

building the Base

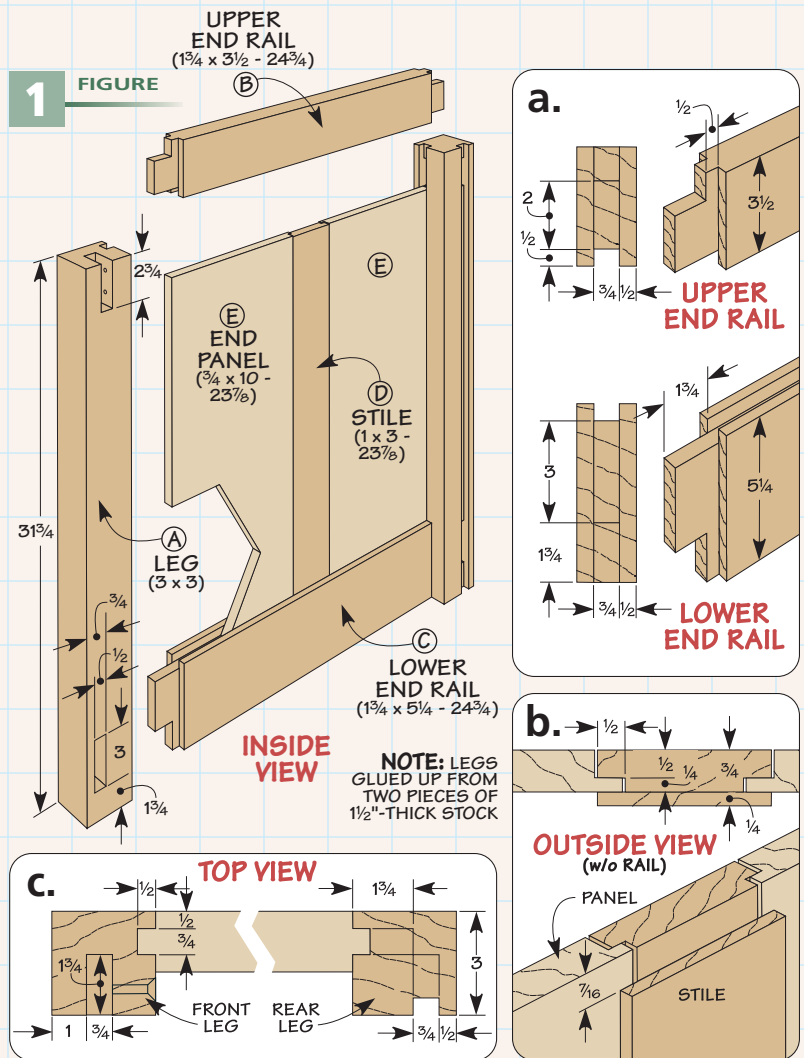
When it comes to building a workbench, the base has to do two things. It needs to be strong and stable.

To meet these requirements, I started with heavy-duty legs and joined them with beefy rails to create a pair of end frames. Then, the frames are connected by long stretchers. To enclose the base, stiles and solid wood panels are added to the end frames and back.

Start with the Legs. The first step is to make the legs (Figure 1). I did this by gluing up two pieces of 1½"-thick stock. To avoid the problem of keeping the pieces aligned as I glued them together, I started with extra-wide pieces. Then, after squaring up each blank and ripping it to final width, you can cut the legs to length.

Mortises & Grooves. To join the rails of each end frame to the legs, I used large mortise and tenon joints. But before making the mortises, I cut grooves in the legs to hold the solid wood panels and stiles that are added later. Cutting the grooves first allows you to use them as a guide for the mortises (see box below).

The important thing to keep in mind when laying out the grooves and mortises is that the legs aren't



identical. The right-hand legs and left-hand legs mirror each other. And there are differences between the front and rear legs as well.

The rear legs have grooves on both inside faces. And the inside

face of the front legs has an open mortise at the top. The open mortise allows you to remove the upper stretcher and install the drawer cabinets. (Or remove them if you ever want to move the bench.) This stretcher is screwed in place, so now is also a good time to drill the holes for those screws (Figure 3).

Adding the Rails. The legs are connected by a pair of 1½"-thick rails at the top and bottom. Once the rails are cut to size, you can start on the joinery.

I started by cutting a centered groove along the inside face of each rail. This groove is identical to the grooves cut earlier in the legs.

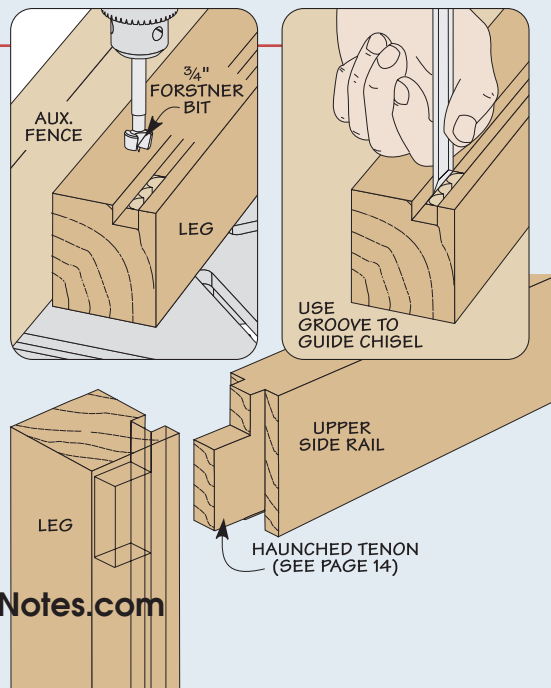
With the grooves complete, you can turn your attention to the tenons on the ends of each rail. What you need to keep in mind here is that these tenons are "haunched." All this really means is there's a little extra stub at the top of

Making a Mortise

The nice thing about most of the mortises for the workbench is that laying them out is a snap. After cutting the grooves in each leg, you can use the shoulders of the groove as a reference for the sides of the mortise when drilling out the waste.

I used my Forstner bit as a guide to set the auxiliary fence on my drill press before drilling out the waste, as in the drawing at right. Once most of the waste is removed, a chisel makes quick work of cleaning and squaring the mortise (far right drawing).

But the mortise is only half the battle. For more on the haunched tenon that completes the joint (lower drawing), turn to page 14.



the tenon that fills the groove at the top and bottom of the leg. You can read more about how to cut a haunched tenon on page 14.

Stiles & End Panels.

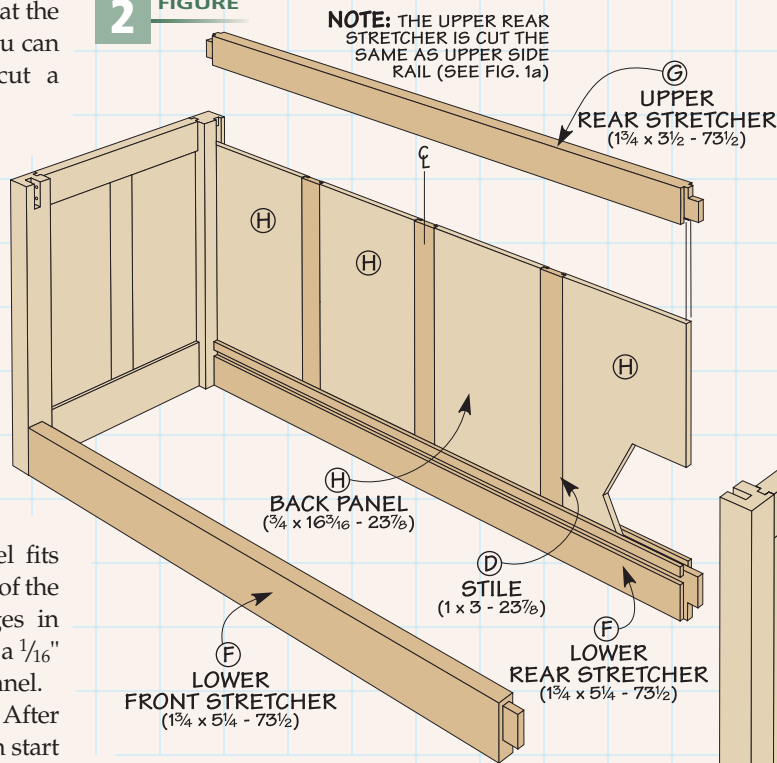
With the work on the rails complete, you're ready to make the last couple parts before assembling the frames. You'll need a stile and pair of panels for each frame. All the information for this work is shown in Figures 1 and 1b.

The stiles are rabbeted on each end to fit the grooves in the rails. And a rabbet on the *inside* edge of each panel fits into a groove cut in the edges of the stiles. To account for changes in humidity, be sure to allow for a $\frac{1}{16}$ " gap along the sides of each panel.

Connecting the Frames. After gluing up each frame, you can start work on connecting the frames together. In Figure 2, you can see how the ends are joined with a lower front stretcher and a frame and panel back assembly.

Constructing the back assembly is just like making an end frame. The only differences are adding a couple more stiles and solid wood panels. One thing to note is that the two lower stretchers each have a

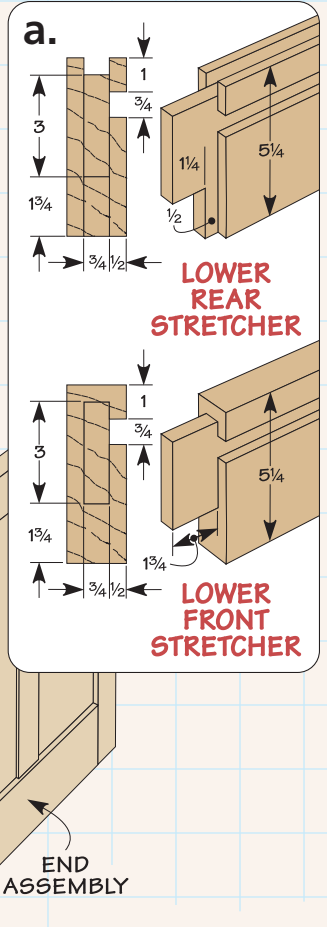
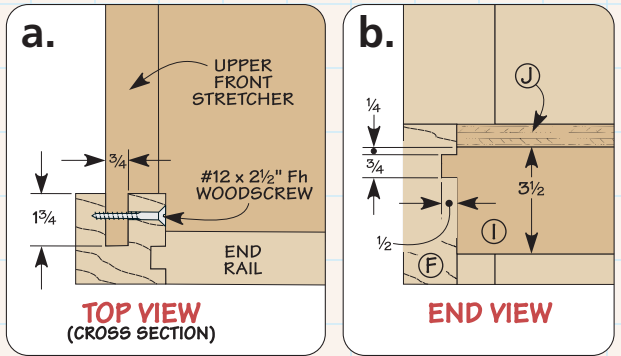
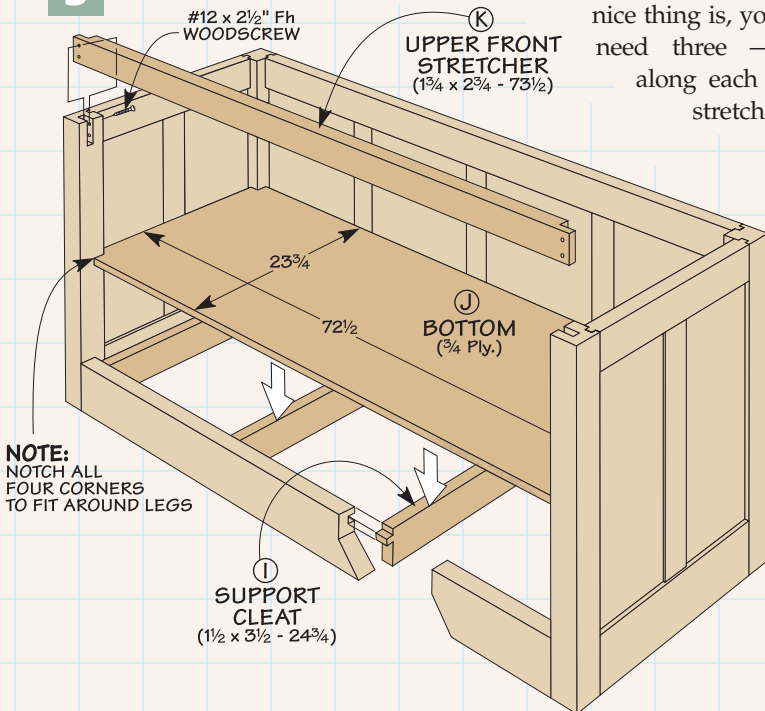
2 FIGURE



groove cut along the inside face (Figure 2a). These grooves will accept a set of cleats that support the bottom of the workbench, as illustrated in Figure 3b.

Assemble the Base. Once you have all the parts for the back assembly and the front stretcher complete, you can assemble the base. Because of the length of the bench, you will need some pretty long clamps. The nice thing is, you only need three — one along each of the stretchers.

3 FIGURE



Final Details.

At this point, completing the base is just a matter of adding

a bottom, a set of support cleats, and an upper stretcher. Figure 3 provides all the information you'll need.

To fit the cleats in place, angle them slightly and pivot them into the grooves. Then, you'll have to notch the corners of the bottom before setting it in place.

Now, all that's left to do is add the upper front stretcher. After rabbeting each end of the stretcher to fit the mortise in the front legs, simply screw the stretcher in place. This way, you can remove it when you install the drawer cabinets.