

Shaker Sewing Steps

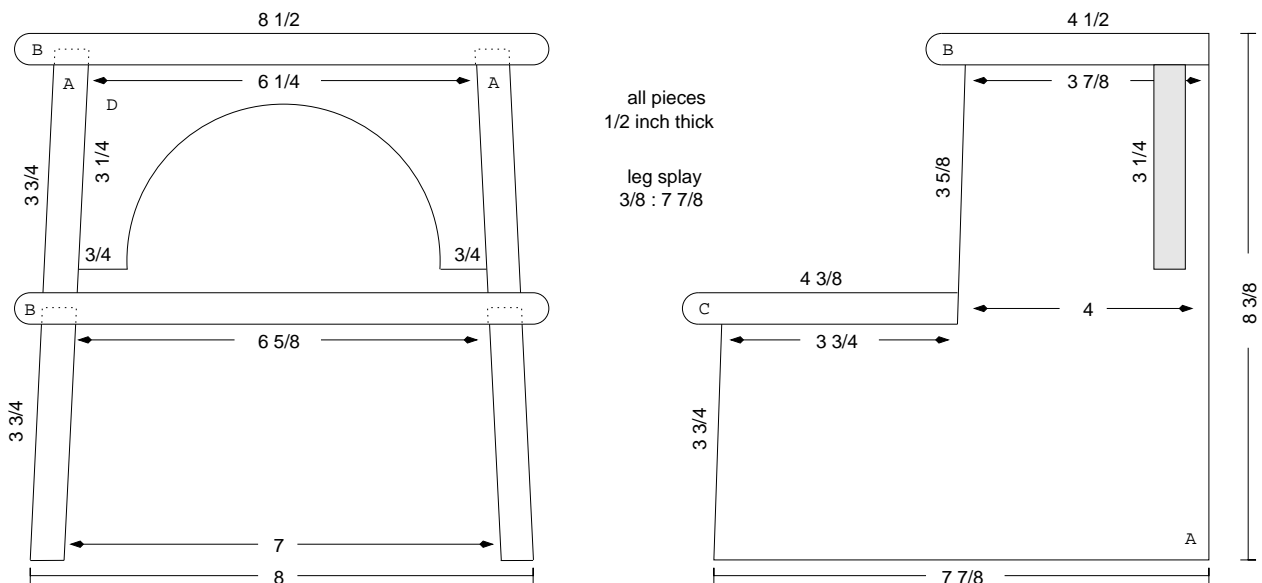
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Introduction

The following set of steps is from the “Sewing Steps” shown on page 142 of Christian Becksvoort’s *The Shaker Legacy, Perspectives on an Enduring Furniture Style*. Sewing steps provide a foot rest for someone sewing by hand in a seated position. It’s also an easy project that uses less than 2 board feet of hardwood.

Plans

These plans show the design of the steps.



Cut List

Key	Qty	Description	T	W	L	Notes
A	2	Sides	1/2	7 7/8	8 1/8	Sides cut as shown in the plans.
B	1	Top tread	1/2	4 1/2	8 1/2	1/4" grooves cut for the sides and cross-support. Grooves slightly angled for the splay of the legs.
C	1	Lower tread	1/2	4 3/8	8 1/2	1/4" grooves cut for the sides. Grooves slightly angled for the splay of the legs.
D	1	Cross-support	1/2	3 1/4	6 3/4	Support is angled to match the splay of the legs.

All dimensions are in inches.

Tools Used

Tool	Uses	Substitutes
Saws		
IT dovetail saw	· Starting resaw cuts	Backsaw, filed rip
Swingley frame saw	· Resawing wood to thickness	Ripsaw
Disston D-23, 8 tpi	· Cutting pieces to size	Crosscut handsaw
Disston D-7, 11 tpi	· Cutting pieces to size	Crosscut handsaw
Disston D-7, 8 tpi	· Cutting pieces to size	Ripsaw
Coping saw	· Cutting out curve in cross-support	
Handplanes		
Stanley #3	· Final smoothing	Smoothing plane
Stanley #5	· Flattening pieces	Any jack / fore plane
Stanley #40	· Initial flattening of pieces	Jack / fore plane with radiused iron
Stanley #60 ^{1/2}	· Shaping treads · Squaring ends	Any block plane
Miscellaneous		
Starrett folding rule	· All measurements	Your favorite measuring tool
Stanley square	· Marking square lines	Any sort of square
Veritas wheel gauge	· Marking resaw cut lines	Any marking gauge

Construction Notes

*The first step in the project is to size the five pieces of this piece to size. I started with an $\frac{8}{4}$ piece of white ash, which I resawed into 6 pieces that were approximately $\frac{1}{2}'' \times 8\frac{1}{2}'' \times 10''$.

The Shaker original had $\frac{5}{16}''$ sides and $\frac{3}{8}''$ treads. These are probably minimum thicknesses with modern hardwoods. If you are using softer hardwoods, you will want at least $\frac{1}{2}''$ thick pieces for the treads.

I did the resawing with a frame saw I made, cut the pieces free using a Disston D8 crosscut saw, and flattened each piece with a Stanley scrub plane (#40) followed by a Stanley jack plane (#5). To help prevent the pieces from warping after being cut I coated all sides with a 1# cut of dewaxed super blonde shellac.

I cut one tread and the cross-support from one of the pieces, used two pieces for each side, and used a fourth piece for the other tread. If you have wide enough material (9" or wider) to start with, you should cut both treads from a single piece. I tried to match the treads as much as possible, and choose the best faces for the sides. You also want to try to make the side pieces as close to the same thickness as possible.

Set a bevel square to the correct splay of the legs ($\frac{3}{8} : 7\frac{7}{8}$) and mark off the sides of the cross-support. Cut off the ends using a fine ripsaw and smooth the end grain surfaces using a low-angle plane. I used a Disston D-7, 8 TPI ripsaw and a Stanley #60^{1/2} low-angle block plane.

The curve on the cross-support is laid out using a compass with the center set back from the edge. Cut out the waste using a coping saw. I don't have a spokeshave that has enough of a curved sole, so I used various grits of sandpaper to smooth the inside of the curve.

The steps in the sides are cut out using a fine crosscut and rip saw. Make the cuts as close to the line as possible, especially on the crosscuts so there is less trimming later.

A chisel or chisel plane is used to flatten the cut edges with interior corners. The cuts that support the treads are less important because they will fit into grooves on the underside of the treads. We'll be angling these later anyway. I used a Stanley #92 shoulder plane with the front piece removed for the interior cuts, and my Krenov-style jack plane for the cuts it could reach.

* Some images appear at http://www.frontier.iarc.uaf.edu/~cswingle/woodworking/sewing_steps.phtml

The treads are cut out using the same fine crosscut and rip saws used before. The front of each tread is rounded over using a block plane, spokeshave, or a molding plane. I used a Stanley #60¹/₂ low-angle block plane.

Now that all the pieces are sized, we need to cut the grooves in the sides for the cross-support, and cut the grooves in the treads for the sides and the cross-support on the top tread. All of these grooves are stopped grooves, and the grooves for the side pieces in the treads are angled.

I used the same method for cutting all the grooves. I chopped a short section of the groove at the stopped edge. Then I use a backsaw to define the edges of the remainder of the groove. The section of the groove that was chopped out allows the tip of the saw to clear it's sawdust when sawing the rest of the groove. For the angled grooves in the treads, I used a guide block cut at the correct angle, and ran the side of the saw against the guide block to insure the groove was at the right angle. The waste between the sawed edges is then removed with chisels and the bottom smoothed with a router plane.

A side rabbet plane (I used a Stanley #79 side rabbet) is used to adjust the width of the grooves until the matching pieces fit snugly into the grooves.

The groove for the cross-support needs to account for the expansion and contraction of the piece. I calculate that in white ash the cross-support will expand and contract approximately ¹/₁₆" over the range of humidity expected in a modern home. If the project is being complete in summer, the groove can be made full length, but if you are making it in winter, be sure to make the groove slightly longer than the cross-support.

Once all the pieces fit together without any glue, it's time to smooth all sides of each piece. I used a combination of a Stanley Type-11 #4 smooth plane, a Type-17 #3 smooth plane, a Stanley #80 cabinet scraper, and a hand scraper wherever necessary.

According to Christian Becksvoort, the original steps were nailed together. I decided I'd rather glue and peg the joints. Once I had the pieces fitted together and held in place with clamps, I drilled a single hole through each joint. For example, the top tread gets a hole in the center of each groove down into the side pieces, as well as one hole in the back that goes into the cross-support. The peg that runs through the sides and into the ends of the cross-support needs to be placed close to the top of the groove.

To assemble the piece, put glue on the top of the cross-piece, fit it into the grooves in the sides, and drive the pegs home. Do not put glue on the ends of the cross-piece so it can expand and contract in the groove with changes in humidity. Next, put glue on the top of the sides and the cross-pieces and fit the grooves on the top tread into these pieces. Drive the pegs home. Finally, glue and peg the lower tread. I used hot hide glue for my joints, so very little clamping was necessary.

The finish is super-blonded dewaxed shellac, under paste wax rubbed on with #0000 steel wool. If you want to emphasize the grain, apply a gel stain after a couple coats of shellac, rub off the excess, and finish with a few more coats of shellac after the gel stain in the pores dries.

Notes

These plans are a work in progress and are not yet completed.
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