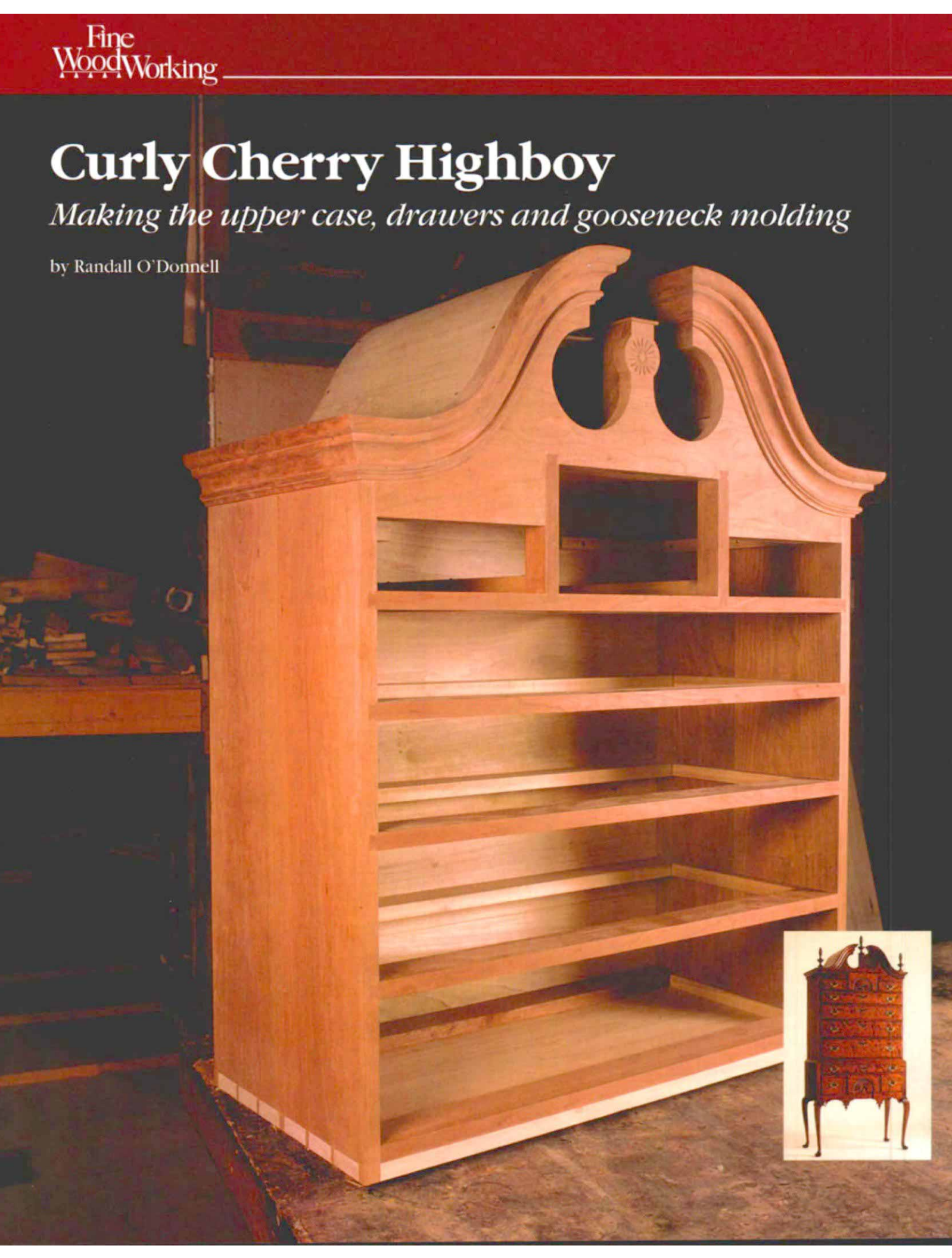
Fine WoodWorking

Curly Cherry Highboy

Making the upper case, drawers and gooseneck molding

by Randall O'Donnell



Earlier in my career, I built kitchen cabinets. At that time, dovetailing meant using a jig and router. I dovetailed more than a thousand drawers that way. But when I decided to become a period furnituremaker, I knew those days were over—only hand-cut dovetails would do. Abandoning the speed of a jig for tedious handwork seemed crazy at first, but with my first hand-cut joint, I learned it wasn't as hard as I thought.

Dovetail joinery is a large part of what goes into constructing the upper case of this highboy. With its bonnet top and graceful moldings, this chest of drawers appears to be a formidable project. But stripped of embellishment, it's simply a large dovetailed box containing smaller dovetailed boxes.

Finding high-quality, wide stock was my biggest challenge. I was fortunate to find outstanding curly cherry. I used poplar for all the secondary wood except the drawer bottoms, where I used aromatic cedar. Using cedar is more work because it involves joining narrow stock, but the wonderful smell that escapes as you open a drawer makes the effort worthwhile.

I described my approach for building the base unit in *FWW#111,* pp. 80-85. Now I'll detail construction of the upper case (see the photo at left). That involves making the carcase, framing the bonnet top, making the drawers and carving the curved crown, or gooseneck, molding.

Building the basic box

It's virtually impossible to find a single board of figured wood wide enough for the sides. But two well-matched boards glued together look fine. The first step is to glue up stock for the case top, bottom and sides. A piece of furniture like this needs stock that's slightly thicker than what's usually used on case pieces. I use ⅞-in.-thick stock for the entire case, internal framing and drawer fronts.

I start by flattening one face and jointing one edge of each board. Then I thickness plane the boards to within 1/16 in. of their final thickness. Next, on the tablesaw, I rip the boards to width. I usually don't bother to joint the boards after ripping because I've found that with a good blade and a true-running saw arbor, it's not necessary.

Now I glue up the boards. Once the glue has dried, I sand the pieces to thickness on a wide belt sander. Later, after all the joinery has been cut, I'll surface all the sides, inside and out, with a handplane and cabinet scraper. This gives a handworked texture.

The case is joined at the corners with through dovetails (see the photo at right). The top corners are hidden by the moldings and bonnet, and the bottom corners are covered by the base and the waist molding. This doesn't mean you should be less careful in the joinery, but it does relieve some of the pressure. Flat and square boards make dovetailing easier (for more on dovetailing, see *FWW#116,* pp. 81-86),

After cutting the dovetails on all four corners, I lay the sides on the bench so I can mark the location of the dadoes that will house the drawer runners (see the drawing on p. 36). Using a router, I cut ⅞-in.-wide by ⅛-in.-deep dadoes across the width of the sides.

A rabbet runs around the back inside edge of the case to house the back boards. Using a router, I rabbet the top and bottom pieces across their entire length. The rabbet on each side piece, though, is stopped so that it doesn't break through the outside of the case. Rounded corners can be squared up with a chisel.

The last thing to do on the case is prepare it for the scroll board, the decorated piece at the top of the case. With a router, cut the slots in the top front inside faces of the sides to house the scroll-board tenons. The front edge of the top must be ripped to its finished width to allow the scroll board to slide into place.

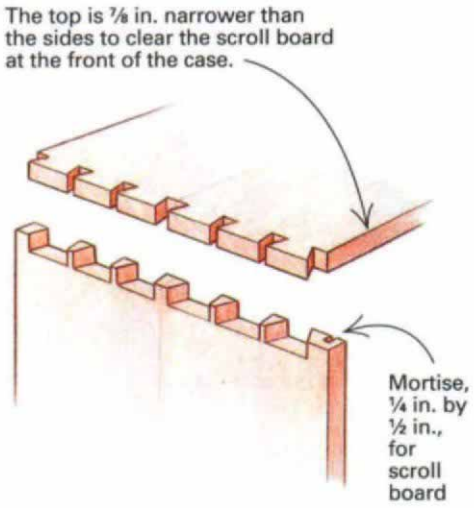
Installing runners and rails

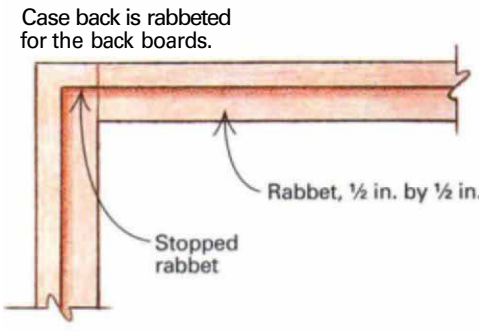
With the bulk of the joinery on the case sides completed, it's time to make the inte-

***An American classic**—The dovetailed upper case of this bonnet-top highboy is capped by a sweeping gooseneck molding, which is made with hand and power tools. Construction of the lower case, including its cabriole legs, was covered in the previous issue* of Fine Woodworking.

THE BASIC BOX

It's really not complicated. *The upper case of the highboy starts as a large dovetailed box. Molding covers the joinery at top and bottom.*

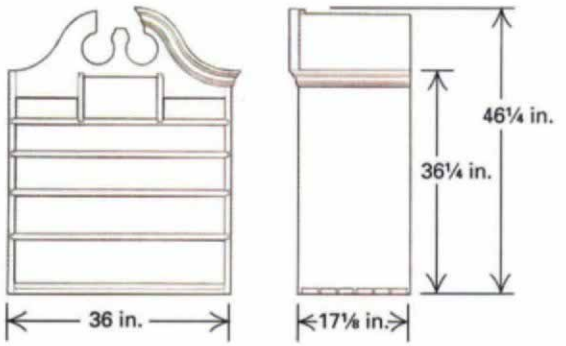


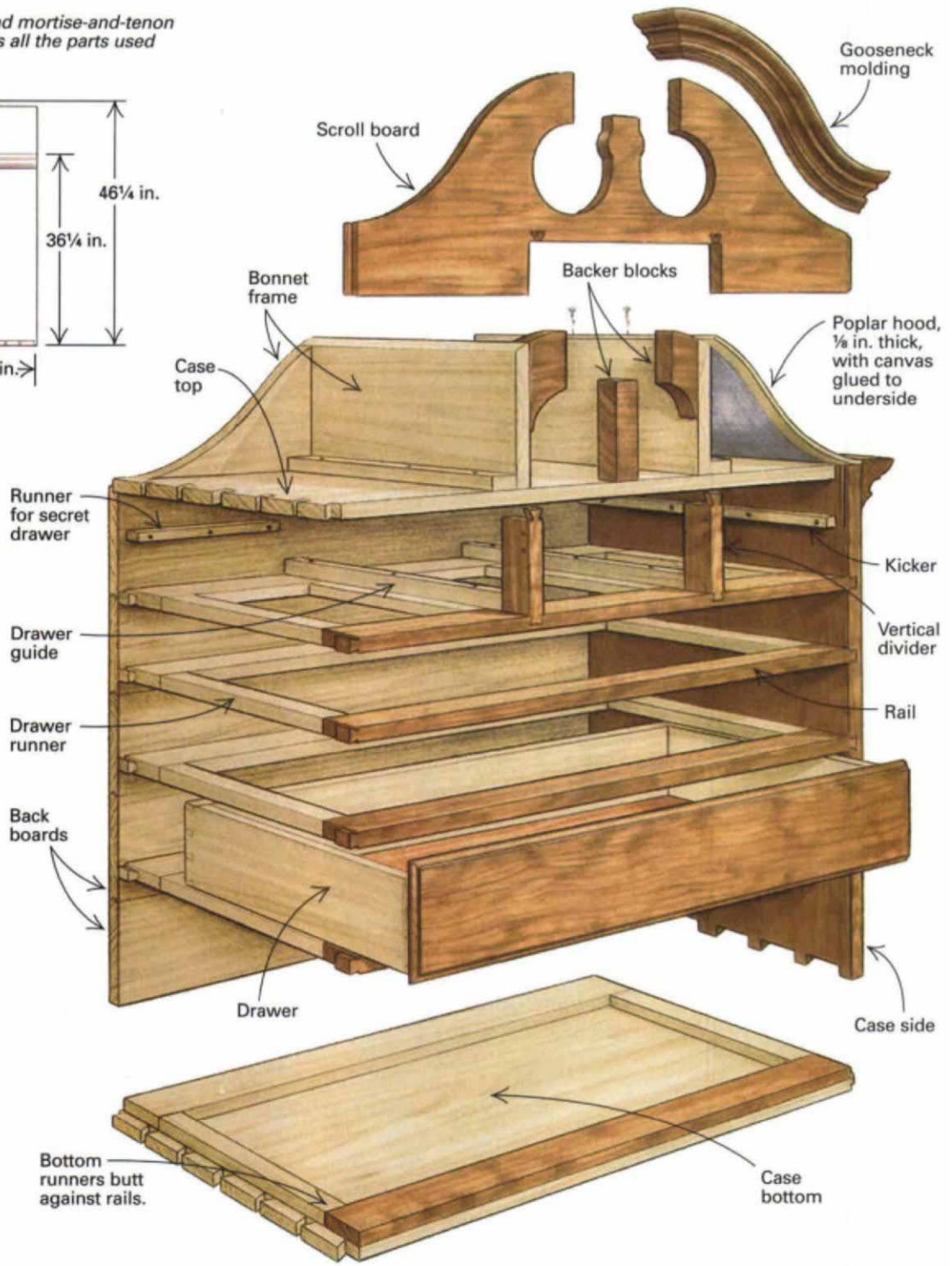


Inset photo facing page: Boyd Hagen

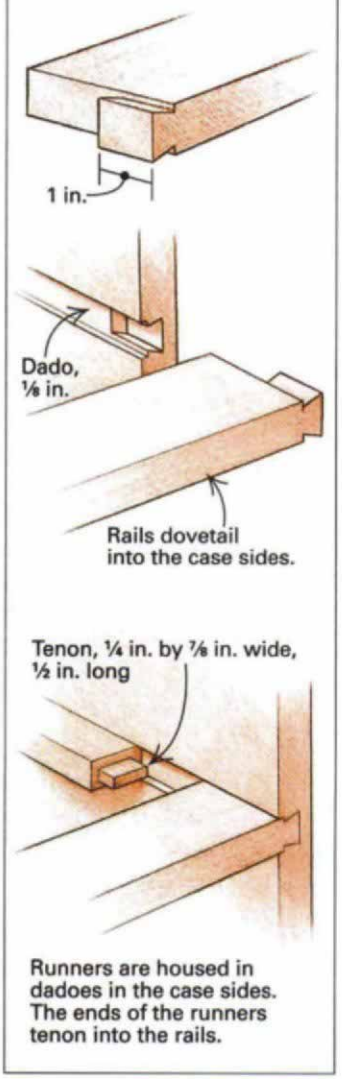
Joinery details

The highboy uses simple dovetail and mortise-and-tenon joinery. This exploded view identifies all the parts used in this part of the highboy.





Rail and runner joinery



rior framework. Five rails run horizontally across the case at the front and back. These pieces, which help hold the case sides together, are the horizontal dividers between the drawers.

It would be easier to cut the front rails out of ⅞-in.-thick flatsawn cherry, but this would put the edge grain on the front of the chest between the drawers. I prefer the look of face grain on the front rails because it complements the grain on the drawer fronts. To get face grain on the front rails, I cut the rails from quartersawn stock. An alternative method is to cut the rails out of 12/4 flatsawn stock, but quartersawn stock is more economical.

I start by ripping the rails to 2¾ in. wide and then cutting them to length. I group the rails into front-and-back pairs and lay out the ¼-in.-wide, ⅞-in.-long mortises

Drawings: Bob La Pointe

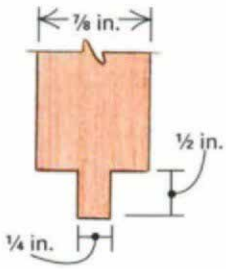
FITTING THE SCROLL BOARD

Slide scroll board into place *(above). Make sure that the bottom edge is parallel with the rail below.*

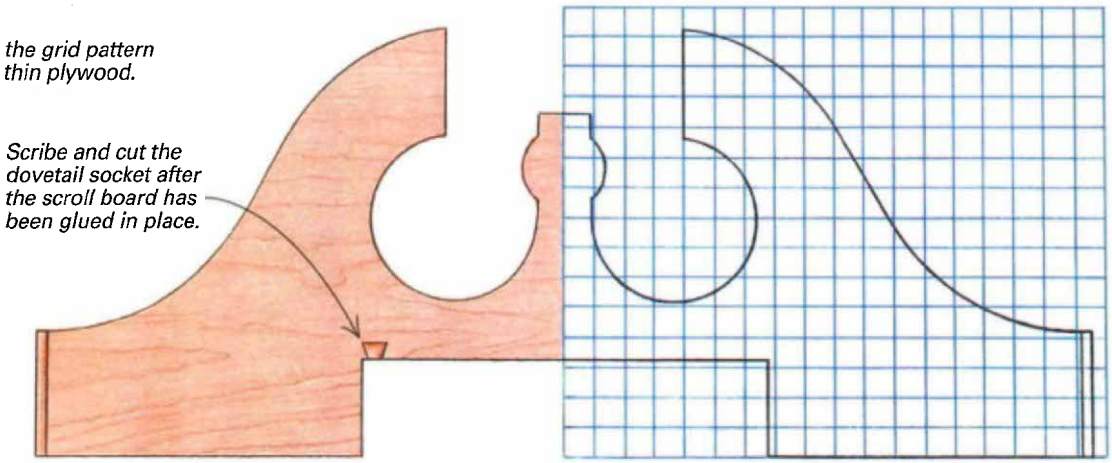
Lay out vertical dividers. *Scribe the dovetails in the ends of the dividers into the scroll board and rail (right).*

Scroll-board pattern

To lay out the scroll board, use the grid pattern to make a full-size template on thin plywood.



Scroll-board tenon



that will accept the tenons on the ends of the runners. I use a plunge router with a spiral, up-cut bit to cut the mortises ½ in. deep, and then I square up the corners with a chisel.

In the ends of the upper four rail pairs, I make l-in.-deep dovetails. They'll slide into dovetail sockets that I'll cut after the case is assembled. The bottom rail doesn't need to be held in place by joinery. The rail is simply glued to the case bottom.

The runners, which complete the interior framing, are tenoned into the rails. I group all these parts together and cut the tenons in one setup (for more on this, see *FWW* #117, pp. 80-85).

Dry-fit the case before gluing

Before applying glue, it's best to dry-fit the case members. Any problems should be corrected now. When the pieces fit correctly, I glue up the box, and then I make sure that the case is square (for more on clamping and squaring cases, see *FWW* #113, pp. 68-71).

After the clamps have been removed, I slide the rails into their respective locations and scribe the dovetails into the case sides. With the case on its back, I chop the dovetail sockets for each front rail. Then I place

Photos except where noted: Dennis Preston

MAKING THE BONNET

Trace the curve of the scroll board onto stock for the rear framing member.

***Hold the bonnet frame square, and** drill pilot holes for screws. Once the glue has dried, screws are replaced with forged nails.*

***Scribe the curve on the center wall** using the scroll-board template.*

the case face down and chop the rear dovetail sockets. I can now glue the front rails in place and allow the glue to set. Next I lay the case face down, glue the drawer runners into the front rails and apply glue to just the front 2 in. of the runner in the dado in the case sides. I don't glue the runners to the back rails, so the case sides can expand and contract freely with humidity changes. Now I glue the back rails in place. And, finally, I glue the bottom drawer rail to the case bottom.

The drawer kickers behind the scroll board prevent the top outside drawers from tipping when they are pulled out. Because these kickers do not carry much weight, they are glued and nailed to the interior case sides with cut nails, as was done on many Early American pieces. Because of the cross-grain construction, I apply glue only along the front half of the kicker.

Scroll board completes the case work

The scroll board is cut from stock that is 14¼ in. wide. Although a single, full-width board is nice, you can join two narrower boards. For the best appearance, though,

***Fair the center walls to the scroll curve.** Using a handplane, the author works from front to rear to prevent chipping the scroll board.*

one of the boards should be at least 11¾ in. wide so that the glue joint is hidden by the gooseneck molding. Before cutting the stock, I make a full-size pattern of the scroll board from thin plywood.

It's easier to cut the tenons on the ends of the scroll board and make the center drawer opening while the board is rectangular. I cut the tenons with a router and a spiral bit and edge guide. Then I bandsaw the rough opening for the center drawer.

I use a router fitted with a flush-trimming bit and a template to make the finish opening, and I clean out the two corners with a chisel. I bandsaw the profile at the top of the scroll board and then smooth it on my belt sander.

With the scroll cut, I lay out and carve the circular fan in the plinth (carving for this highboy will be explained in *FWW #119*). Once the glue is applied to the tenons, the scroll board can be slid into place (see the photo at left on p. 37).

The next step is to fit the vertical dividers for the top center drawer opening. I cut the dividers to size and dovetail the ends first. Although the divider is 2¾ in. deep, the dovetail is only ½ in. deep. I scribe the dovetails to the rail and scroll board (see the photo at right on p. 37), cut the dovetails with a fine backsaw and chisels, and glue the dividers into place.

Riven oak pins anchor the inner edge of the scroll board to the dividers. I drill two ¼-in. holes through each divider and into the edge of the scroll board. I put a little glue on the edge of the pins and drive the pins into the holes, cutting any bit of protruding pin flush with the surface. The upper carcase is now ready for the bonnet framework and thin bonnet top and the gooseneck molding.

Framing the bonnet

The scroll board establishes the curve of the bonnet, but additional framing is needed to enclose this area and support the hood. The first step is to copy the curve from the front scroll board (see the top left photo on the facing page) and to cut the two poplar pieces to shape. Next I cut the stock for the center walls and the cleats that will attach the frame to the case top, and then I glue these pieces together.

I use screws to clamp the parts together temporarily (see the center left photo on the facing page). I replace the screws later with forged nails. The bonnet's frame, like many other traditionally made pieces, does have some cross-grain construction. The

SHAPING THE GOOSENECK MOLDING

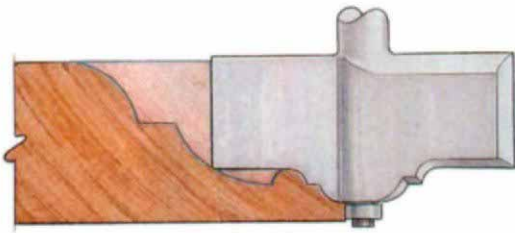
Removing waste quickly—*A router does the heavy work quickly. The author will hand-carve the details in this traditional deep molding.*

Custom-made router bits *establish the overall profile of the gooseneck molding.*

Use a gouge that matches the cove radius. *The router-cut blank leaves guide marks for the width and depth of the cove.*

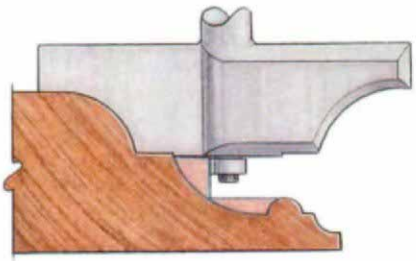
Molding in three steps

Step 1



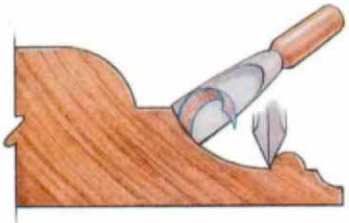
Stock removed by first bit.

Step 2



Stock removed by second bit.

Step 3

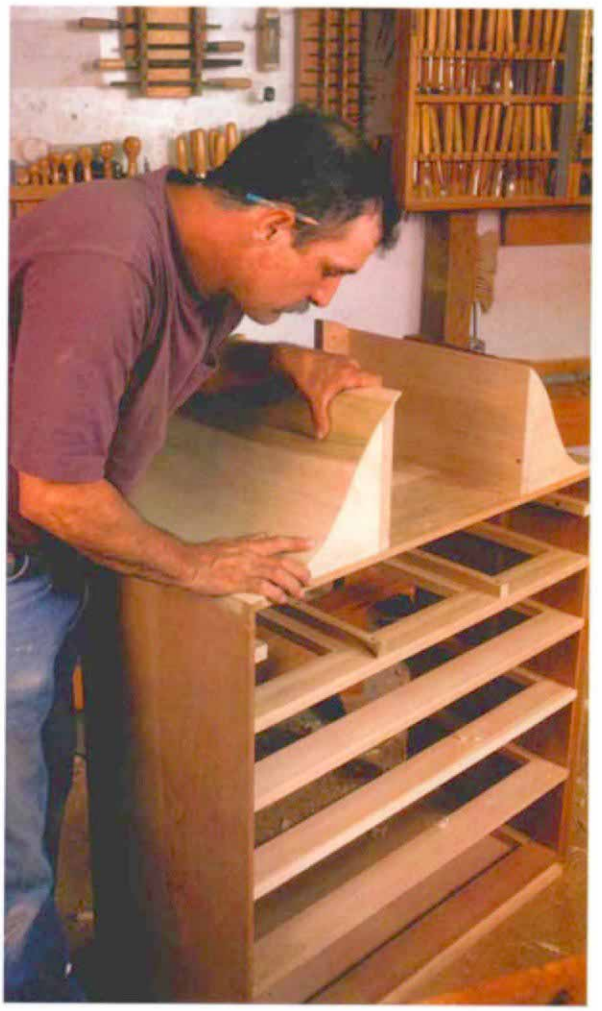


Shape with gouges.

FITTING THE GOOSENECK MOLDING

Clamp the molding in place, *and scribe the miter locations (above).*

Screws hold the molding to the fence *so that the molding can be accurately and safely mitered (right).*



Locate the molding ¼ in. *above scroll board (above).*

Test-bend the hood over the frame. *To control cracking, glue canvas to the inside of the hood before it's nailed to the bonnet frame (right).*

nails accommodate the wood's seasonal movement without sacrificing strength.

After the glue has dried, I use my handplane to fair the center walls with the curve of the scroll board (see the photo at right on p. 38).

Gooseneck molding is routed and then carved

This traditional molding profile has an astragal bead that stands proud of a large cove, creating a dramatic shadow line. I've made a variety of architectural moldings on my shaper, but this profile, with its S-curve shape, is best worked by a combination of router and carving tools.

I start with a full-size pattern to lay out the S-curve on a wide piece of 1½-in.-thick stock. Then I bandsaw and smooth the inside curve to the layout line. I had a pair of router bits made to remove the bulk of the waste quickly (see the center photo on p. 39). The pilot bearing of the first bit follows the inside curve of the blank (see the top photo on p. 39) and creates part of the profile (see the drawing on p. 39). The pilot bearing of the second bit follows the shoulder cut made by the first bit and removes more material.

The remaining material is removed with carving tools, and the entire molding profile is lightly sanded. Finally, I bandsaw the outside curve to separate the molding from the blank and sand the curve to the layout line. The straight moldings for the case sides are made in the same manner.

Mount the molding, and install the hood

The top edge of the molding extends about ¼ in. above the scroll board curve to form a rabbet for the front edge of the hood To locate the miters, I clamp the molding stock in place and scribe the inner edge of the miter.

Mitering the curved molding can be tricky. To hold it in place securely, I screw the molding, to the wooden fence on my miter saw. The straight molding is cut by placing the stock upside down with the back edge against the fence. Once the molding is cut, I drill holes and nail it into place with forged finish nails. The plinth and the upper arch of each scroll have fragile short-grain sections that need reinforcement, so I glue backer blocks behind each of them.

The hood is an 18½-in.-wide poplar board that I plane to ⅛ in. thick. It is bent over the frame and nailed in place (see the photo at left). Most antique hoods have

Make the drawers after the case work is completed. Batch like parts to speed up the work and produce more consistent results.

Secret drawers add a little mystery. The drawers slide toward the center and can be withdrawn from the case.

cracks in this thin piece of wood, and a few minor splits are unavoidable. But to prevent major cracks, I glue canvas to the underside of the hood with contact cement. This makes a ply construction, and so far, none of my bonnets have any serious cracks. Minor cracks seem to be confined to the ends.

On the home stretch with drawers, backboards

Once the top and bottom cases have been assembled, I make the drawers. After I select the most highly figured boards for the drawer fronts, I make sure that the growth rings on the stock of all the drawers have the same orientation (the faces closest to the bark are all in or all out). Don't mix them up because I've found that the sapwood side will never darken quite as much as the heart, even when the wood comes from the same log.

I cut all the drawer fronts to size, run a bead around the entire drawer front and rabbet the top and sides for a lip—there's no lip on the bottom edge. I check the fit of each drawer and make adjustments. Prior to cutting the dovetails, I carve the fans on the two middle drawer fronts.

Batch all the drawer parts, and lay out and cut the dovetails (for more on drawers, see *FWW #104, p.* 65). The cedar bottoms are fitted after drawers have been glued up. During glue-up, I use a temporary plywood bottom with corners cut off to help square the drawer and to make it easier to clean glue out of the corners.

Even though each drawer front has been fitted to its openings, I work each drawer lightly with a handplane after assembly. A little fussing is usually all that is needed to make each drawer fit perfectly.

Secret compartments add an air of mystery, and this highboy has several. I added two secret drawers inside the case above the two small drawers at the top; they're hidden behind the scroll board. Though not deep, the drawers are plenty big enough for jewelry or documents (see the photo above right). I also made false bottoms in two other drawers. These have a ½in. space between two drawer bottoms. The upper bottom is completely housed in a groove. The lower bottom slides in from the back. It's held with a loose-fitting nail that can be pulled out with your fingers.

Five individual boards are used to close the back of the case. The ½-in-thick boards are handplaned inside and out and have tongue-and-groove edges. I fit the boards horizontally across the case and nail them at the ends.

Randall O'Donnell is a period furniture-maker who lives in the countryside near Bloomington, Ind.

Next issue: the fans and finials

In the next issue, Randall O'Donnell describes the carved fans and flame finials that complete this highboy. An article in the previous issue detailed the lower case.