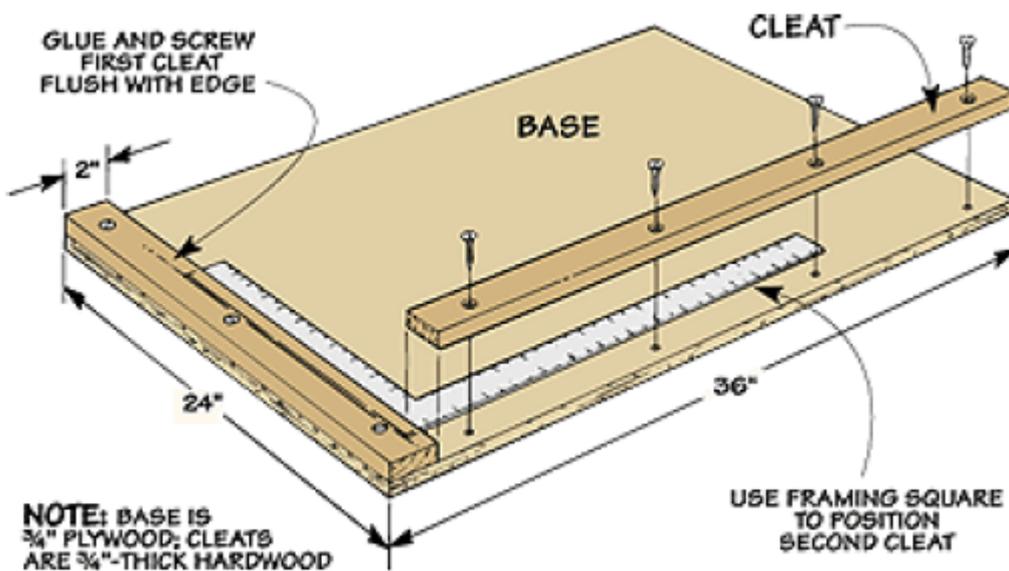
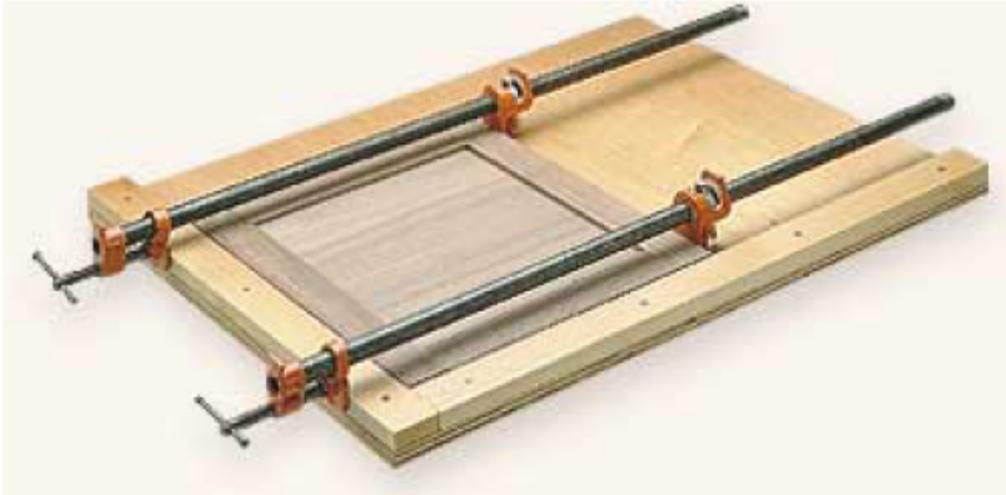


Frame and Panel Gluing



Gluing up a frame and panel door so it ends up perfectly square can be difficult. The pieces always seem to slip out of square during glue-up.

To prevent this, I built the simple jig shown in the photo below. It provides an accurate reference that makes it easy to square up the door. A glance at the drawing shows that the jig consists of a plywood base that supports the door and two wood cleats that form a square corner. It's important that the cleats are 90° to each other. So start by attaching one cleat with glue and screws. Then use a framing square to position the second cleat as you glue and screw it in place.

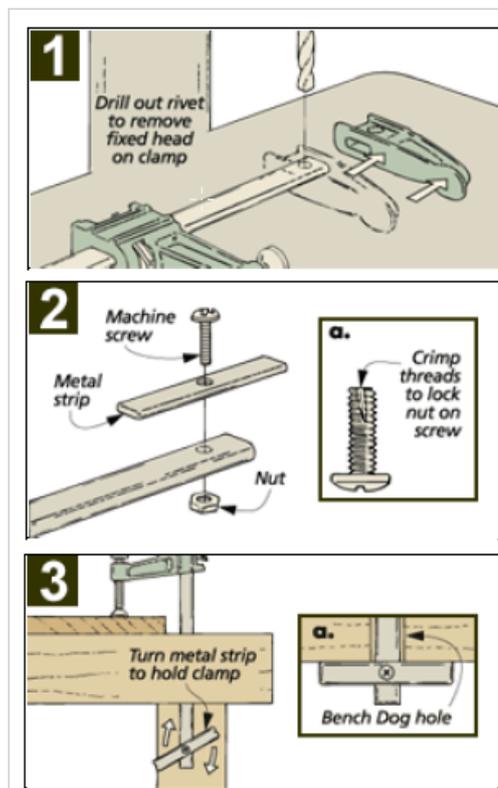


To use the jig, start by placing each clamp directly over (and parallel to) the rails of the frame. Then, adjust the pressure and position of the clamps until the frame sits square in the jig. Note: To prevent glue from sticking to the jig, I brushed on several coats of a polyurethane finish.

Bench Hold-fast



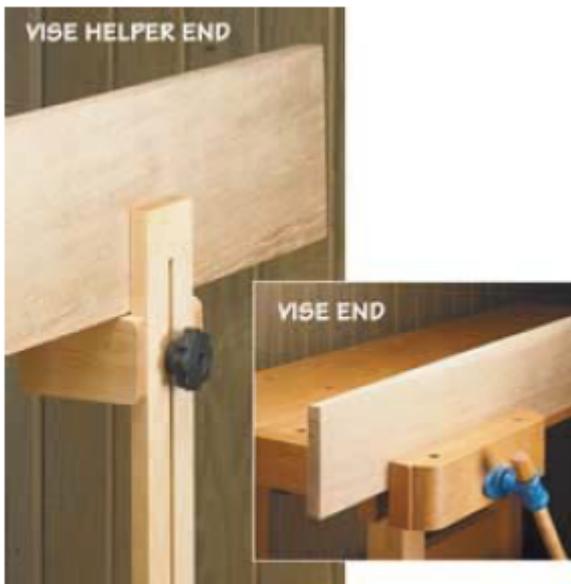
It seems to me that bench hold-fasts are a lot less common these days than they used to be. That's too bad – they're really a great way to secure boards to a workbench. But don't take my word for it. If your bench has holes for bench dogs, you can build one for yourself. All you need is a common bar clamp, a scrap piece of bar stock, and a few minutes.



To make a hold-fast, first remove the fixed jaw from the clamp by drilling out the rivet that holds the jaw to the clamp bar, as you can see in Figure 1. Next, take a small metal strip and fasten it to the bar with a machine screw and nut, as shown in Figure 2. Then to complete the hold-fast, you can “lock” the nut in place by crimping the threads of the screw at the end (Figure 2a).

To use the hold-fast, just swivel the metal strip so it's parallel to the bar and slip it through a dog hole in the workbench. Then swivel the strip back to hold the clamp, as shown in Figure 3a. I store my hold-fast under the workbench so I don't confuse it with a regular bar clamp and so it's handy when I need it.

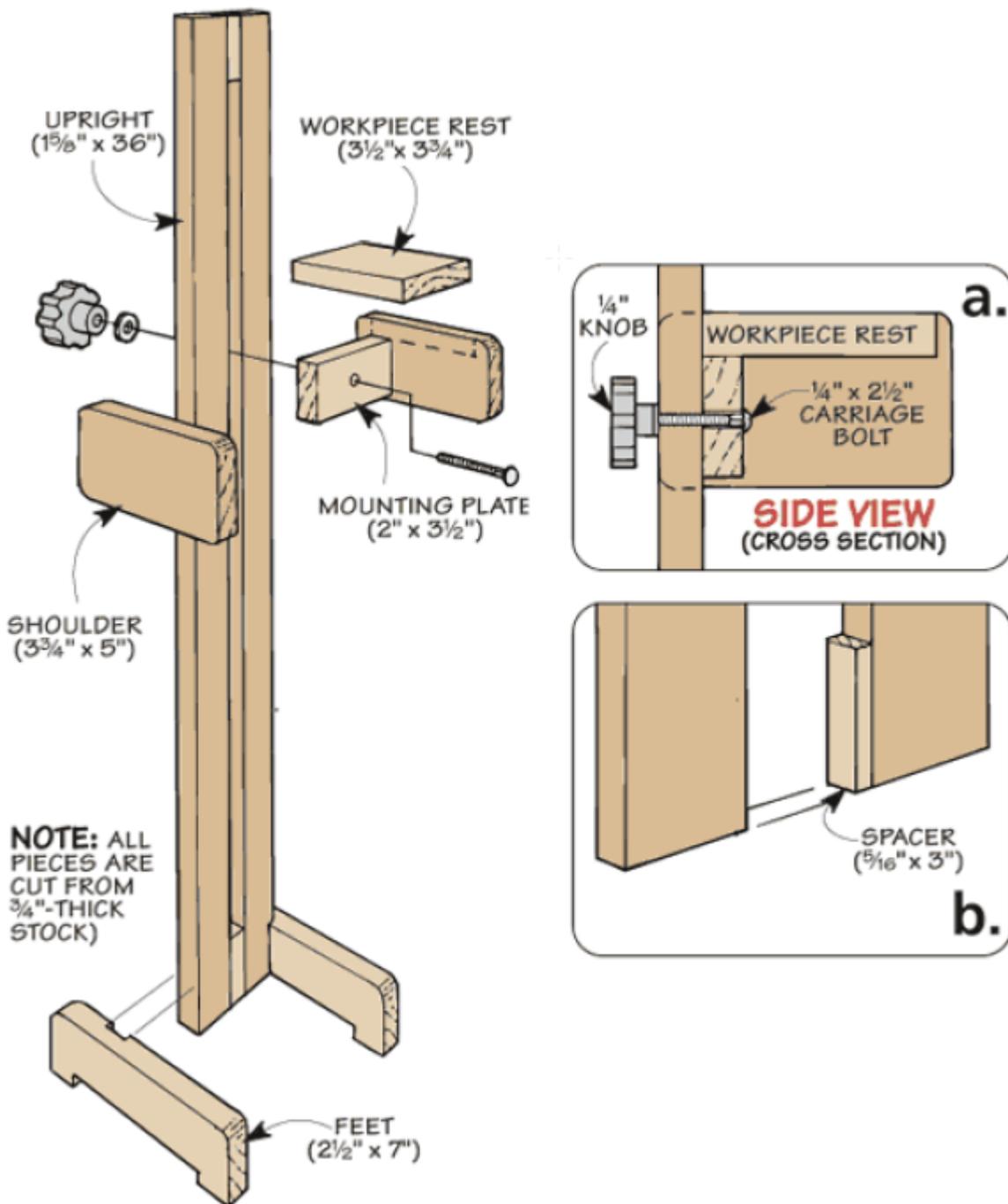
Bench Vise Helper



Whenever I clamp a wide panel or long board to my workbench on edge for sanding or planing, I need a way to support the other end. So I built this simple bench vise helper, as shown in the photos to the right. It's easy to make and allows me to support panels up to three feet wide. To make the vise helper, start by ripping two 36"-long uprights to width from $\frac{3}{4}$ "-thick hardwood. Then I glued two narrow spacers between them to create a consistent $\frac{5}{16}$ "-wide slot, as you can see in detail 'b.'

The next thing to do is cut a pair of feet to shape. Then cut a dado in each foot sized to hold the upright and glue the feet in place. The

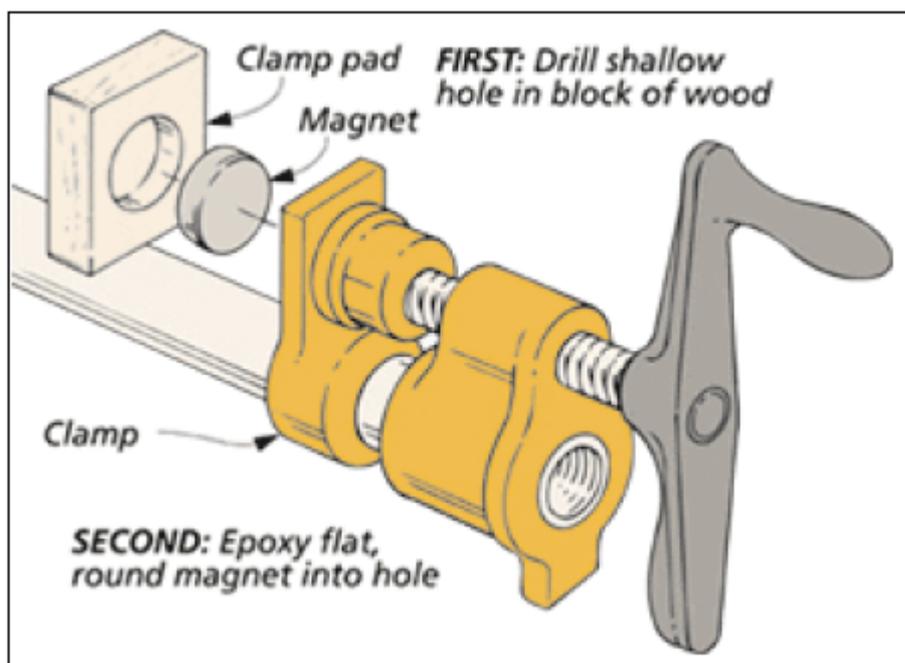
last thing to make is the adjustable rest for the workpiece. I cut the rest and a mounting plate to size first and glued them together. Next, two shoulder pieces are cut and glued to the rest and the mounting plate to keep it parallel to the floor. I used a carriage bolt and star knob to secure the rest to the upright, as you can see in detail 'a.'.



Magnetic Clamp Pads

Whenever I use pipe clamps, I like to place a block of wood between the clamp and my workpiece. This clamping pad helps prevent damaging the surface of the wood. The problem is trying to hold the block in place as you tighten the clamp.

To solve this, I made some magnetic clamp pads. Each pad is just a block of wood with a shallow hole drilled in the center. Then I epoxied a small magnet into the hole, as you can see in the drawing. The magnet holds the pad in place, leaving me with both hands free to align and tighten the clamp on the workpiece.



Shop-Made Clamp

There are times when you just don't have enough clamps. But don't worry – you don't have to blow your budget on new ones. Here's an easy-to-build clamp that will work great for most projects.

What's unique about these clamps is how the pressure is applied. Instead of tightening a threaded screw, a wood wedge is tapped between the clamp and the workpiece.

The clamps are easy to make. As you can see in the drawing at right, each one consists of a long, wood rail with two clamp heads.

A fixed clamp head is screwed to one end of the rail. And to accommodate different size objects, an adjustable clamp head is positioned along the length of the rail.

To make this work, you'll need to drill a series of holes in the rail. These holes accept a pin that's mounted into a hole in the adjustable clamp head. (I used a dowel for the pin.)

In use, this pin allows the adjustable clamp head to pivot as you tap in the wedge, as shown in the detail. The farther you tap in the wedge, the more pressure it applies against the workpiece.

ADJUSTABLE
CLAMP HEAD
(2" x 8")

NOTE: ALL PIECES
EXCEPT PIN ARE MADE
FROM 3/4"-THICK STOCK

#8 x 1 1/4" Fh
WOODSCREW

1/2"-DIA.
HOLE

SPACE HOLES
2" APART

FIXED CLAMP HEAD
(2" x 8")

PIN
(1/2" x
1 1/2" DOWEL)

1/2"-DIA.
HOLE

RAIL
(2" x CUSTOM LENGTH)

