



A Shaker Blanket Chest

Dovetails, figured wood, and traditional moldings enhance this timeless piece

BY CHARLES DURFEE

The earliest storage chests were simple boxes made of six boards. As they evolved, a base, or plinth, was added to lift them off the floor and give them aesthetic appeal, while molding the edges created a more finished look. However, anyone who used such a chest soon found that they had to fish around for small items that ended up on the bottom. To solve this problem, furniture makers added first one drawer, and then two or even three drawers. Finally, the lid was eliminated, leaving a full chest of drawers as we know it today.

During the evolution from blanket box to chest of drawers, the grain in the sides changed from horizontal to vertical. Many of the single-drawer versions exhibit an intermediate stage in this evolution, with vertical grain in the sides nailed to horizontal grain in the

DOVETAIL THE CHEST

Lay out the dovetails.

Use a pair of dividers to lay out the dovetails evenly. The spacing on the front corners may need to be slightly different from the spacing on the rear due to the presence of the drawer.



Extend the layout to the end of the board.

After marking the tails on the face of the board with a sliding bevel, extend the lines across the end of the board using a square and a knife. The knife cuts will help guide the saw as you cut.



front, which probably is the only way they could be joined. In this piece, the older style with all horizontal grain is retained, which enables the front, back, and sides to be joined with dovetails. As long as the sides don't get too tall, this is a superior form of construction: Seasonal wood movement results in the parts moving together, instead of against each other.

Match the dimensions to your hand-picked boards

Although the Shakers probably would have used painted pine, modern woodworkers may prefer the natural look of fine wood. I used some excellent single-log Pennsylvania cherry with lots of curl, nicely matched in grain and color.

You may need to adjust the overall dimensions if you want to use specific boards in particular places. In this case, I made the overall height a bit less than planned so that I could use an exceptionally fine single-width board for the front. You can lay out the actual dimensions on a story stick, using one face each for height, width, and depth. The story stick will give you all of the information necessary to begin construction, so you won't need any drawings.

After double-checking to ensure planning and layout make sense, mill and glue the boards for the front, sides, back, top, and drawer front. Leave the inner bottom oversize; it should be sized to just fit into its grooves. In addition, you can make up the bottom frame-and-panel. Remove any dry excess glue and flatten the boards using planes or sanders and a straightedge. To save



Line up the boards. Before laying out the pins, ensure that the boards are flat and meet at 90°.



Mark the pins from the tails. With the boards secure, use a sharp pencil to transfer the location of the pins. A flashlight helps you see into the corners.

time, I take the parts to a local mill shop and run them through a thickness sander.

With the case front, back, and sides cut to size, run the grooves for the inner bottom (on the front, the groove technically is a rabbet). The grooves need to be stopped before the ends and carefully aligned from the top so that all four grooves match up. I use a $\frac{3}{4}$ -in. straight bit in a plunge router and run the tool against a straightedge to ensure a straight cut. Make the rabbet for the frame-and-panel bottom in the same fashion, stopped at the rear corners only.

Construct the carcass with dovetails

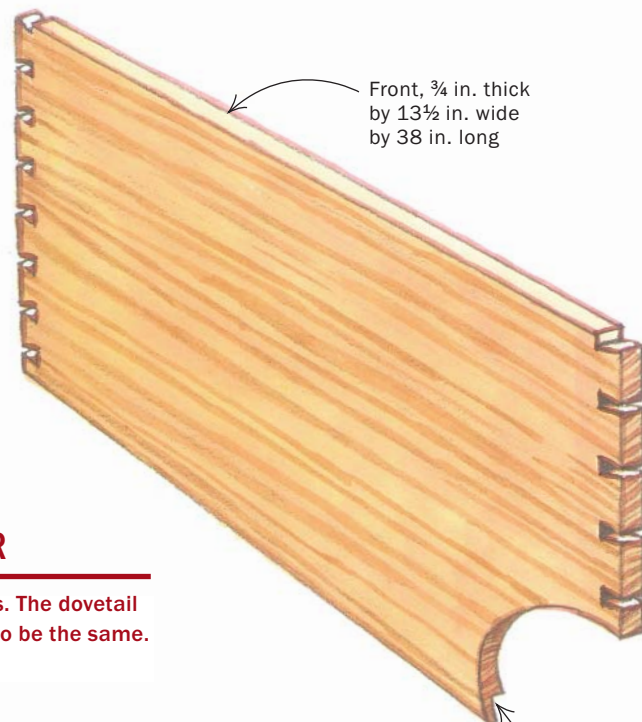
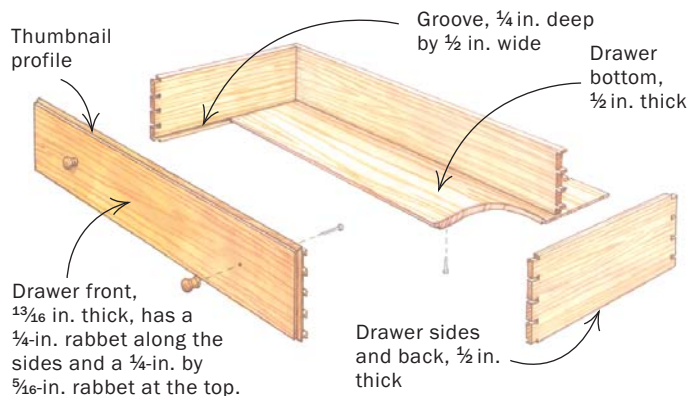
There are a lot of dovetails to cut in this project, so you might as well decide on a method of cutting them and stick with it. If you use a router setup, make sure the jig can handle the long row of the rear corners or has a way to index setups. I cut the dovetails with hand tools, which mostly is an exercise in sawing and marking accurately.

When laying out the joints, aim for a spacing between pins of about $1\frac{3}{4}$ in. on center. This chest has the peculiar problem of the front and back rows being different lengths, due to the drawer opening. Try to have the front series end with a small half pin or a small half tail, for appearance's sake. Make your scribe marks on the front edge of the sides down to the drawer opening only.

When cutting the dovetails, orient the outside face of the side toward you. Begin sawcuts at the top back corner; come across the top edge to set the saw in and then down the front face at an angle, keeping the saw completely in the kerf. Then finish the cut by raising the handle gradually. To ensure the cut is made to its full depth, I follow an old-timer's practice of cutting slightly past the scribe on the back side. After cutting the tails, check that they are

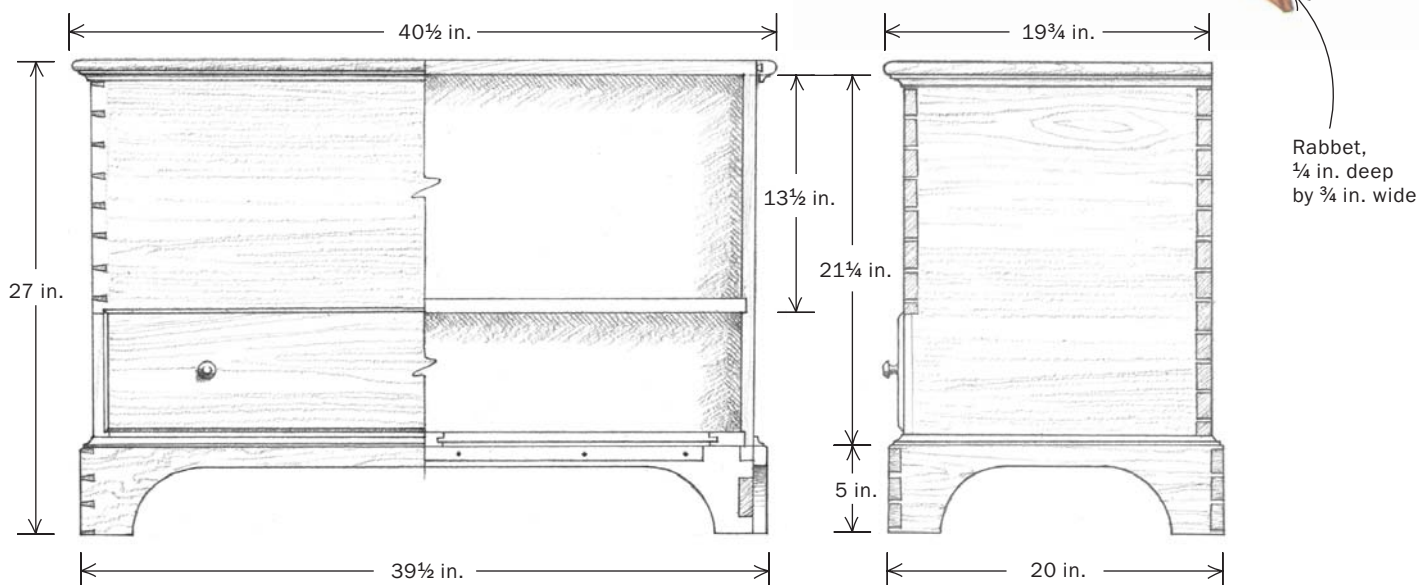
LIPPED-FRONT DRAWER

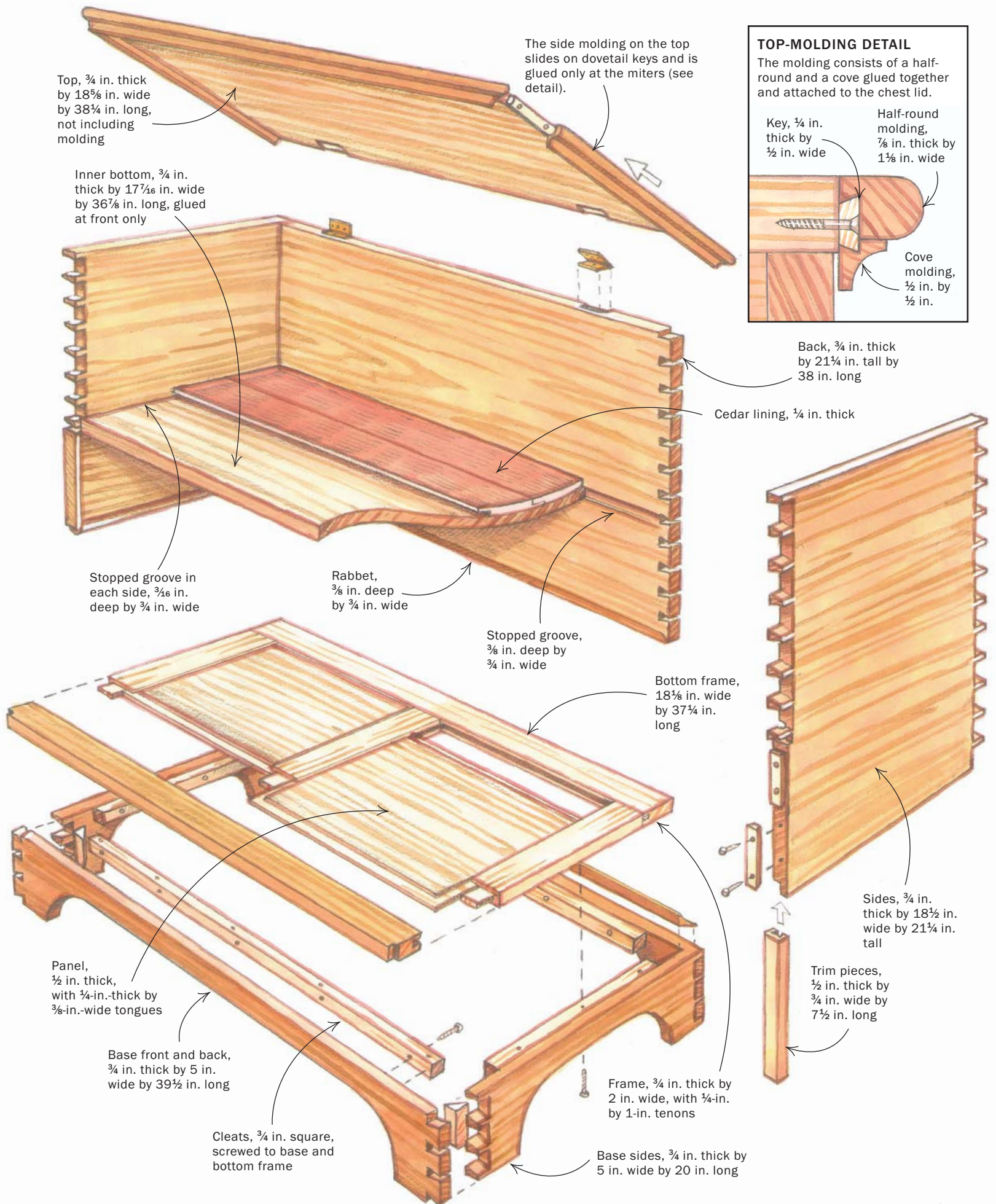
The cherry drawer front is lipped on the top and sides. The sides, back, and bottom of the drawer are made of a secondary wood.



DOVETAILED BLANKET CHEST WITH A DRAWER

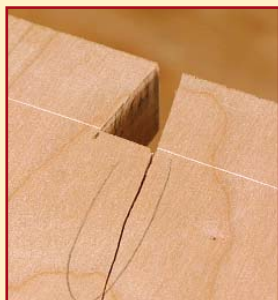
Because of the drawer, the front corners have fewer dovetails than the rear corners. The dovetail spacing may be slightly different on the back than on the front but should appear to be the same.





When things go wrong with your dovetails

Hand-cut dovetails should not be perfect, and indeed rarely will be. However, some faults that occur during fitting or assembly need to be repaired because they detract from the overall appearance of the piece.



WHEN A TEST FIT CRACKS THE WOOD

When dry-fitting dovetails, it takes only one pin that is too tight to cause a crack. This needs to be repaired before the two boards are dovetailed together. It's difficult to force glue down into the crack. But by placing the board half

hanging off the bench and then flexing it while pushing the glue into the crack with your finger, you can work the glue in from both sides until the joint is saturated. Place waxed paper over the joint to protect the clamp that keeps the two sides of the crack parallel, and then place another clamp across the board to pull the crack together.

Repair a crack.

While flexing the board up and down, force glue into the crack (right). Use one clamp to keep both sides of the crack aligned, with waxed paper between the glue and clamp; then close the crack with another clamp across the board (below).



UNSIGHTLY GAPS BETWEEN PINS AND TAILS

Don't despair if there are gaps on either side of the pins and tails. If the gaps are very narrow, you can repair them by inserting some glue and peening the tail or pin with a ball-pein hammer. The blows spread out the end grain until it fills the gaps. This method

requires that the tail or pin protrude at least $\frac{1}{8}$ in., because it will be necessary to plane away the crushed surface end grain.

If the gaps are wide, the best way to fill them is by tapping in a thin wedge lubricated with a little glue. After the glue has dried, saw off the protruding part of the wedge and smooth the surface with a block plane. The end grain of the wedge will be an almost perfect match with the pin or tail.



Peen small gaps.

Small gaps can be filled by inserting a little glue and then hitting the pin or tail with a ball-pein hammer. Do this before planing the pins flush so that the hammer marks can be removed.



Shim larger gaps.

A narrow wedge driven into the gap beside a pin will make an almost invisible end-grain repair.



ASSEMBLE THE CHEST IN STAGES

Gluing this many dovetails is stressful enough without trying to do all of them at once. Before you start, make some cauls on the bandsaw to fit over the protruding pins. (1) First glue the front to the two sides and slide in the inner bottom, gluing the front edge into the rabbet and allowing the rest to float. (2) When this first assembly has dried, glue on the back, again using the cauls. (3) When the back is dry, fit and glue the frame-and-panel base into the bottom rabbet.



square and do any necessary paring. In this way, any adjustments to get a good fit are done only on the pins.

Use the tails to mark the pins—When marking from one part to the next, make sure that the front and back are perfectly square to each side, and that the grooves line up so that the inner bottom will be able to slide in. I use a very sharp pencil lead extended from a lead holder for marking. It leaves a fine line, is much easier to see than a knife scribe, and doesn't accidentally cut the tail.

With the case dovetailing done, cut the recesses for the trim pieces on the lower front edges of the sides.

Dry-fit the carcase before final assembly

When dry-fitting the case parts, push the joints together as much as possible by hand, then use a rubber mallet. When the joints are almost there, resort to clamps. You walk a fine line when fitting exposed dovetails: Too tight, and you risk splitting the wood; too loose, and you leave gaps between the pins and tails. Fortunately, splits and gaps can be fixed (as shown on the facing page).

For the glue-up, I make special clamp cauls (see the photos at left) to span the pins because they protrude somewhat. To make the glue-up less nerve-wracking, break down the process into steps. Assemble the front, the two sides, and the inner bottom as a unit first. The front edge of the inner bottom is glued only to the front rabbet (the rest is unglued to allow for seasonal movement). If necessary, cut a temporary spacer to hold the rear edges in the correct alignment. The second step is to glue on the back. When the back is dry, fit and glue the base frame into the bottom rabbet.

Conceal the end grain with trim pieces

With the carcass assembled, cut a notch in the base frame at each front corner for the trim pieces. On original Shaker chests, these trim pieces as well as the moldings simply were nailed on, which



not only caused seasonal wood-movement problems but also were aesthetically unpleasing in an unpainted piece. A more elegant solution is to attach these cross-grain parts with sliding dovetail keys (see *FWW* #170, pp. 50-58). I vary this method slightly, screwing the key on beginning at the inboard end and pulling off the molding, fastening as I go. The segments are cut out and the molding slid back on with glue at the inboard end. Leave the bottom end of the trim pieces about $\frac{1}{4}$ in. short of the case bottom to allow for seasonal expansion. The cove molding will cover the gap.

Build the base and the top before attaching the molding

On this chest, the base runs around all four sides, as opposed to most early-American chests that have bracket bases on the front and sides only. Saw the dovetails first, and then cut out the profile on the bandsaw; you can save the cutouts to use as clamp cauls. Nail a plywood template to the back of the base pieces and clean up the profile on the router table with a top-guided bearing bit. Screw cleats to the inside of the base and drive screws through the cleats to attach the base to the chest.

Because the moldings overlap the top edge of the case, the top should be sized so that the front clearance is proportional to the amount of seasonal wood movement. I built this chest in the winter, and the wood's moisture content was 6%, so I sized the top with a minimal clearance of a strong $\frac{1}{16}$ in. ($\frac{3}{16}$ in. to $\frac{1}{4}$ in. should be sufficient clearance for a summer-built chest).

The top molding consists of a half-round and a cove made on the router table and then glued together. While you're at it, make some extra cove molding for the base. The front piece is mitered and glued to the top, while the sides are installed over dovetail keys, with glue at the miters only.

1

Apply glue only at the top.

Notch in chest side for trim piece

Notch the chest bottom to accommodate the trim piece.

Dovetail key

TRIM PIECES HIDE THE END GRAIN

Trim pieces are attached with sliding dovetail keys that allow for seasonal movement. The pieces stop short of the bottom by $\frac{1}{4}$ in., with the gap concealed by the cove molding of the base.

Trim piece slides onto the key.



2

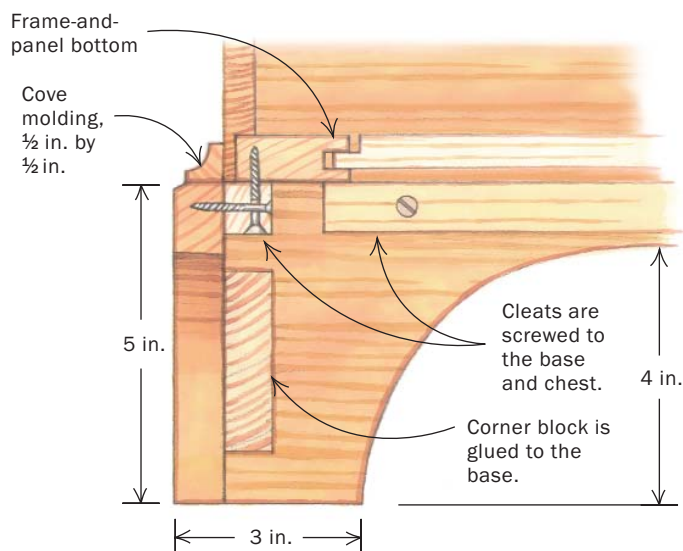


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CAP THE END GRAIN

To conceal the end grain, the sides are notched adjacent to the drawer, and trim pieces are attached over dovetail keys. (1) After assembling the case, notch the case bottom where it intersects the sides. (2) Then screw the dovetail key to the case using the trim piece to aid alignment. (3) Finally, saw apart the key to allow for seasonal movement of the case. Glue the trim piece only at the top.

INSTALL THE BRACKET BASE



The drawer front is in the traditional style, lipped on the top and sides and molded all around. The sides and back on my drawer are quartersawn pine, and the bottom is poplar. You can find quartered stock at any lumberyard—just look through a stack of boards for ones with growth rings perpendicular to the board's face.

Cut the drawer front first, with its side rabbets trimmed so that they just fit into the opening. The top rabbet needs to have only about $\frac{1}{16}$ in. of clearance, because seasonal movement of the drawer will be in the same direction as the case. Cut the dovetails by hand, but use a Forstner bit to drill out the bulk of the waste between the half-blind pins.

Attach the hardware and finish the piece

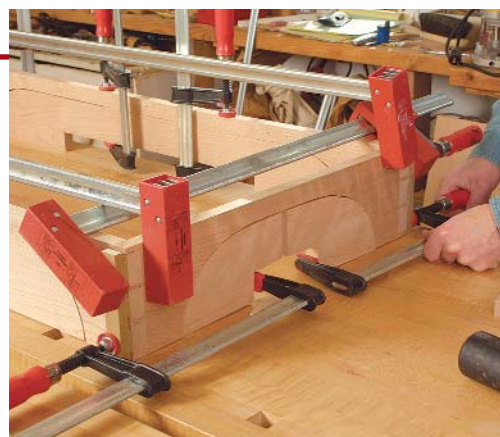
By now you will have something that looks like a chest. The top is secured with mortised-in butt hinges. I used extruded-brass hinges from Whitechapel (307-739-9478; www.whitechapel-ltd.com), but you may opt for a more authentic style with thinner leaves. When the top is fastened, find the location for the stay. I used a brass chain, which isn't strictly traditional Shaker but still shares a similar simplicity. (For more on installing lids, see *FWW* #161, pp. 46-51.)

Throughout the construction process, you should have been planing, scraping, and/or sanding to all but the final passes. I generally take out machine marks (including the tracks left by the thickness sander) with a handplane and scraper. The final work is done with a 220-grit disk in a random-orbit sander.

I used Minwax Antique Oil, but any oil/varnish mixture will work well. The first coat is always exciting—the figure fairly jumps off the surface—but it also reveals any dents, dings, and glue splotches that should be wet-sanded with finish using 220- or higher-grit sandpaper.

After the finishing is completed, add the thin cedar lining in the chest bottom. I used some leftover western red cedar clapboards. I planed them down, shiplapped the edges, and tacked them in, leaving them unfinished. Years hence, a light sanding will refresh the smell, allowing me to recall the pleasure of building this piece. □

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Save the waste piece. After cutting the profile of the base, save the offcuts, which can be cut in two and used as clamping cauls when gluing together the base.



Attach the cleats. Screw cleats to all four sides of the base. Then drive screws up through each cleat to attach the base to the chest.



Fit the molding. Because the grain on the chest runs horizontally, the base molding can be glued to both the base and the sides.