

Arts-and-Crafts Sideboard

— Part three —

*Ebony and carved yellow heart inlay:
crowning touches for a handsome case*

by Gary Rogowski

Details in a handmade piece of furniture are what make it sing, and where a furnituremaker can really have fun. In some ways, this mahogany sideboard looks as if it could have been designed by Charles and Henry Greene in the early 1900s. I relied on the inlay of ebony and carved yellow heart to make this design my own.

Articles in the last two issues of *Fine Woodworking* have covered construction of the carcass, the web frames, which support the drawers, and the doors. What's left is the top, back rail, drawer pulls and door handles, and, finally, the inlay across the front of the case. Although each of these remaining parts gave me some chance to experiment with design, I especially looked forward to the carved inlay that would simulate ginkgo leaves blowing across the face of the finished sideboard.

A breadboard top stays flat but allows seasonal movement

To keep the top flat, I used breadboard ends, which prevent the top from cup-

ping yet still allow it to move across its width as humidity changes (for more on breadboard ends, see *FWW* #110, pp. 78-81). The breadboard ends were dimensioned $\frac{1}{16}$ in. thicker than the top and a little longer than the top is wide, adding shadow lines. The top and breadboard ends are flush on the bottom.

To join the breadboard ends and top, I used four mortises and tenons at each end, along with a full-length groove in the ends and a mating tongue at either end of the top (see the drawing on pp. 70-71).

The mortises and grooves in the breadboard ends were cut on the router table. The tenons and tongue across the ends of the top, both $\frac{1}{4}$ in. thick, were cut with a hand-held plunge router after being defined by sawkerfs. Remember that any trimming to fit must be from the top cheek of the tenon so the bottoms of the bread-





Inlay is the finishing touch—Carved inlay in the shape of ginkgo leaves help put the author's stamp on this mahogany sideboard. Leaves were carved and positioned to look as if they were scattered across the doors by the wind.

board ends and top remain flush. When the tenons were finally seated, I pulled the two end pieces off and planed a slight belly along their inside edges. This spring joint ensures that the joints between top and ends remain tight.

Once the joinery was cut and fitted, I eased all exposed edges on the top and ends, except for those where the ends meet the top. I finish-planed and then wet-sanded before I glued on the ends. This work is easy now, but a real pain later on.

Pins and plugs finish top, functionally and decoratively

Because the top has to be able to move across its width, I couldn't glue all four tenons on each end into their respective mortises. Instead, I glued just the center two tenons and used short sections of dowel to pin all the tenons. The outer two tenons have slotted pin holes so the top can move. I plugged all four holes at each end with squared ebony plugs.

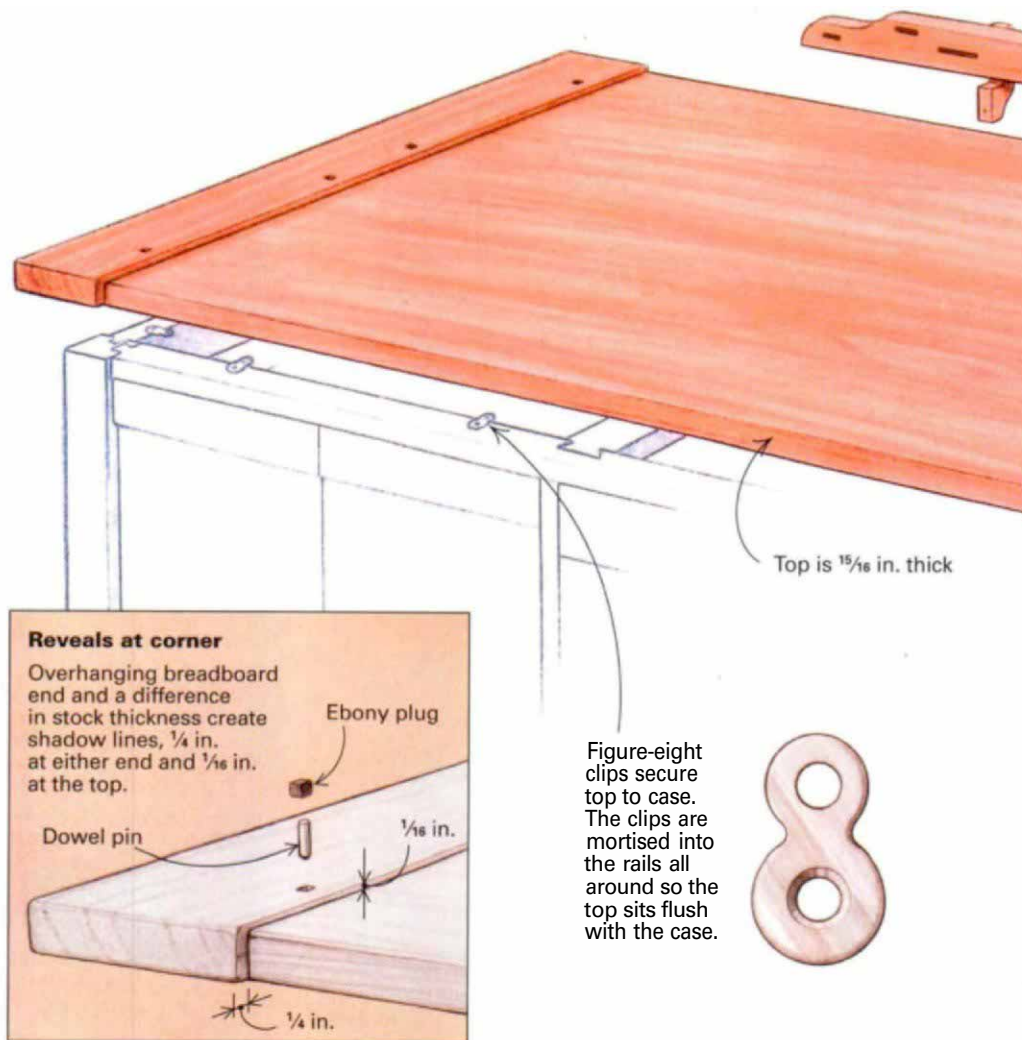
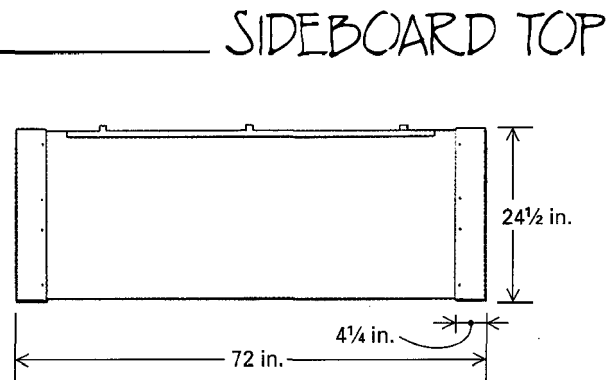
With the top and breadboard ends apart, I drilled the $\frac{1}{4}$ -in.-dia. plug holes (about $\frac{1}{4}$ in. deep) into the ends and then squared them. These holes do not go into the mortise. Next I drilled $\frac{3}{16}$ -in.-dia. pin holes (centered on the $\frac{1}{4}$ in. holes) through the mortises and just into the bottom half of the breadboard ends. Then I dry-clamped the top and ends together and marked the pin locations on the tenons. I pulled the ends off, drilled the holes in the two center tenons at each end and routed $\frac{1}{2}$ -in.-long slots in the outer tenons.

I glued and clamped the breadboard ends to the top next (see the top photo on the facing page). When you glue the ends on, make sure you have the same reveal at both edges of the top and that the ends pull in at their centers. Have long clamps ready to apply pressure on both sides of the top, and make sure the ends don't deflect under clamping pressure. If you don't have long enough clamps, threaded couplers can connect lengths of pipe clamp.

I pinned the four mortise-and-tenon joints at each end of the top with short sections of $\frac{3}{16}$ -in.-dia. dowel, driving them home with a piece of brass rod (see the center photo on the facing page). Then I tapered one end of each of the $\frac{1}{4}$ -in.-sq. ebony plugs to ease their entry into the squared holes in the breadboard ends. I hammered these home, stopping when I could hear that they were fully seated (see the bottom photo on the facing page).

This sideboard called for a soft, rounded

■ Breadboard ends keep the top flat and create shadow lines for visual interest. The ends are pinned and plugged. The back rail is attached to the top rear rail of the carcass with a pair of brackets that are notched to fit around the overhang of the top.



look, so I domed the plugs using a chisel and sandpaper. A scrap of plastic laminate prevented damage to the breadboard ends as I pared down the ebony plugs to within $\frac{1}{16}$ in. of the surface. I finished doming the plugs with 180-grit sandpaper, stopping when I could run my finger over a plug without catching an edge.

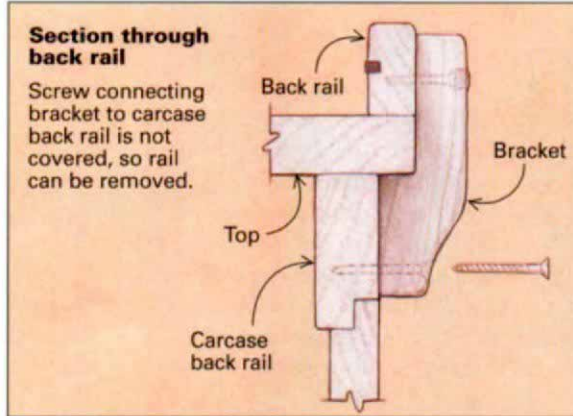
I attached the top to the carcass with 20 figure-eight clips (see *FWW*#112, pp. 54-57 for more on attaching tops to bases). I used

a $\frac{3}{4}$ -in.-dia. straight bit in a plunge router to cut the recesses in the top rails for the clips. Because the figure-eights can pivot, the top is free to expand and contract.

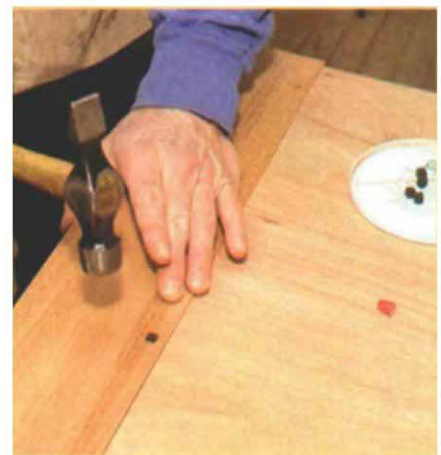
A low back rail doesn't overwhelm the case—I had originally designed the back rail as a 5-in.-high plate rail with cutouts similar to those in the stretchers. But later, something told me that such a tall back rail wasn't quite right. So I started mocking up

AND BACK RAIL

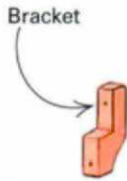
PINNED JOINTS



Glue only the center. The center two mortise-and-tenon joints are glued. The other two are pinned through elongated holes but assembled without glue so the top can move with seasonal changes in humidity.



Joints are pinned and then plugged. Tenons in the ends of the top are pinned in place with short sections of 3/16-in.-dia. dowel. The author uses a piece of brass rod to set the pins before adding the ebony plugs.



Back rail, 57 1/2 in. long

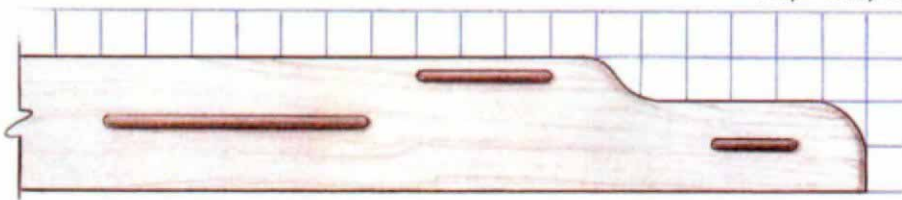
Elongated holes in tenons allow top to expand and contract.

Tenons, 1/4 in. thick

Back rail detail

Ebony inlay is gently rounded and just proud of the back rail's surface.

1 sq. = 1/2 sq. in.



other possibilities on cardboard, using a marker to indicate inlay. I arrived at a rail just 1 1/2 in. high and inlaid with strips of ebony. The effect is lighter and more graceful than what I had intended.

I routed 1/8-in.-wide grooves in the back rail for the inlay, using support pieces on either side of the rail to keep the router base steady. To fit the inlay, I planed the ebony to thickness, sanded one end round to fit and then cut the other end close to

length. I snuck up on a fit by sanding a little off the other end, checking and repeating until it just fit the groove. Once I'd glued the ebony in place, I domed its top to match the plugs in the top and elsewhere on the sideboard

To attach the back rail, I glued, screwed and plugged brackets to it from behind, notching them to fit around the overhang of the top (see the drawing detail above). The brackets are screwed to the back of the

carcase. To ensure accuracy, I attached the brackets with the back rail in place.

Handles are designed after the piece is built

I never design handles for a piece of furniture until it's built. It's impossible to know what will look right until then. I started with a stylized ginkgo-leaf shape for the door handles. It looked great there, but it didn't work as a drawer pull—it wasn't enough for the huge expanse of drawer face.

I mocked up longer pulls so they would be more prominent. I kept playing with the proportions of the pulls until they felt right both visually and in my hands. I settled on long mahogany pulls with a pattern of ebony inlay in them (see the drawing below). For the door handles, I shortened the

pulls and included one square of ebony. The undersides of the pulls are slightly coved to provide a better grip.

Door handles are placed as close to each other as possible, centered in the width of each top door rail. Locating the drawer pulls took a bit more head scratching. Both pulls and inlay increase in length from top to bottom. I wanted them to line up on a diagonal, with each of the pulls centered on the width of the drawer, but when I tried that, it just didn't look right. I ended up keeping the top two pulls centered in the drawer faces, but I positioned the bottom pull nearly 1 in. above center.

Ginkgo leaves swept by the wind

This inlay work was the detail I was most excited about. It was a chance to break

away from the Greene and Greene mold. What I hoped to create was a natural-looking display of ginkgo leaves, as if a gust of wind had just blown a small pile of them across the front of the sideboard.

I got the patterns for my carved leaves from real ginkgo leaves I'd collected (like the one on the facing page). I began by drawing these shapes until I felt I had a sense of what the leaf looked like, whether flat or curled, falling or tumbling in a breeze. Because the leaves were brittle, I also made up some cardboard versions, which I folded and rolled to mimic real leaves. Then I started to draw various leaf shapes on large sheets of brown paper where I had drawn the outline of the doors.

When I liked a leaf, I traced its shape onto cardboard using carbon paper and a

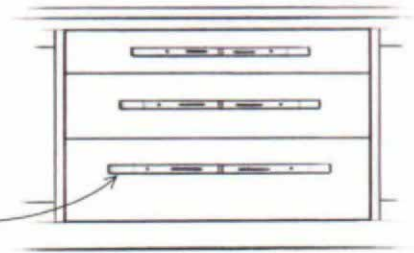
SIDEBOARD PULLS AND HANDLES

Both pulls and handles are made of mahogany with ebony inlay. The ebony is pared down and gently rounded until it's just proud of the mahogany.

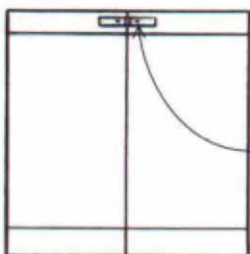
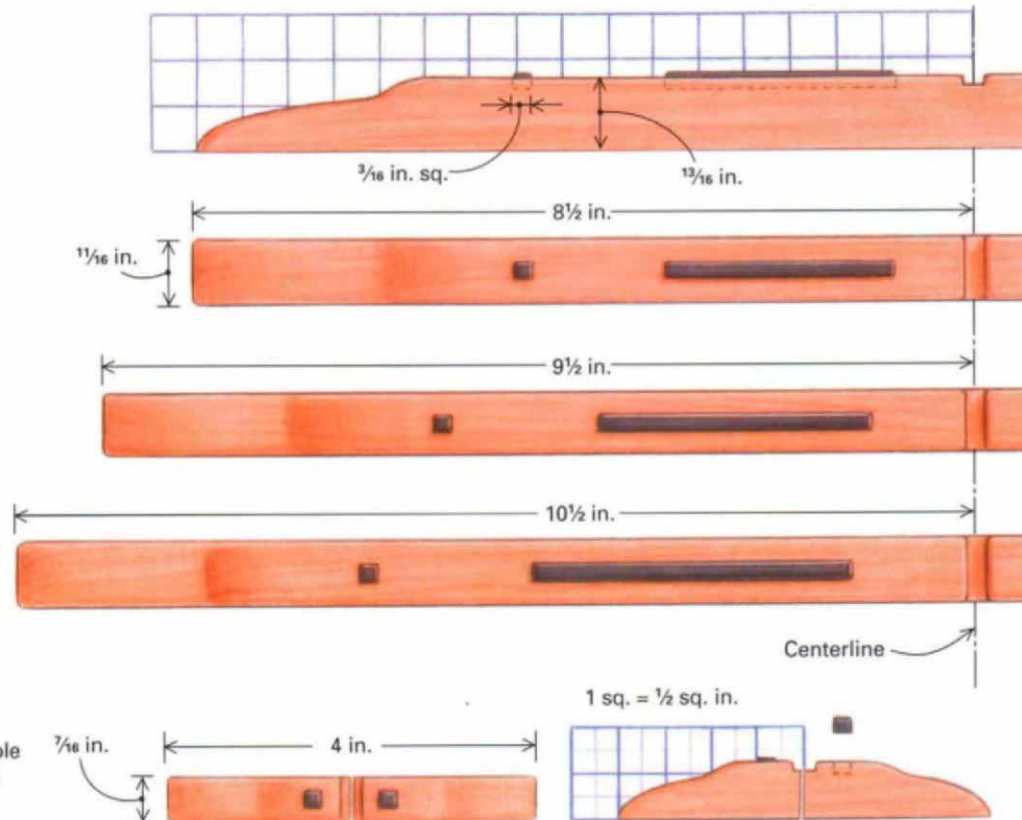


Drawer pulls

The top two pulls are centered on their drawers, top to bottom. The pull on the bottom drawer is situated about 1 in. above center.



1 sq. = 1/2 sq. in.



Door handles

Handles are situated as close together as possible and are centered on the width of the top rail.

CARVING THE LEAVES

A gust of wind sends the leaves flying. The author sought a natural looking display of leaves blowing across the front of the sideboard. He taped real leaves on the doors as he worked toward a final design.



pencil and cut out the pattern (see the near right photo). Then I played with the position of each leaf. A yellow marking pen brightened the cardboard enough to give it some life. I began designing with the leaf patterns by applying them to the real doors with double-faced tape.

Inlay is sawn, shaped and beveled—The wood I chose for the inlay was yellow heart. This South American wood is valued for its consistent yellow color and is often used in parquet flooring and, surprisingly, fabric dye. It was perfect for the autumn yellow of my ginkgo leaves.

I used quartersawn material to minimize wood movement and resawed it into pieces $\frac{3}{16}$ in. thick. The leaf pattern was marked on the yellow heart so the grain followed the direction of the stem. This way, I wouldn't have to worry about a stem breaking off because of short grain.

I cut the leaves on a bandsaw and scroll-saw, then shaped and beveled them slightly, using a sanding drum (see the top right and bottom left photos). Any edges I couldn't reach with the sanding drum were shaped and beveled with a knife.

Recess for inlay is routed, then refined with carving tools

The next step was to transfer the leaf patterns to the door. I placed each piece of in-



Trace, then cut. The author transfers a drawing to cardboard with carbon paper (left). Patterns are used to trace leaves on the inlay before they are cut (above).



Shape the leaves, and bevel their edges. A spindle sander does the job quickly (left), but the author needs a knife to get into tight corners. He scribes a leaf on a door (above).

CARVING THE LEAVES *continued*

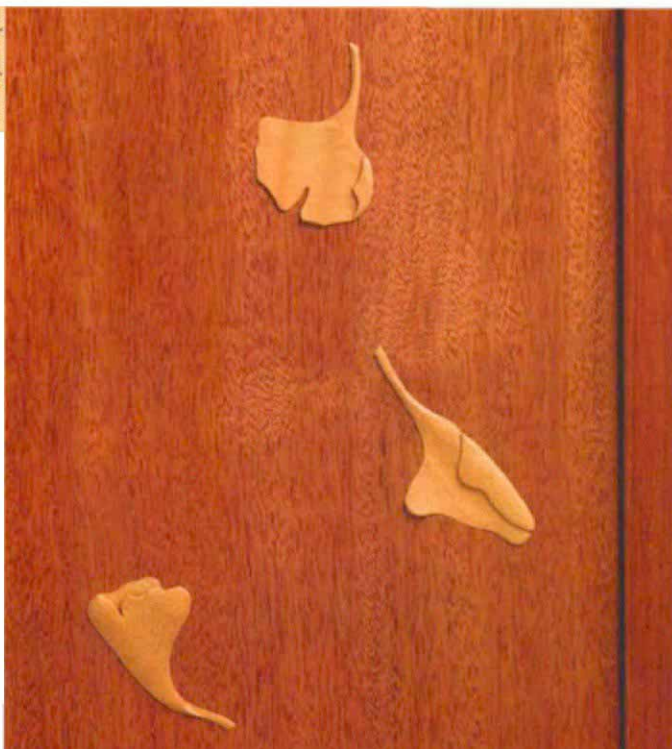


Rout out most of the waste; then pare to the line. After routing as close to the line as he dares, the author finishes the job with carving gouges, cutting straight down or slightly undercutting.

Press, tap and then clamp the inlay. The author used a caul to distribute clamping pressure evenly across the inlay.



Detail is carved in. The author creates depth and motion in the leaves through his use of line and texture.



The illusion of depth—With just $\frac{3}{32}$ in. of leaf above the surface of the door, every cut counts when carving. Deeply incised cuts where the leaves fold or curl create shadow lines that suggest depth. Gentle, flowing curves give the leaves an organic feel.

lay on the door in position, marking its shape with a scratch awl and with a thin knife in very tight spots (see the bottom right photo on p. 73). Accuracy at this point is critical. A slip of the knife can create nasty marks on the door's surface, and a slip of the inlay will result in an inaccurate pattern that's nearly impossible to fix. Take your time, keep a firm grip on the inlay and make sure the entire perimeter of the leaf is marked before you lift it off the door. I darkened the incised line with a soft pencil—it's much easier to see than a knife line when you're routing.

To create the recess, I used a $\frac{3}{16}$ -in.-dia. straight bit in a fixed-base router and set its depth of cut at $\frac{3}{32}$ in. I attached spacer strips to the door with double-faced tape to bring the router base up to the level of the door rails. Then, after a deep breath, I began routing out the inlay pattern (see the top left photo). I started at the center of each pattern and gradually worked my way out to the edges. Because the bit pulls itself into the cut when routing clockwise, I cut in the opposite direction to maintain control.

For the leaf stems, I used a $\frac{1}{16}$ -in.-dia. straight bit; then I switched to a shopmade, $\frac{1}{32}$ -in.-wide chisel. I put a hollow grind on its edge, honed it razor sharp and used it to finish cutting the stem recesses to depth.

After routing, I trimmed the walls of each recess with carving tools, trying to keep them straight or just slightly undercut (see the top right photo at left).

BUILDING AN ARTS-AND-CRAFTS SIDEBOARD

Then I began fitting each leaf. I used carving tools and a sanding drum. I checked the fit often—until the leaf fit almost all the way down into its ground. If a leaf sticks in its recess, lever it out with the edge of a #1 gouge or a skew chisel.

When I was comfortable with the fit of a leaf, I spread a little glue in the recess, pressed the leaf into place and then tapped it so it was well-sealed (see the center photo on the facing page). Then I put a caul over the leaf and another under the door and clamped the inlay until it would go no farther. There was a considerable amount of glue squeeze-out, so I pulled my clamps after three hours and cleaned up the excess.

When the glue had cured, I carved in the wind. Here was a chance to play with the shape and texture. I spent about an hour working on each leaf with #3 and #5 gouges, carving in the gentle undulations and curves that you see in falling leaves. Then I lightly trimmed each leaf edge with a #1 skew chisel to make them friendly to the touch. Do this with a carving tool, not sandpaper. Sandpaper will smear the details and leave a soft, unsatisfying edge. After each leaf had been carved, I burnished its surface with a piece of burlap.

Finishing the sideboard: shellac inside, varnish outside

For all the interior surfaces of this cabinet, I used a 1½-lb. cut of dewaxed super blond shellac (a proportion of 1½ lb. of shellac flakes to a gallon of denatured alcohol) that I mixed myself. I added a few drops of jasmine oil (available in many health-food stores) to this mixture to give it a pleasant scent. This finish is easy to apply, dries quickly and has a much nicer aroma than lacquer, varnish or oil. The drawers were shellacked inside and out except for their faces. I also waxed the drawer sides and web frames after the shellac had dried.

For the exterior of the sideboard, I used a product called ProFin manufactured by Daly's (for a distributor, call 800-735-7019). It's a wiping varnish that's easy to apply, and it gives a lustrous finish in three coats. I used the gloss version. I tried to make sure that all the dust in my shop had settled before applying the final coat. I wanted to avoid having to rub out that last coat with anything but a polishing cloth. □

Gary Rogowski designs and builds furniture and teaches woodworking at his studio in Portland, Ore. He is a contributing editor to Fine Woodworking magazine.



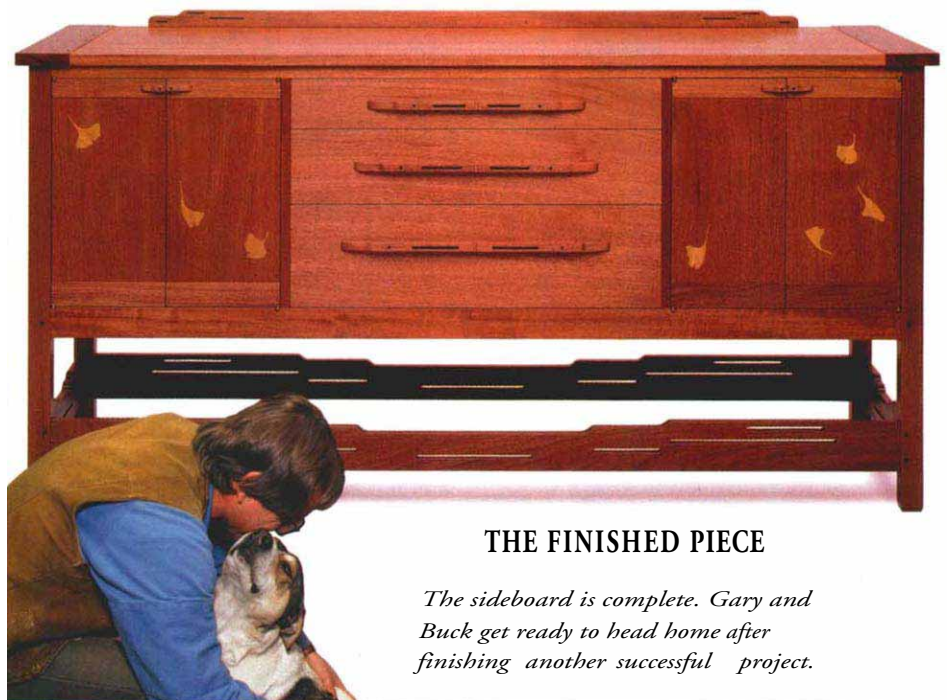
THE CARCASE

In FWW #125, Gary Rogowski described the construction of this sideboard's carcass, including its two interior divider panels and the back.



DRAWERS AND DOORS

Final carcass glue-ups, construction of the web frames, and drawers and doors are described in FWW #126.



THE FINISHED PIECE

The sideboard is complete. Gary and Buck get ready to head home after finishing another successful project.