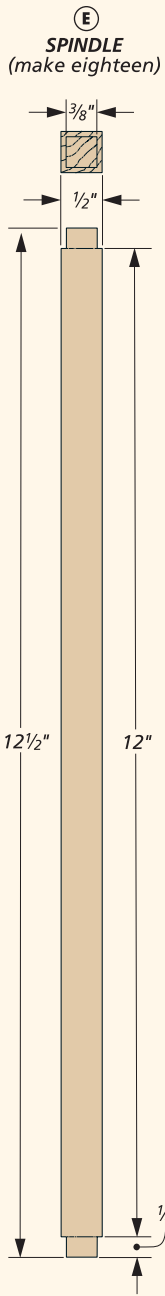
The first step here is to lay out the curve with a flexible straightedge (a strip of $\frac{1}{4}$ " hardboard) and a couple of blocks of wood, see photo below. Then you can carry the blank over to the band saw (or use your sabre saw) and cut the curve, staying to the waste side of the line. After a little

sanding to remove any rough spots, the lower stretchers will be complete.

At this point, it would be really tempting to glue the legs and stretchers together. But it's not quite time for that yet. Before the sides can be glued together, the spindles still need to be made to fit between the stretchers, and the groove that will hold the lower shelf has to be cut.



▲ When drawing the curve on each lower stretcher, I used a flexible straightedge, pushing it against a couple of pointed scraps that are clamped to the workpiece.



Side Assemblies

To complete the side assemblies, there are just a few things to do. First, between the stretchers, there's a row of square spindles that still need to be made, see Spindle Exploded View. Then some grooves (and notches) will be cut to hold the shelf.

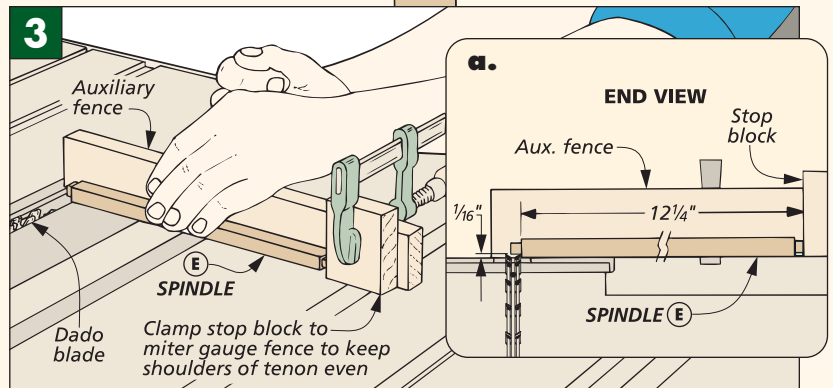
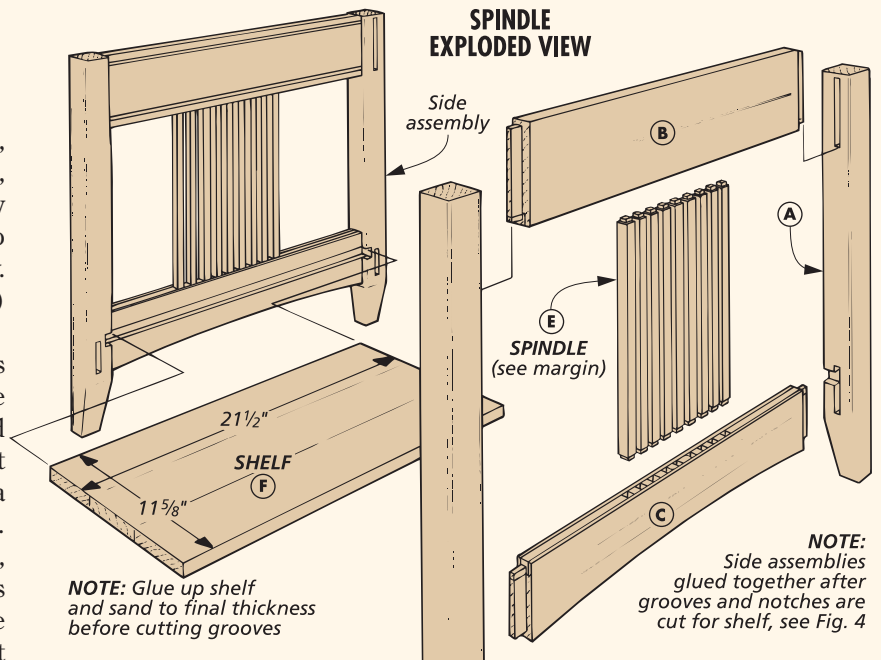
STRETCHERS. The first thing to do is cut the **spindles (E)** to size, see the margin drawing at left. You'll need eighteen of these 1/2" x 1/2" pieces, but it's a good idea to cut a couple extra to help set up the cut for the tenons.

After cutting the spindles to length, the only thing to do is cut the tenons on the ends, see Figs. 3 and 3a. The goal here is to make sure they'll fit between the upper and lower stretchers when the side assemblies are put together later. So when testing the fit of these tenons in the mortises, I like to dry assemble the spindles, stretchers, and legs to make sure everything is going to fit together.

SHELF & GROOVE. Before assembling the sides of the table, grooves still need to be cut in the lower stretchers to hold the shelf. These grooves (and some notches in the legs) are the secret to allowing the solid wood shelf panel to expand and contract without splitting or leaving gaps.

The key to keeping these grooves "hidden" is to make sure they match the final thickness of the **shelf (F)**. So I glued up this panel first, see Spindle Exploded View. Then *after* the shelf had been planed and sanded flat, I cut the groove in the lower stretchers, see Figs. 4 and 4a below. (I used the table saw with a dado blade.)

NOTCH LEG. Now that the grooves are cut in the stretchers, you want to

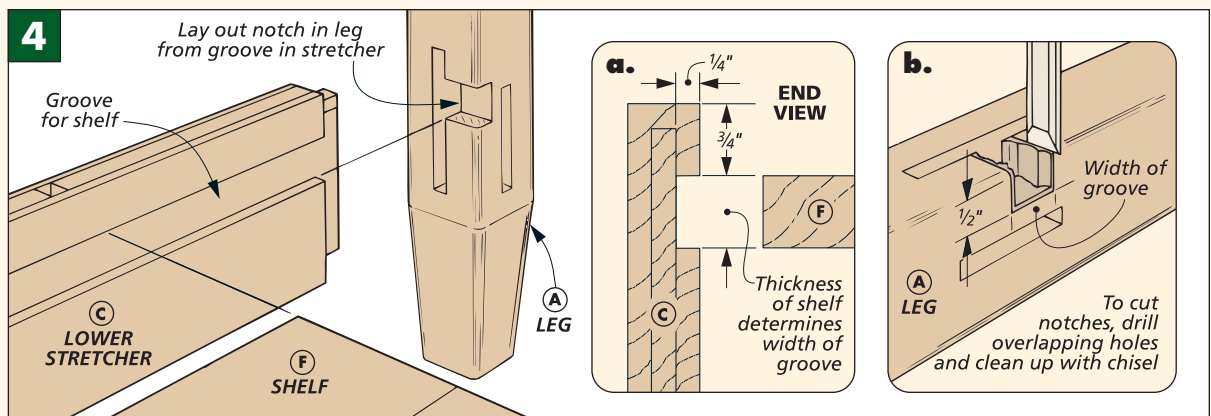


"extend" these grooves into the legs by cutting a notch in each. This isn't a big deal. I dry assembled the legs and stretchers one last time and transferred the size and position of the grooves to the legs, see Fig. 4.

With the notches laid out, they can be cut just like mortises. This means most of the waste can be removed at the drill press by drilling overlapping holes 1/2" deep. Then you can use a chisel to clean up each notch, paring it to the layout lines, see Fig. 4b.

ASSEMBLY. Now the sides of the table are ready to be assembled. There are quite a few pieces in these assemblies to line up. But at least you don't have to mess with glue when sandwiching the spindles between the stretchers. They'll be held secure when the legs are glued to the stretchers.

After the sides are assembled, the shelf is ready to be cut to final size. The important thing is that this panel is cut to length to fit in the grooves and notches in the side assemblies.



Rails

To connect the side assemblies, there are three different-sized rails: an upper rail in back, two lower rails, and two drawer rails in front, see the Rail Exploded View at right.

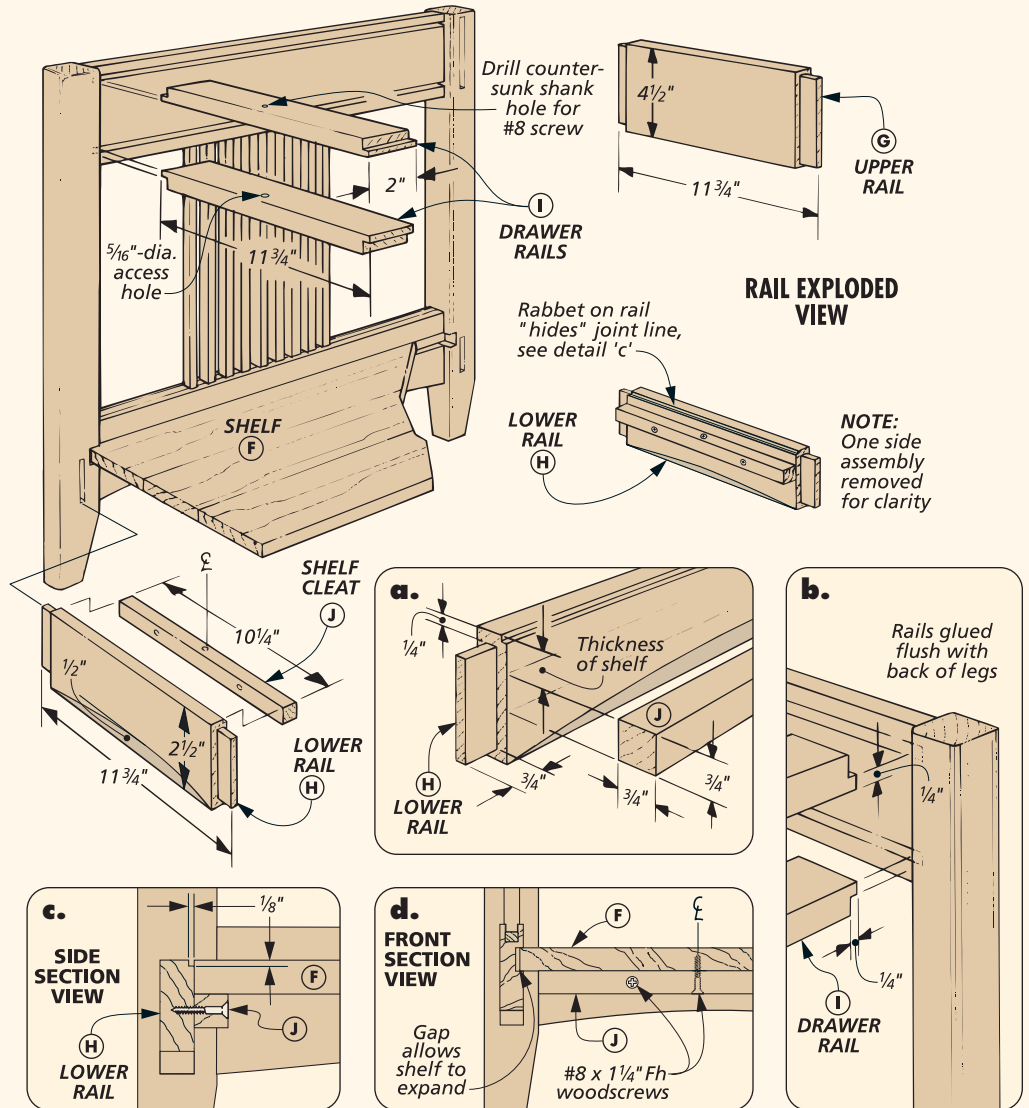
I started by cutting the **upper (G)** and the two **lower rails (H)** to size. These pieces are nearly identical, the only difference being that the upper rail is quite a bit wider.

Next, I cut the tenons on the rails, see Fig. 5. Like the tenons on the stretchers, these are slightly shallower than the mortises in the legs. And for a glove-like fit, you'll want to sneak up on the final size.

After the tenons are cut, the upper rail can be set aside until assembly. But the two lower rails still need a little work. First, I cut a gentle curve along the bottom edge of each, see Rail Exploded View.

Next, I cut a small rabbet on the top, inside edge of each rail, which you can see in detail 'c'. This rabbet creates a small shadow line between the rail and the shelf. This way, if the shelf doesn't fit tight to the rail or if their top surfaces don't end up perfectly flush, this shadow line will make the unwanted gaps or shoulders much less noticeable.

DRAWER RAILS. The last two rails create the drawer opening in front. The **drawer rails (I)** fit in the grooves in the upper stretchers with tongues, which are created by cutting simple rabbets, see detail 'b' above. Then before assembling the table, you need to drill two centered holes: a countersunk shank hole in the top rail for securing the top later and an access hole in the bottom rail so you can

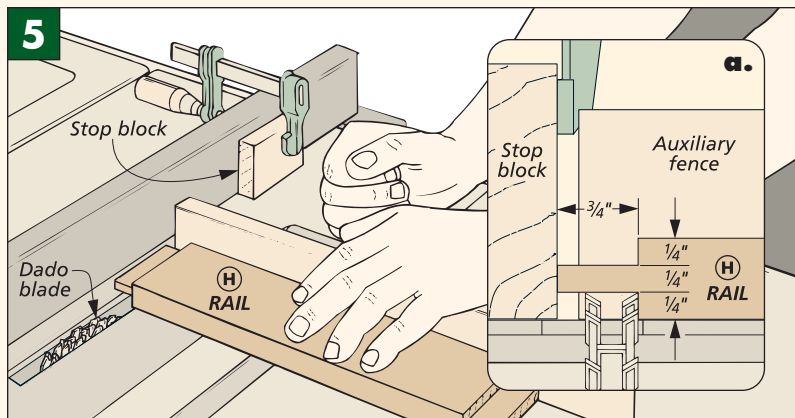


reach the screw with a screwdriver.

TABLE ASSEMBLY. At this point, the table can be glued together. An easy way I came up with to do this was to clamp one side assembly down to the bench, as you can see in the photo below. Then I set the rails and shelf in their mortises and grooves. However, when standing the shelf in its groove, don't apply any glue — it must be free to expand and contract. Next, I added glue to the exposed tenons

and tongues, carefully slid the other side assembly over the tenons, and drew it down with clamps.

While the glue on the table was drying, I cut two **cleats (J)** to fit under the shelf and hold it in place, see details 'c' and 'd' above. I screwed the cleats to the lower rails with a couple screws, but the shelf is held in place with only one centered screw on each end. (This way, the shelf can expand outward into the grooves in the sides.)



It's easiest to glue the table together while it's laying on its side. And when fitting the second side assembly over the tenons on the rails, apply a light coat of glue to the mortises, or the glue will drip out and make a mess.

Drawer & Top

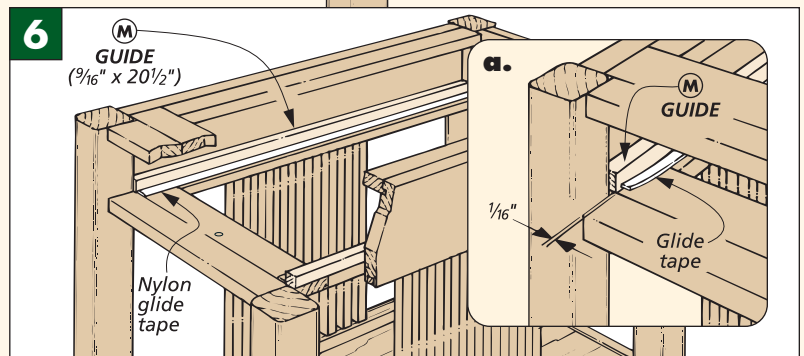
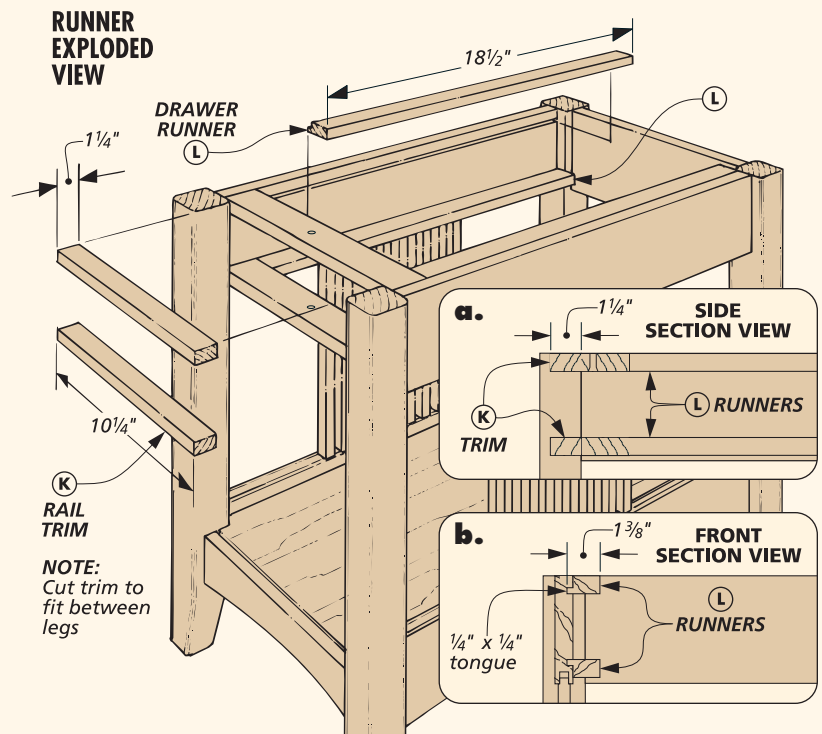
Right now, the table is an open frame, which is the best time to add all the pieces inside that support the drawer and allow it to open and close smoothly, see Runner Exploded View.

RAIL TRIM. However, the first pieces I worked on don't actually support the drawer. Since the drawer rails sit behind the front legs, I added some **rail trim (K)** to "extend" the rails forward between the front legs, as you can see in the Runner Exploded View and detail 'a' at right.

DRAWER RUNNERS. With the rail trim glued in place, the next pieces to add are the **drawer runners (L)**, see the Runner Exploded View. Actually there are four runners: two on the bottom to support the drawer and two on top that keep it from tipping as it's pulled open, see detail 'b' above right.

The runners are cut to length to fit behind the drawer rails. And rabbets cut along the edges create tongues that fit into the grooves, see detail 'b'.

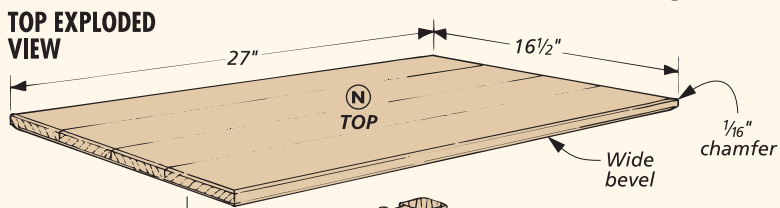
DRAWER GUIDES. After gluing the runners in place, I added two **guides (M)** to keep the drawer centered side-to-side, see Fig. 6. These pieces aren't flush with the insides of the legs, as you might expect. Instead, they stick out $\frac{1}{16}$ " on the inside so they can keep the drawer from rubbing against the legs, see Fig. 6a. (The drawer's narrower than the opening. It's sized to end up with a $\frac{1}{16}$ " gap on each side.)



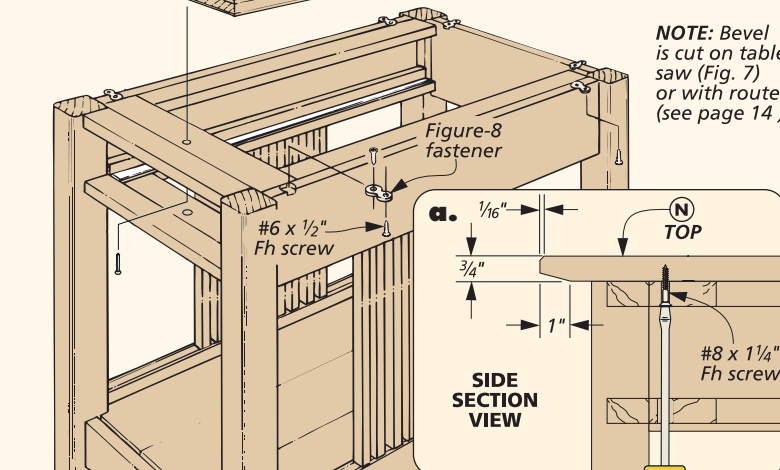
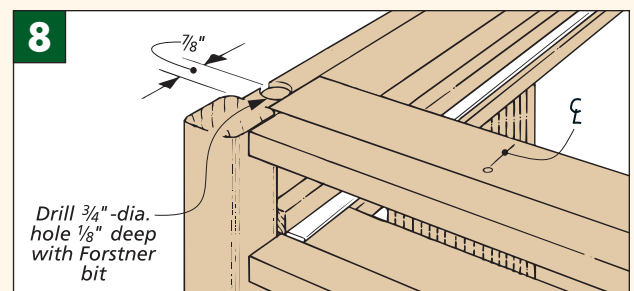
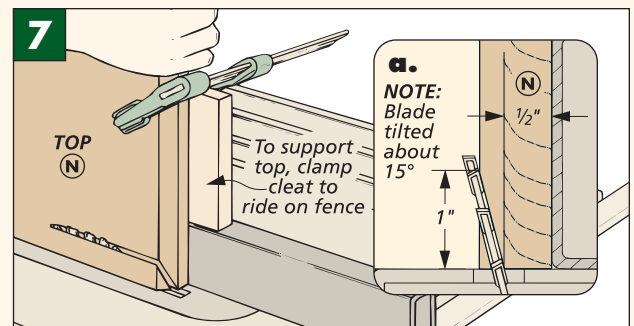
I also added a strip of nylon glide tape to the top of the two bottom runners. The tape allows the drawer to open and close smoothly, but more important, it lifts the drawer off the

trim so it won't create wear marks.

TOP. Now the **top (N)** can be added, and it's just as easy as it looks in the Top Exploded View. All you need to do is glue up a solid wood panel and



NOTE: Bevel is cut on table saw (Fig. 7) or with router (see page 14)



cut it to size. (It overhangs the front and back 1½" and the sides 1⅜".)

To give the top panel a "lighter" look, I beveled its bottom edges, see detail 'a' at the bottom of page 12. This can be done a couple ways. I cut the bevel on the table saw, with the blade tilted about 15°, see Fig. 7. But you can also rout the bevel with a hand-held router and a shop-made jig. (Turn to page 14 to see how this jig works.)

Next, I softened the top edge of the top panel with a 1/16" chamfer. Then it can be mounted to the table with figure-8 fasteners and woodscrews, see the Top Exploded View and Fig. 8.

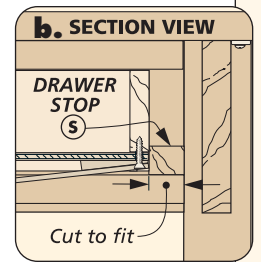
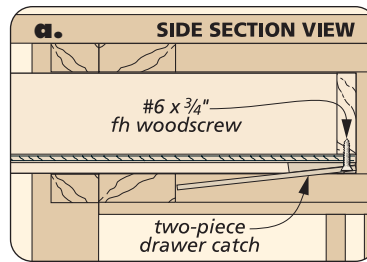
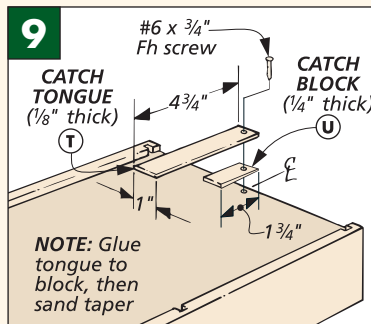
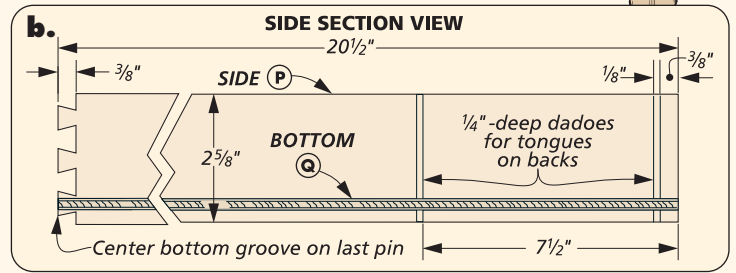
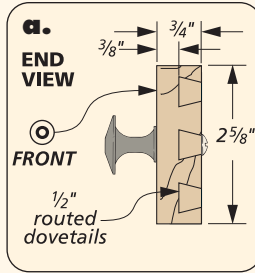
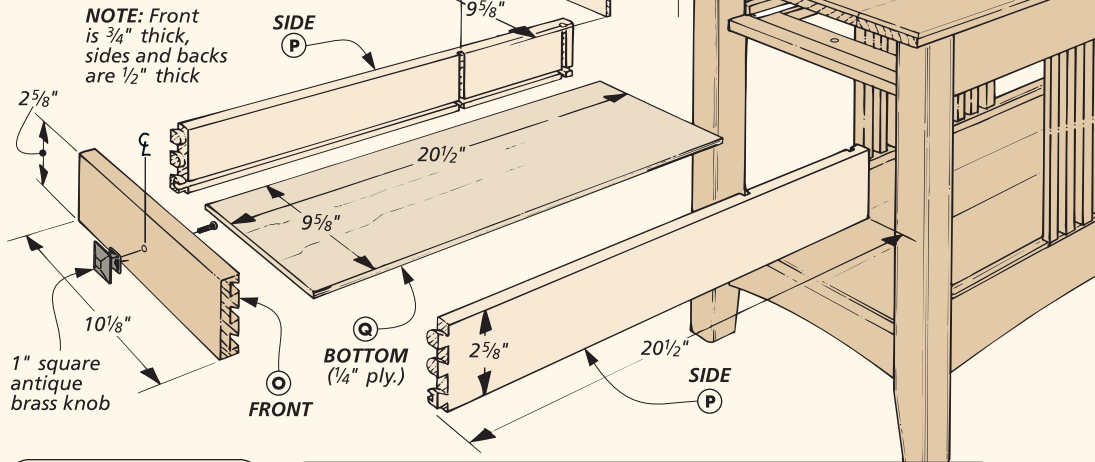
DRAWER. All that's left now is to build the drawer, see the Drawer Exploded View. This is a *deep* drawer. So deep that reaching all the way into the back wouldn't be very convenient. This got me to thinking what a great place it would make for a secret compartment, see the box below.

The drawer has a **front (O)** and **sides (P)** joined with routed half-blind dovetails, see Drawer Exploded View and details 'a' and 'b'. And a plywood **bottom (Q)** fits into a shallow groove cut in these pieces.

To complete the drawer, I added *two backs (R)*. The secret compartment is simply the space between them. The backs sit on top of the bottom panel and have tongues that fit into dadoes cut in the sides.

ODDS & ENDS. With the drawer assembled, there are still a few odds and ends to work on. First, I centered a knob on the drawer front, see detail 'a' in the Drawer Exploded View. (The knob was bright brass, but I darkened it with an antiquing solution.) And to position the drawer flush with

DRAWER EXPLODED VIEW



the front of the rail trim (K), I added a **stop (S)**, see Fig. 9b.

Finally, I added a drawer catch, see Fig. 9 and box below. This prevents the drawer from coming all the way out *before* the secret compartment is exposed. The catch is made from two pieces: a 1/8"-thick **catch tongue (T)** and a 1/4"-thick, wedge-shaped **catch**

block (U), which starts out square.

To angle the tongue, I sanded a taper on the block, removing 1/8" on one end. But it's easier to sand the taper *after* the block is glued to the tongue. Then the catch can be glued and screwed through the bottom panel and into the back of the secret compartment, see Fig. 9a. **W**

KEEPING THE SECRET COMPARTMENT SECRET

Creating a secret compartment was easy, I simply built the drawer with two backs, see left photo. The trick was figuring out how to stop the drawer before the compartment was exposed. The solution was a two-piece catch, see right photo and Fig. 9 above. To gain access to the secret compartment, simply press up on the flexible tongue as you pull out the drawer.

