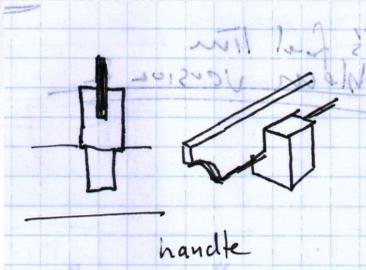
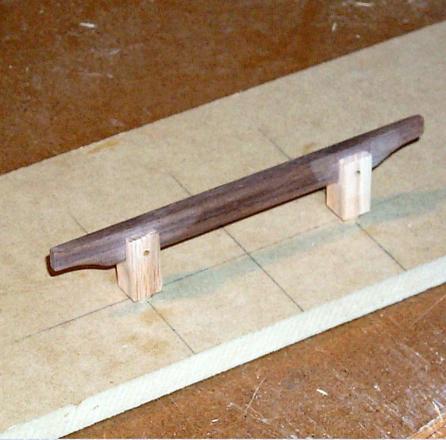


Shop Notes

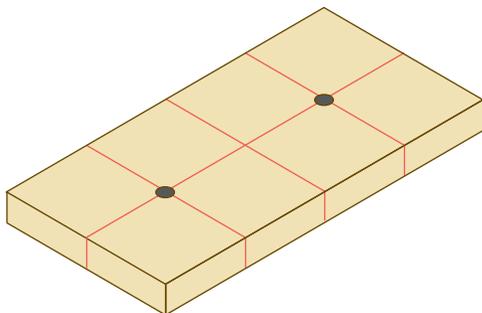
Fixtures for Small Drawer Pull Assembly

As part of a cabinet project I needed to make a number of identical wooden drawer pulls. This presented two challenges—making them interchangeable, and safely handling very small parts with power tools. The solution was a set of fixtures to space the parts during fabrication, assembly and installation.

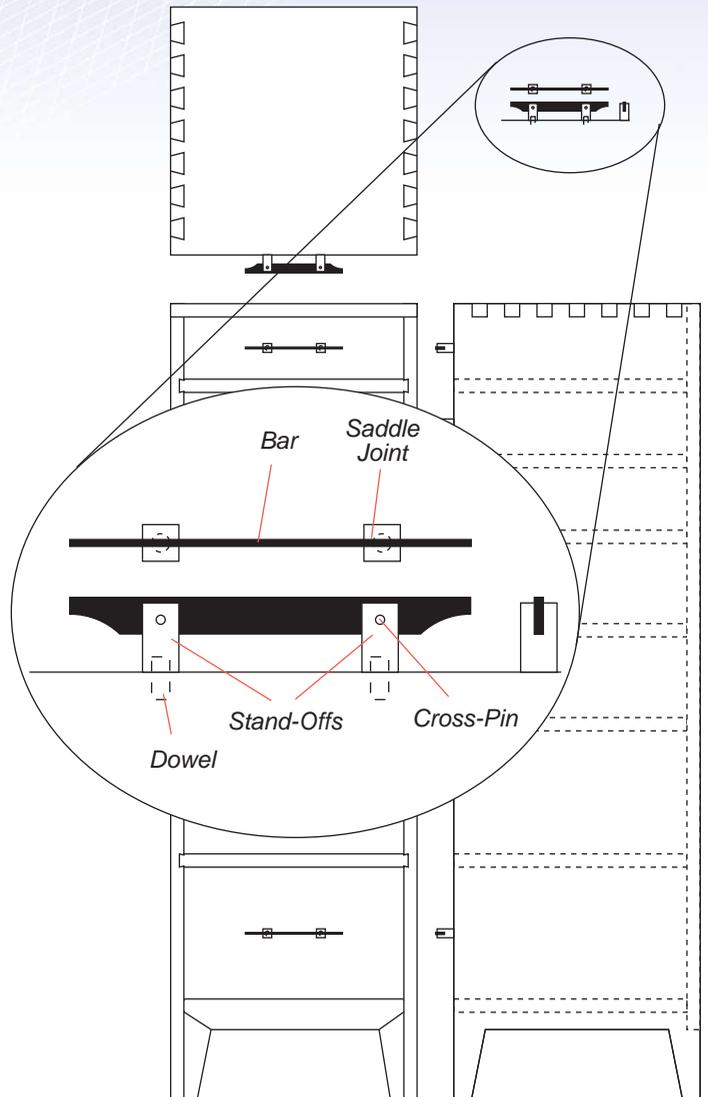


This drawer pull design had been kicking around in my head for a couple of years before I finally got around to using it. The rough sketch in my notebooks evolved into a finished set of dimensions in the course of designing a small curio cabinet. The bars are made from air-dried walnut scraps. The standoffs are red oak, and the cross-pins are bamboo shishkebab skewers.

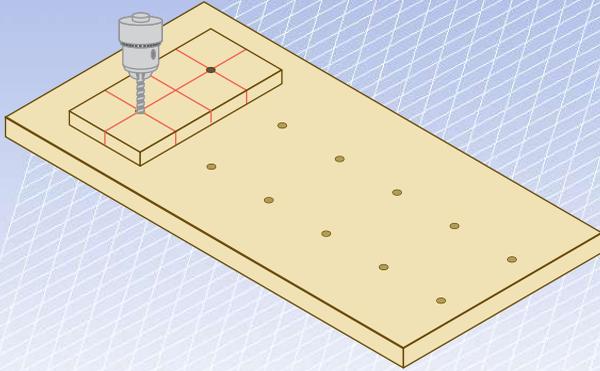
The first jig to make is the master spacing jig. This is used to drill uniformly spaced holes the diameter of the dowels in an assembly and finishing jig as well as in the finished drawers. A nicely squared up scrap of hardwood or MDF works well for this part. The dimensions are not critical. As you can see from the drawing, centering lines are brought around the edges to aid drilling drawer fronts.



Master Spacing Jig



The master spacing jig is then used to drill pairs of holes in a large piece of MDF to create an assembly/finishing jig. Use a drill press with a stop so that all of the holes are the same depth. This is important for later assembly. The pairs of holes should be far enough apart that you can apply finish to the parts conveniently.

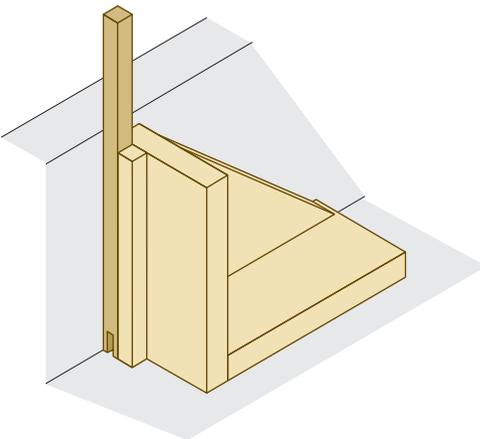


Using the master jig to drill the assembly/finishing board

Stock preparation is the next step, as the finished dimensions of some of the next jigs depend on it. I squared up and thickness planed a piece of walnut. This was then ripped into thin strips, each a little more than twice the finished bar length. These strips were then trimmed to finished lengths. For parts this delicate, I use a Dremel model maker's saw with a carbide blade. An X-Acto saw and miter box will also work. All the bar blanks are then sanded against sandpaper held down on a flat surface.

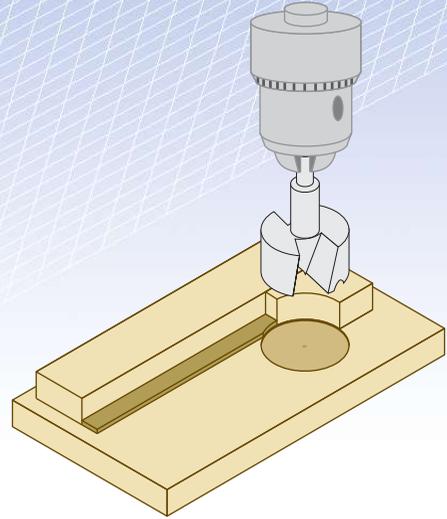
For the standoffs, I ripped and planed several pieces of red oak into 1/2" X 1/2" X 18" strips. The extra length is important for safety when cutting the saddles in the ends of the standoffs.

The next jig is a custom tenoning jig for the table saw which supports the long bars and holds them against the fence. This is used with a zero-clearance tablesaw insert.



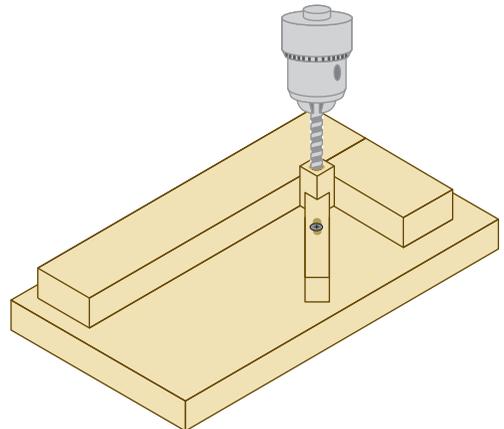
A single-purpose tenoning jig

To make the standoffs, begin by sanding the ends of the oak bars. Test cut one end for the saddles. The end is passed over the saw twice, rotating 180° between passes. This ensures that the saddle is centered. Check the fit against a few of the bars. A snug fit at this point is better than a loose one. The bars can be sanded thinner later on. Once you have established a fence setting, the procedure is: 1) sand the ends of the stock; 2) cut a saddle in each end; 3) cut the standoffs to length from the ends of the stock, 4) sand the ends again, and repeat.



Using a forstner bit to detail bar ends

The curved details on the ends of the bars is cut with a large-diameter forstner bit. The jig for this operation is easily made from small scraps and a piece of plywood or MDF for a base. Clamp the jig to a drill press and trim the ends of the bars.

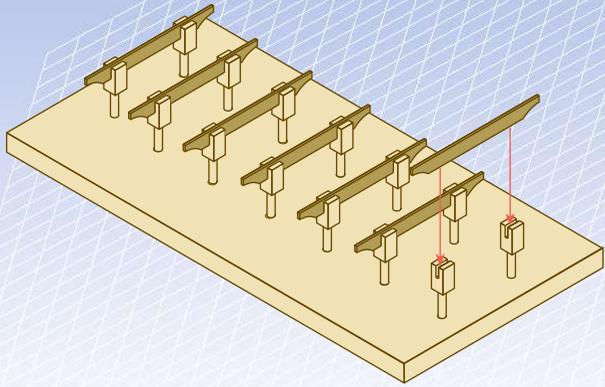


Drilling standoffs for dowels

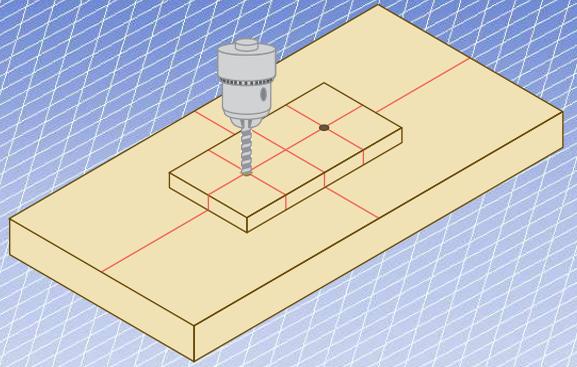
The standoffs are drilled for a dowel in another jig. This one has a small sliding bar to hold the standoff in place without getting fingers near the drill bit. The holes in the bottoms of the standoff should be drilled to a uniform depth.

Cut the necessary number of dowels to some uniformly oversized length, say 1-1/2". Glue one into the base of each standoff and allow to dry.

Insert the dowel of each standoff into one of the holes in the assembly board. Dry-fit the bar to line up the saddles. Glue a bar into each pair of standoffs and allow to dry.



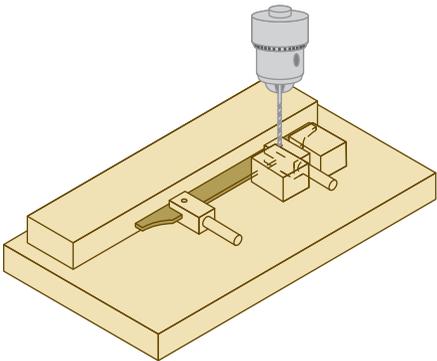
Using the assembly board



Using the master jig to drill mounting holes in drawer fronts

The master jig is used to drill holes for the pulls on each finished drawer front.

Drill for the cross-pins and glue into place. When dry, trim and sand flush with the standoffs. Return the pulls to the assembly board and apply varnish. When the pulls are finished, trim the dowels to length.



Drilling for cross-pins