

Quick-Release Rear Jaw

Adjust the rear jaw of the vise quickly and easily with this simple option.

Correction: ShopNotes 71

The materials list on page 15 and Figure 7 on page 18 show the rear jaw face as 8½" long.

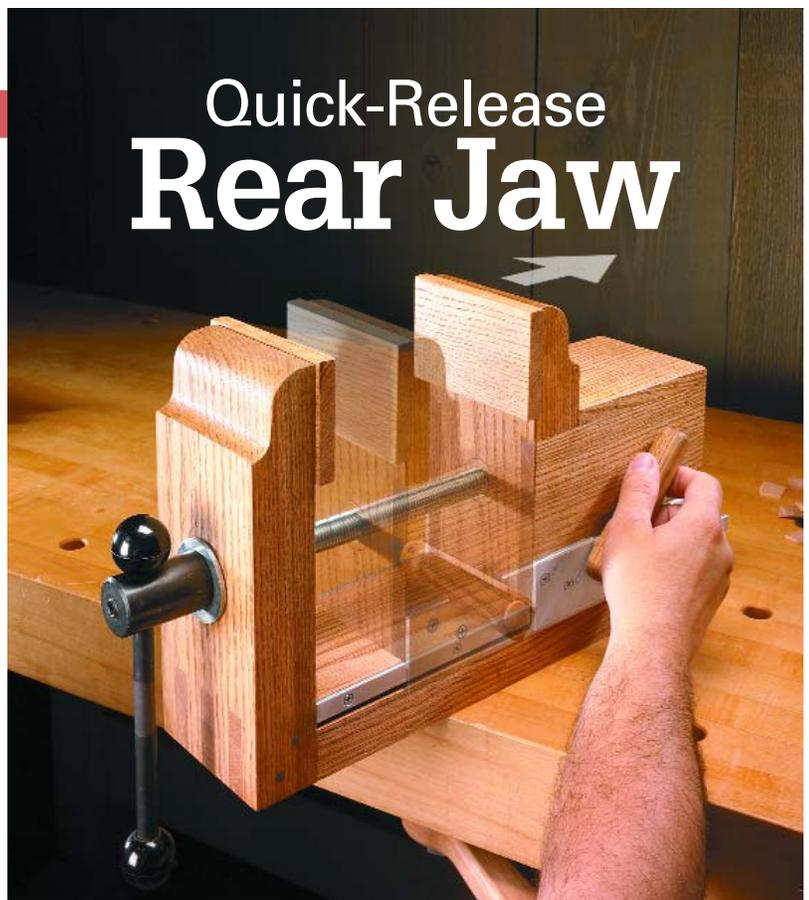
The correct dimension for this part is 9" long.

This quick-release allows you to rapidly open or close the jaws of the benchtop vise in Issue No. 71. It works just like the quick-release mechanism on a manufactured bench vise. Instead of turning the handle of the vise, all you have to do is flip a lever and slide the rear jaw to where you want it. Then flip the lever back to lock the jaw in position.

An added plus to this quick-release feature is that the main parts of the vise — the base and front and rear jaws — remain basically the same. The only thing that changes are the parts inside the rear jaw. (You will also have to add a bronze bushing to the face of the rear jaw, as shown in Figures 1 and 1a.)

As you can see in Figure 1, the secret behind the quick release is a “half nut.” A cam raises and lowers this half nut to engage or disengage the threads of the vise.

The first step in making the quick release is to make the half nut assembly. Start by cutting a coupling nut lengthwise into two pieces, as



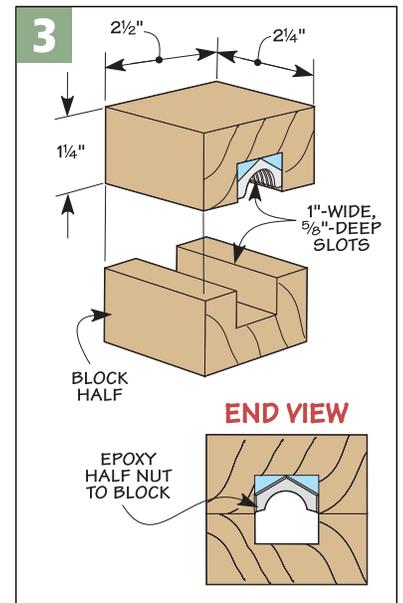
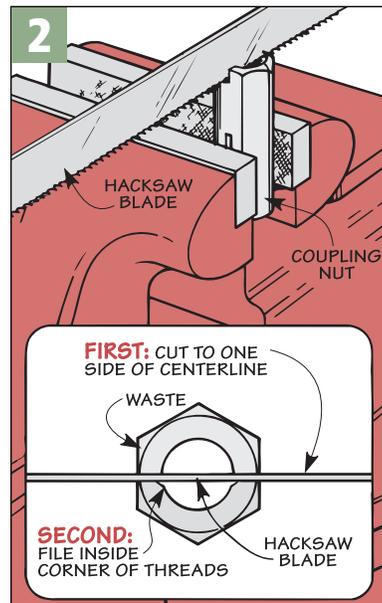
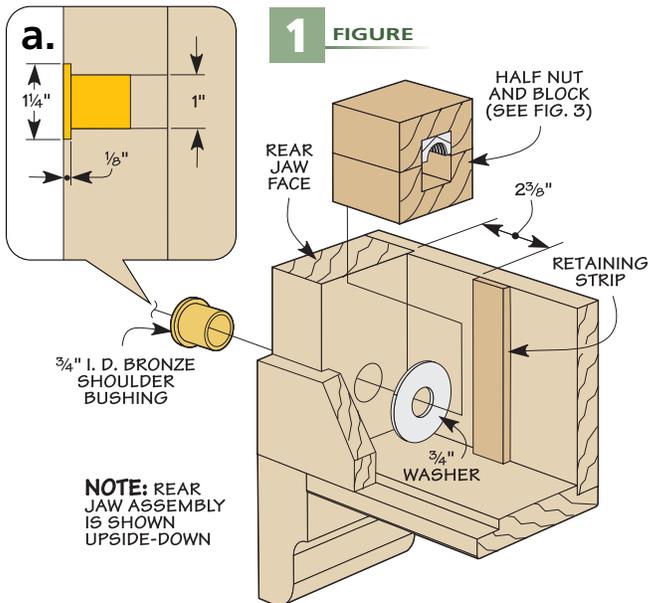
shown in Figure 1. This can be done with a hacksaw. (Note that you want to make the cut slightly off center.) Save the smaller “half” and discard the larger one.

The half nut is sandwiched between two blocks of wood. To make these blocks, I first cut a groove down the center of a hardwood blank. Then I cut two blocks from the blank. After epoxying the half nut into the groove in one of the

blocks, I glued the two blocks together (Figure 3).

Like in the standard version of the benchtop vise, a couple of retaining strips are glued to the inside walls of the rear jaw assembly to hold the half nut assembly in place. Figure 1 shows you the position of these retaining strips.

Rails – The rails of the quick release version of the vise aren't really any different than those on the



standard version. The only modification you will have to make is to cut a notch in the right-hand rail for the cam lever that will be added later. I did this by simply drilling a hole in the rail and then cutting away the waste and filing the edges smooth.

Cam Assembly – To raise and lower the half nut, I used a cam mechanism, as you can see in Figure 5. This is nothing more than a couple of wood disks that are mounted on a shaft that passes through the body of the rear jaw. A lever on the end of the shaft allows you to tighten or loosen the cams. And a spring helps to hold the cams in place.

To make the cams, I just used a hole saw to create two round disks of wood (see detail in Figure 5). Then I drilled an off-center hole in each disk for a wood shaft.

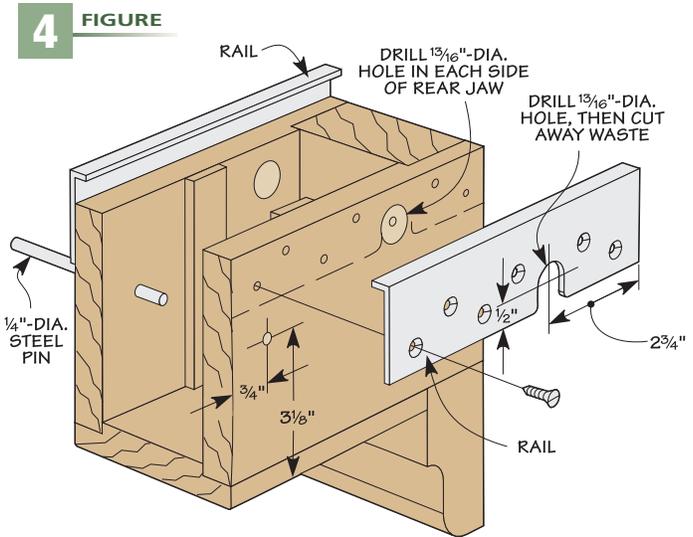
To mount the cams inside the rear jaw, you'll need to make a shaft. This

is nothing more than a short length of $\frac{3}{4}$ "-dia. dowel. A couple of holes are drilled in the sides of the rear jaw to hold the shaft. Then the shaft can be slipped through the rear jaw and the cams. The cams are secured to the shaft with a couple of screws (Figure 5b). Just make sure when you are doing this that you line the cams up so that they both have the same orientation (see Figures 5 and 5a).

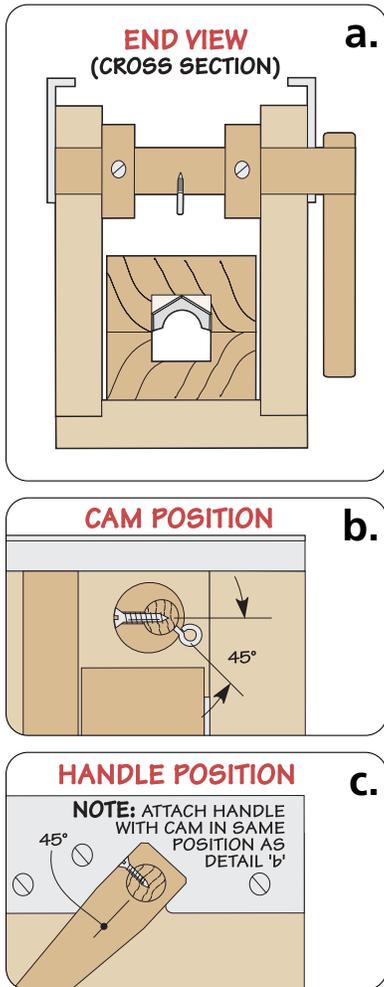
Spring – With the cams and shaft in place, you can add the spring. To do this, start by drilling a small pilot hole in the shaft and thread in a screw eye. Next, drill a hole in each side of the rear jaw for a steel pin. This pin is used to anchor one end of the spring. It's glued in place with epoxy. The other end of the spring is hooked over the screw eye on the shaft of the cam assembly.

Handle – The last step is to add the handle. I made the handle out

of $\frac{1}{2}$ "-thick hardwood stock. After drilling the hole in the end of the handle blank, it can be cut and sanded to shape. Then the handle is attached to the end of the shaft with a single woodscrew (Figure 5c). The key here is to position the handle so that the half nut is engaged when the handle is in the forward position. This way, pushing the handle back will disengage the half nut and allow you to slide the jaw to the desired position.



4 FIGURE



5 FIGURE

