

Shaker-Style Clock

Modern works and classic design create convenient storage

by Phil Lowe

The simple beauty of Shaker styling teamed with modern clockworks offers an attractive and accurate timepiece as well as room for storage.

However, when I had a commission for such a Shaker clock, I found a lot of pictures of clocks, but no dimensioned drawings. So I scaled my design from a photo.

Because of my clients' space limitations, my version is only about 80% as large as the original. The dimensions of this downsized version fit very well in modern interiors. I proportioned the sides to the front, being careful to accommodate a modern quartz movement. That also left room for shelves in the lower compartment, which usually houses the pendulum.

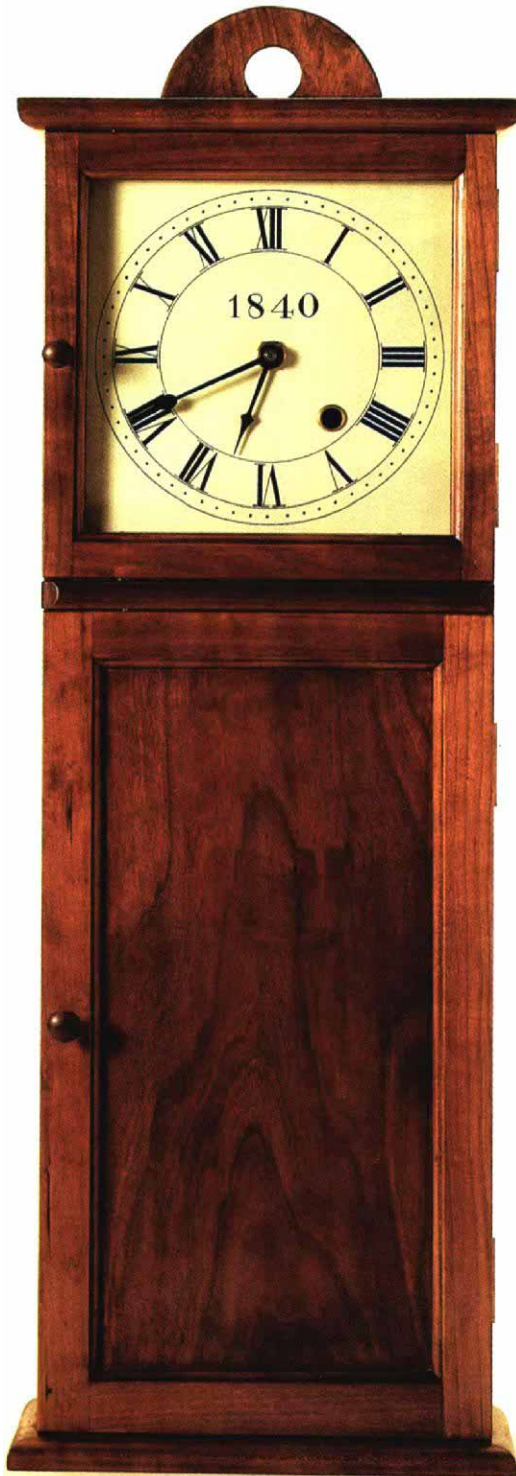
The cherry and pine case is held together with typical Shaker construction: Mortises and wedged through-tenons join the carcass, and blind mortise-and-tenon joints connect the door frames.

Clock design

A frequent admonition for any project is to buy your hardware before beginning to build. This is particularly true for a clock. You must accommodate hinges, latches and clockworks, and don't forget to allow enough room between the clock's face and the glass in the door for the hands.

Although original Shaker clocks had wooden works, I substituted a quartz movement from Klockit, Inc. (P.O. Box

This Shaker-style wall clock is a beautiful adaptation of the original design. Its smaller size, about 7 in. shorter than the original, fits well in modern homes, and the shelves added behind the panel door provide storage in a space that was intended for a pendulum.



636, Lake Geneva, Wis. 53147; 800-556-2548). Because the quartz movement I chose didn't have a pendulum, I added some shelves to the bottom compartment to make a convenient storage place for small items.

Hand-detailed stock preparation

I use the normal array of woodshop machines, such as a jointer, planer, tablesaw and crosscut saw, to dress and dimension stock slightly oversized for my projects. But to add a true, handcrafted touch and to remove machinery millmarks, I make a couple of light passes on each face and edge of the stock with a handplane. To cut pieces to length, I scribe my cutting line with a knife, rough cut shy of the line on the tablesaw and then handplane to the scribed line. I mold the edges of the top, bottom and doors on a table-mounted router with the appropriate bit.

Planning mortises and tenons

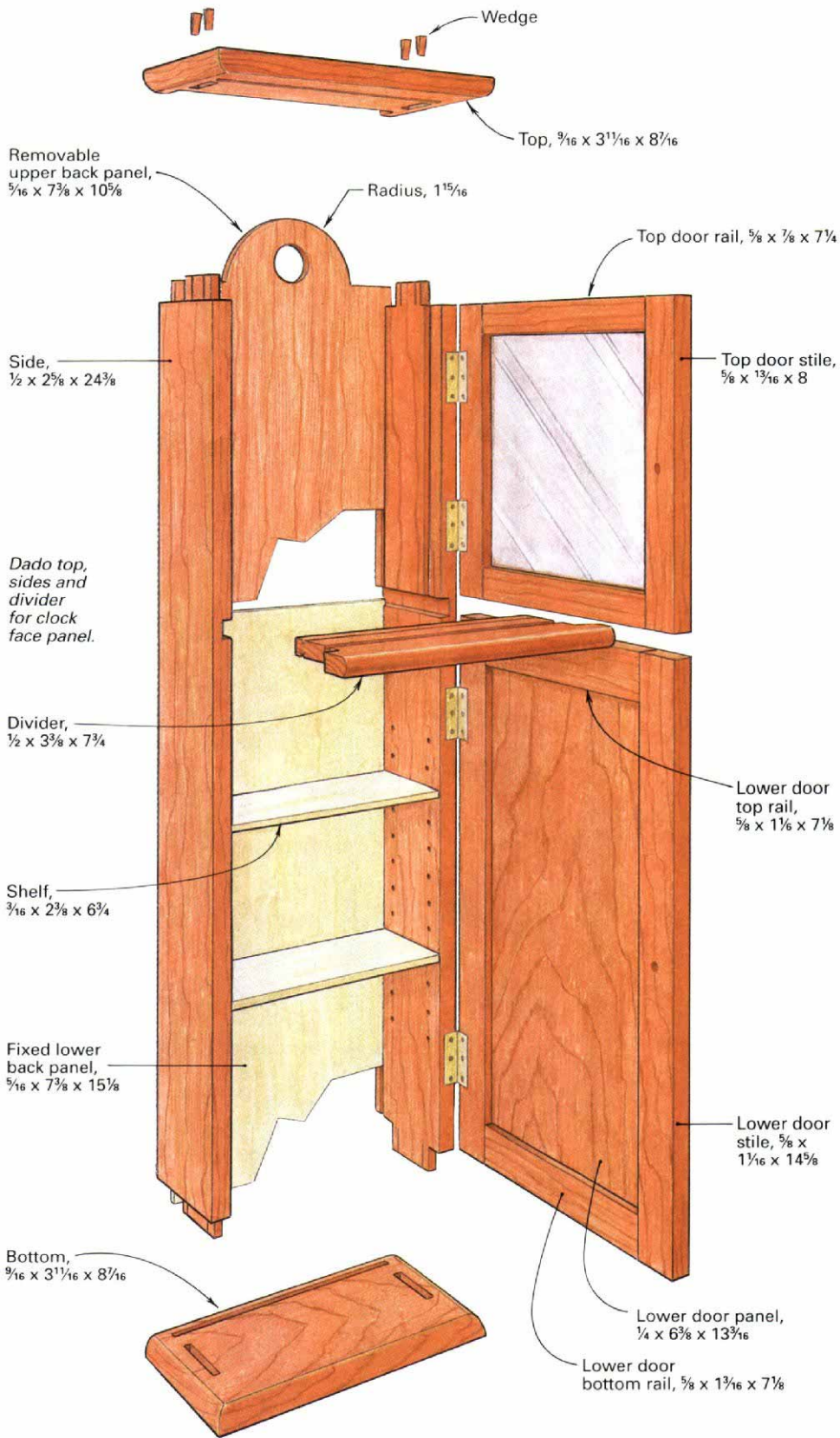
When laying out the mortises and tenons for the carcass, I didn't want the grooves for the back to interfere with the sides' tenons. I was also worried that the ends of the top and bottom might split during assembly when I drove the wedges into the sides' tenons. I avoided both these problems by extending the tenons' shoulders at the front and back and adding a shoulder to the outer side while leaving the inside barefaced, as shown in the drawing on the following page. This way, the tenons clear the grooves, and the top and bottom mortises have greater strength.

Putting on a good face

The face and works fasten to a pine panel that sits in grooves cut in the sides, top and

Shaker-style wall clock

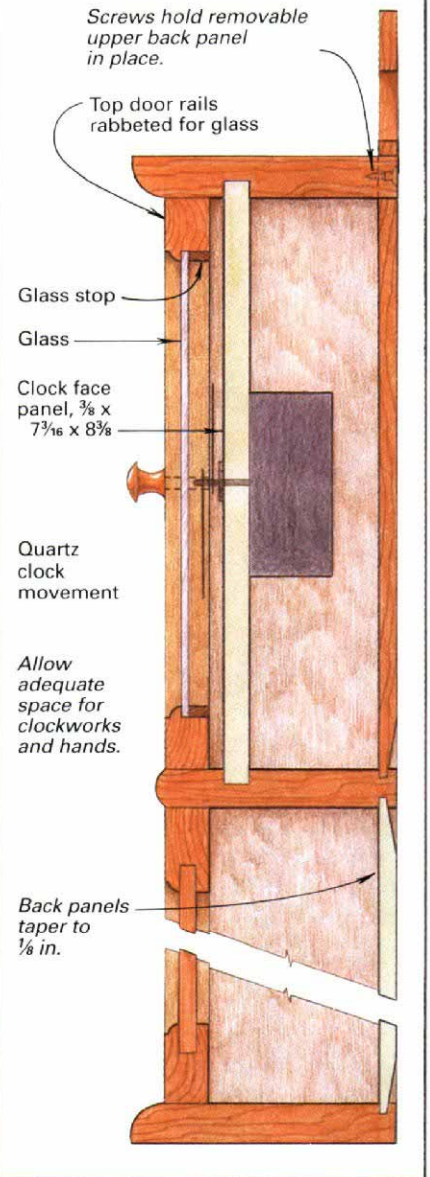
Scaled from a photograph, this drawing shows the author's interpretation of a Shaker wall clock. Joinery is based on traditional Shaker construction techniques, but the size is about 20% smaller than the original clock, which was about 31 in. tall.



Note: Pins to hold shelving are $\frac{1}{4}$ in. dia. by $\frac{3}{4}$ in. long.

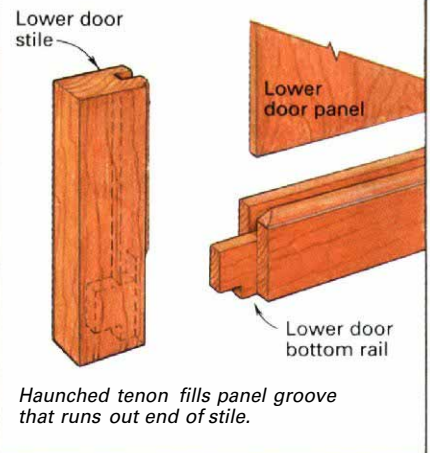
Detail A: Top door

Construction details for top door



Detail B: Lower door

Construction details for lower door



divider. To ensure the face panel grooves line up, I referenced all the cuts off the back edges of these pieces. When cutting these grooves, be sure to allow clearance for the clock's hands.

Grooves for double back panels

I used double panels in the back: a fixed lower panel and a removable upper panel for access to the clockworks. I beveled the back side of these 5/16-in.-thick panels, so their edges will fit into a 1/8-in.-wide groove.

The lower panel is captured in grooves in the sides, bottom and divider. The grooves run from end to end on all pieces except the bottom, which has a stopped groove. Through-grooves are easily cut on the tablesaw, but a router is probably the safest way to cut the stopped groove.

The top back panel slides from the top into grooves in the sides and divider. The panel includes a semicircular section extending above the clock with a hole for hanging the clock on a Shaker peg. Two screws driven through the top panel and into the back edge of the top secure the removable back panel.

To let the back panel drop into its grooves, I use a tablesaw to cut away the back edge of the top, as shown in the drawing. I make this stopped cut by raising the blade through the top with the same fence setting used to groove the sides, so the cut lines up with the grooves. Don't make this cut without a stop block clamped to the fence in front of the piece.

To position the stop block, I use the top, laid out with start and stop marks for the cut, as a gauge. I lay the marked top next to the blade and then raise the blade until the points at which the teeth of the blade penetrate the tablesaw top at the front and back of the blade are just shy of the start and stop marks on the top. I clamp the stop block to the fence and lower the blade, counting the number of turns until the blade is completely retracted. After positioning the top against the fence and the stop block, I turn on the saw and raise the blade through the stock, the same number of turns it took to lower it, being sure to keep my fingers clear of the cutting area. I then lower the blade, turn off the saw and finish the cuts with a handsaw.

Although this procedure is easily done, you might be more comfortable just cutting away the waste on a bandsaw.

Assembly and glue-up

Before assembly, I drilled holes for the shelf pins in the sides and then sanded the carcass pieces to 180-grit, raising the grain between sanding with a damp cloth.

To assemble, I applied glue to the divider dados and to the tenons for the top. I slid the divider and the face panel into position before putting the top onto the tenons. Next I slid the bottom back panel into place, applied glue to the two bottom tenons and put the bottom on the sides. While the glue was still fresh, I tapped the wedges into the tenon kerfs, being careful not to drive the wedges so far as to crack the top or bottom. I measured across the diagonals to make sure the carcass was square and then gave it a final sanding with 220-grit paper.

Frame-and-panel doors with mitered molding

The rails and stiles of the doors are molded with a quarter-round and fillet pattern along the inner edge. This molding, or sticking, is mitered, and the rails and stiles are joined with mortises and tenons, as described in Mac Campbell's article in *FWW*#98, pp.66-69. The top door is rabbeted to accept the glass and a glass stop, as shown in drawing detail A, and the bottom door is grooved for a flat, floating panel, as shown in drawing detail B.

Aligning the mortises and tenons for the stiles and rails with the panel groove and the glass rabbet made it easier to cut the joints. The tenon is as thick as the panel groove is wide, so it is easy to cut a haunch on the tenon to fill the groove where it runs out the end of the stile, as shown in drawing detail B.

After assembling the doors, I glued and wedged in the turned knobs and mounted the doors to the carcass. When satisfied with the fit and alignment, I removed the hinges and finished the carcass and the doors, as described in the box at right.

When the finish dried, I completed the clock by reinstalling the hinges, inserting the glass with glass stops and mounting the face, works and hands in the top. I used 3/32-in.-thick, light restoration glass from S. A. Bendheim Co. (61 Willett St., Passaic, N.J. 07055; 800-221-7379) to give the clock an authentic antique appearance.

I had the face for my clock hand-painted on a sheet of tin by a local artist (Herschel B. Burt, P.O. Box 399, Exeter, N.H.; 603-772-3598) to duplicate the original. A variety of printed faces are also available from Klockit, Inc.

All that was left after sliding the upper back panel into its grooves and screwing it in place was to make a nice strip of Shaker pegs from which to hang the clock. □

Phil Lowe designs, makes and restores fine furniture in Beverly, Mass.

Reproducing an aged finish

Building accurate replicas of old pieces is always compromised when using new wood because it lacks the patina that develops only with age. This is particularly true of cherry, which darkens considerably as it ages. However, I've found a chemical solution that can impart an aged look to cherry without waiting years.

I apply a saturated solution of Sal-Soda, an unpure carbonate of soda that painters use for cleaning prior to painting. Sal-Soda can be hard to track down, but you may find it at large, commercial paint-supply stores, or you can mail order it from the Johnson Paint Co. (355 Newbury St., Boston, Mass. 02115; 617-536-4244). One pound (\$ 1.20/lb.) will make about 1½ gals, to 2 gals, of saturated solution.

I mix the Sal-Soda with water until no more crystals will dissolve, strain off the undissolved crystals and then apply a heavy coat of the mixture with a foam brush. I wipe off any excess puddles of solution after approximately 15 minutes, let it dry thoroughly and then apply a second coat. Because this process can raise the grain, it's important to wet sand the piece several times before applying the Sal-Soda.

Sal-Soda also works on oak and mahogany, but it shouldn't be used on veneers. The solution must be neutralized with a vinegar and water wash before applying any topcoats. Results can vary, so experiment on scraps of the wood you're using, and allow about a week for the darkening to fully develop.

After treating with Sal-Soda, I brushed on three coats of orange shellac, allowing each coat to dry overnight and then rubbing between coats with 0000 steel wool. To add just a hint more color to the wood, I waxed the clock with a coat of Kiwi brown shoe polish and finished up with a clear coat of butcher's wax. —P.L.