Curly Cherry Highboy

Combine hand and machine techniques to produce an American furniture classic

by Randall O'Donnell

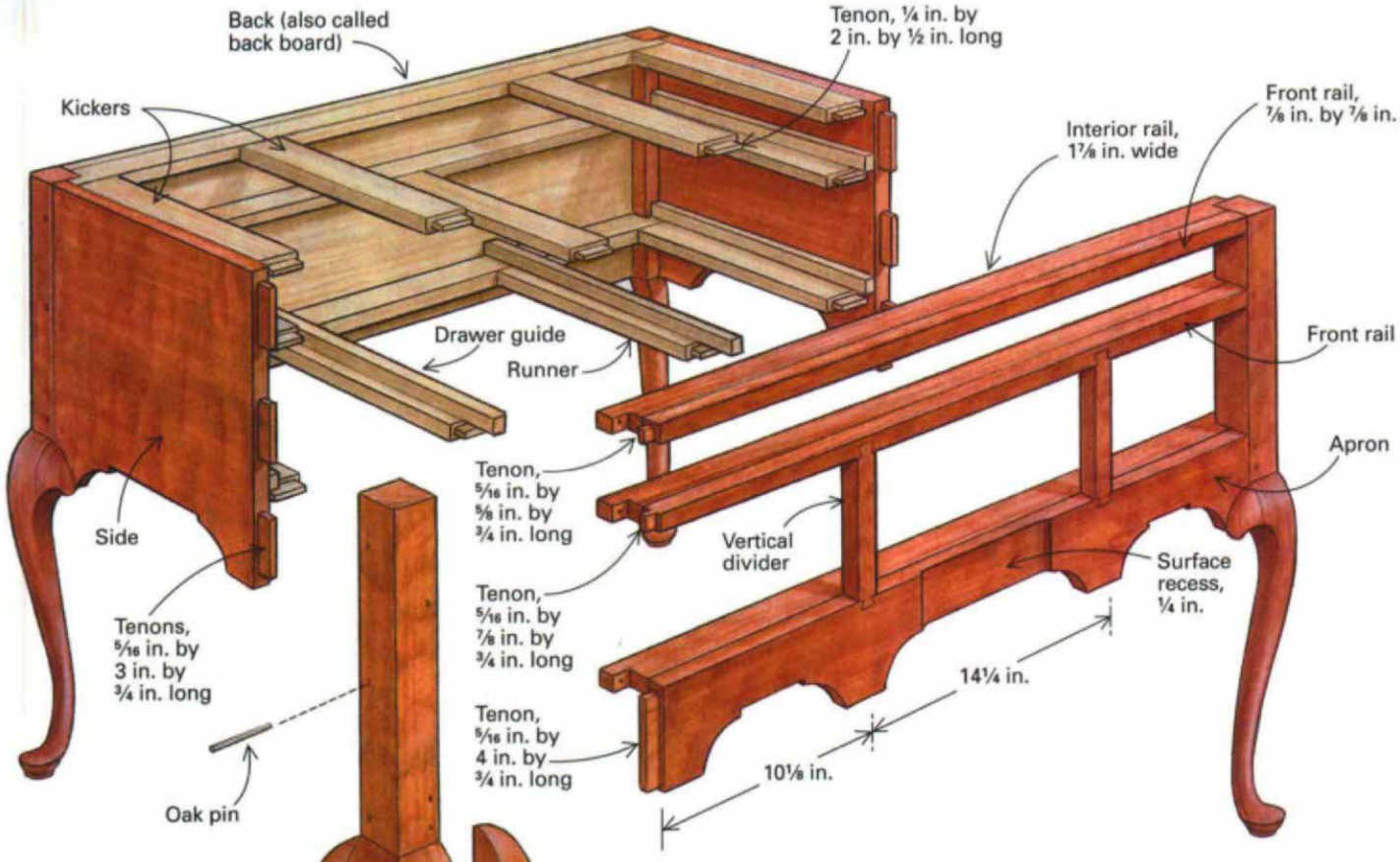
When I watch a sawyer cut open a hardwood log that has highly figured wood inside, it's like stumbling across a buried treasure. Wood like that is a gift of nature, and it deserves the best showcase I can provide.

Most of the pieces that I make are reproductions of Early American furniture, and for showing off unusually beautiful lumber, there's nothing quite like a high chest of drawers. Unlike a tabletop, a highboy can be appreciated from a distance and the character of the wood really becomes three-dimensional. Add a bonnet top with a dramatic gooseneck molding, brasses and carved fans and finials—all dancing on cabriole legs—and the result is a piece of furniture with real presence (see the photo above).

I've examined a number of original highboys. Only a few stand out as true masterpieces, but many include wonderful details that provide a rich palette for the period furnituremaker. This piece is my interpretation of a Massachusetts style from about 1750. The blocked apron, finials, arch cutouts and shells are based on designs from Boston in that era.

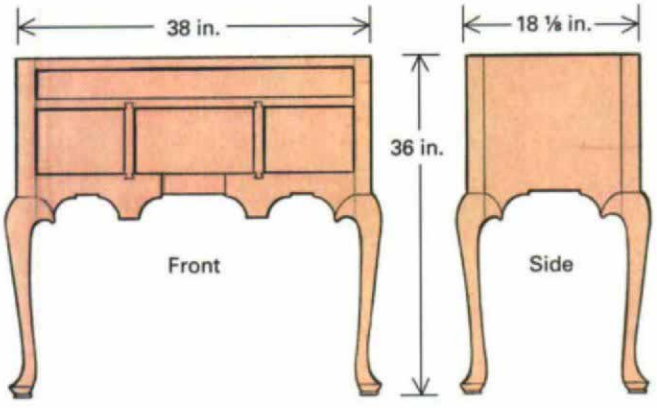
The highboy exercises just about every skill of the traditional cabinetmaker: turning, sculpting, mortise-and-tenon joinery, dovetailing, carving and (gasp!) even driving nails where appropriate. Colonial cabinetmakers usually had apprentices handle routine

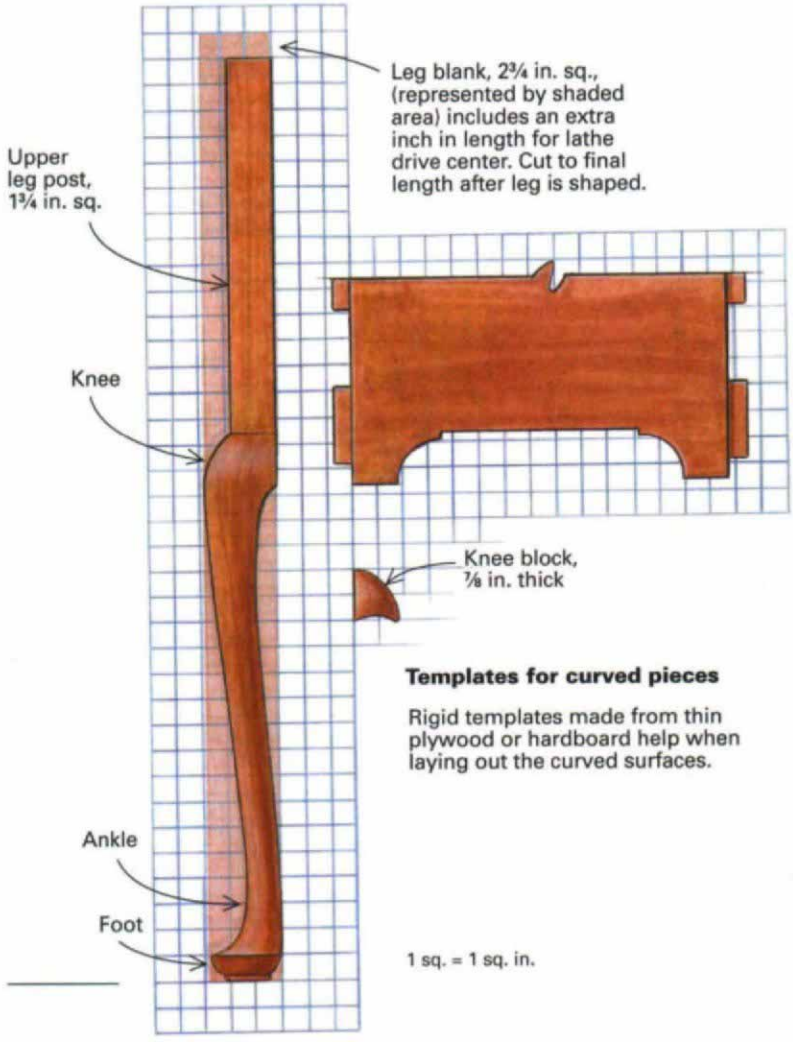
Photo this page: Boyd Hagen



A highboy starts with the base

The foundation for this classic piece of case work is a 36-in.-high base with cabriole legs and a block-front apron. Most of this highboy is made of curly cherry, the secondary wood is poplar and the drawer bottoms are aromatic cedar. Construction of the highboy's upper case, including its carved fans and finials, will be covered in the next two issues of *Fine Woodworking*.



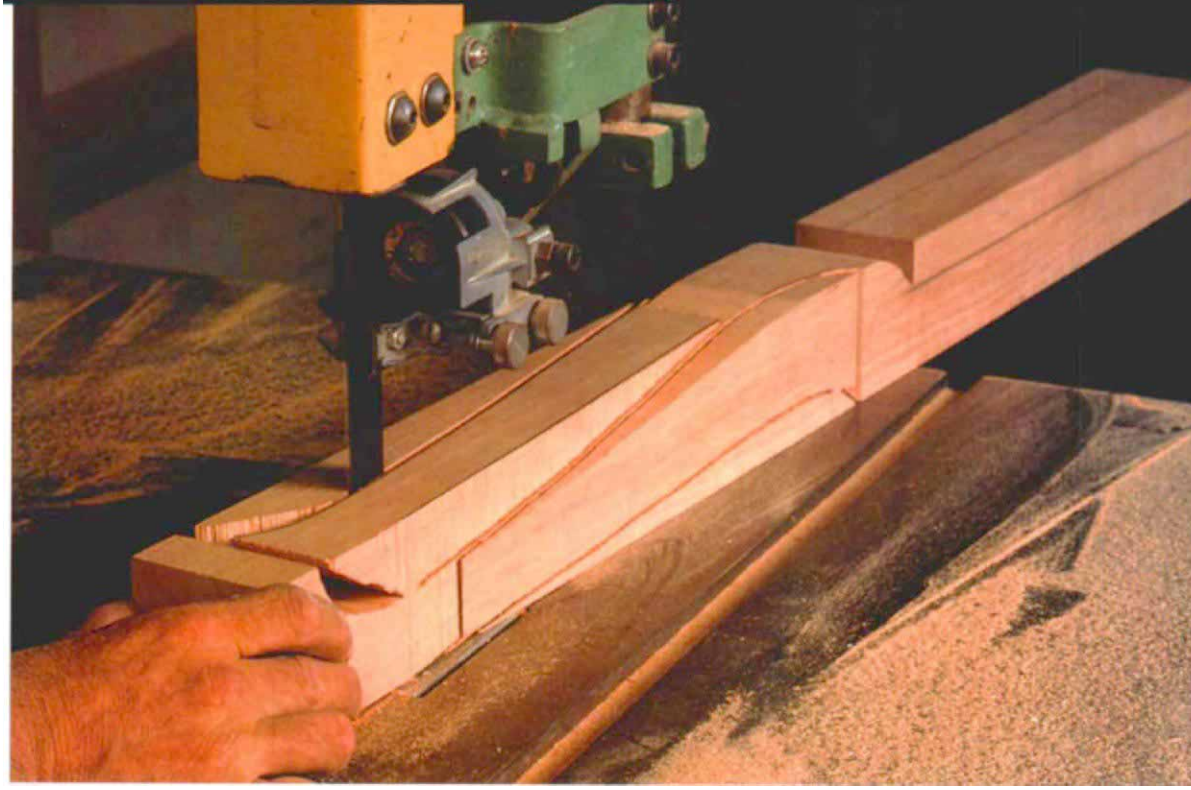


Templates for curved pieces

Rigid templates made from thin plywood or hardboard help when laying out the curved surfaces.

Drawings: Bob La Pointe

Run the growth rings diagonally *from the inside corner to the outside corner when laying out the legs. With this orientation, the grain flows with the cabriole curve.*



Don't cut the waste completely free of the blank. *Leave a small connecting bridge so waste pieces don't need to be taped or nailed back into place when the stock is rotated to saw the other face.*

tasks. As an independent craftsman, my apprentices are machines that prepare stock quickly so that I can devote my time to the critical hand skills that set this piece apart from factory-made furniture. Fine carving, hand-cut dovetails and handplaned surfaces remove any trace of the machines that did the grunt work before me. Economic reality has taught me that even though I can replicate a period piece of furniture, I can't slavishly follow every method of the Colonial makers.

Building this highboy is well within the abilities of the serious amateur cabinetmaker. (This article deals with the lower case. In the next two issues of *FWW,* we'll build the rest of the highboy-see the box on p. 85.) Although it may appear daunting, much of the work amounts to executing just a few traditional joinery techniques over and over. With so many pieces to cut and assemble (see the drawing on p. 81), organization is as important as technique.

Select stock carefully

All the curly cherry flat stock needs to finish out at ⅞ in. thick, so I usually start with roughsawn, 1 ⅛-in. stock. The gooseneck molding and lower finials are made from 8/4 curly cherry stock, and I use sound 12/4 straight-grained stock for the legs and the top finials.

All secondary wood is poplar, except drawer bottoms. All internal frame parts are ⅞-in.-thick stock to match the cherry, Drawer sides and backs are ⅝-in.-thick poplar, back boards are ½ in. thick and drawer bottoms are ⅜-in. aromatic cedar.

Before cutting any wood, select the best figured stock for the most prominent areas: the drawer fronts, the front apron and the wide scroll board at the top of the upper case. Careful stock selection provides a kind of visual rhythm to the piece, uniting upper and lower cases. If I can, I use boards from the same log.

Start by shaping the legs

Even when empty, this is a heavy piece of furniture. Leg strength is important. That's why I look for sound, straight-grained stock to rip into 2¾-in.-sq. leg blanks. Make the blanks an inch longer at the upper end so the lathe drive center has material to bite into. This extra inch of stock will be cut off later, after the leg is shaped and mortised. When laying out the leg profile, align the blanks so the annual rings run diagonally from the inside corner to the outside corner (see the photo above left). This makes the strongest possible leg as well as the most attractive one. The grain lines flow with the contour of the cabriole shape.

Only the foot is turned. *With the leg still mounted in the lathe, shape it with a spokeshave and rasp.*

First make a full-sized template of the cabriole leg profile on thin plywood or hardboard. Using this template, mark out the leg profile on all four blanks. Before bandsawing the cabriole profile, I define the shoulder line at the junction of the upper post and the curve of the knee. All I do is crosscut the two outside faces of each leg on the tablesaw to a depth just shy of the finished surface.

Photos except where noted: Dennis Preston

Careful bandsawing makes sculpting the leg much easier. When bandsawing the cabriole profile, I don't saw off the waste completely. Instead, I leave a small, connecting bridge between the leg and the waste. This gives the leg good support as I make the cuts on each face of the leg (see the photo at left). Finally, I return to the first face, and cut through the remaining bridged segments. This bridging method ensures perfect alignment of the sawn faces with the template and eliminates the fussy process of reattaching the sawn waste in some other way to make all the cuts.

Once the leg is sawn to rough shape, mark the centers on both ends of the blank, and turn the foot on the lathe. Be sure to make a crisp top edge on the foot (see the bottom photo on the facing page). This gives a nice reference edge from which to rasp and file the shape.

From this point, I shape the rest of the cabriole profile by hand, using the lathe as a vise to hold the stock. I start with a spokeshave to remove a lot of waste quickly. For shaping, though, a patternmaker's rasp gives the best results. Finally, I use files and sandpaper to finish the curved leg and foot. Leave edges at the knees sharp, and be careful not to round over any edges where the knee blocks will be attached.

Mortise the leg posts

At this point, the upper part of the leg has been laid out but is still 2¾ in. sq. This is when I lay out and cut the mortises for the back, sides and all three front rails. The full width of the leg stock (see the top photo at right) and the extra inch of length provide stable support for the router. I use a plunge router fitted with a spiral upcut bit. The bit diameter is slightly smaller than the finished mortise width so that I can shave the cut exactly to my scribed lines. After plunging the mortises, pare to the layout lines, and square up the inside corners with a chisel.

Once all the mortises are cut, rip and crosscut the upper leg posts to size. Stay outside the layout line by about 1/16 in. The excess will be planed flush with the sides after assembly. Also, be sure to mark and save the waste pieces from the upper part of the legs. These pieces will be used for making the knee blocks and will give the best possible grain match with the leg.

Prepare the stock for the carcase

Loggers in my area call me when they find an exceptional tree—one that is big, straight and, if I'm lucky, figured. I have to act fast, though, because it's always a race against the veneer-log buyers who also want dazzling wood Midway through this project, I had to drop everything and dash off to the woods to check out a tip. But that's how I get the figured wood I need for my furniture.

Start by sawing the rough wood so that it's a few inches longer than needed and about ½ in. wider. Normally, I'd surface one face and true up one edge on the jointer and move to the thickness planer. Highly figured wood like this, though, is prone to tearout, so I do the final thicknessing on a wide-belt sander. Later, I'll handplane and scrape all the parts to clean up the fuzzy sanded surface and get the silky, hand-worked texture that's so essential to period furniture. Tool marks reveal an intimacy between wood and maker. But to me, it really doesn't matter whether the stock initially was thicknessed by a power planer or with scrub and jack planes.

Cut out the front rails, sides and back

Three tenons connect each case side and the back with the legs, making for some 17 in. of cross-grain construction. With seasonal

A plunge router with a spiral bit roughs out the mortises. The full stock width of the blank provides support for the router.

After the router, use a chisel to pare and square the mortises to the scribed lines.

Cutting tenons by the batch saves time. Clamping the runners and kickers together also makes it easier to keep tenons uniform.

Mark the shoulder line on the narrow edge of each tenon. Cut the waste away on the handsaw.

Plane the upper leg posts flush with the front. *A file, chisel and scraper help to bring all the leg posts flush with the front, sides and back.*

Interior rails glued to the front rails *and back board reinforce the case and permit longer tenons to be used on drawer runners and kickers.*

Dry-fit all parts to find potential problems before glue is applied.

humidity changes, there's a strong possibility of a crack developing in the sides or the back. None of my furniture has developed any cracks, but it is quite common on original pieces. Because a crack along the grain of a side or back doesn't affect structural integrity and gives a look of authenticity, I don't worry about it.

With stock for the sides and back cut to their finished width and length, I use the router and edge guide to start the tenons by cutting a long tongue in each end of the sides and back.

Next lay out and cut the individual tenons with the bandsaw, and then use a chisel to pare the ragged bandsaw cuts to the shoulder lines. Don't cut the bottom scroll yet. Wait until the joints have been dry-fit.

The three horizontal front rails (including the apron) are cut from a single board. Mark the stock to keep the rails in sequence. For these parts, it's easier to lay out and cut the tenons first before ripping the stock into individual rails.

Sides, back and rails should be test-fitted to the legs. If all fits well, take the case apart. Using full-sized patterns, lay out the scroll on the bottom edge of the apron, sides and back. Bandsaw to shape, and clean up the sawn surfaces with a spokeshave and rasp.

The center area on the apron is recessed (or blocked) to align with the fan carving on the drawer above it. Remove the bulk of the waste in this area with the bandsaw, and then finish with a rasp and scraper. Drill the two ½-in.-dia. holes in the bottom of the apron for the turned tenons of the drop finials.

The two vertical dividers between the three lower drawers are milled to size and a dovetail cut on each end. The divider is ⅞ in. deep, but the dovetail only extends ½ in. deep. Fit these pieces to the middle rail and apron after the front legs and rails are glued up.

Make the interior framing members

Along with the parts already made, the case needs additional framing to reinforce joints and support the drawers. The next step is to cut stock for the drawer runners and kickers. Collect all of these pieces, and cut the tenons on the ends at one time (see the third photo from the top on p. 83).

Leg post-to-rail joint strength is my chief concern, so I reinforce this area with interior rails that are notched around the inside corners of the posts. These pieces are glued to both the front rails and the back of the case.

There are three pairs of interior rails. The front interior rails are made of cherry to match the front rails. The back rails are made of poplar. With the exception of the wood species, they are identical. Group the rail pairs. Lay out and cut all the mortises first, and then fit the tenons.

Assemble the base in three stages

A sure way to induce a panic attack is by trying to glue all the parts at once. Having a bunch of glue-slathered parts dripping everywhere is bad enough, but with so many parts to handle, glue can

start to set before all the joints are seated and the case squared up. So I begin with just the front assembly. Glue up the two front legs and the three front rails. Be sure to check that the assembly remains square after the clamps are in place (for more on this, see *FWW #113* pp. 68-71).

After the glue has cured, use a jointer plane, chisel and a rasp to fair the leg posts flush with the rails (see the top left photo on the facing page). Now position the two vertical dividers over the middle rail and apron, and scribe and cut the dovetails. The dividers can now be glued into place.

The backboard is glued up with the back legs, clamped and allowed to dry. Once the back assembly has been removed from the clamps, fair the back leg posts flush with the back.

Once you've glued the interior rails on the front and back assemblies (see the bottom left photo on the facing page), dry-fit the sides and all the drawer runners and kickers. If everything fits well, apply glue to all the mortises and tenons, and bring the whole assembly together and clamp. This operation may take extra hands. Two people certainly make the assembly less nerve-racking.

Be sure that the case remains square after the clamps are tightened. After the glue has dried, clean up any glue squeeze-out, and then fair the leg posts flush with the case sides.

Now install drawer-side guides, which prevent the drawers from cocking when pushed into place. The guides are pieces of poplar, glued and nailed (as was done on the originals) to the runners.

Glue the rough-shaped knee blocks in place. *After the glue dries, use chisels, rasps and sandpaper to blend the entire knee.*

Attach the knee blocks

Knee blocks provide a graceful transition between the legs and neighboring surfaces. You'll need six blocks: two each on the three sides that show. Using a template, lay out the profile on leg-post offcuts. Bandsaw the block profile, dress surfaces that butt against the leg and side or apron, and rough shape the curve. Now glue the knee blocks in place (see the photo above). Clamping pressure must squeeze the knee block into the flat on the leg blank and the apron and side. After the glue has dried, fair the entire knee area with carving tools, rasps, files and sandpaper. Some excess wood still must be removed on the inside curve of all four legs so that they'll blend with the apron scroll.

Fit the tenon pins

After sanding the case, drill holes in the leg posts for the tenon pins. They should be made of riven (split) oak. A riven pin is less likely to split or break. Spokeshave the pin with a slight taper to give a tight fit. Before driving them into place, test-fit the pins in a scrap block. Cut these pins slightly proud of the surface using a piece of sandpaper as a gauge, and peen the ends to give an aged look. □

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Next issue: the upper case

With the lower case complete, the next step is building the graceful upper cabinet that crowns this highboy. Randall O'Donnell details that project in the May/June issue of *Fine Woodworking*. The last of the three articles in this series, which will appear in the July/August issue, covers the finials and carved fans.