Fox Wedging

A sly joint for a 17th-century stool

by Alasdair G.B. Wallace

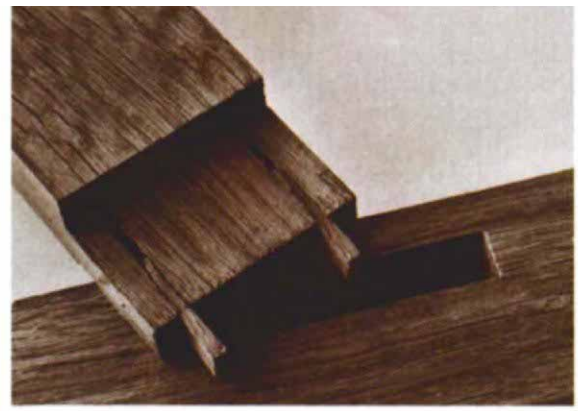
A request to copy a pair of 17th-century joynt stools in brown oak offered a welcome change and challenge for me. My customer had admired a pair of 19th-century reproduction stools in an antique shop, but found the price beyond her means and equally beyond the realm of reason. Though English brown oak costs three to four times as much as domestic red oak, a quick calculation suggested that I could produce two stools for less than the price of a single 100-year-old reproduction.

Joynt stools date from the late l6th century and the advent of the technique of framing and the pegged mortise-and-tenon joint. (The term joynt comes from joined.) In addition to plain, totally unadorned joynt stools, some exhibited simple moldings and carving, while others for churches and manor houses were elaborately carved and molded. I was asked to copy the most basic stool, the product of the country carpenter.

Construction of the stool is straightforward. When preparing the stock, make the leg blanks 1 in. longer than the finished dimension to allow for trimming. You can mortise the legs before or after turning them. I prefer to turn them first so that I can fine-tune the location of the mortises relative to the turnings.

The mortises and tenons should be laid out so that the outer faces of the apron rails and stretchers will finish flush with the outer faces of the legs. For maximum strength, the tenons should be offset as shown in the drawing on the facing page, and mortises for adjacent rails or stretchers shouldn't intersect in the leg. The legs are splayed 5° from perpendicular when the stool is viewed from the ends, so those mortises and tenons must be laid out accordingly. The Jacobeans didn't glue the mortise and tenons, relying instead on pegs and the shrinkage of slightly green legs around the tenons for strength. My brown oak was bone dry, so I chose to fox-wedge the tenons to help secure the joints.

Though little-used today, the fox-wedged tenon provides an exceptionally strong joint where a through-wedged tenon would be inappropriate or impossible. A fox-wedged tenon expands the tenon within its mortise, as does a through-wedged tenon, and both require tapered mortises to accommodate the tenon's expansion. The difference between the joints is that the fox-wedged mortise is blind and the wedges must be driven into the tenon by the bottom of the mortise. A great many things can go wrong if the joint isn't laid out and cut carefully. If, for example, the tenon or wedges are too long or the mortise insufficiently tapered, the joint won't pull tight; if the mortise is too wide or the wedges too slim, the joint will be loose. Regardless of whether you glue the joints (I preferred not to), they can be further secured by pegging.



Wallace's brown oak copy of a 17th-century joynt stool, left, is held together by fox-wedged tenons. The top is attached to the apron rails with square wooden pegs. A fox-wedged tenon and mortise, above, is ready for assembly. Since the faces of the pieces are to be flush, the tenon is offset for greater strength. The mortise, right, has been too heavily undercut, causing the tenon to fracture at the end of the top kerf. The wedges and kerfs, however, are perfect.

Lay out and cut the joint as you would a standard blind mortise-and-tenon. Then taper the mortise, kerf the tenons and make the wedges following these basic guidelines:

The depth of the mortise should be about 1/16 in. to 1/8 in. greater than the length of the tenon.

The taper of the mortise should equal the difference between the width of the sawkerfs and the thickness of the wedges.

Begin the mortise taper at a distance of about one-fifth the depth of the mortise beneath the shoulder. (Start tapering a 1¼-in.-deep mortise about ¼ in. beneath the shoulder.) This ensures that the wedges will be driven into the tenon equally and that the tenon will be centered in the mortise.

Position the kerfs about one-fifth the tenon's width in from each of its edges (about ¼ in. on a 1¼-in. wide tenon), and cut them to a depth of about four-fifths the tenon length.

Make hardwood wedges as long as or a bit less than the length of the kerf. At its thickest, a wedge should be about twice the width of the kerf, thinner if the wood is likely to split.

1 assemble the sides of the stool first, then add the end rails and stretchers. When you assemble the fox-wedged joints, make sure that the wedges are firmly in place in the kerfs, and take care not to dislodge the wedges as you insert each tenon into its mortise. To avoid jarring the wedges loose, draw the joints together with a clamp rather than driving them together with a mallet. The original stool's joints were pegged. I drove square pegs into slightly smaller round holes, then flushed them off with a chisel. To attach the top, I used the Jacobean method of driving square pegs through it into the apron rails. Nails, pocket screws or buttons can do the job, too.

Everyone in the business of reproduction has his or her own secret recipe for stain. These range from unlikely concoctions of manure, ashes and soot to commercial stains. Don't be afraid to experiment. I used a manure/ash/soot combination, painting it on liberally, filling cracks and hollows and leaving it for three or four months. Brushing the mixture off revealed a deep brown surface. Thorough wiping in areas of high wear and some judicious sanding achieved the antique effect my client desired. A beeswax, turpentine and lampblack mixture completes the finish. Apply it over five wiped-on coats of 1-1 white shellac/methylhydrate which seals the wood and gives it life and depth.

My customer's wish that the stool look old presented me with an ethical dilemma. Judging by the wealth of "authentic" joynt stools I saw on a recent trip to England, the Jacobean carpenter was much more prolific than we realize or current high prices have tempted their modern counterparts to augment the Jacobean output. I was able to satisfy the customer's desire for a piece that looked authentic by staining and distressing. By carving my name and the date on the back face of an apron rail I ensured that no one would ever be duped by my deception. □

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