TAUNTON'S

Fine WoodWorking®

Shaker Tall Clock

A project plan for building a graceful clock

Order, punctuality and the timely completion of tasks were the rules of the day in Shaker communities. Even so, watches were considered inappropriate under the dictates of the faith. Tall clocks as well as wall-hung clocks were another story. They readily found a place in the community dwelling houses of the Shakers. Usually found in central hallways, tall clocks could be viewed easily by Shaker brothers and sisters as they went about their chores.

Shaker clocks, especially tall clocks, are most often associated with the Watervliet community in upstate New York. This is where Benjamin Youngs, a skilled clockmaker, became a convert to Shakerism. Youngs had been an apprentice to his father, a clockmaker in Hartford, Conn. Benjamin converted to the Shaker faith after he moved his family to a farm near the Watervliet community.

Brother Benjamin's early clocks, made before and shortly after his conversion, show an awareness of the fashion of the day. After his conversion, his clocks have the straightforward, functional and modest properties associated with Shaker design.

You don't need hard-to-find stock

The clock shown on the facing page is based on one that's believed to be the work of Benjamin Youngs. That clock is illustrated in John Kassay's *The Book of Shaker Furniture* (University of Massachusetts Press, 1980). Kassay's measured drawings, in meticulous detail, give accurate dimensions of the parts down to a thirty-second of an inch. I modified the dimensions slightly, so I could get the required parts from clear pine in nominal 1 in. thicknesses.

I can make this clock from standard lumberyard material, sur-

Photos except where noted: Scott Gibson

Shaker Tall Clock

This graceful case piece is made with readily available materials and simple techniques

by Robert Treanor

faced on all four sides (S4S), with only a small amount of waste. It pays to take your time at the lumberyard when selecting stock. Because some pieces, like the case front, are made with the full width of standard dimensioned material, you should pick only stock with straight, parallel sides. It's a good idea to take a straightedge with you to make sure the material is flat across its face.

The original clock was made with pine, and so is this one. The front and back of the case are made from 1xl2s. The remaining parts are made from standard 1x10 and 1x8 pine. A painted finish is simple and authentic. I've also used hardwood with a clear finish.

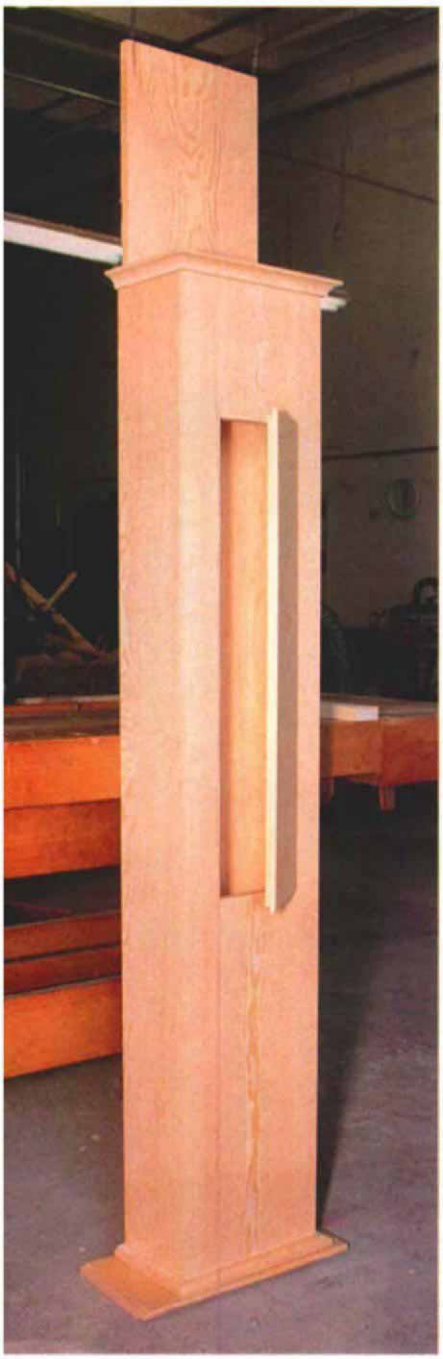
Case joinery is simple but strong

I begin construction of the clock case by ripping the 6¼-in. sides from 1xl0s, saving the rippings for later use. After carefully squaring the sides to length, I make a simple doweling jig (see the top photo on p. 87) from some square ¾-in. by ¾-in. material. The outside faces of the case sides must be exactly 11¼ in. apart. By orienting the jig along baselines accurately laid out on the case bottom and across the end grain of the case sides, I can bore holes guaranteed to align (see the center photo on p. 87). A stop on the drill bit prevents boring all the way through the bottom. I use ⅜-in. dowels, cutting them to length carefully so they don't bottom out in the holes.

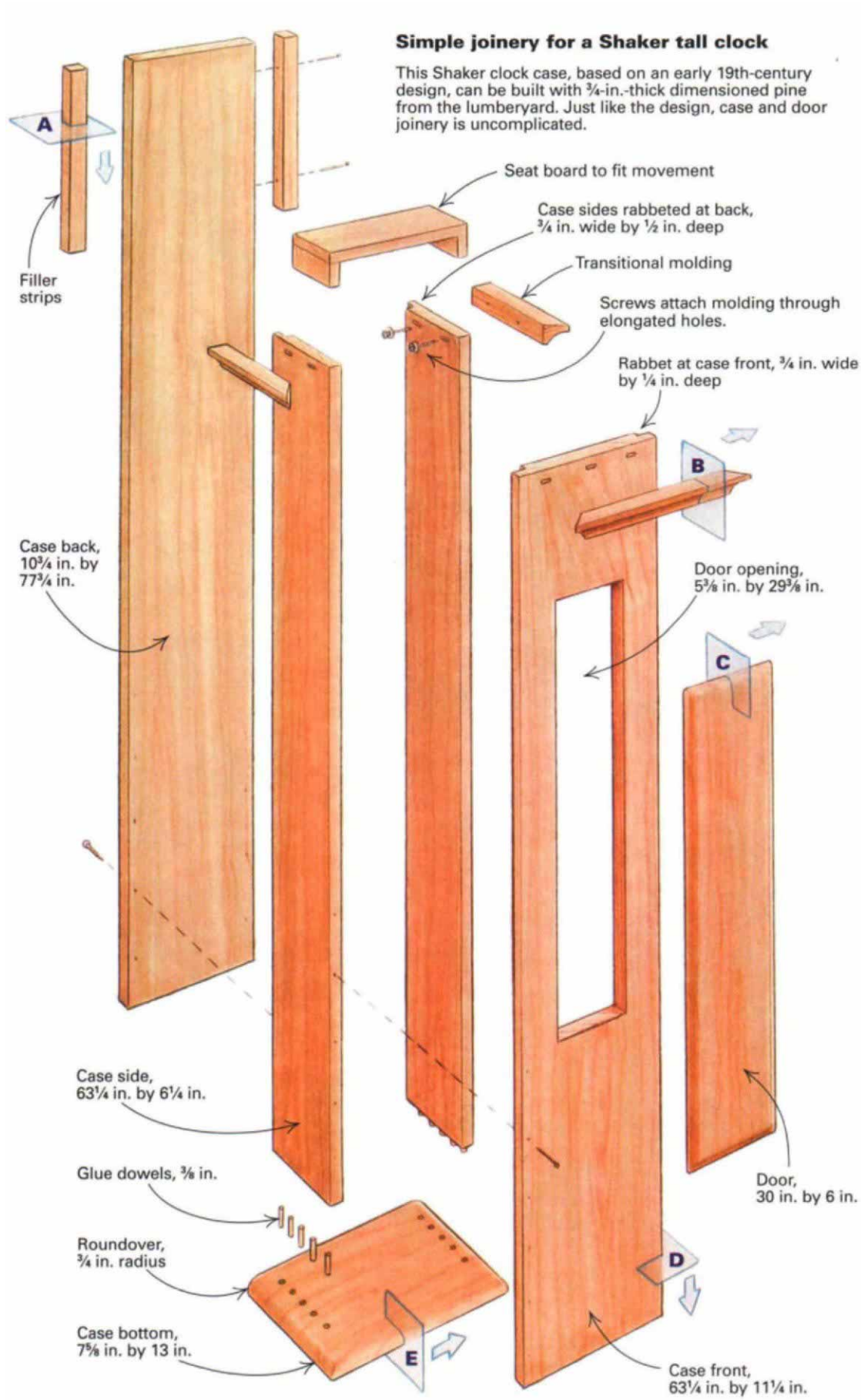
The front of the case is made from the full width of a 1x12, which is actually 11¼ in. I attach the front to the sides with a nailed and glued rabbet joint. I often cut the rabbet at the tablesaw with a ¾-in.-wide dado head. But for this case, I used a router with a rabbeting bit. The rabbet is cut ¼ in. deep and runs the entire length

Photo at right: Kaz Tsuruta

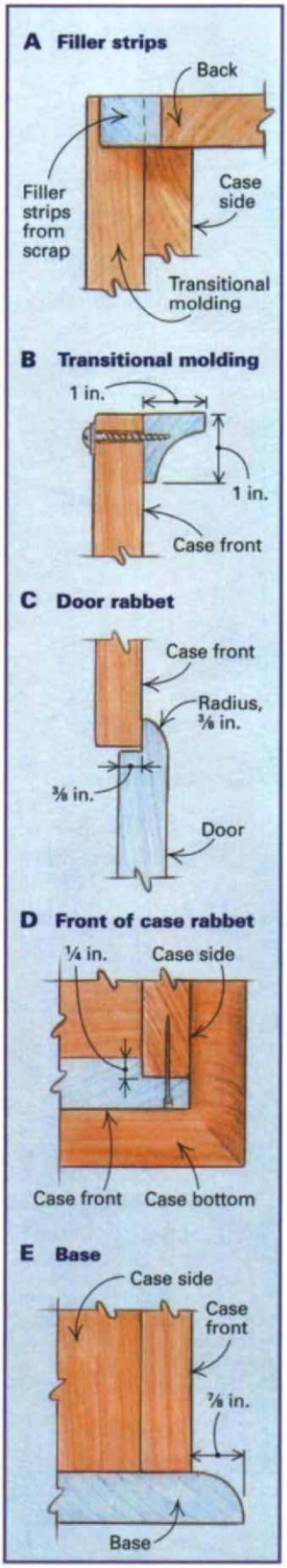
BUILDING THE CASE,



Case joinery is simple. *Sides are glued and nailed into rabbets cut in the case front. The back is screwed on, and the case is joined to the base with glue dowels.*



Drawing: Bob La Pointe



of the front. Then I cut out the opening for the case door with a hand-held scroll saw at the bench.

While the dado head is still in the saw, I cut rabbets in the back edge of the case sides to accommodate the back. I keep the width at ¾ in., but I increase the depth to ½ in. (I leave the back thickness at ¾ in., though it easily can be reduced to ½ in.) I rip the back to width from a 1x12. Ultimately, I will screw the back onto the case. Before doing so, I attach narrow filler strips, cut from the side rippings, to the top to span the gap created by the difference in width between the case and the hood.

Gluing up the case and applying the molding

Before gluing the case together, I round over the front and ends of the case bottom with a ¾-in.-radius router bit. I also give all case parts a preliminary sanding. You'll need a few long bar clamps to glue the dowel joints at the bottom of the case. The front is glued and nailed, and the back is simply screwed on. The front and back will help to hold the assembly square while the glue has time to dry. After the glue has dried and the nail holes have been filled, the case can be given its final sanding.

There was one part of this clock I couldn't cut from my standard material: the transitional cove molding attached to the top of the case. But in keeping with the frugal nature of this exercise, I took the molding from some rippings left over from a Windsor chair seat blank. I cut the molding profile with a ¾-in.-radius cove bit in the router. For safety's sake, I left the blank wide, cut the profile and then ripped the molding to width.

Of the myriad ways to attach the molding, my choice was one of the simplest: gluing the miters and screwing the length of the molding to the case through slotted holes from the inside. Although there's no guarantee the miters will never open up, the slotted holes give the case a way to expand and contract seasonally without cracking. The case door is lipped and rabbeted all the way around and attached with offset hinges, like those often found on kitchen cabinets.

Sliding dovetails join hood top and sides

As in most tall clocks, the hood of this one is removable, providing access to the movement. After double-checking the dimensions, I cut the sides and top of the hood from a length of 1x10. The joint of the side to top easily could be the dowel joint used in the case, but for variety, I used a sliding dovetail on this clock (see the drawings on p. 88). Easily cut with a router inverted in a table, the sliding dovetail is a strong and appropriate joint.

Location of the joint is critical. The outside face of the hood sides must line up with the outside edge of the transitional molding. I mark the location of the joint on the underside of the hood top and set the height of the ¾-in. dovetail bit at ½ in. Then I carefully adjust the fence on the router table. With soft pine, there is no need to plow out a dado before cutting the dovetail; the joint is cut with one pass of the dovetail bit. A stop placed on the fence limits the length of the cut.

After cutting both ends of the top, I relocate the fence while the height of the bit remains constant. I extend the height of the fence to provide stability while cutting the hood sides. Using a piece of scrap pine the same thickness as the hood sides, I dicker with the fence until the joint is a firm press-fit. When satisfied, I cut the

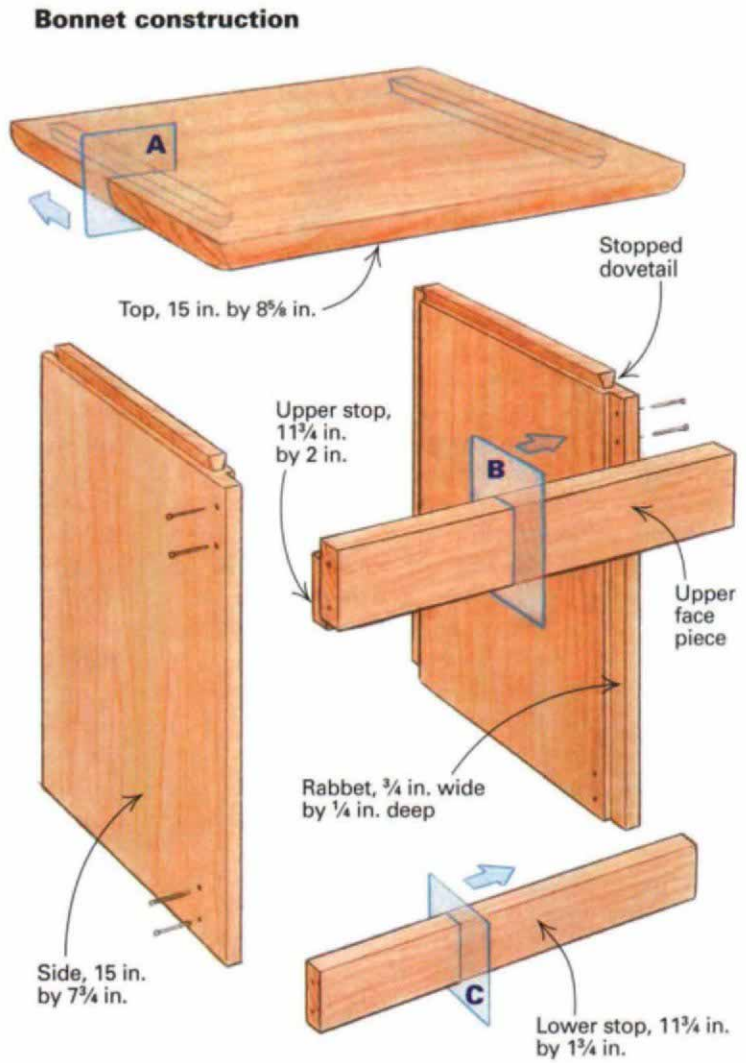
Doweling jig—Holes *bored in a hardwood scrap guide the bit as the author drills out a case side for glue dowels.*

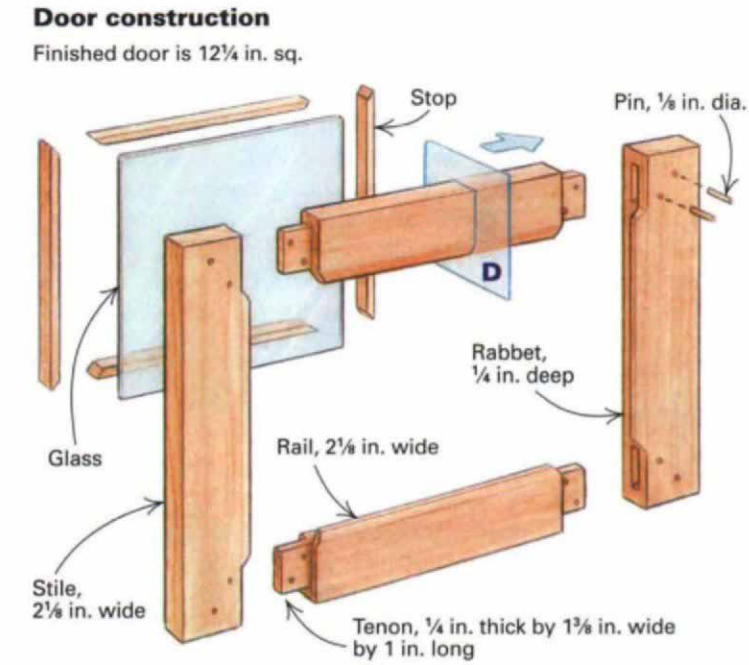
Flip jig, and drill bottom. *The jig, with its fence removed, is flipped over and aligned with layout lines on the case bottom to drill matching holes.*

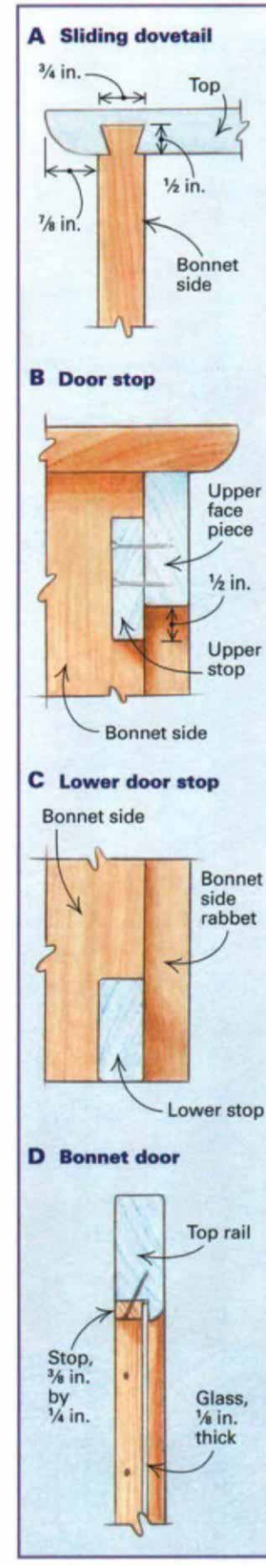
Test-fit. *The jig ensures that dowels line up correctly, even if guide holes are not perfectly spaced or centered.*

BUILDING THE BONNET AND DOOR

Slide-on bonnet—The *bonnet for this Shaker tall clock rests on transitional molding at the top of the case. It slides on and off to provide access to the clock's movement.*







dovetails on the ends of the boards. Even though the dovetails extend across the entire width of the boards, the first inch closest to the front edge must be trimmed off for the rabbet cut into the inside faces of the sides.

Protect the clock movement from dust

The rabbets cut into the inside faces on the sides have a double purpose. First, they act as a door stop, and second, they keep out dust, the main adversary of clock movements. I cut the rabbets in the same manner as I cut the ones in the clock case. Before gluing up the hood, I rout the front and ends of the top with the same roundover bit I had used on the case bottom.

The hood has no bottom, so for rigidity, I added a rail at the bottom of the hood behind the-bottom door rail. I simply glue and nail the rail in place (see the drawing on the facing page). The upper rail, located above the door, is cut to fit within the rabbets and also is glued and nailed in place. An inner rail is glued and nailed behind the upper rail to act as a dust stop. The three rails are taken from what's left after ripping the case sides.

Hood door is rabbeted for a glass insert

The hood door is assembled with the ubiquitous mortise-and-tenon joint. Because this clock has only one door, and a small one at that, I cut the joints by hand. After cutting the door parts to size from the rippings left over from the case sides, I lay out the joint using a square and a marking gauge. I rout the edge with a ¼-in. roundover bit and cut the rabbet for the glass before cutting the joint.

The joint is easily cut by boring out the mortise with a brace and bit and then clearing out the waste with sharp chisels. I use a backsaw to cut the tenons on the ends of the rails, first making the cheek cuts and then supporting the rails in a bench hook to make the shoulder cuts.

Trimming the miters at the joints requires a mitering template to guide the chisel (see the top photo). With the template cut to an accurate 45° and set at the layout line, it's a simple matter to cut a perfectly fitting miter (see the center and bottom photos). I make the door slightly oversized and trim it to a close fit after glue-up. Once I'm satisfied with the fit, I hang the door in the hood with simple butt hinges.

I bought the weight-driven, eight-day movement for this clock from Frei and Borel (126 2nd St., Oakland, CA 94607; 510-832-8148). It sits on top of a seat board made from three pieces of the wood I had left over. Appearing as the letter *C* sitting on its side, the seat board is attached to the ends of the case sides with dowels and without glue. Holes are bored into the seat for the pendulum as well as the weight chains. Another option would have been to extend the case sides and place a horizontal board bridging the sides where the movement would have been. The clock face, painted onto wood, is screwed to the seat board. The time ring on this dial is 7 in. dia. Paper dials are available from mail-order houses.

According to Kassay, the original clock was painted red, so I followed suit. I used Covered Bridge red paint available from Primrose Distributing, 54445 Rose Road, South Bend, IN 46628; (800) 222-3092.

Robert Treanor lives in San Francisco where he builds Shaker furniture and writes about woodworking.

For clean miters, use a guide. *Rabbets on door stiles and rails meet in a miter at inside corners. For tight-fitting joints, the author pares pieces with the help of a guide block cut to a 45° angle.*

Clamp and pare. *With the rabbet cut away at the end of the door stile, the author pares the miter with a sharp chisel. The mitering template is clamped to the stile along the layout line.*

The fit is right. The *mitered rabbet at each corner is a pleasing construction detail, and a practical means of building a door frame that will accommodate a piece of glass.*