



Pennsylvania Spice Box

*Highly figured wood and hand-cut joinery
make this chest a showpiece of craftsmanship*

by D. Douglas Mooberry



When I started a woodworking business, my biggest obstacle was me. Though I was 22 years old, I looked 16. When making house calls, potential clients would eye me with an annoyed expression that seemed to say, "What, your father couldn't make it to our appointment?" To convince them that I was the craftsman and did indeed know something about woodworking, I started bringing a spice box that I had made. Once they saw the hand-cut joinery, pleasing design and incredibly figured wood, they felt more comfortable.

Thanks to spice boxes, I am still woodworking 15 years later. Building one involves a variety of joinery, including hand-cut dovetails—lots of dovetails—machined joints and moldings, raised-panel construction and precise drawer fitting. A spice box, or valuable chest, is a great way to learn, practice or show off your woodworking skills (see the photo below).

Spice boxes have a heritage that goes back several centuries. The term *spice box* is really a misnomer. These small chests originally may have been used for storing rare spices, but they were usually filled with valuables such as jewelry and documents.

Because spice boxes don't demand a lot of wood, use the best you can find. The more figured the wood, the better. The box

I designed for this article has bracket feet, a tombstone raised-panel door and a typical interior drawer layout. The primary wood, meaning everything you see without pulling out the drawers, is walnut. The secondary wood is poplar. The hardware includes a pair of brass butt hinges, a lock and nine drawer pulls.

The carcass is more complex than it appears

Don't be misled by the size of a spice box when setting a timetable for building one. Although it's about as big as a portable television, it's going to keep you busy for some time.

You'll need at least 12 bd. ft. of walnut and 6 bd. ft. of 4/4 poplar or some other secondary species. I begin by milling out the wood for the two sides, top and bottom. You'll need stock that can finish out at 9 7/8 in. wide and 3/4 in. thick. I always surface the face on the joiner to get it flat and then plane it to get consistent thickness. I look at what my board will yield and determine how best to use it. This lets me center a beautiful flame pattern or stay away from a hidden crack or a knot.

The sides are joined to the top with through dovetails. The pins are in the sides, the tails on the top and bottom. Because the molding will cover up the tails on the sides, you could use half-blind dovetails, but I find that cutting through dovetails is faster. The pattern I use, four 2-in. tails, equally spaced, is typical of the 19th century.

The joinery between the sides and the bottom requires careful layout. Although the outside dimensions of both sides are the same, they are milled differently. The right side is notched to accept the door, and the left side has a rabbet for the door recess.

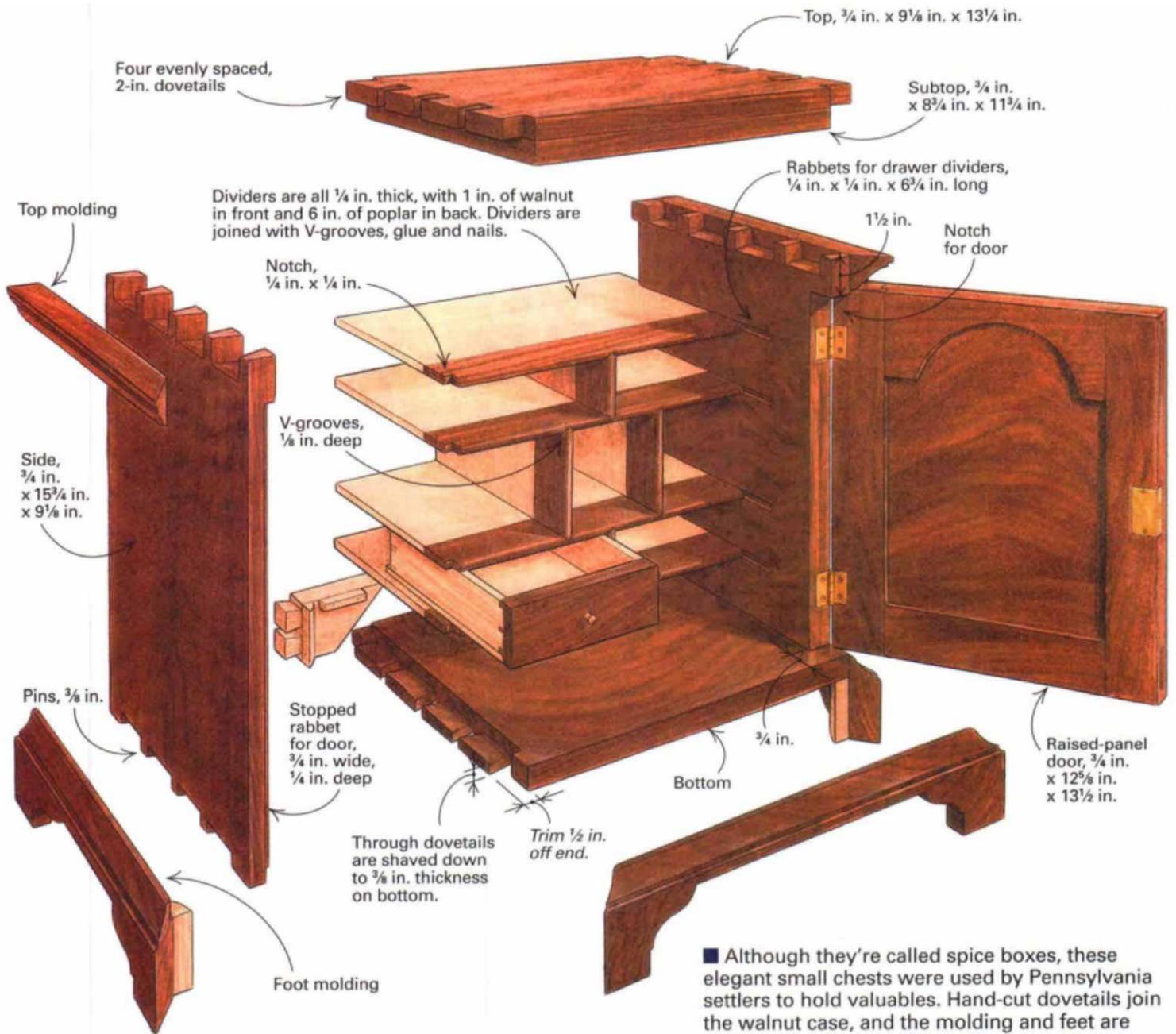
Begin by standing the right side on edge against the miter gauge, and cut the 3/4-in.-deep crosscut for the notch (see the drawing on p. 38). Then, using the rip fence, trim the bulk of the notch with a stopped cut. Trim the top section, where the table-saw couldn't reach, with a bandsaw or handsaw, and clean up any ragged edges with a chisel. The left side of the carcass receives a stopped rabbet, 3/4 in. wide and 1/4 in. deep, for the door.

The bottom is constructed differently from the top. Because the foot molding



A piece of furniture to show off—Spice boxes come in many styles (above) and deserve beautifully figured woods. The author (right) designs some boxes with decorative inlays.

SPICE BOX IS MADE WITH HAND AND MACHINE JOINERY



■ Although they're called spice boxes, these elegant small chests were used by Pennsylvania settlers to hold valuables. Hand-cut dovetails join the walnut case, and the molding and feet are glued and nailed on with traditional, square-cut nails. The chest contains nine drawers.

doesn't reach high enough to cover full, $\frac{3}{4}$ -in. through dovetails, the tails, once cut, are shaved down to half thickness, which is a variation on the half-blind concept. But before trimming the tails, use the bottom pieces to mark the pins on the sides. It's easier to do this while the tails are still at full thickness. (When you cut your matching pins, be sure to cut them only $\frac{3}{8}$ in. deep.) You can trim the tails on a router table or with the router on top of the work-

piece, using an auxiliary fence.

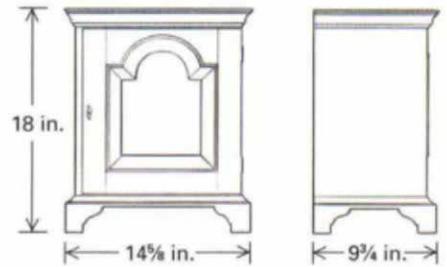
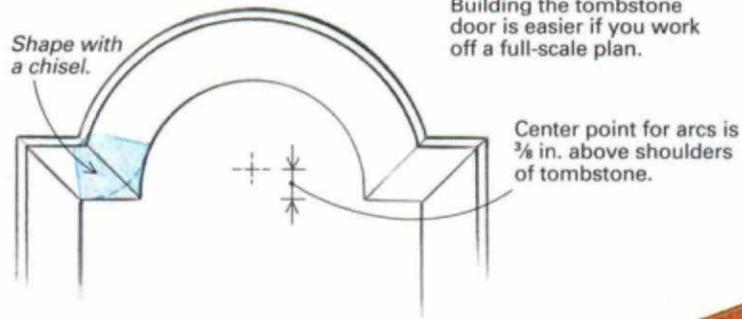
The side panels and the bottom of the case require $\frac{3}{8}$ -in. by $\frac{3}{8}$ -in. rabbets to accept the back panel. The rabbets in the sides are stopped $\frac{3}{4}$ in. from the top. The rabbet in the bottom is full length. Additionally, you'll have to trim $\frac{3}{8}$ in. off the corners of the bottom rabbet so that the bottom fits to the sides. The front left corner of the bottom, where the rabbet for the door meets, is also notched. I build the box

this way to avoid sections of short grain, which are weak spots.

The top doesn't need a back rabbet because a subtop is glued inside the box and recessed $\frac{3}{8}$ in. from the back. Cut the subtop out of a piece of $\frac{3}{4}$ -in. walnut to fit snugly inside the case. The grain must run in the same direction as the top. This piece acts as a kicker for the top drawers and offers a reveal just below the molding.

Once all the dovetails and rabbets have

Laying out a tombstone door



been cut, dry-fit the case, and mark off the stopped dadoes where the drawer dividers will go. When doing your layout, don't forget the subtop. You want to end up with drawers $2\frac{1}{8}$ in. high in the top two rows and bottom two rows. At 4 in., the center drawers are the highest.

Using a $\frac{1}{4}$ -in.-wide router bit, cut the stopped dadoes for the drawer dividers $\frac{1}{4}$ in. deep and $6\frac{3}{4}$ in. long as measured from the back rabbet. It's a good idea to as-

semble the box after the dadoes are cut. The faster you get it glued up, the less chance there is of something warping.

The back of the spice box is finished and, therefore, needs to be made of primary wood. I use four $\frac{3}{8}$ -in.-thick walnut boards that run vertically.

The edges where the boards join each other are molded with half-lap joints: Don't fasten the back to the case until you've completed the dividers and drawers. I use

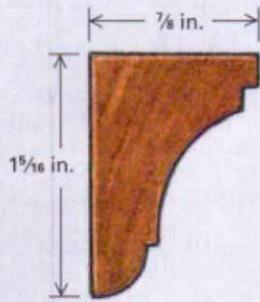
$\frac{3}{4}$ -in. Tremont (508-295-0038) square-cut antique nails on the back. I don't use glue.

Milling the drawer dividers

The dividers are joined to each other with V-grooves. I make up the dividers into a single unit, and then I slip the unit in the dadoes cut into the sides of the case. The fronts of all the dividers are rounded over.

I make dividers using two species of woods edge-joined together, walnut for the

THREE-STEP TOP MOLDING



Use a $\frac{1}{2}$ -in.-radius cove bit for first cut. For support, keep the stock for the molding at least 3 in. wide.



The reveal is machined next. Turn stock on its side, switch to a straight bit and align fence for desired reveal.



Finish by cutting the bead. Flip molding on its other face; use a $\frac{1}{2}$ -in.-dia. beading bit to shape the edge.

fronts and poplar for the rest. You could use all walnut and save yourself the extra work of gluing up these pieces.

At my shop, we use these two species because poplar mills easier. It has less tearout, sands faster and when making several boxes, it saves us time. Using walnut and poplar is also the traditional way of making these boxes.

If you make a box the traditional way, edge-join 1 in. of walnut to poplar, using $\frac{3}{4}$ -in. stock. After the glue dries, resaw the boards, and plane them $\frac{1}{4}$ in. thick. Lay out the marks for the grooves (see the drawing on p. 38), and use a router table and a $\frac{1}{8}$ -in. V-groove bit to make the cuts in the four horizontal pieces. The fronts of these pieces are notched where they extend past the stopped dados in the case.

The vertical members also are cut on the router table. Use some scrap stock to set up your fence to get a perfect V-shape. Then round over all the divider fronts using a $\frac{1}{8}$ -in.-radius roundover bit. I assemble the dividers using glue and a few nails to help hold them together while I clamp them with strapping tape.

Milling the molding and shaping the feet

I use a variety of moldings for my spice boxes, and you can create one from router bits that you have on hand. For this one, I used a cove bit, straight bit and beading bit (see the photos at left) for the top molding and ran it from a piece of $\frac{7}{8}$ -in. stock (see the drawing above). When the stock is shaped, I rip it to width, cut it in three sections and miter the front corners. It's fastened to the box with square-cut nails. Because the box is so small, I don't worry about cross-grain construction.

Shaping the feet and lower molding—

The bracket feet and lower molding are all one piece, mitered at the front corners (see the drawing detail on p. 39). The back of the case has two stub feet, made of poplar, and these are joined to the molding with half-blind dovetails.

Start by cutting the molding profile. On your router table, cut the cove using a $\frac{1}{2}$ -in. bit, and finish off by cutting the $\frac{3}{16}$ -in. reveal with a straight bit. Flip the piece over, and cut a $\frac{1}{16}$ -in.-deep by $\frac{3}{16}$ -in.-wide rabbet along the back. This rabbet helps position the molding to the case.

Miter the front corner joints of the molding, and cut the ends on the back side flush to the back of the case. Referring to the

plans, cut out the two rear stub legs and mark the dovetails. Cut the tails on the stubs, and mark off the half-pins on the molding/feet. The last step is cutting out the profile for the legs on the molding. Because you have to do this six times, it's easier to make a template and trace the pattern onto the molding.

When I glue the molding in place, I back up my clamp with a piece of scrap molding that nests in place. Glue blocks are later added behind the miter joints and between the molding and case bottom.

Spice box has nine drawers

Size the drawers to the exact width of the divider openings but subtract $\frac{3}{4}$ in. from the height to allow for expansion. (Later the sides can be planed or sanded if needed for a good fit.) Drawers are $\frac{1}{4}$ in. shallower than the full depth. Use figured wood for the drawer faces, and run a row of drawers from the same board, keeping the grain and figure oriented in the same direction.

The drawer fronts are $\frac{1}{2}$ in. thick, and the sides and bottom are poplar and $\frac{1}{4}$ in. thick. I use half-blind dovetail joints on the fronts, with half-pins at the top and bottom. The drawer fronts get one extra joint: a rabbet along the bottom edge to receive the drawer bottom. Cut this first, and then lay out the dovetails. For the sides to backs, I use through dovetails.

Cut the drawer bottoms so that the grain runs in the same direction as the drawer fronts, and leave them a bit long. When assembling the drawers, the bottom panels are simply glued to the bottom edges of the drawers. This construction works well for very small drawers only. On anything larger, wood movement would cause them to come apart.

Fit the drawers by handplaning, and aim for a fit that's snug but loose enough to keep from sticking. The backs of the drawer bottoms (remember, you left those long) are planed down so that the drawer fronts are recessed just behind the rounded-over portion of the dividers.

Save some nice wood for the tombstone door

The front of the spice box is what you see first, so be sure to use your best piece of wood for the door panel. The rails and stiles are cut slightly oversized so the door, once assembled, can be trimmed for a good fit to the box.

Begin by drawing a full-scale plan (see the drawing detail on p. 39) on a piece of



A chisel squares panel corners. A panel-raising router bit leaves corner details unfinished. A chisel cuts the 90° angles at the inside corners.

plywood, and include all the door measurements and joinery. Pay close attention when locating the center of the radii for the curved parts of the door and top rail. That center mark is $\frac{3}{8}$ in. above the shoulders of the tombstone.

From the full-sized plan, set a compass to the radius of the curve on the top rail, and transfer it to another piece of scrap of plywood to be used for a template. Cut out the template, and use it to draw the arc on the top rail. Bandsaw the top rail, and sand the curve fair.

At the router table, using a $\frac{1}{4}$ -in. beading bit with a pilot bearing, run a bead on the inside edges of all the frame members. Run this bead all the way to the ends of all the pieces. (Later, you will trim and miter the beads at the corners.) Switch to a slot-cutting bit, and then cut a $\frac{1}{4}$ -in.-deep groove for the panel. Next cut the mortises and the tenons.

The frame won't fit together at this point because the beads need to be trimmed and mitered where they meet at the corners. Again, using the full-scale plan, mark where the beads are mitered. Then, using a straight bit and a router table, remove most of the waste from the bead, stopping just short of the miter. Pare the miters to 45° using a chisel.

Raise the panel on a router table—I use a table-mounted router with a traditional raised-panel bit even though my shop has a shaper. You have to be crazy to mill anything this small on a shaper.

Cut your panel to $9\frac{3}{16}$ in. by $11\frac{1}{4}$ in. Using a compass, draw the top arc of the tombstone onto the panel. Bandsaw off the



Full-length tenons hold the frame together. The author dry-assembles the completed tombstone door. After glue-up, he trims the door to fit the case opening.

waste, and finish by sanding to the line. At the router table, run the panel in several passes across the panel-raising bit to avoid tearing out the highly figured wood.

The corners of the tombstone need to be chiseled out because the router bit leaves this section rounded (see the photo at left above). After squaring the corner, refer to the drawing, and note the orientation of the two miters on each corner of the tombstone. The miters on each side are almost but not quite parallel.

To figure out how to pare this section, mark a line where the miters meet the corners. Then pare with a bevel-edge chisel to get crisp edges. Now you're ready to fit the frame and panel together (see the photo at right above).

Finishing with a touch of brass

Mortise $1\frac{1}{4}$ -in.-long, milled brass butt hinges $1\frac{1}{2}$ in. from the top and bottom of

the door. To keep the door shut, use a mortise lock. Place the keyhole halfway down the stile. A brass escutcheon can be placed over the keyhole for added decoration.

I use round brass pulls on my drawers. They extend $\frac{3}{8}$ in. from the drawer fronts and are centered. You can vary your hardware to suit your tastes (for more on hardware, see *FWW* #112, pp. 68-73). I like the quality and style of hardware available from Ball and Ball (610-363-7639), Horton Brasses (860-635-4400) and Whitechapel, Ltd. (800-468-5534).

Finishing is the last opportunity to make a mess of the project. My rule is to use finishes that I am experienced with, so I use shellac and wax. When I have this much invested in a project, now is not the time to experiment.

D. Douglas Mooberry builds custom and reproduction furniture in Unionville, Pa.