This bubinga writing desk with maple highlights *has an intimate center alcove and elegant details, including tapered-and-fluted legs that are attached to the case's diagonal comer blocks.*

An Elegant Writing Desk

A three-drawer case on fluted legs

by Terry Moore

Of all the different pieces of furniture I build, desks are my favorite. I think they are special objects, set apart from the common table by their utilitarian designation. Whether an austere business desk for an executive, an office computer workstation, or an elaborate cabinet secretaire for the home, each desk is designed to fit a specific purpose. When I designed this writing desk, I wanted to create an elegant piece of furniture that would be used for occasional handwritten correspondence. To this end, the desk's form could be of more delicate and airy proportions. One of its two main focal points is the curved central drawer, which creates an inviting intimate alcove; the other focus is the tactile form of the fluted legs attached to the drawer case's diagonal corner blocks.

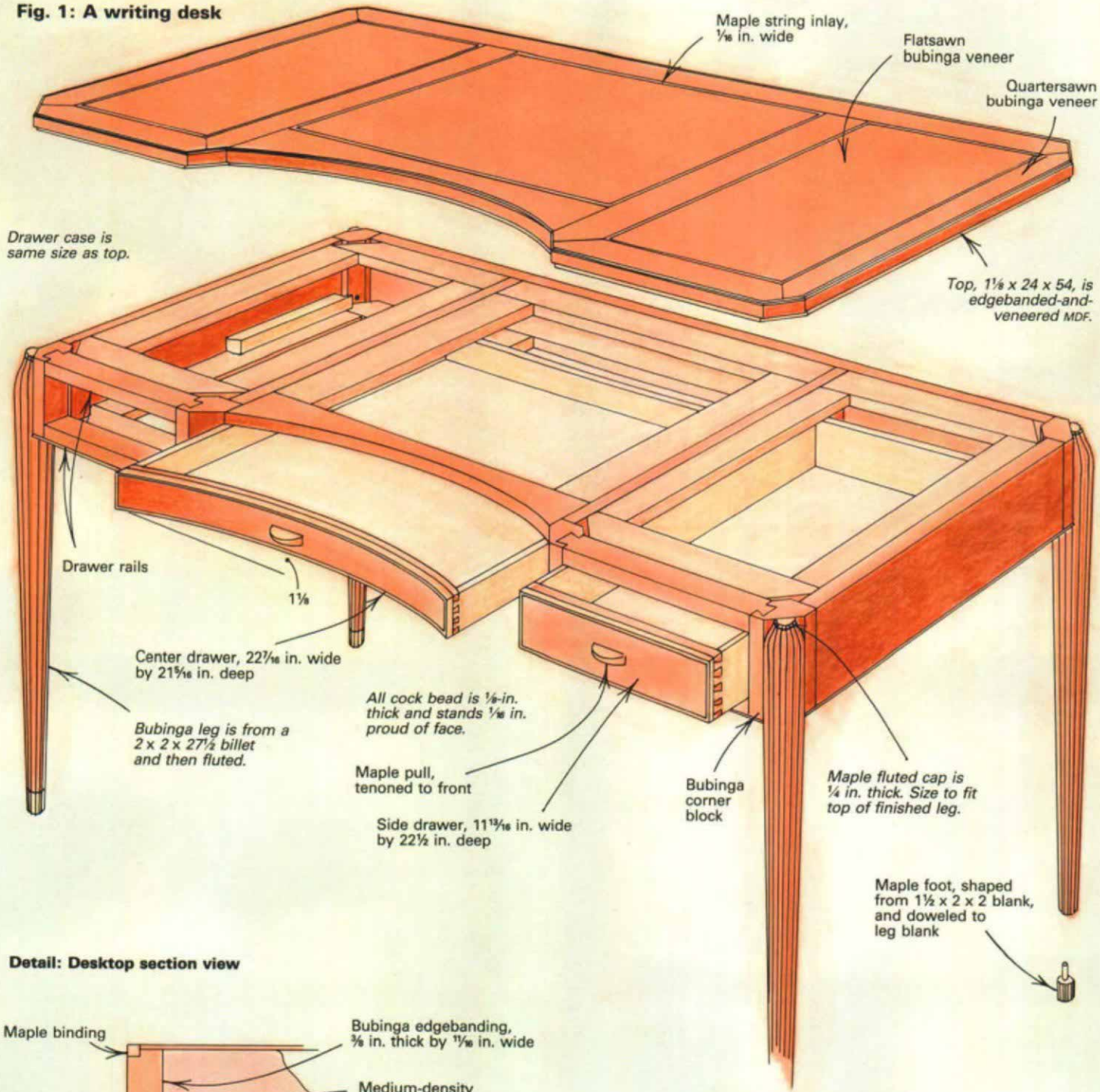
Making the drawer case with its corner blocks and aprons, and later attaching the legs, not only simplified the construction process, but also allowed me to experiment with different leg profiles. Though I initially tried square-tapered and lathe-turned designs, I eventually chose 12-sided, tapered, fluted legs. I'll explain more about how I made these legs later. The desktop is the same size and shape as the drawer case, and the top has veneered book-matched bubinga "panels" that are outlined with curly maple string inlay. A veneered "frame" borders the panels, and the edge is trimmed with a curly maple binding.

Making the drawer case

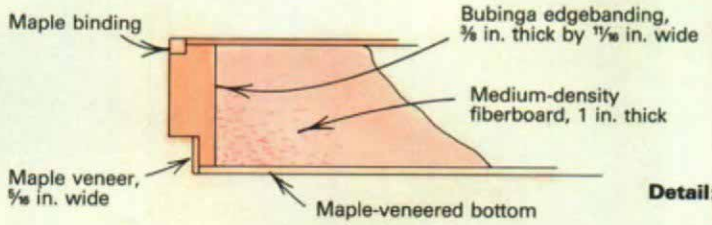
Once I decided on the overall size and shape of the top, I began building the drawer case. I made its visible parts from bubinga and used cherry for parts that aren't visible. The drawer case has two short side aprons and one long back apron; a drawer rail above and below each drawer opening; and a center divider between each drawer compartment. As I mentioned, the case is assembled around angled blocks: one at each of the corners and one on each side of the center drawer. These blocks are mortised to receive the ends of the aprons and the two center dividers. The ends of the four side-drawer rails are dovetailed to both the front corner blocks and the front face of the center-drawer blocks. Within each drawer compartment are two drawer frames. The top frame keeps the drawer from tipping when opened, and the drawer slides on the bottom frame. The drawer frames are made from cherry, ex-

Photo this page: Thomas Ames

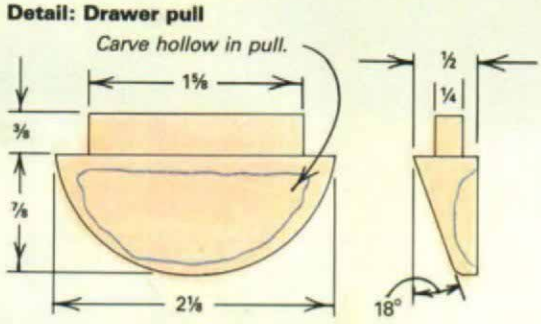
Fig. 1: A writing desk



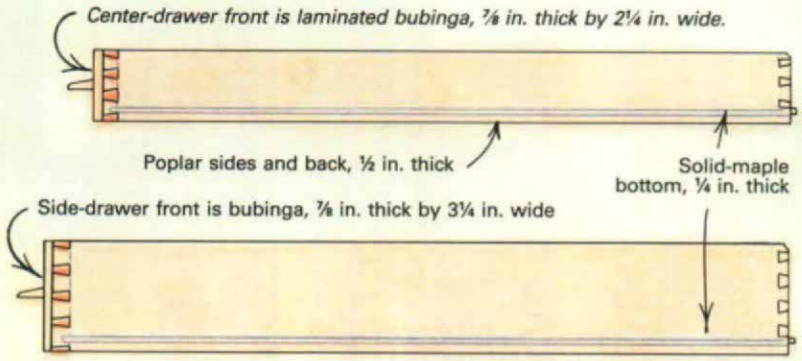
Detail: Desktop section view



Detail: Drawer pull



Detail: Drawer construction



Photos except where noted: Gary Weisenburger; drawings: Aaron Azevedo

cept for the front pieces of the two center frames, which are bubinga because they are actually the curved center-drawer rails. The drawer frames' side and back edges have tongues that fit into grooves on the inside of the aprons and dividers.

The first step was to cut the corner blocks to the size and shape shown in figure 2 on the facing page. I began with a 36-in.-long piece of bubinga, which I milled to 1⁹⁄₁₆ in. thick by 3 in. wide. I then tilted the tablesaw blade to 45° and ripped the corners off the stock to form the four facets shown in figure 2. After planing the facets smooth, I crosscut the stock into six 5-in.-long blocks.

Next, I laid out and cut the mortises in the blocks to receive the aprons and dividers. The mortises were located so that the outer surfaces of the side and back aprons would be flush with the outer face of each corner block. The mortises in the two center-drawer blocks were aligned so that the dividers were flush on the side that faces the center-drawer opening. Since the tenons were centered on the ⅞-in.-thick aprons, I centered the mortises 7⁄16 in. from the face of the block that the apron was flush with. I cut all the mortises on a slot mortiser (shown in my article in *FWW* #81), but the job could be done with a router or a drill press.

With the mortise sizes established, I cut the aprons and dividers to length (see the dimensions in figure 2) and formed the tenons on their ends. The back and side aprons have tenons on both ends, but the center dividers only have tenons on the front ends; they are doweled to the back rails. For cutting tenons, I mounted a dado blade on the tablesaw and clamped the workpiece vertically to a tenoning jig. With the tenons cut, I filed their corners round to fit the mortises. Next, I measured over 13½ in. from the tenon shoulders at each end of the back apron and marked the centerlines of the center dividers' dowel holes. I drilled three, ⅜-in.-dia. by ⅝-in.-deep holes on each centerline, and I used dowel centers to locate the holes in the ends of the dividers. To guide each divider into position, I clamped a block on the back apron, 7⁄16 in. from the centerline (half the divider's thickness). I then held the divider against the block and kept the top and bottom edges aligned as I pressed each divider's end against the dowel centers. I drilled 1-in.-deep holes in the ends of the dividers and inserted loose-fitting dowels without glue to test for fit and to aid in the dry assembly.

Also in preparation for dry-assembling the parts, I hot-glued a triangular softwood clamping caul on the outside diagonal face of each corner block, as shown in the photo at right below, so I could apply clamping pressure directly in line with the tenons. I left these blocks in place until after the final glue-up, and then I popped them off with a chisel and peeled the hot glue from the blocks.

Now I was ready to dry-assemble the aprons, dividers and corner blocks to measure the length of the side-drawer rails and the length and width of the drawer frames, To ensure accuracy when measuring, I clamped the dry-assembled parts to a piece of MDF, making sure the side aprons and dividers were square with the back apron, and the drawer openings were parallel. After determining the dimensions of the drawer rails, I cut them to length, allowing for the single dovetails on their ends. I then cut the dovetails with a thin-kerf blade and the tablesaw crosscut box, shown in the left photo below. The dovetails were cut with the blade tilted 8° and the workpieces held vertically and against a stop clamped to the box's fence. I set the blade back to 0° to cut the shoulders, again using a stop block. I chiseled away the small ridge in the corners left by the thin blade. To mark the corner blocks for the dovetails' mating sockets, I held each tail against the end of its block and scribed around the tail. Then I handsawed to the line and chiseled out the waste.

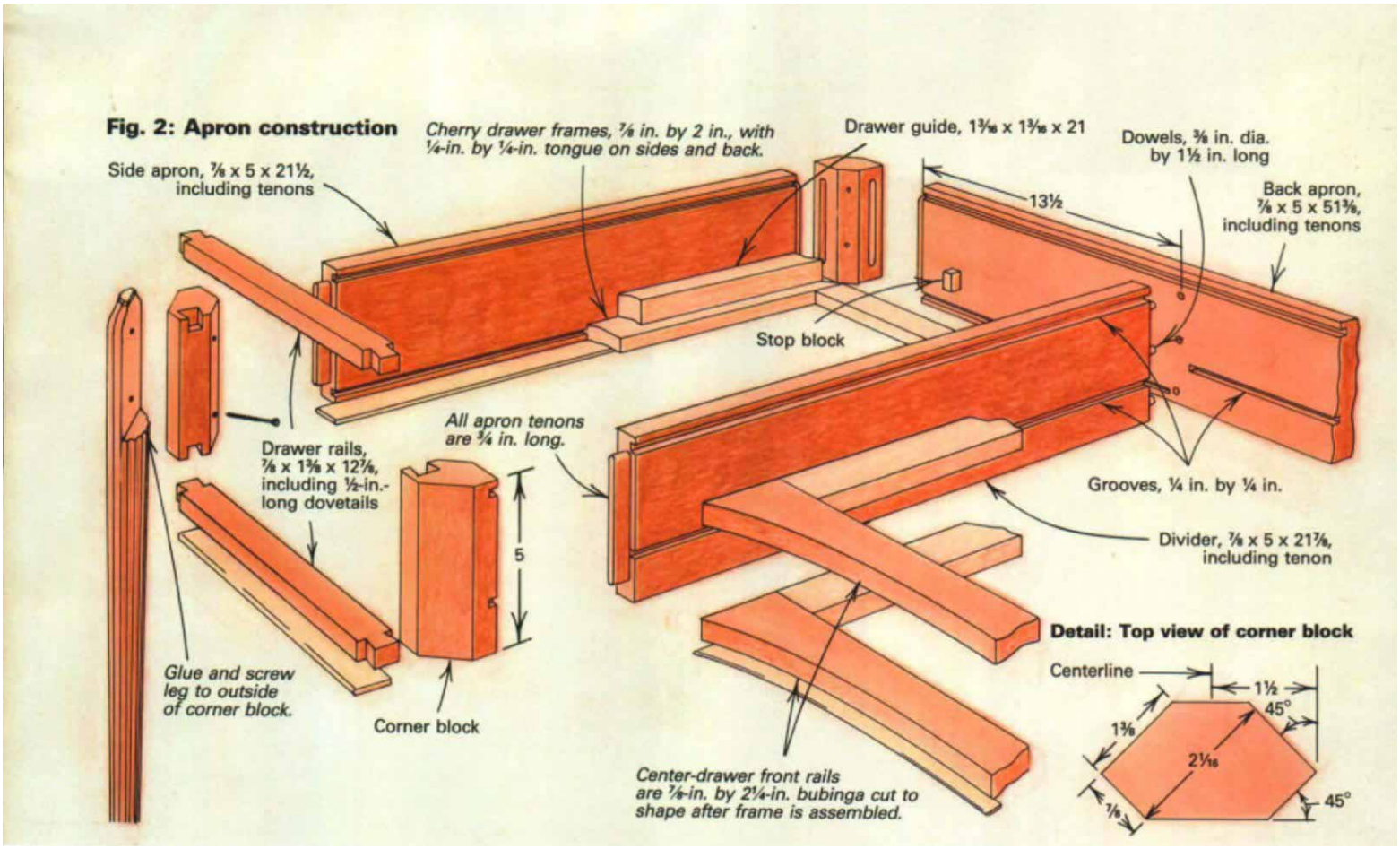
Making the drawer frames

Since the drawer frames fit inside the case, the frames must be square and to the exact dimensions of the drawer openings. I added ¼ in. to the sides and the back of each frame for the tongues that fit into grooves in the aprons and dividers. After cutting the side-frame parts to length, I joined them with open mortises and tenons. The center frames also have open mortises and tenons on the back corners, but the bubinga front rails are joined to the frames' sides with blind mortises and tenons.

After removing all the glued-up frames from the clamps, I scraped off dried squeeze-out and handplaned the joints flat. Then I stacked one center frame on top of the other, taped them securely together and bandsawed the curve in both front rails at the same time. I left the frames taped together while I smoothed the curved edges with a compass plane (a spokeshave would also work).

To cut dovetails on the ends of the drawer rails, *Moore uses a tablesaw crosscut box and clamps a vertical guide on its fence. Cutting different angles widens the box's kerf, so he renews the box by screwing plywood to the base and fence and cutting a fresh kerf.*

The drawer case is dry-assembled *to check that joints fit and to measure for the drawer frames' size. Softwood cauls, hot-glued on the beveled corner blocks, keep clamping pressure in line with the apron tenons. The cauls are chiseled off after final assembly.*



Next, I cut the tongues that are centered along the side and back edges of each frame. I did this on my shaper, but tongues could be cut easily with a router or tablesaw. To groove the dividers and aprons to receive the drawer frames' tongues, I guided my hand-held router with its fence against the workpiece edge. I located the grooves so that the inside surface of the side frames would be flush with the inside face of the drawer rails, allowing the drawers to slide smoothly. To allow for assembly, I cut off the corners of the side-drawer frames so they fit around the inside facet of the corner blocks (see figure 1 on p. 75). The top center frame is flush with the case top, but because the center drawer is narrower than the others, I adjusted the router fence to raise the center-drawer-frame groove 1 in. farther up from the case's lower edge (see figure 2). After grooving all the aprons and dividers, I glued the appropriate angled corner block on the front end of each divider, and I extended the ¼-in, center-frame grooves ⅜ in. into the block. When gluing the blocks on the dividers, I also glued the corner blocks on both ends of the back apron and on the front end of the side aprons.

Gluing up the drawer case

I organized the drawer-case parts into four manageable subassemblies, each of which I glued up and let dry before going onto the next assembly stage. First, I glued the center-drawer frames to the dividers; second, I glued the dovetailed rails to the dividers' and side aprons' corner blocks; third, I glued on the four side-drawer frames one side at a time; and finally, I added the back apron with its corner blocks. When gluing up a case in subassemblies like this, parts must be aligned so they will fit properly at the next assembly stage. For example, when I glued the drawer frames to the dividers, I made sure all the back edges were aligned before setting aside the subassembly to dry.

When I glued the dowels in the dividers before the back apron was glued on, I didn't hammer the dowels to the bottom of the holes because pressure from excess glue might have split the dividers. Instead, I held a $^{15}/_{16}$-in.-thick block against the ends of the divider and hammered the dowels in until their ends were flush with the block.

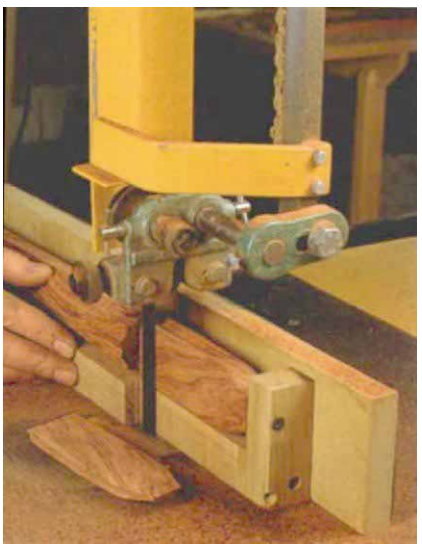
To complete the case, I glued the back-apron-and-corner-block assembly to the side-apron tenons and the dividers, clamping from corner block to corner block to press the side aprons' shoulders up tight. Also, during this last stage, I glued a drawer glide on each side of the bottom side-drawer frames, as shown in figure 2. With the drawer case completed, I moved on to building the desktop.

Making and veneering the desktop

Although the desktop appears to be a mitered frame with three book-matched panels, it is actually bubinga veneer with curly maple stringing glued on a substrate of 1-in.-thick medium-density fiberboard (MDF). I thought the frame-and-panel design would emphasize the writing alcove, but I wanted to avoid the wood movement associated with solid stock.

To lay out the substrate, I turned the case upside down on the MDF and traced around the case's perimeter. Then I sawed to a line ⅜ in, inside the tracing to allow for solid-bubinga edgebanding around the substrate's perimeter. I made the banding a bit thicker than the MDF, and after gluing on the banding, I planed and scraped its edges flush. Next, I used my shopmade vacuum-bag veneer press to glue maple veneer to the bottom of the MDF. Then, I routed a small rabbet along the substrate's bottom edge and glued curly maple veneer to the rabbet's shoulder. This visual transition elevates the top from the drawer case. After trimming the curly maple flush with the bottom surface, I turned to the top surface.

First, I selected a bubinga plank with spectacular grain and resawed it on my bandsaw to yield the $^1/_{10}$-in.-thick veneer for the book-matched panels. I resawed veneer from a piece of vertical-grain bubinga for the frame veneers. I glued the frame veneers



Moore flutes legs on his shaper *by using a lathe-like jig with a 12-point index wheel and a ⅜-in.-radius cutter (above). A profile template screwed to the jig's base follows the collar in the shaper table, and stops on the ends prevent the cutter from touching the jig's steel headstock or tailstock centers. The block in the jig's middle keeps the leg from deflecting.*

A leg is notched to fit on the corner blocks *using a jig that guides the leg against the bandsaw fence (left). The leg is rotated in the jig so that the notch will intersect at the ridges between flutes.*

down first, using clamps and softwood cauls, and then I glued down the maple string, which I ripped from 1/10-in.-thick bandsawn veneer. I held the strings in place with pins until the glue dried. Since the veneer was so thick, I was able to joint and edge-glue the book-matched panels before gluing them on the MDF. I cut each panel slightly larger than its opening and handplaned it to a perfect fit. Then, I spread glue in the panel areas on the substrate, positioned the panels and secured them with tape before putting the top in my vacuum press.

After removing the top when the glue had dried, I scraped the veneers level and then rabbeted around the top edge for the curly maple binding. I glued the binding in the rabbet and held it with a piece of tape every inch or two while the glue dried, just as I do when trimming around the edge of a guitar (building guitars is my hobby). When the glue was dry, I removed the tape, scraped the binding flush and slightly rounded its corner with a sanding block. Then I sanded the desktop and fastened it to the drawer case with screws through the top drawer frames. Next, I made the legs and attached them to the corner blocks.

Fluting legs on a shaper

Although the tapered, fluted legs on this desk look somewhat intimidating to shape, it's a fairly easy operation with the aid of the jig shown in the top photo. My jig supports the leg billet between centers, and a profile template screwed to the jig's base runs against the shaper's guide collar as the billet is shaped and fluted with a three-wing, ⅜-in.-radius cutter. The jig's fixed headstock has a 12-point index wheel that allows me to rotate the billet in equal increments and lock it in place as I cut each of the 12 flutes. The tailstock block has a tenon that slides in a groove in the base so that the tailstock can be adjusted for different-length legs. Once the tailstock is adjusted, a bolt and wing nut hold it in place securely.

To make the tailstock center, I drilled the end of a ½-in.-dia. steel rod and inserted a finishing nail filed to a point. And for the headstock center, I drilled and tapped the steel rod to accept a hanger bolt, which has machine threads on one end and lag threads on the other. The rods fit tightly in holes in the center of the headstock and tailstock blocks.

I prepared the leg billets by doweling and gluing a maple foot block on the bottom end of a bubinga blank. Then, I center-drilled the top of the square blank to accommodate the headstock screw and tapered the billet on all four sides using the bandsaw. Next, I beveled the billet's corners with a router and chamfer bit to make it into a rough, tapered octagon. I screwed the billet to the indexed headstock screw and tightened the tailstock's center against the billet's maple foot. Then 1 cut each flute in two passes.

I used another jig, shown in the bottom photo, to hold and align a fluted leg while I bandsawed the notch for attaching the leg to the drawer-case corner blocks. The leg was screwed to the jig at both ends, and the assembly was rotated so that the bandsaw blade intersected at the high points of flutes on opposite sides of the leg. I crosscut the shoulder by placing the leg, still in the jig, against my radial-arm-saw fence. And, with the blade adjusted to the correct height, I crosscut for the shoulder.

To complete the legs, I glued maple caps on their tops with epoxy and extended the flutes onto the caps with sandpaper wrapped around a ¾-in.-dia. dowel. To attach the completed legs to the corner blocks, I turned the table upside down, and glued and clamped each leg in place. When the glue had dried, I screwed into each leg from inside the drawer case. While the case was upside down, I glued cock bead (shown in figure 2) to its bottom edges.

Making the drawers and pulls

I put the drawers together with traditional hand-cut joints: Through dovetails join the back to the sides, and half-blind dovetails join the sides to the front. The solid-wood bottom panel slides under the back into grooves in the sides and front. For more on traditional drawer work, see *FWW* #73, p. 48. 1 made the curved front by laminating seven pieces of ⅛-in. resawn bubinga over a form. I resawed the veneers from one piece and laminated them in the same order, so the glueline would be almost invisible. After assembling the drawers, I glued blocks on the back apron that stop each drawer when its front is flush with the drawer rails. To complete the drawers, I routed a cock-bead rabbet around the perimeter of each drawer front. The 5/16-in. rabbet allows the ⅜-in.-wide maple cock bead to stand proud of the drawer face.

I like the feel of carved wooden drawer pulls, and this desk's curly maple pulls contrast nicely with the bubinga. The pulls are hollowed underneath to provide a grip, and each pull has a tenon, which is glued into a mortise in the drawer fronts. After shaping the pulls, I carved the hollow with a gouge and left the tool marks for a pleasant tactile surprise. Finally, I sprayed the completed desk with four coats of clear high-gloss lacquer and rubbed the final coat to a satin finish with 0000 steel wool. □

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