



BENCHCRAFTED BARREL NUTS

Tips and tricks for installing our Barrel Nuts and End Cap Barrel Nuts

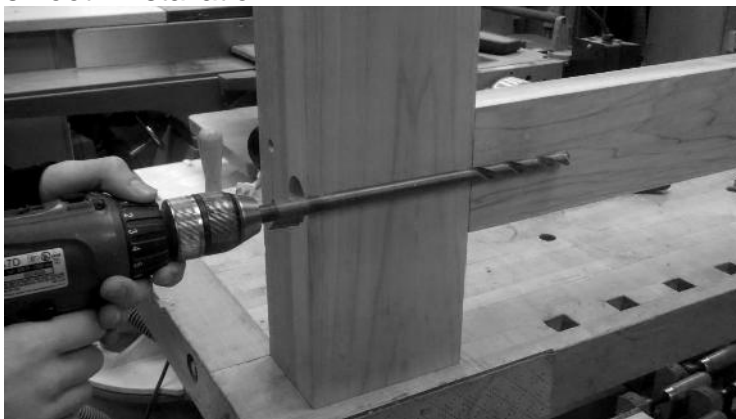
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The Benchcrafted Barrel Nuts offer a quick, easy way to build knockdown joints for workbench bases. Normally when using bolts to join legs and rails, a square mortise must be cut in the rail to receive a hex nut and washer. Our barrel nut eliminates the more time consuming step of chopping a square mortise and fiddling with a small hex nut, washer and wrench in a deep, inaccessible mortise. You only need one tool and two hands to fit our barrel nuts.

However, drilling your holes too small or getting them in the wrong place will cause frustration and potential cross-threading of the nuts. Follow these steps to get great results.

### Prep

Barrel nuts are made from unfinished steel and need to special attention. Nuts made before July 2019 are zinc plated steel. Sometimes this coating builds up inside the threads at the plating facility. Before trying to install fasteners in your bench, thread the bolts fully in and out of the nuts a couple times to test their fit. As with any mechanism made from metal, a couple drops of oil will help lubricate the threads and ensure a smooth installation.



We bias the fit tolerance on the nuts a bit tight so they hold well. Don't be alarmed if you can't thread them by hand at first. A few cycles with a wrench will loosen them up. Your leg and rail joinery should be cut and ready to assemble. A short stub tenon (1") is sufficient.

### Drill the holes in the legs only

Drill a 1/2" hole through the leg

using a drill press (if possible) for the bolt. For looks, you can counterbore for the washer and bolt head if you want it recessed into the edge of the leg. Position the hole so it's centered on the rail in both directions. Barrel nuts work well in material no thinner than 1-3/4". This allows you to leave enough material at the bottom of the barrel nut



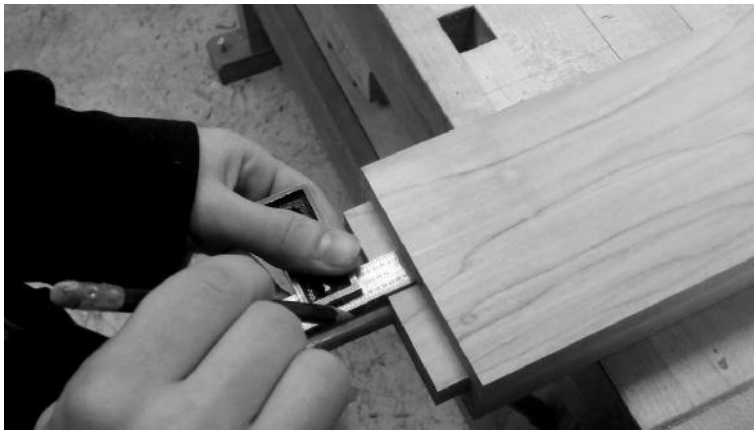
hole so its not visible from the front of the rail. But if your rail is thinner and the barrel nut hole needs to go completely through the rail, it's fine.

Next, assemble the workbench base (clamp it if possible, or brace it against a wall or bench) and use a long 1/2" drill bit to drill the hole in the end of the rail.

The hole in the leg acts as a guide bushing so the hole goes straight into the end of the rail.

Drill an inch or so at a time at most, backing out frequently to clear the shavings. Drill as deep as you can. If you need to go deeper (depending on your particular leg's width and drill bit length) remove the leg and continue drilling the rail only.

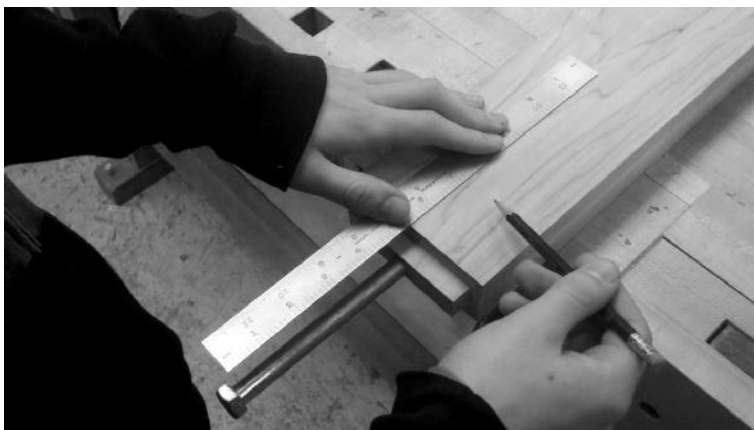
## Barrel Nut Layout

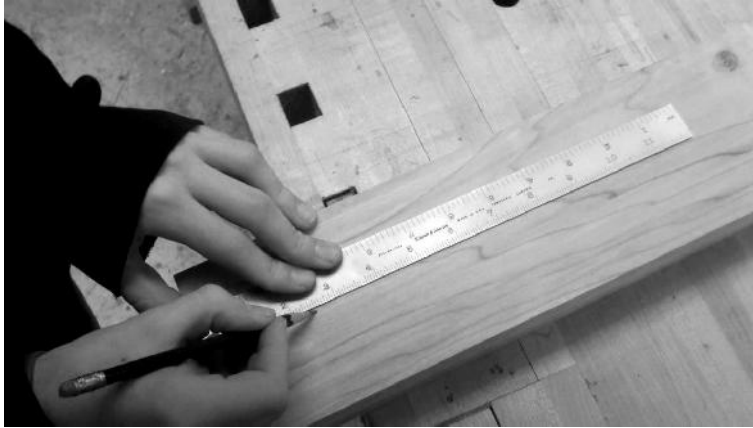


To find the position of the barrel nut hole, you're going to use the position of the hole you just drilled as a guide.

Place a bolt deeply into the rail and carry the position of the exact center of the bolt up and across the mortise and just onto the face of the rail.

Next, place a straightedge on the mark, sight from above, and line it up so it's dead parallel with the bolt. Mark a line against the straightedge.



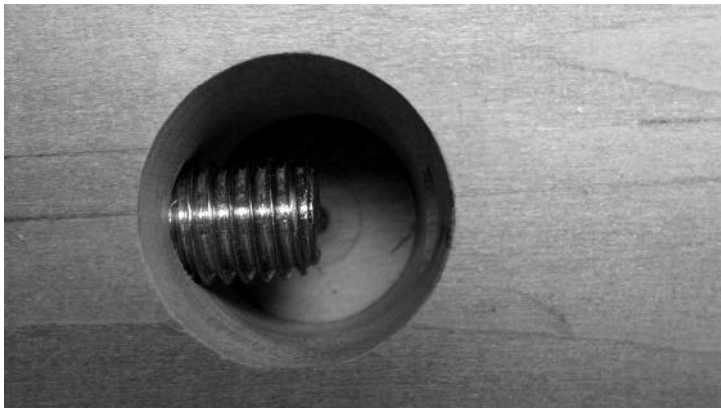


Thread the barrel nut onto the bolt so the bolt protrudes about  $\frac{1}{4}$ " past the nut, and while holding the bolt in the correct place for your leg width, mark the center of the barrel nut on the bolt line.



Drill a 1" hole on the mark, drilling  $\frac{1}{8}$ " deeper than it needs to be to allow for some clearance.

In a  $1\frac{3}{4}$ " thick rail there will be enough barrel nut protruding that you can easily grab it with your fingers and thread the bolt in with your other hand.



The bolt should end up right in the center of the barrel nut hole.

The final step is to enlarge the  $\frac{1}{2}$ " bolt hole in the leg and rail. Because of seasonal movement you want the bolt to always fit loosely. This does not compromise strength at all. It also allows a bit of forgiveness if some of your holes aren't as precisely located as they

should be. Enlarge the holes to  $\frac{9}{16}$ " or even  $\frac{5}{8}$ " with a twist drill. If you've also mislocated the barrel nut hole enough that the bolt won't thread in easily by hand, you can correct your error by enlarging the barrel nut hole, or simply drilling out some waste on either side of the existing hole using a Forstner bit. Make sure you clamp the rail firmly to your drill press table when cutting this partial hole.

If you feel resistance as you're threading the bolt into the nut, stop and examine what's happening. The fasteners should thread together easily and smoothly, and only require a wrench for the final turn or two. You may need to tighten up the bolts in mid-winter when your bench parts dry and shrink. This is normal.

End Cap Barrel Nuts are installed using the same process.

*-Benchcrafted*