

# Pennsylvania Tall Clock

The base and waist support the hood and give this clock stature

BY LONNIE BIRD

## PART TWO

When you stop to examine the construction of most tall clocks, the joinery that goes into the case-work really is fairly simple. This clock is no exception. In the previous issue of *Fine Woodworking* (#171, pp. 60-67), I covered the joinery and the details that go into making the hood, which is the top case of the three stacked boxes that make up this clock and the one that requires the most work. In this issue, I'll explain how to make the base and the waist—the two cases that support the hood and give this tall clock some of its commanding stature. Compared with the hood, the base and the waist are quite simple in construction.

### Build from the bottom up

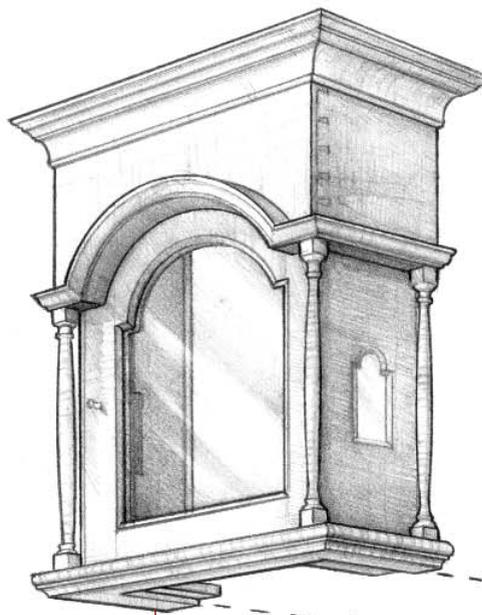
Start with the base, and begin by dovetailing the bottom to the case sides. Because the bottom of the base is not visible in the completed clock, I used less-expensive poplar rather than figured maple, the primary wood. When laying out the dovetails, allow room for the rabbet that accepts the back of the clock. The back, also made of poplar, will not be attached to all three cases until the very end—after all of the finishing has been completed, the movement installed, and the doors hung.

For the face frame of the base, lay out and cut the mortises on the stiles, then cut the tenons on the top and bottom rails to fit. Before gluing together the face frame, cut the decorative curved corners on the top rail that correspond with the front panel that will be added later. The outside rabbeted edges of that panel will cover the inside edges of the face frame, so you don't



## THREE BOXES AND A BACK

Building a tall clock may seem overwhelming to some woodworkers, but by breaking down the project into stages, you'll see that it's not very complicated. In the previous issue (#171, pp. 60-67), Bird focused on building the hood for this clock. In this issue, he explains how to build the base and the waist, which are relatively simple.



### HOOD

Of the three cases that make up this clock, the hood is by far the most complex. The arched door, turned columns, and prominent crown molding allude to architectural details.

### WAIST

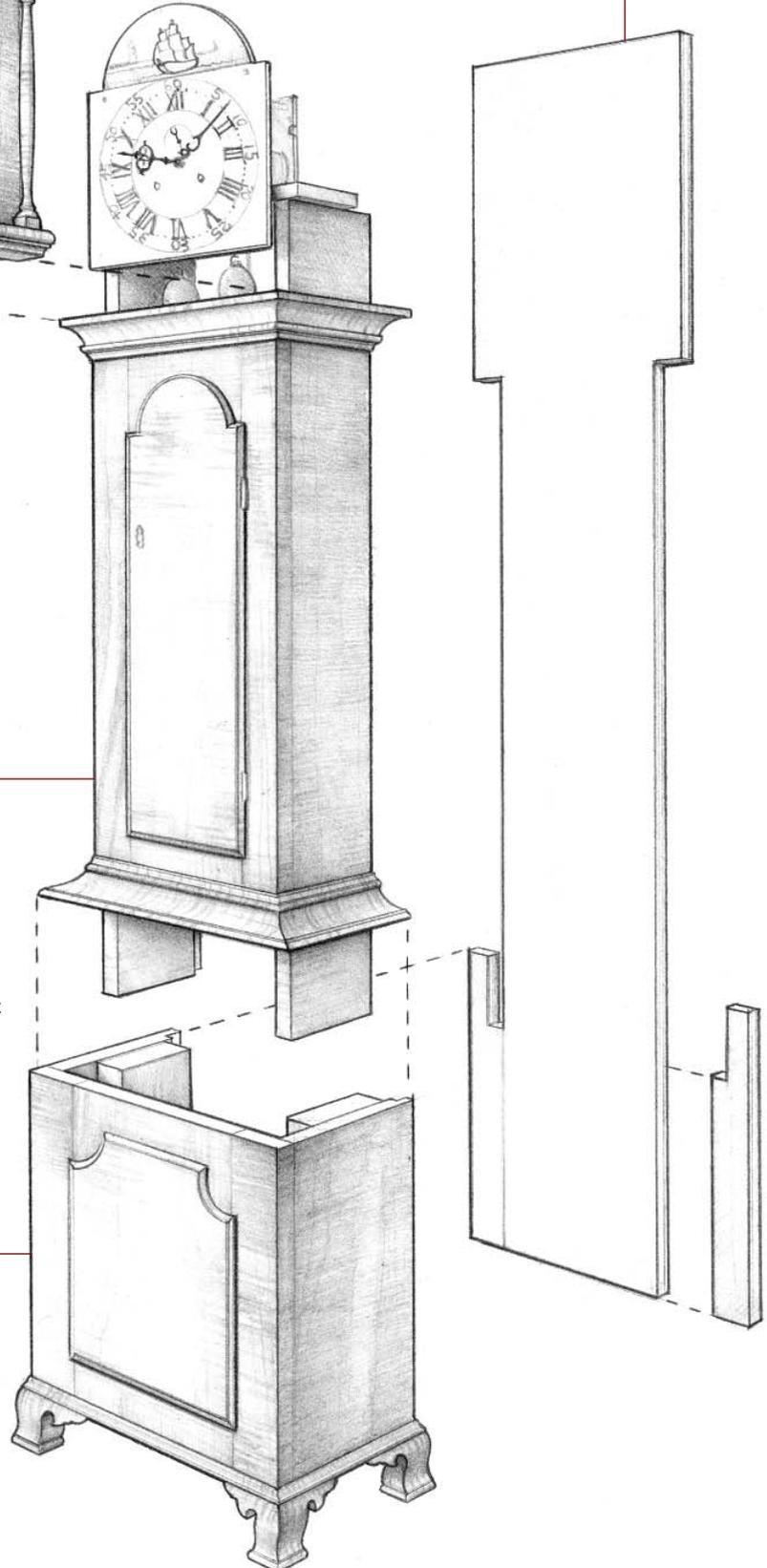
The waist, or middle section, is merely two sides joined to a face frame. The waist has no top or bottom because it has to extend upward into the hood—where it supports the seatboard on which the clock movement rests—and downward into the base—where it is screwed and glued to blocking.

### BASE

Like the waist, the base is simple in construction—two sides glued to a face frame. But unlike the waist, the base has a solid bottom joined to the sides, and a bottom frame, onto which the four separate feet are screwed into place.

### BACK

Measure the width at the back of the hood and the overall height to dimension the back board. After ripping the back to width, notch the edges to fit inside the narrower waist, and then edge-glue extra pieces at the bottom to fit inside the wider base.

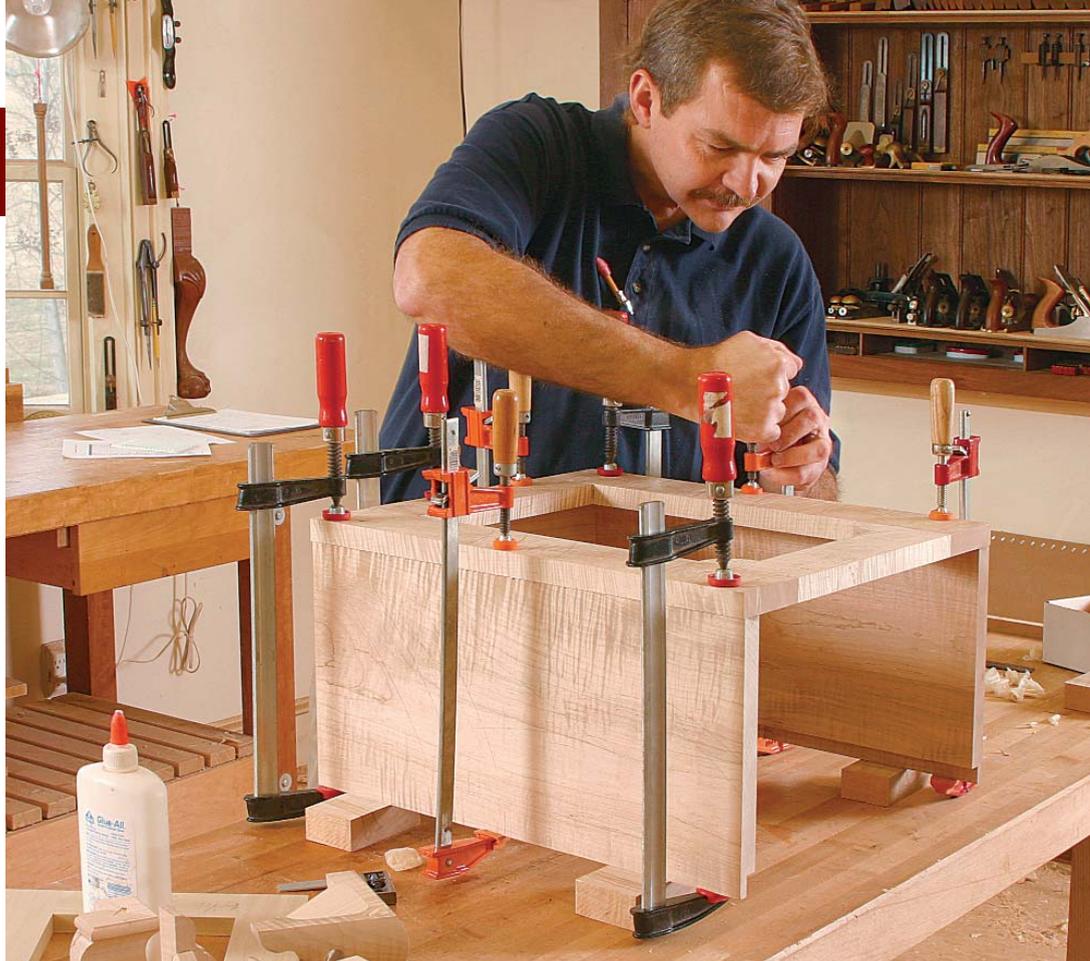


## FIRST, ASSEMBLE THE BASE CABINET



**Join the sides to the bottom with dovetails.** The first step in assembling the base is to join the sides to the bottom. Note that the bottom is made of poplar, a secondary and less-expensive wood for parts of the clock that aren't visible.

**Leave a little extra at the edges.** Sides are glued and clamped to the face frame for the base, using simple butt joints and plenty of glue. The face frame overlaps each side slightly and is then trimmed to fit after the glue dries.



have to be fussy about cleaning up the band-saw marks left on the edges of the top rail.

Glue up the face frame, allow the glue to set, then glue it to the front edges of the sides and bottom. As you put the face frame under pressure with the clamps, monitor that it sits square to the sides. I like to leave the edges of the face frame slightly proud of the sides and then bring them flush with a handplane and scraper after taking the assembly out of the clamps.

You'll need to build a base frame,  $\frac{5}{8}$  in. thick, to go on the underside of the base. This frame provides a stable nailing surface for the small molding that gets nailed around the front and sides of the base (covering the edges of the frame) and a place to attach the feet. Glue the base frame to the clock base at the front edge only, attach the remainder with screws, and slot the holes to allow for seasonal movement.

When laying out the base-frame joinery, allow the frame to overlap the case by  $\frac{1}{2}$  in. on the front and on both sides. By building the base frame oversize, you can trim it flush easily after attaching it to the base: I use a router for that task.

The bracket feet on this clock are almost identical to the ones I used on a Pennsyl-

vania secretary featured in *Fine Woodworking* issues #154, #155, and #156. (For details on constructing these ogee bracket feet, see *FWW* #154, pp. 52-53.) Clamp pieces of the base molding in place on the bottom edge of the base cabinet, to see exactly where to secure the ogee feet. After screwing the feet to the underside of the base frame, you can nail the base molding around both sides and the front of the clock, mitering the two front corners.

### Sides of the waist extend into the base and hood

The middle section, or waist, is just a face frame glued to the two sides. After cutting the mortise-and-tenon joinery on the face frame, cut the arch in the top rail before assembling the frame. Also, cut the rabbets in the case sides that will accept the back, and then glue and clamp the sides to the assembled face frame. Just as I did with the base, I like to leave the stiles of the face frame slightly proud when gluing them to the waist sides, and then trim them flush with a router or a handplane and scraper, after the glue has set.

The sides of the waist extend well beyond the face frame, top and bottom. That extra

length gives you a way to connect the three cases that make up this clock.

### Fit the three cases together

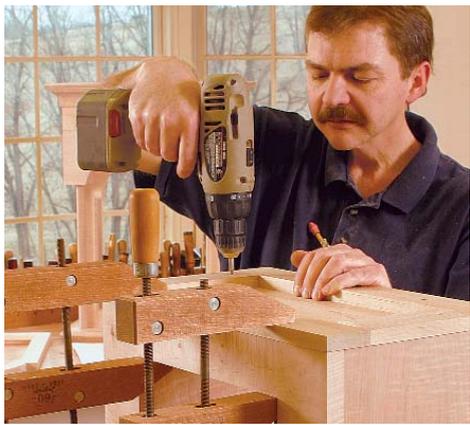
With the cases for the hood, base, and waist built, you're ready to assemble the clock. The upper extensions of the two waist sides support the seatboard—the platform on which the movement rests. Keep in mind that the hood isn't permanently attached to the case; it simply slides off from the front to allow access to the movement. However, the waist and base are permanently attached, using thick glue blocks where they are joined together.

To ease assembly, position the base and waist faceup on the workbench. Measure the difference between the outside width of the waist and the inside width of the base. The thickness of the glue blocks, which also work as spacing blocks, will each be one-half of that difference. Glue and screw the blocks to the inside of the base. Next, adjust the vertical position of the waist, and then glue and screw it in place to the blocks inside the base.

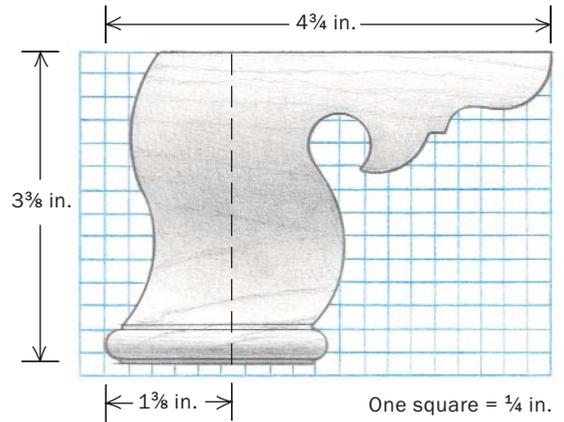
Now add the transitional moldings at each end of the waist. Keep in mind this very important detail: The upper molding

## ALIGN THE BRACKET FEET TO THE BASE MOLDING

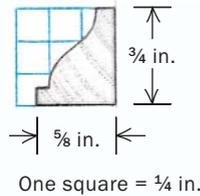
Dry-fit and clamp the base molding in place, mitering the two front corners, as a guide to follow when installing the feet. After that, you can nail the molding in place.



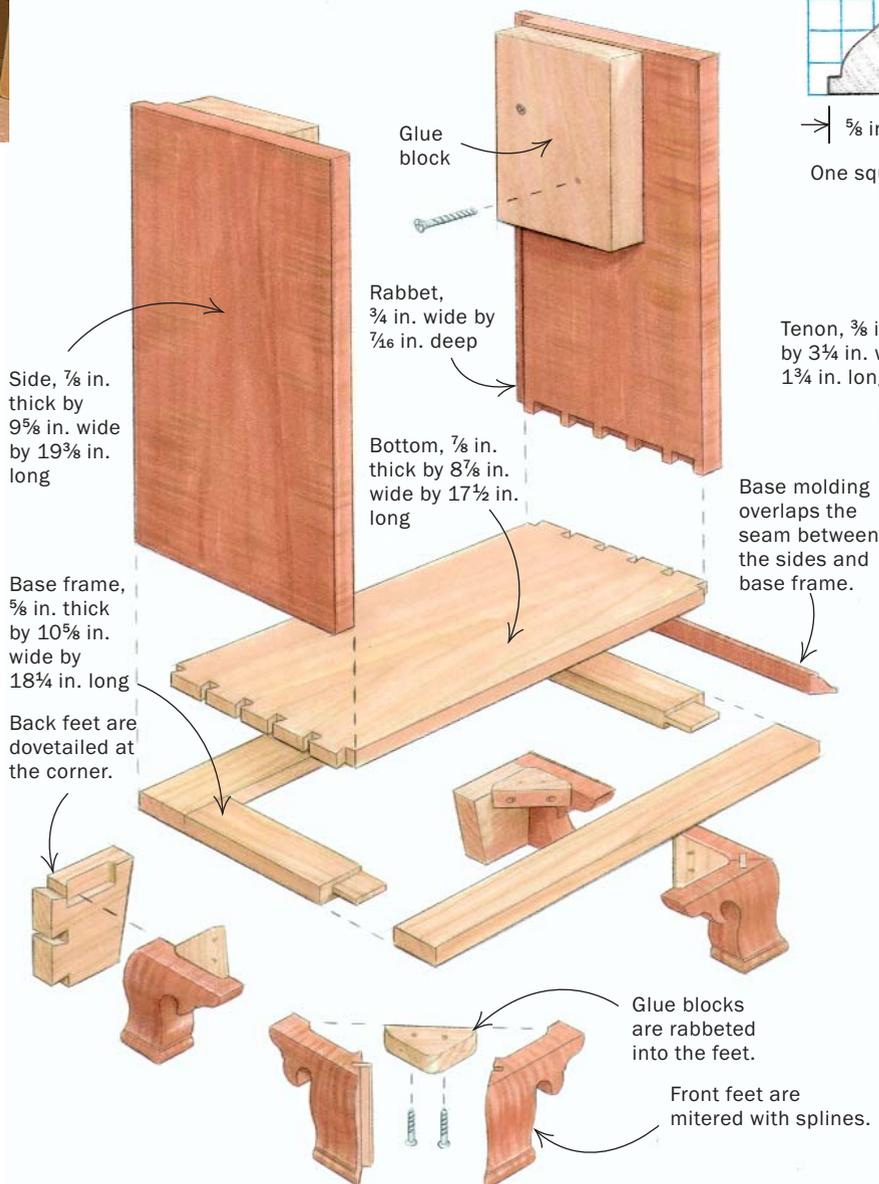
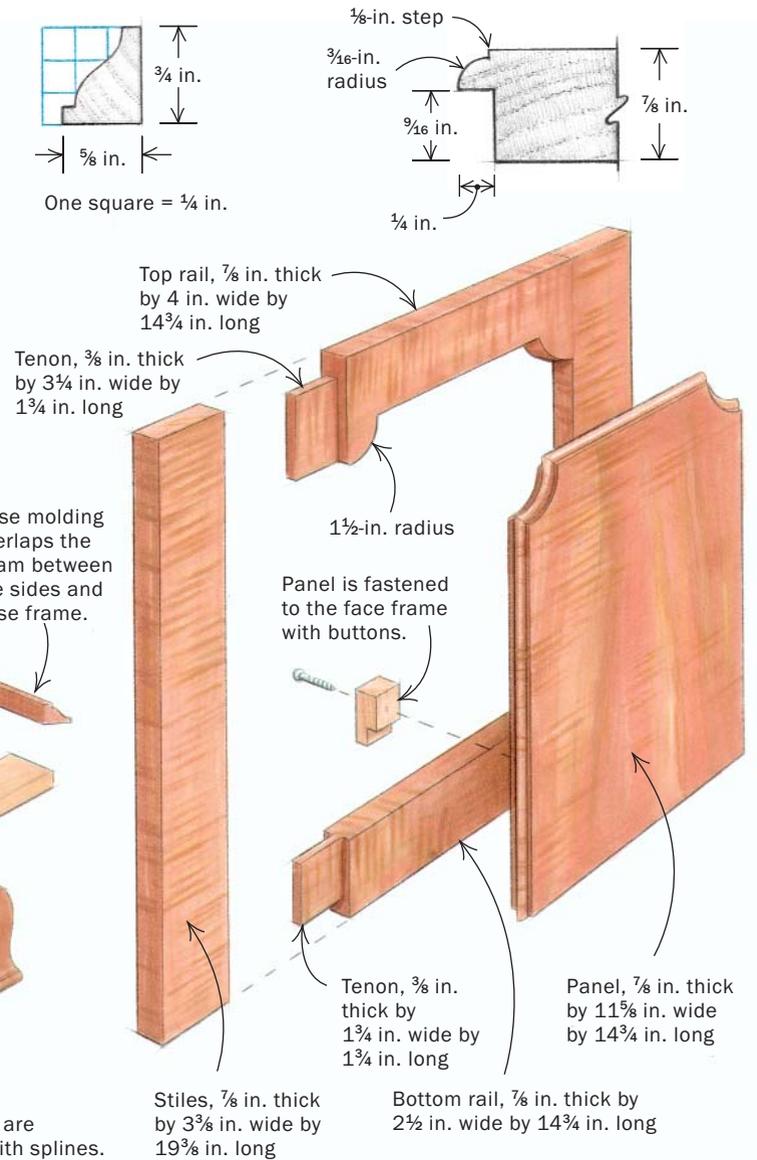
**Add a frame to the bottom of the base.** The poplar base frame, screwed to the underside of the case bottom, serves as a stable nailing surface for the small molding that trims out the sides and front of the bottom edge.



### BASE-MOLDING PROFILE

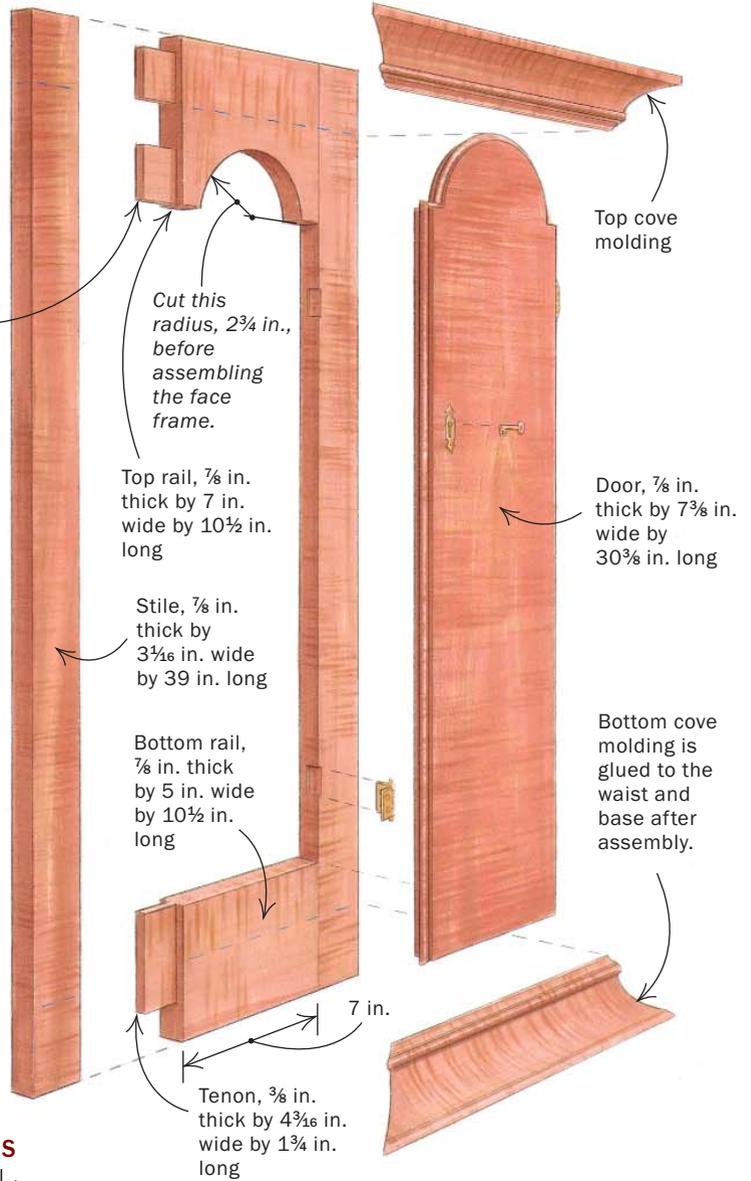
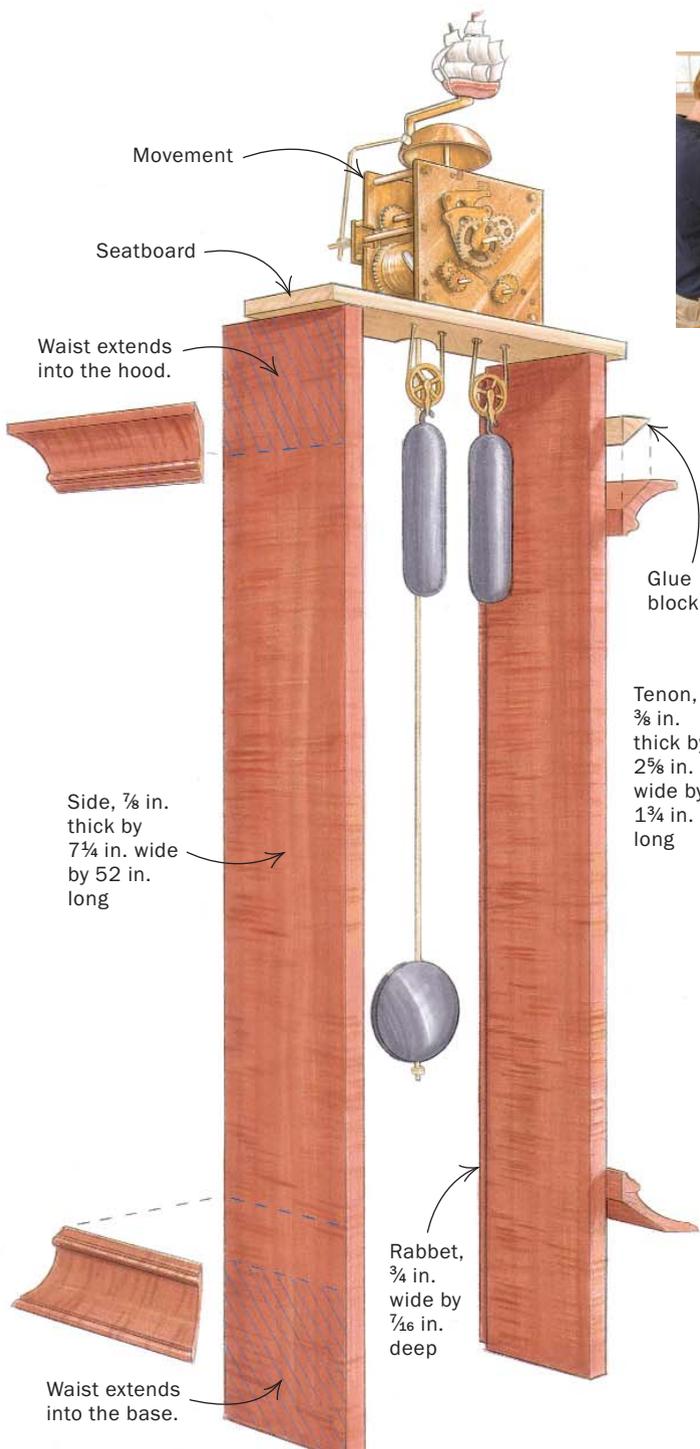


### BASE-PANEL AND WAIST-DOOR PROFILE

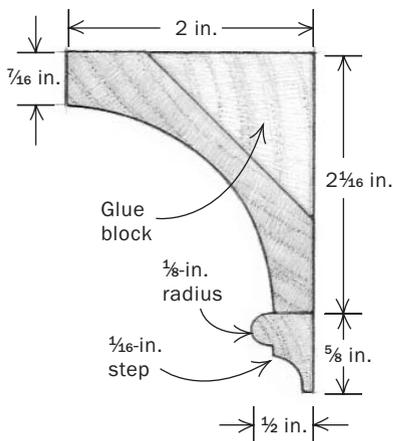


## BUILD THE WAIST AND ATTACH IT TO THE BASE

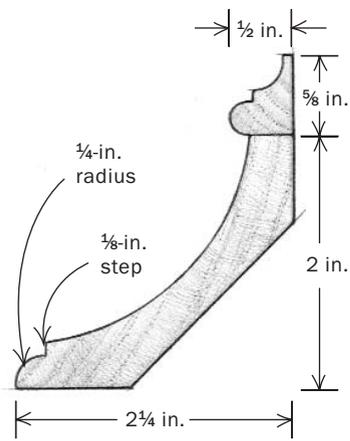
The waist is simply a face frame joined to the two sides with butt joints, glued and clamped in place. Monitor the joint with a square as you apply pressure with the clamps.



### TOP-COVE AND BEAD-MOLDING PROFILES



### BOTTOM-COVE AND BEAD-MOLDING PROFILES



**Glue the cove molding to the waist.** Clamp scraps of  $\frac{1}{4}$ -in.-thick plywood to define the baseline of the molding and to have an edge to push against. For the two side pieces, apply glue to the mitered corner joint and only partially to the bottom edge, near the front, which will allow for seasonal movement in the solid maple sides.





**Glue blocks join the waist to the base.** After assembling the waist and the base cabinets, measure the outside width of the waist and the inside width of the base. The difference divided by two is the thickness at which you should mill each of the two glue blocks. Glue and screw the blocks to the insides of the base cabinet first.



**Attach the waist to the base.** Where the waist sides extend down into the base cabinet, use plenty of glue and screws to secure the two cases to one another. Position them carefully before driving the screws through the waist sides into the glue blocks in the base. Once the glue sets, the waist and base become one cabinet. The bottom cove molding will conceal the gap between the two components.



will support the hood, so it is a structural element to the clock design, not just a decorative one. Also, exactly where you secure that upper molding to the top of the waist will affect the fit of the movement within the hood, so you want to be precise when laying out the position of the molding.

After mitering and attaching the molding, strengthen it by adding triangular-shaped glue blocks behind it, between the molding and the case. Next, nail a strip of wood on each side of the waist to serve as a kicker. The kickers keep the hood from tipping forward as it is slid on and off the waist. For authenticity, you can use reproduction nails or small cut nails.

After the glue on the triangular blocks behind the top molding has set, slide the hood into position and measure the width at the back of the hood and the overall height to dimension the back board. After ripping it to width, notch the edges to fit inside the narrower waist, and then glue on extra pieces at the bottom to fit inside the wider base. You can use reproduction nails or screws to attach the back board to the rabbets within the waist and base, but wait

until you've put a finish on the clock before securing the back board in place.

### Door and lower panel show off the wood

The last step is to construct the front panel for the base and the door to the waist. Both pieces are solid planks rabbeted around the outside edges, with only a small amount of the thickness sitting proud of the face frames. The lower panel is fixed in position (from inside the base, with wood buttons), while the door is hinged and fitted with a lock. The waist door and base panel are both great places to show off figured grain, so you can choose your best

stock for the widths required. Avoid using glued-up material because the seams will be distracting.

When measuring for the panel, add  $\frac{3}{16}$  in. along all four edges for the rabbeted overlaps. The door overlaps its opening, too, but only on three sides: An overlap on the hinge side would cause the door to bind when opened.

Cut the base panel and waist door to size and rabbet the edges. Then shape the edges with a  $\frac{3}{16}$ -in. thumbnail profile—the same profile used on the sides and windows of the hood.

To hold the lower panel in place, I use wood buttons, which allow for seasonal movement. Each button is fastened to the inside of the panel with a single screw and has a lip that catches the inside edge of the face frame. To hang the door, you'll need special hinges for a lipped door. A small half-mortise lock will keep the waist door shut (see "Choosing and Installing a Lock-set," *FWW* #162, pp. 80-85). □

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## SOURCES OF SUPPLY

### CLOCK MOVEMENTS AND PARTS

Green Lake Clock Co.  
651-257-9166  
www.greenlakeclock.com

Merritt's Clock and Watch Supplies  
610-689-9541  
www.merritts.com