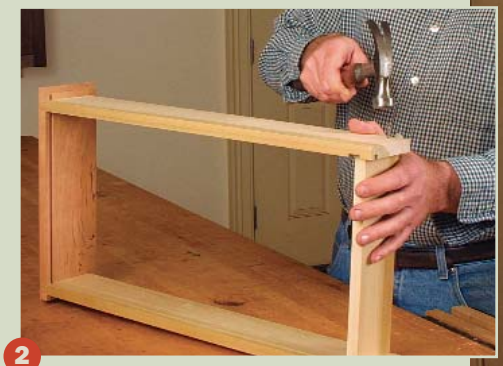
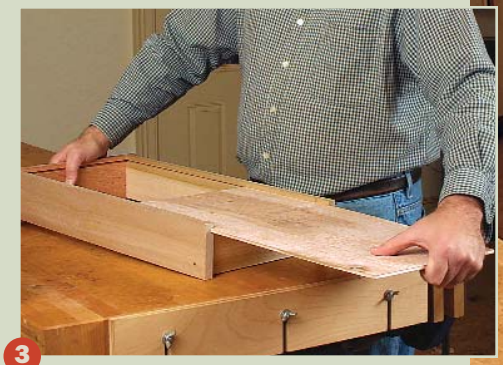
Quick and Sturdy

1 **Drawer sides mate with dovetail slots in the drawer front.**



2 **Drawer back sits in dadoes in the sides and is secured with nails.**



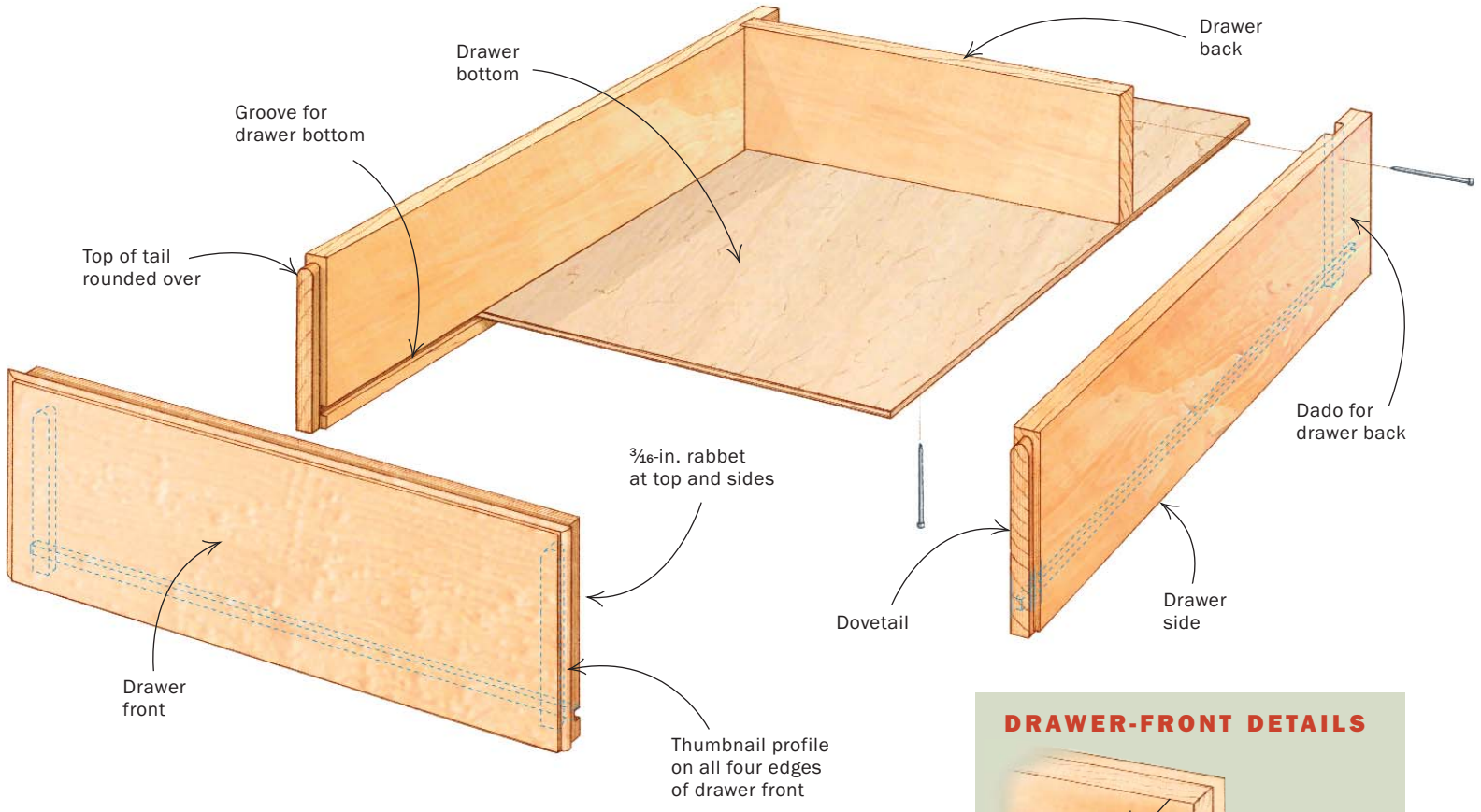
3 **Plywood bottom slides in from the back.**

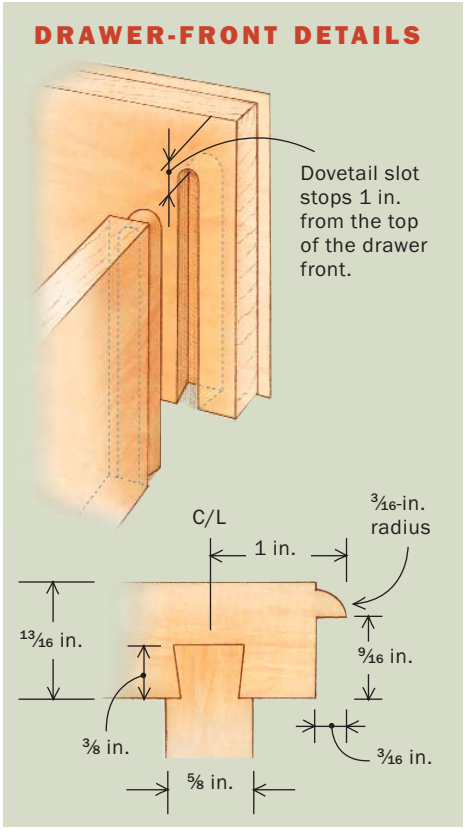
4 **Nail keeps the bottom from moving when the drawer is opened.**

Drawer Construction

Build elegant drawers in record time

BY LONNIE BIRD





My wife and I recently moved into a new home. You guessed it—it was time to build yet another set of kitchen cabinets. I wanted to build strong, natural-wood drawers with an uncluttered look, and I wanted to do it fast. I knew that traditional hand-cut dovetailed drawers would require too much time and fuss to make. And I'm not a fan of router dovetail jigs; they're time-consuming to set up and produce machined-looking joints that don't quite satisfy me.

After careful consideration, I came up with a drawer design that was strong and quick to make. I used sliding dovetails to connect the sides to the drawer front. The drawer back sits in dadoes in the sides and is nailed in place. With this simple system I was able to mill the stock, cut the joints, and assemble and fit 13 drawers in just one day (though I confess it was a long one).

Start with precise measurements

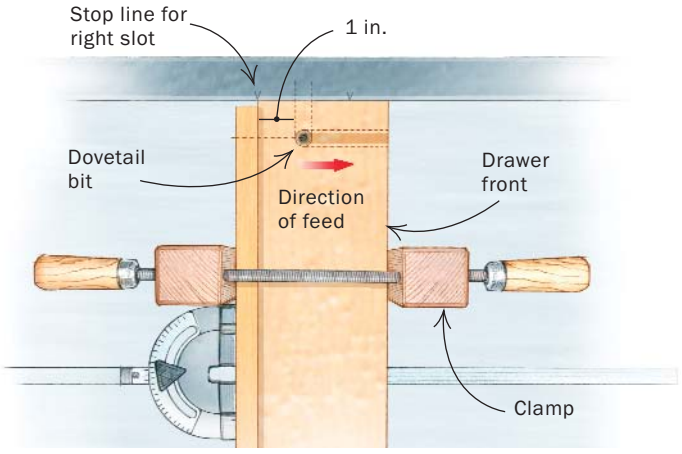
I measured the height and the width of each opening to determine the size of each drawer front. I wanted lipped drawers, so I added 3/16 in. to the measured height and 3/8 in. to the measured width. This gave me a 3/16-in. overhang on the top and sides.

I made the sides 1 in. shorter in height than the front to accommodate the side-mount nylon roller runners I chose for this project. To install each drawer in its opening, I would need the extra space that this distance (between the top of each drawer side and the drawer front) affords the rollers, which are proud at the bottom. Each drawer back was sized

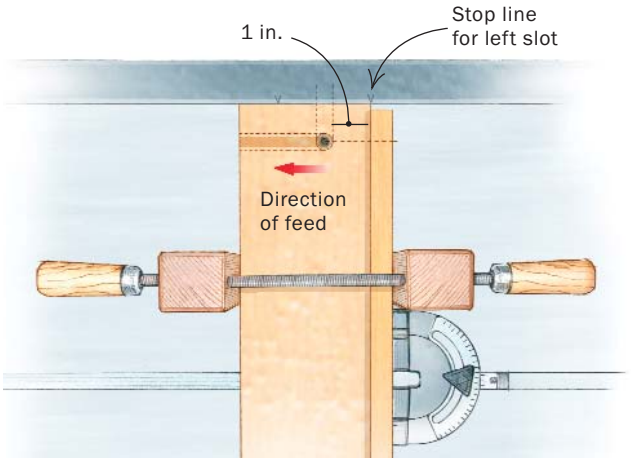
Drawings: Melanie Powell

RIGHT AND LEFT DOVETAIL SLOTS ARE CUT IN OPPOSITE DIRECTIONS

The right slot is routed left to right. *When pushing the workpiece left to right, you are feeding stock in the direction of the bit's rotation (called a climb cut). In this direction, the cutter wants to push the work away from the fence. A clamp and a miter gauge keep the work on track.*



The left slot is cut right to left. *When pushing the workpiece right to left, the bit pulls the work securely against the fence. Still, it's a good idea to clamp the work to the miter gauge to ensure accuracy.*



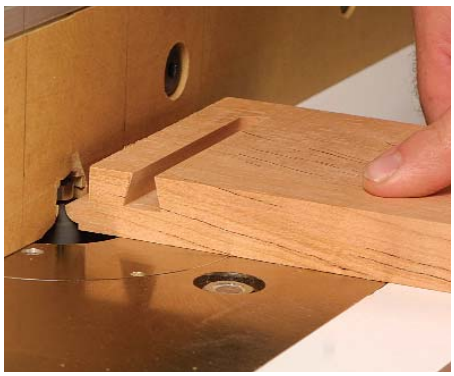
the same as its corresponding sides and was trimmed later. Why I did this will become clearer to you when the groove is cut for the bottom.

Cut the dovetail slots, and machine the tails

The sliding dovetails are ½ in. wide and centered on the ⅝-in.-thick poplar sides. The first step is to cut the dovetail slots in the back of each drawer front. To hide the joint, the slots begin at the bottom edge and stop 1 in. from the top edge. To locate the center of the slot, I added 3/16 in. for the lip, plus ½ in. for the drawer slide, plus 5/16 in. (half of the side thickness). This positioned the slot's center 1 in. from the end of the drawer front (see the detail drawing on p. 71).

I cut the slots on the router table using a ½-in.-dia., 14° dovetail bit. I set the fence 1 in. from the center of the bit and marked a line on the fence to indicate when to stop feeding the workpiece. I didn't attach a stop block to the fence because the drawer fronts are of different widths. Finally, I clamped each workpiece to a miter gauge. The first stopped cut is made left to right, in the direction of the bit rotation (called a climb cut). When climb-cutting, the router wants to push the work away from the fence. The

Rabbet to create a lip. *Once the dovetail slots and tails have been cut and dry-fitted, use a straight bit to rabbet the top and side edges of the drawer front. This creates a 3/16-in. lip.*

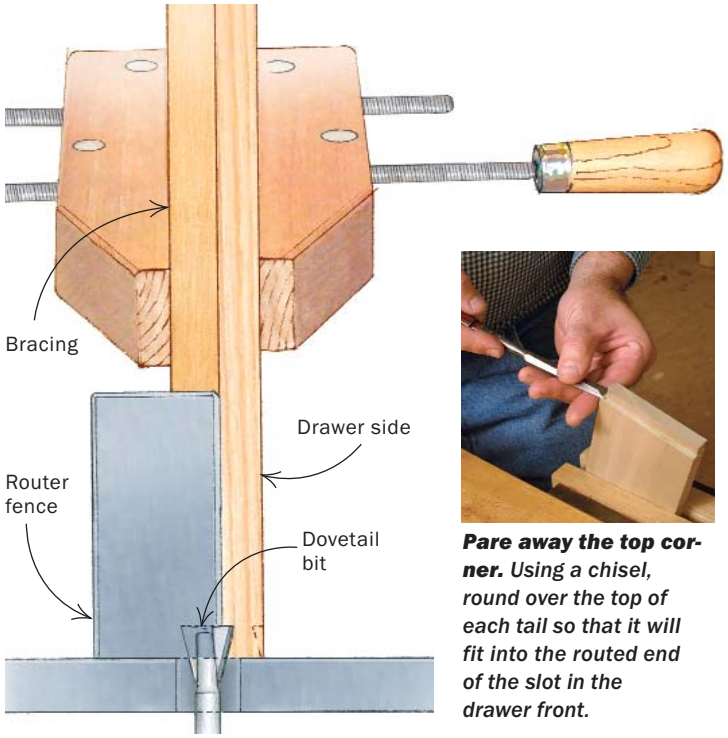


Rout the thumbnail profile on all four sides of the drawer front. *In this operation, the thumbnail bit will attack the grain from four directions. To avoid tearout, proceed slowly but decisively when making your cut.*

Photos: Matthew Teague

SETUP TO CUT PRECISE TAILS

For a strong joint, the tail must be snug in the slot. Too loose, the joint will be weak; too tight, the tail will split the drawer front. With the router fence properly set, clamp the drawer side to another piece of wood for bracing. Slide the bracing along the top of the fence to steady the cut. Each face of the tail is cut in a single pass and produces a precise fit to the drawer-front slots.



Pare away the top corner. *Using a chisel, round over the top of each tail so that it will fit into the routed end of the slot in the drawer front.*

clamp and the miter gauge hold the workpiece tightly against the fence; without them, the cut would be unsafe. To cut the slot on the opposite end, the workpiece is fed right to left, against the bit's rotation.

Then, using the same bit, I prepared to cut the tails. As a matter of habit, I made a couple of test cuts on stock of the same thickness to dial in the depth. It is important to make practice cuts before cutting a whole stack of drawer sides. I buried most of the bit in the fence, stood the practice piece on end, and took a pass at each face. During assembly, the two surfaces slide together. Remember, though, that water-based glue will swell the tail, adding to the difficulty of assembly, so the fit of the tail to the slot is critical. Once I achieved a snug fit, I went ahead and cut the dovetails on all of the drawer sides.

Once the dovetails were made, I changed out my bit and routed the drawer-front rabbets, cutting the top and sides only, ¼ in. deep and ¼ in. wide. Then, with a thumbnail bit, I profiled the drawer-front edges.

Cut the remaining joints

At the tablesaw, I cut dadoes on the sides to accept the drawer back. Then I ripped ¼-in.-wide grooves 5⁄16 in. from the bottom of the sides and fronts to accept the drawer bottom. To ensure a perfect fit, I raised the blade after cutting the grooves, then I ripped the drawer back to width. The drawer bottom slides into the grooves and caps the bottom edge of the drawer back.

Assemble and glue the drawer

I began assembly by lightly coating the dovetails with glue. Then I tapped each tail into its slot with a deadblow mallet. You have to work quickly here; if the joint seizes, you will not be able to assemble the drawer completely.

Once the sides have been installed in the front, I determined the length of the back. I looked to the drawer front, where the distance is fixed, and measured the distance between the sides. Then I added the depth of the dadoes on the inner faces of the drawer sides. After laying out these dimensions on the back, I crosscut it to length and nailed it into the dado.

The drawer bottom slides into the drawer box and is secured to the lower edge of the back with a nail. I used ¼-in.-thick birch plywood for the drawer bottom. Plywood will bear the kind of weight and abuse expected of a heavy-duty drawer, whereas natural wood of the same thickness will mar or split. With the bottoms in place, I attached the metal runners and slipped each drawer into its opening.

With these methods, you'll be able to build strong, durable drawers in record time. □

Lonnie Bird teaches woodworking near Knoxville, Tenn. You can find information about his classes at www.lonniebird.com.