

Installing a Bench Vise

Give your workbench the holding power it deserves.

By Craig Bentzley



Let's face it; a workbench without vises is basically just an assembly table. Vises provide the muscle for securing workpieces for planing, sawing, routing, and other tooling operations. Of the myriad commercial models, the venerable Record vise is one that has stood the test of time, because it's simple to install, easy to operate, and designed to survive generations of use. Although it's no longer in production, several clones are available, including the Eclipse vise, which I show in this article. Similar vises may differ in features, but attachment is similar.

Here, I'll show you two mounting options. The first is a simple approach, perfectly appropriate for an end vise application. The second involves recessing the rear jaw flush with the edge of the bench.

This is the best approach for a face vise, because the entire length of a board secured for edge work will contact the bench edge for support and additional clamping, as shown in the photo

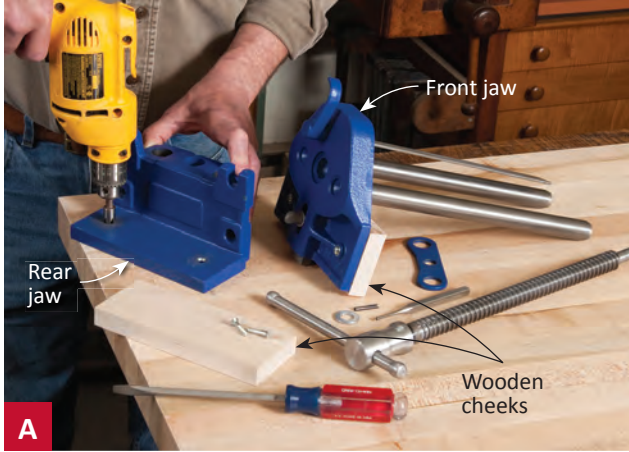
above. Regardless of the type of mounting, have your vise(s) in hand before you start so you can determine the size of the spacers, jaws, and hardware needed for a trouble-free installation.

Vise Location And Selection

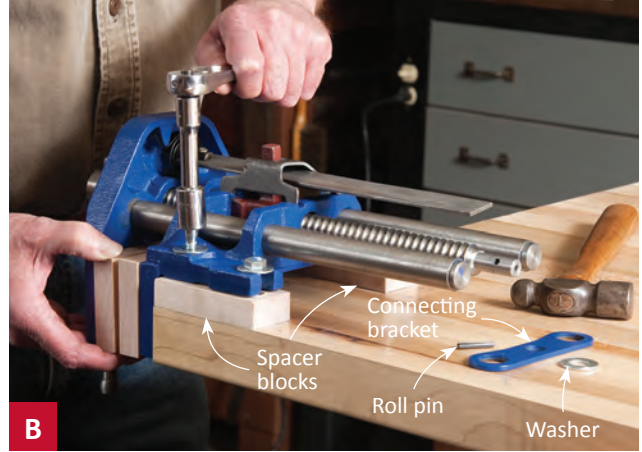
A vise's location on the bench determines what it's called. *Face vises* are attached on the front, or *face*, of the bench; *end vises* are installed on the end. The best benches have both, but if you can only afford one, I'd go for a face vise initially.

Right-handers should mount a face vise at the far left of the bench's front edge and an end vise on the end of the bench at the foremost right-hand corner. Southpaws will want to do the opposite. When retrofitting an existing bench, make sure the vise mechanism won't interfere with the bench legs. Shift the top if necessary to accommodate the vise.

Because a face vise is used for general work as well as for planing edges, I recommend investing in a larger vise (at least 10"). Since it's primarily used in tandem with bench dogs to secure boards for face-planing, a smaller end vise should suffice. I prefer a small (7") model, because its dog is only 3½" from the front edge of the bench, which is convenient for clamping workpieces for face-planing and other operations.



A Countersink the through-holes on the back of the rear jaw to allow attaching the cheek with flathead screws.



B Install the vise with washers and lag screws that project through clearance holes in the two spacer blocks.

Simple mounting

The easiest installation entails making spacer blocks to set the tops of the metal jaws below the bench surface while screwing the vise to the underside of a bench. To begin, drive the roll pin from the end of the vise screw, remove the connecting bracket and the front jaw, and then degrease the vise of its protective coating.

To determine the thickness of your spacer blocks, place the rear jaw upside down on the inverted benchtop and measure how much the top of the jaw projects beyond the underside. Add to that $\frac{1}{4}$ " for a 7" vise, or $\frac{1}{2}$ " for a 10" vise. (The former is necessary for better dog height on the smaller vise.)

To calculate the size of the cheeks, measure the rear jaw's bearing surface and add enough to the cheek width so that it extends about $\frac{1}{8}$ " above the bench surface when installed. Next, make both cheeks the size of the rear cheek, using $\frac{3}{4}$ "-thick hardwood. Countersink the holes in the rear jaw (**Photo A**), and then attach the rear cheek with flathead wood screws and the front cheek with roundhead screws and washers.

Make your spacer block(s). (Use two for an end vise to provide dog clearance.) Plane them to your determined thickness, and size them in length and width to suit the mounting hole surfaces on the rear jaw bracket, as shown in **Photo B**.

Sandwich the blocks between the bracket and the bench, trace the locations of the mounting holes, and drill clearance holes through the spacers. Screw or glue the spacers in place, and then attach the vise to the top, using the longest possible $\frac{3}{8}$ " lag screws.

Reattach the connecting bracket, washer, and roll pin. After turning the benchtop upright, hand-plane the tops of the wooden cheeks flush to the benchtop.

Tip Alert

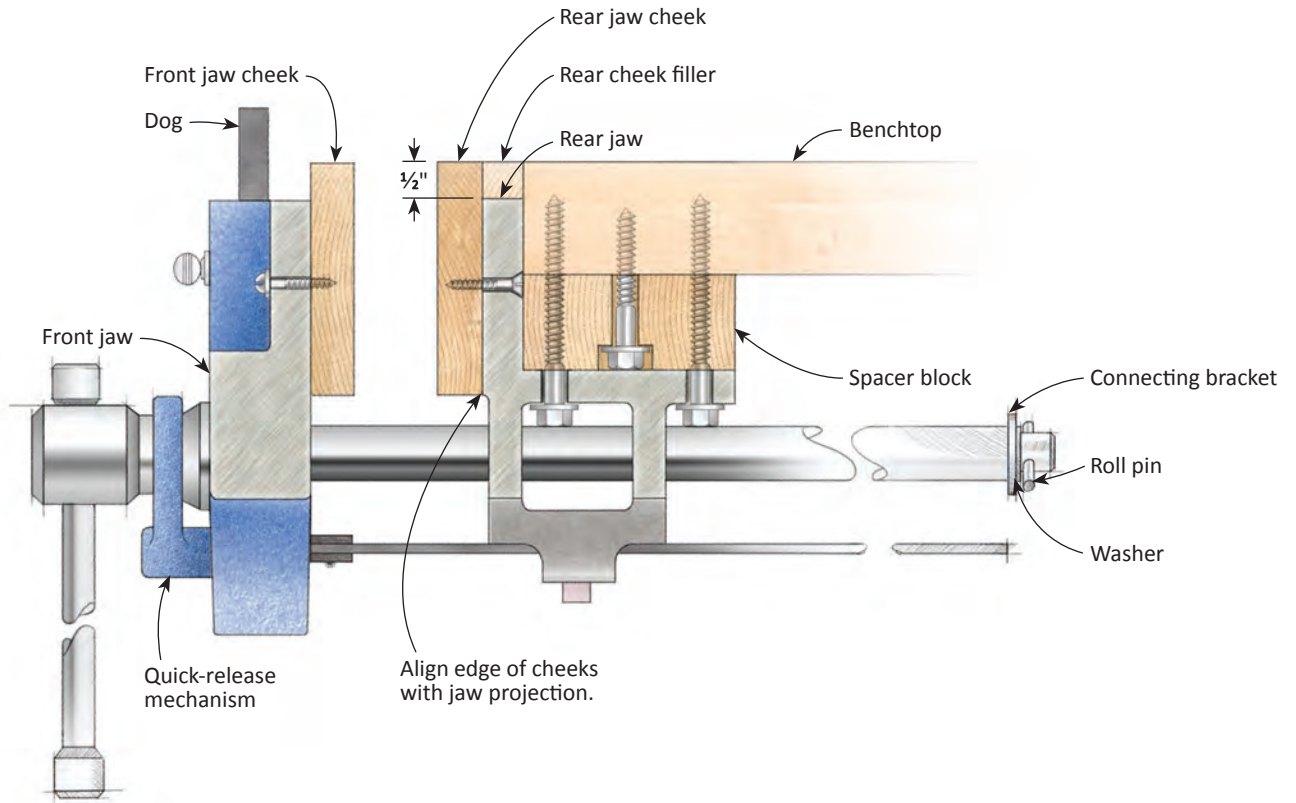
Disassembling a vise isn't necessary for installation, but it facilitates cleaning and mounting.

Drilling Dog Holes

Because most vises include an integral dog, it makes sense to incorporate a row of dog holes into your benchtop. Most commercially available dogs fit $\frac{3}{4}$ "-diameter holes, which need to be drilled precisely perpendicular to the benchtop. Make a drill guide block from 2"-thick stock, boring out the centered $\frac{3}{4}$ "-diameter hole on the drill press. Glue the block to a hooked standoff that registers against the edge of your bench as shown in the photo. (Make sure to align the hole with the dog on your vise.) Draw a centerline down the rear face of the block for positioning reference. Use a square to lay out the dog hole locations on the bench, spacing them 6" apart starting from the end of the bench. To drill each hole, align the jig's centerline with its dog hole layout line, and clamp the jig to the bench with a backup board underneath. Then bore out the hole with a $\frac{3}{4}$ " brad-point bit.



Figure 1: Elevation of Flush Mounted Vise



Flush-Mount

A flush-mounted face vise offers the most versatility, but it requires more work to install. (As with the previous method, handling is easier with the vise disassembled.) First, lay out the notch in the benchtop. Its length should be the width

of the jaw plus 1". The depth should equal the thickness of the rear jaw plus 3/4".

Make the crosscut into the benchtop edge with a backsaw. Then clamp a straightedge to the bench to guide a circular saw to cut the length of the notch. Rip the notch until you intersect the

previous crosscut (**Photo C**), and then finish up with a handsaw.

Make a hardwood spacer block thick enough to locate the top of the vise jaws 1/2" below the top of the bench, measuring in the same manner as explained for a simple mounting. Trace the jaw's outline and its screw holes



C

Guide a circular saw along a secured straightedge to rip the length of the notch up to the crosscut.



D

Attach the spacer block with lag screws through counter-bored holes.

onto the spacer. Next, mark out holes for four screws to attach the spacer block to the benchtop, locating them so they won't interfere with the vise mounting screws. Drill the counterbores and $\frac{7}{16}$ "-diameter through-holes in the spacer block on the drill press. Center the block along the width of the notch, with the edges of each aligned flush at the front. Clamp the block in place, and then attach it to the benchtop with lag screws and washers, as shown in **Photo D**.

To make the wooden cheek for the rear jaw, first measure the thickness of the jaw. Using a hardwood board that's at least 1" wider than the jaw's height, plane it to the jaw's thickness. Then trace the shape of the rear jaw onto the board, aligning the bottom edges as shown in **Figure 1**, and allowing an extra $\frac{3}{4}$ " or so at each end. Crosscut the piece and bandsaw the interior to make the U-shaped cheek filler. Then glue it to $\frac{3}{4}$ "-thick stock of similar size, as shown in **Photo E**.

Trim the cheek assembly to rough width on the tablesaw, leaving the filler about $\frac{5}{8}$ " wide at the top. Then crosscut it to fit the benchtop notch. Countersink the



E Glue the U-shaped cheek filler to a piece of $\frac{3}{4}$ "-thick stock to make the rough-sized rear cheek.

holes on the rear jaw and attach the cheek as shown in **Photo F**.

Position the vise on the spacer block with the cheek nestled in its notch. Mark and drill pilot holes, and attach the vise with washers and lag bolts (**Photo G**). Use a straightedge to ensure the face of the jaw is flush with the edge of the bench. If it's proud, level it with a hand plane.

Make the front cheek, and attach it with washers and



F Attach the rear cheek with #10 flathead woodscrews after countersinking the holes in the jaw.

roundhead woodscrews, reassemble the vise, and turn the benchtop over. Hand-plane the cheeks flush with the benchtop (**Photo H**). My bench had radiused edges, so I chiseled away the sharp point at the corner of the cheek. Finally, apply a couple of coats of wipe-on finish to all raw wood surfaces. ■

About Our Author

Craig Bentzley has been restoring antiques and building furniture for nearly 40 years. In addition to writing, Craig also teaches at guilds, woodworking shows, and at Woodcraft stores.



G Snug the rear jaw assembly firmly in place while tightening the lag screws.



H Plane the cheeks level to the benchtop, and relieve any sharp corners with a chisel (inset).