box-jointed

Drawers

▲ ***Stylish Details.*** *The box joints in the drawers add strength and a classic look to the tool chest.*

Now that you have the upper and lower drawer bays in place, it's time to focus your attention on the five drawers that go inside the case. The good news is they all use the same setup for cutting the box joints, as you'll see later.

All of the drawers use ¼" plywood for the bottoms. For the three small drawers, the plywood is glued into rabbets formed on the sides, front, and back, as you'll notice in Figure 7. The bottoms for the two larger drawers fit into a groove, as illustrated in Figures 8 and 9 on the opposite page.

There's a reason I mention this now. It's because the rabbets and grooves will leave a small gap in the box joint after it's assembled. All you need to do is cut small plugs to fill the gaps. They will hardly be noticeable once they're sanded flush (upper right photo).

SMALL DRAWERS

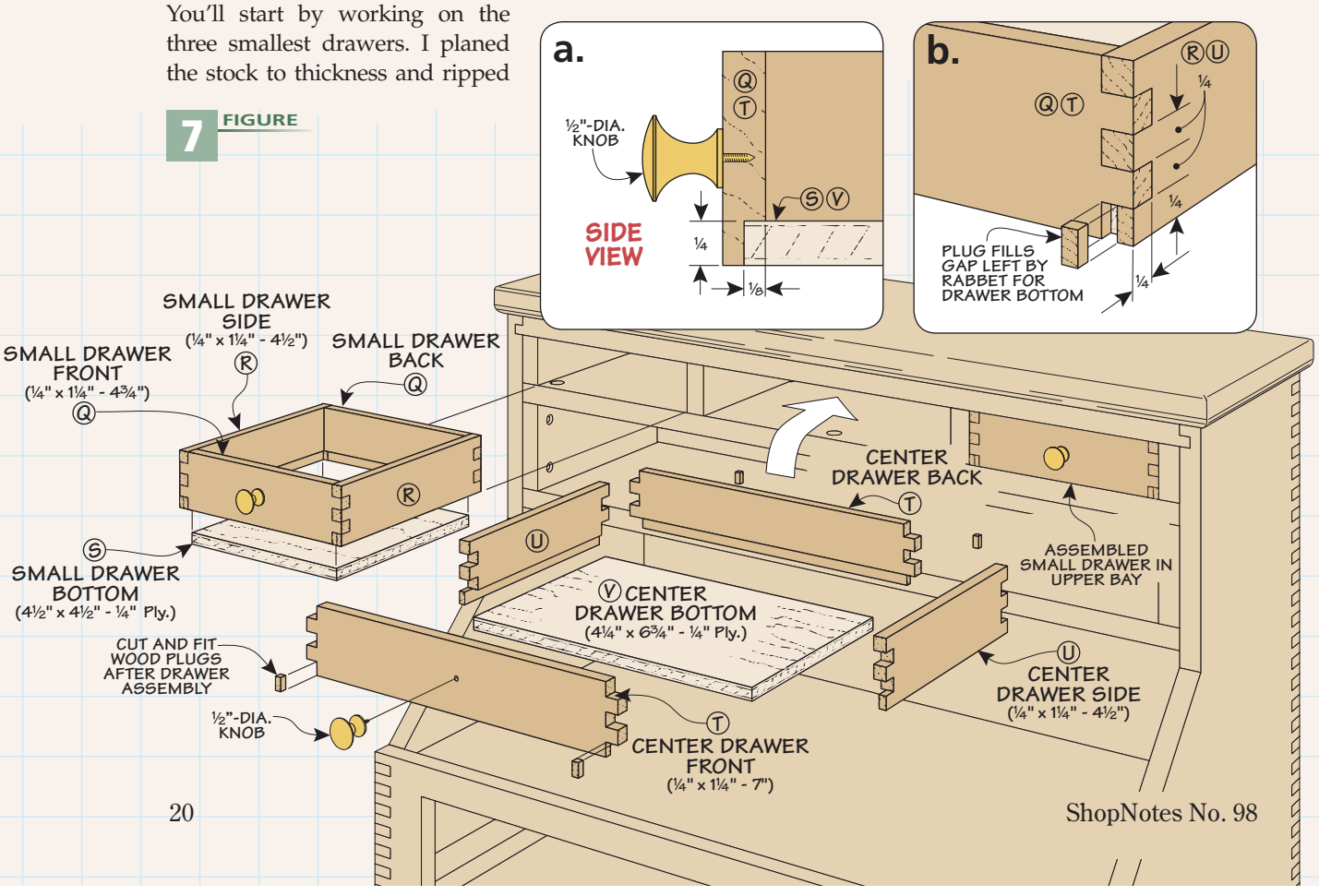
You'll start by working on the three smallest drawers. I planed the stock to thickness and ripped it to width for the drawer sides, fronts, and backs.

Cut to Length. Now, it's just a matter of cutting the drawer pieces to length and labeling them before cutting the box joints. Take some time here to size the drawer sides so they'll fit flush with the front of the case. And cut the front and backs to length for a sliding fit in the openings.

It's a good idea to test your setup on some of the cutoffs before cutting the joints on the drawer pieces. After cutting the joints, go ahead and cut the rabbet along one edge of the blanks for the drawer bottoms.

Dry Fit. With the box joints cut, you can assemble all the drawers. But don't glue them just yet. First, you'll want to fit the drawer bottoms in the rabbeted openings. This way, when you glue

FIGURE 7



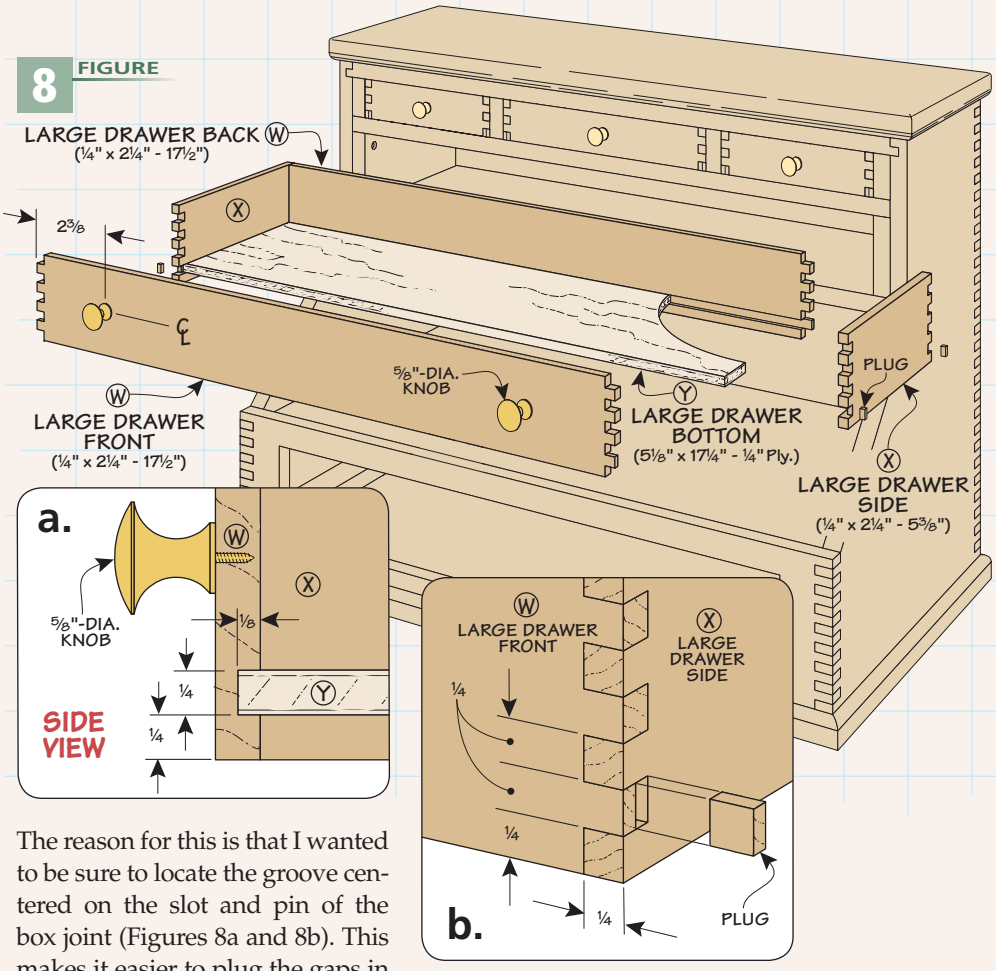
the drawer bottom in place, it will help keep the drawer sides square to the front and back. When you're happy with the fit, you can apply glue to the box joints and rabbets, then clamp until the glue dries.

Plugs. As I mentioned earlier, you'll need to make plugs to fill the gaps in the box joints in the front and back pieces (Figure 7b). The easiest way to make the plugs is to rip long strips to size and cut each plug extra long with a fine-tooth hand saw. Once the plugs are glued in place, just trim and sand them flush, as shown in the right margin photos.

LARGE DRAWERS

The two large drawers are made using the same basic procedure as the smaller drawers. The only real difference here is that you'll cut a groove instead of a rabbet to hold the drawer bottom. Figures 8 and 9 give you all the dimensions you need to cut the parts. Like before, you'll size the sides, front, and back to fit the drawer openings.

Long Blanks. Again, for the front, back, and sides, I started with an extra-long blank ripped to final width. But I chose to cut the groove for the drawer bottom after all the pieces were cut to length and the box joints were cut.

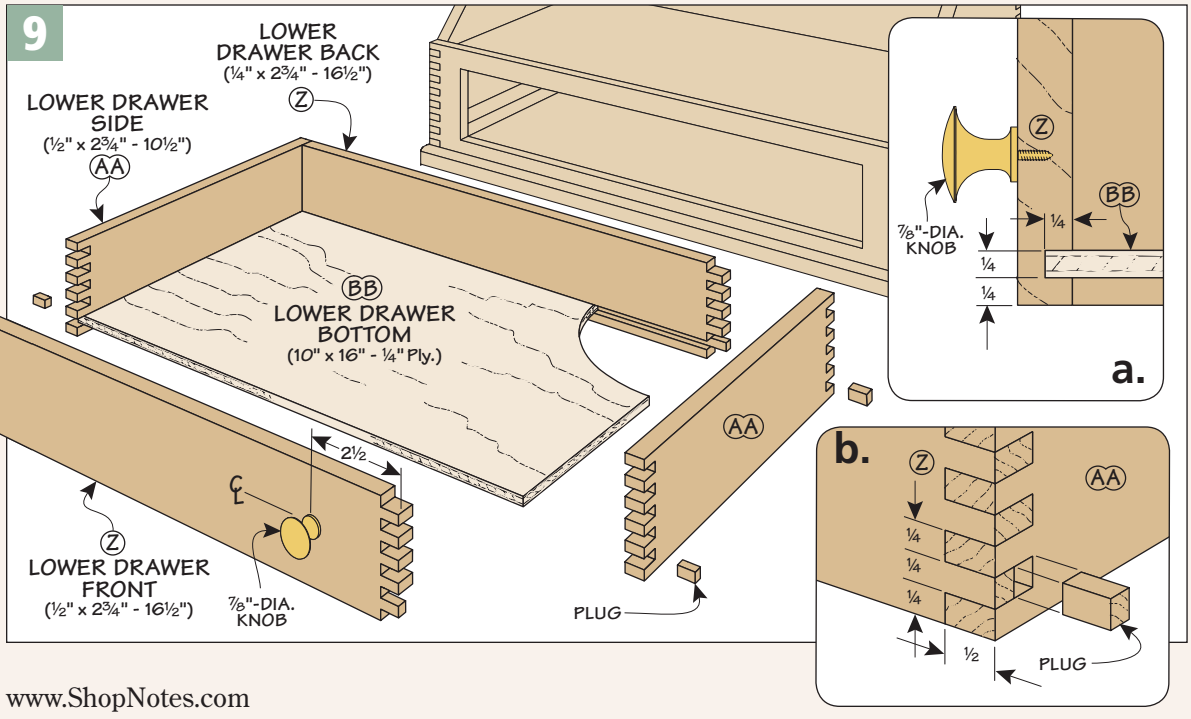


The reason for this is that I wanted to be sure to locate the groove centered on the slot and pin of the box joint (Figures 8a and 8b). This makes it easier to plug the gaps in the box joints after assembly.

Assembly. After dry-fitting the drawer sides, front, and back, it's an easy task to measure and cut the drawer bottom to slip into the groove. Finally, you can glue and clamp the drawer assembly and plug the gaps as before.

Final Touches. There are two more things to do — sand or plane the box joints flush and then add the knobs. Check the drawers for a good, sliding fit in the bay openings before moving on. Then you can turn the page to start to work on the curved lid of the tool chest.

▲ ***Plugs.*** *Endgrain plugs hide the gaps left from cutting the rabbets and grooves for the drawer bottoms.*



creating a

Curved Lid

The attention-grabbing part of this tool chest is the curved lid you see at right. At first glance, the "curved" box joints look like they'd be difficult to make. But it's really a simple process.

Now, I'm not going to kid you. Making the curved lid isn't complicated, but it will take some patience and challenge your woodworking skills.

There are fifteen pieces that make up the lid. So, it takes some fine-tuning and tweaking to get everything to go together and fit right on the case. But by following the steps below, you'll be on your way to a great-looking tool chest.

▲ ***Wedges.*** *The trick to cutting the pie-shaped side pieces for the curved lid is the jig you see at right. (For more, refer to Shop Short Cuts on page 34).*

PIECING TOGETHER THE LID

In Figure 10, you can see how the lid starts with a front piece and two triangular sides. On top of those, you'll add the staves (beveled pieces) and wedged side pieces that make up the curved portion of the lid.

Lid Front. To start, you'll cut the front piece to size, and cut the two side pieces to their final size for now, leaving them square. (You'll cut the triangle shape after cutting the box joints.) Now you can set up your saw and cut the box joints.

Fitting and Trimming. Once you have the box joints cut, you can trim the sides to their final shape. The drawings in Figure 10 give you a starting point. The goal is a good fit with the case sides.

It's a good idea to dry-assemble the front piece to the sides. This way, you can set the assembly on the case and fine-tune the joint lines between the assembly and the case front and sides. Then you can trim the bottom edge off of the front piece to create a mortise for the hinge (Figures 10 and 11).

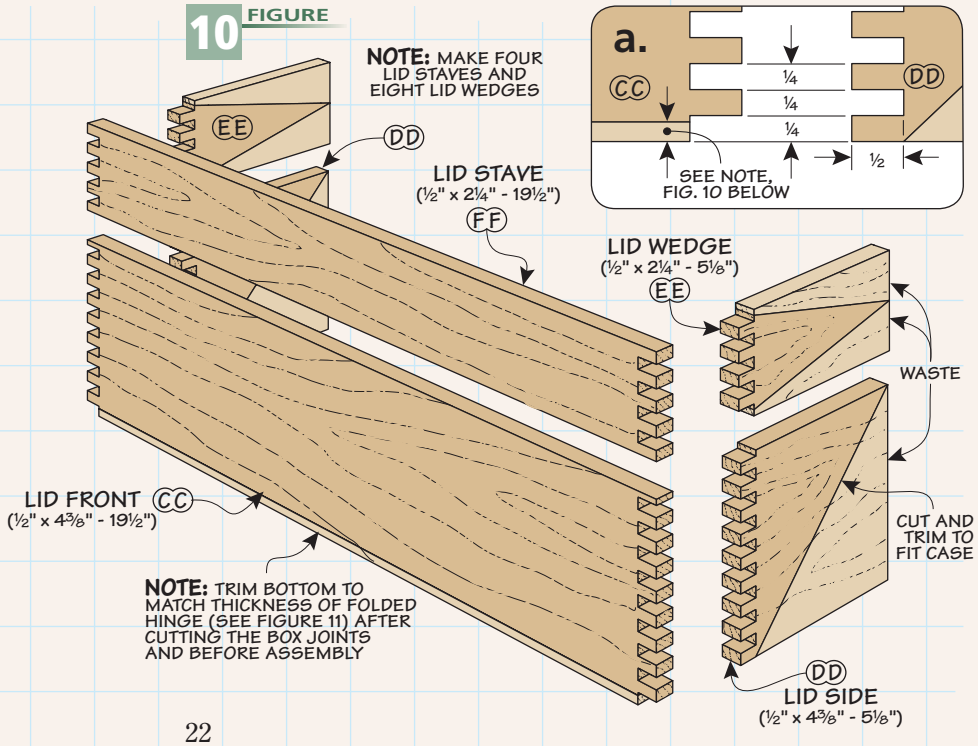
At this point, I used a few screws to temporarily attach the hinge to the lid and case. It makes fitting the pieces for the curved portion of the lid a little easier later.

A Lesson in Coopering. To create the curved lid, you'll start by cutting the blanks for the wedge-shaped side pieces and the staves that create the curved front (Figure 10). There are a lot of pieces, so be sure to label the inside and outside of the mating pieces at each joint. That's to make sure everything goes back together the same way. Finally, you can cut the box joints.

Cut and Sand to Fit. The box on the next page steps you through the process of making all of the individual pieces and assemblies to get a perfect fit. And Shop Short Cuts on page 34 shows you the jig I used to cut the wedges.

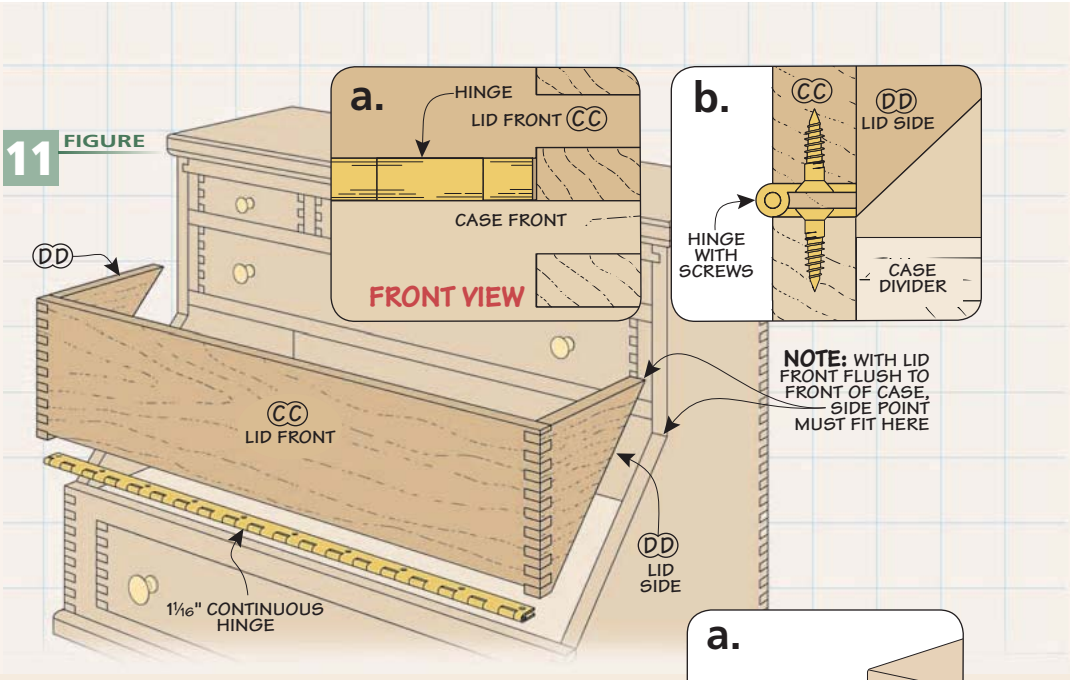
Fitting all the pieces starts by taping together the four wedges that form each side of the lid. You'll want to keep them in the

FIGURE 10



same orientation during the fitting process. Now it's just a matter of taking a little time to tweak the fit of each wedge to get perfect joint lines between each other and the sides of the case.

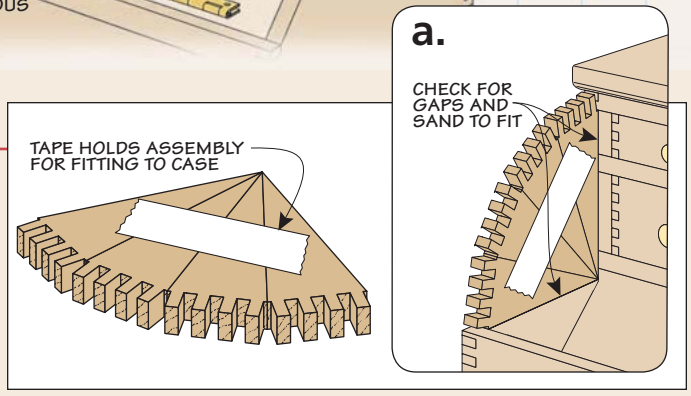
The next step is to dry-assemble each stave with its two mating wedges. Then you transfer the angle of the wedge onto the end of the stave to rip their beveled edges. Once that's done, you can glue and sand each stave assembly before moving on. Just be sure to take it easy and check the fit often to avoid problems later on.



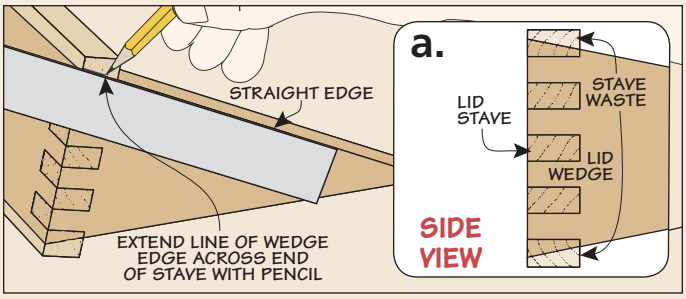
Step-by-Step: Trim and Fit

At this point, all that's left to do is take care of the final details of fitting and assembling the lid of the tool chest.

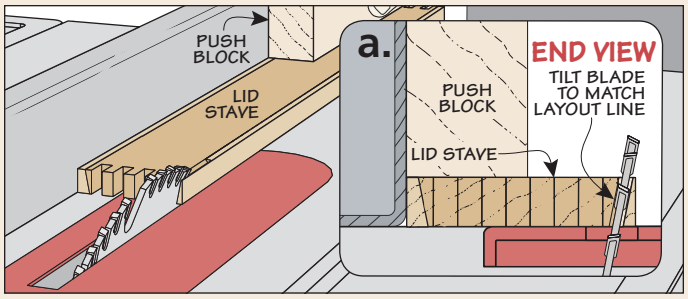
You'll start by fitting all the wedged side pieces together (Step 1). Then you'll mate them up with their staves to rip the bevels (Steps 2 and 3). Now is a good time to check the fit with the case and with the other stave assemblies, keeping them in the same order as before. Then you can glue and clamp each stave assembly (Step 4), using a scrap block to keep things square. Finally, some careful sanding will guarantee a good fit (Step 5).



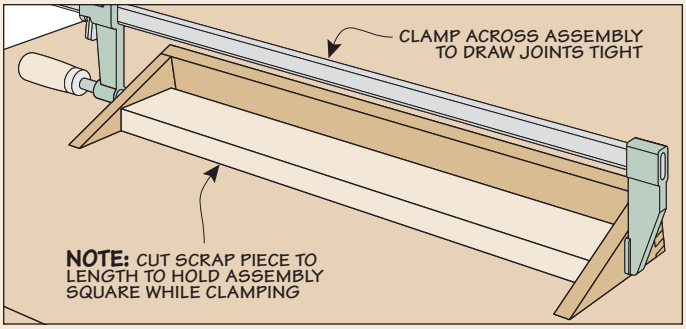
1 ***Completing an Arc.*** *Fitting the four wedges for each side of the lid means aiming for tight joints between them. Use tape to keep everything together as you work.*



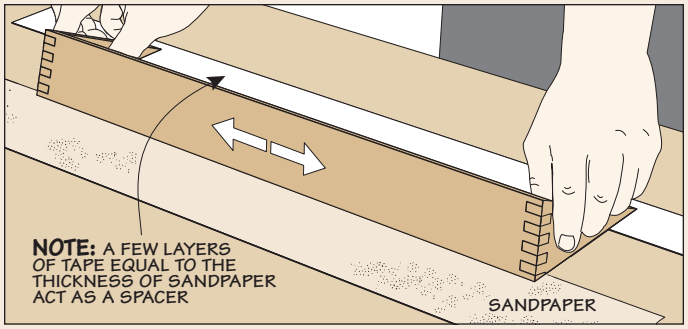
2 ***Marking the Bevels.*** *Using the mating wedges, transfer the bevel angle to the staves. These marks will serve as guidelines for setting the tilt of your saw blade.*



3 ***Ripping Bevels.*** *With a push block, rip the bevels on each side of the stave, being careful to check the fence position before each cut. Stay close to the layout line.*



4 ***Square Glue-Up.*** *After applying glue, a spacer helps keep the assembly square as you apply clamping pressure to draw the box joints tight.*



5 ***Sanding the Staves.*** *Carefully sand the edges of the staves flush with the wedges. Be careful not to sand the wedges in order to maintain a good joint line.*