

# Magazine Cabinet



Strong joints ensure that this wall-mounted cabinet can handle a quarter century of *Fine Woodworking* magazines

BY CHRIS GOCHNOUR

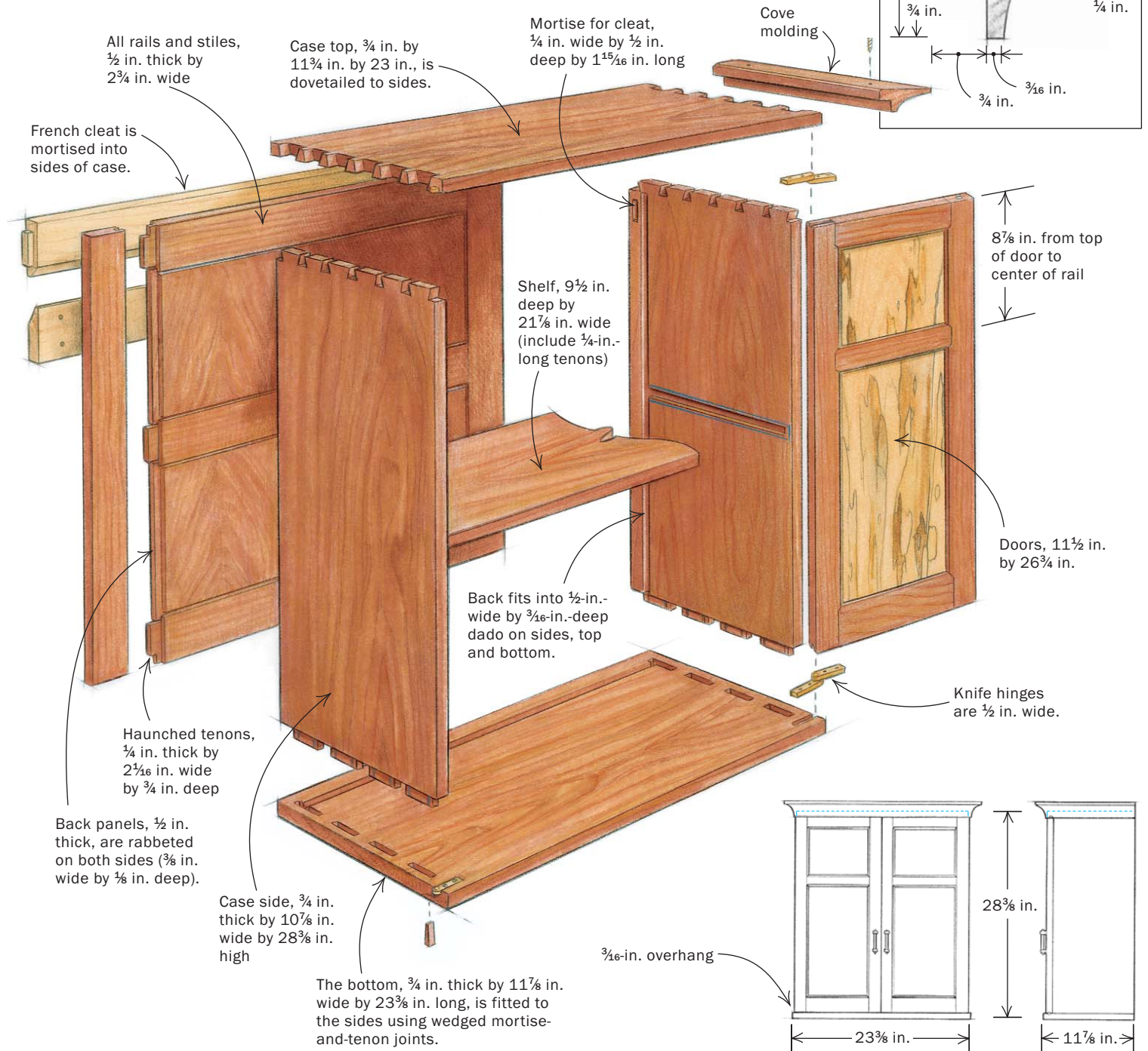
Like many woodworkers I know, my shop and resource library are in different locations. My detached garage serves as my shop, but I keep books and my collection of *Fine Woodworking* magazines stored in a bookcase in the basement of the house. My workshop doesn't have a shelf or cabinet big enough to store them all. I finally decided to do something about the

problem and set out to design and build a cabinet deserving of the body of knowledge I've gained from *Fine Woodworking*.

The cabinet would have to hold more than 25 years, or 100 lbs., of magazines, so it had to be sturdy. I also needed it to be compact. There's not a lot of empty wall space in my shop. And most of all, I wanted the design to be minimal, something that

## WALL-MOUNTED CABINET CAN HANDLE A HEAVY LOAD

Made of cherry and spalted maple and constructed using through-dovetails on top and wedged mortise and tenons at the base, the cabinet can withstand heavy loads (146 issues of *FWW* weigh more than 100 lbs.). A French cleat provides secure mounting to a wall.



would let beautiful wood and simple form speak for themselves and blend in nicely with my nearby tool-storage cabinets.

### Durable joinery is critical

I constructed the cabinet using two durable joints: through-dovetails (to attach the top to the sides) and wedged mortise

and tenons (to attach the bottom to the sides). A piece of cove molding, cut on the tablesaw (see *FWW* #102, pp. 82-85), serves as a crown and obscures the dovetails, which I cut quickly using a Leigh jig.

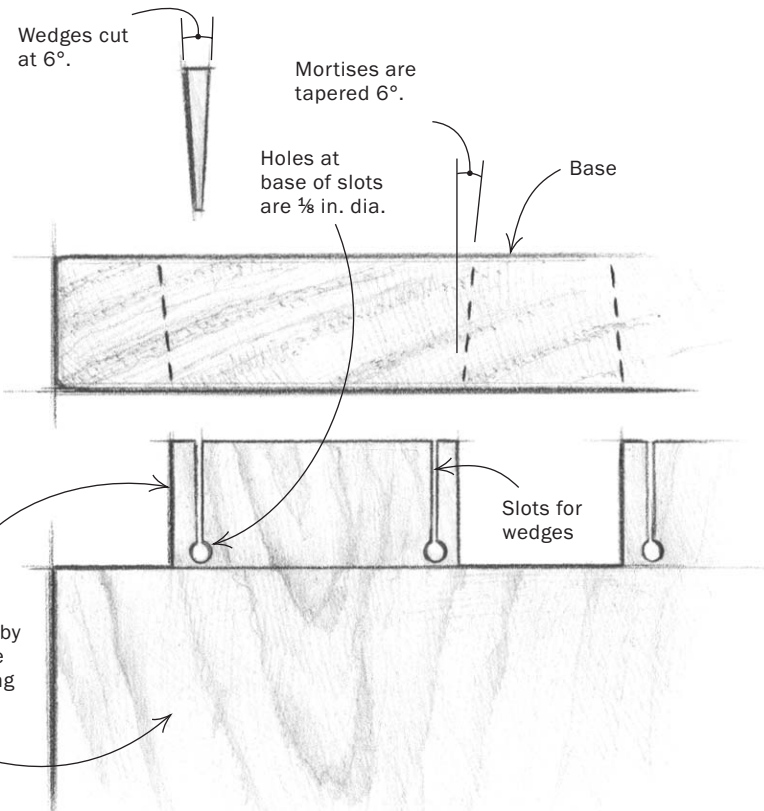
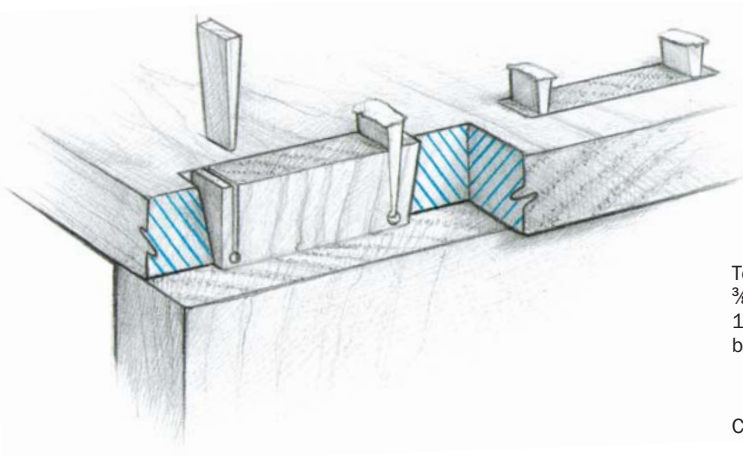
There were two reasons for using wedged mortise and tenons on the base. One, I wanted a continuous line with a

slight overhang at the base of the cabinet. That ruled out using through-dovetails. Second, I wanted the cabinet to be tough. A wedged mortise-and-tenon joint is very strong, even if the glue fails. Sliding dovetails also would have worked, but I wanted something different. Wedged mortise and tenons work mechanically like dovetails,

## WEDGED MORTISE AND TENONS, STEP BY STEP



Wedges are driven into slotted tenons that fit into tapered mortises. In cross section, this joint resembles a dovetail. When making the wedges (left), set the miter gauge on the tablesaw to 3°, cut one side, then flip the stock and rip off a wedge.



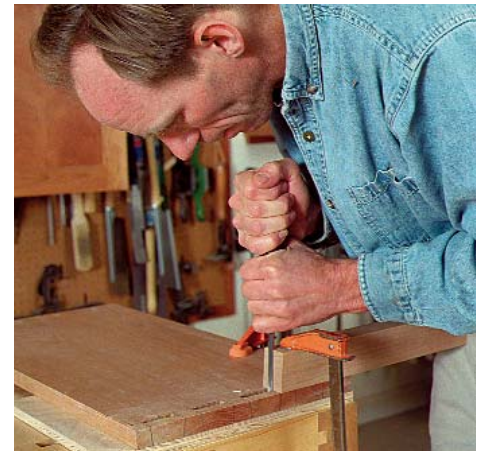
### 1. Start by cutting tapered mortises



**Cut through-mortises.** Cut halfway through one side, then flip the stock and finish from the other side to avoid tearout.



**Mark the tapers for the mortises.** Use a bevel gauge set for 6° and mark the edge, then transfer the marks to the bottom face with a square.



**Working from the bottom, taper the edges of each mortise.** The author uses a guide block, cut at 6°, and a chisel the same width as the mortise.

because the tenons are flared to fit tapered mortises (see the drawings above). One could certainly use this joint at the top of the case, but it takes a little longer than cutting dovetails using a router jig. Before laying out and cutting the mortises and tenons for the base, I completed all of the joinery at the top, then dry-fit the assembly.

I cut the mortises using a hollow-chisel

mortiser. To minimize tearout, I cut half-way through one side, flipped the stock and then finished cutting from the other side. When all of the mortises had been chopped, I beveled them 6° using a guide block and a sharp chisel.

Next, I began cutting single, full-length tenons on the tablesaw. Then I positioned the tenoned sides against the mortised

base and marked off the locations of the individual tenons. The tenons were cut using a backsaw and a coping saw, and I cleaned them up with a chisel. All of the tenons were slotted to receive a pair of wedges.

Cutting the wedges gave me the opportunity to do something odd: rip stock using a miter gauge. The wedges were made from an offcut, from the end of a board; the

## 2. Locate the tenons from the mortises



**Machine one long tenon on each side of the case.** The author cuts the tenons slightly deeper than the mortises; the excess will be trimmed off after the glue-up.



**Mark off the individual tenons.** Use the already mortised base as a guide.



**Cut slots in the tenons.** Each tenon receives two slots. When wedges are driven, the tenons flare out, creating a secure joint.

wedges can be of the same species as the cabinet (what I did) or of a contrasting species. I set the miter gauge to 3° and took one pass, technically a ripping cut, then flipped over the stock and took another pass to make a 6° wedge. For safety I used a zero-clearance throat plate.

### Back and shelf sit in grooves

With the basic carcass joinery completed, grooves must be milled to receive the cabinet back and shelf. (Refer to the drawing on p. 109 to see which grooves are stopped and which can safely be run through.) The fact that the frame-and-panel back fits into grooves is a bit unusual because backs are typically installed in rabbets. But because this cabinet attaches to the wall using a 3/4-in.-thick French cleat, I had to move the back into the case by that amount. Also, I wanted to fit the French cleat to the case using mortise-and-tenon joints. Cutting a deep rabbet would have left me without enough wood to cut a good mortise. So I went with shallow grooves to house the back, which makes glue-up a little tricky. More on that later.

The shelf sits in a stopped dado cut into the sides of the cabinet. It is set back slightly from the front of the case. The shelf must also be tenoned.

### Traditional frame-and-panel doors with handmade pulls

The doors are classic frame-and-panel construction and are hung on knife hinges. I

## 3. Glue up the case bottom last



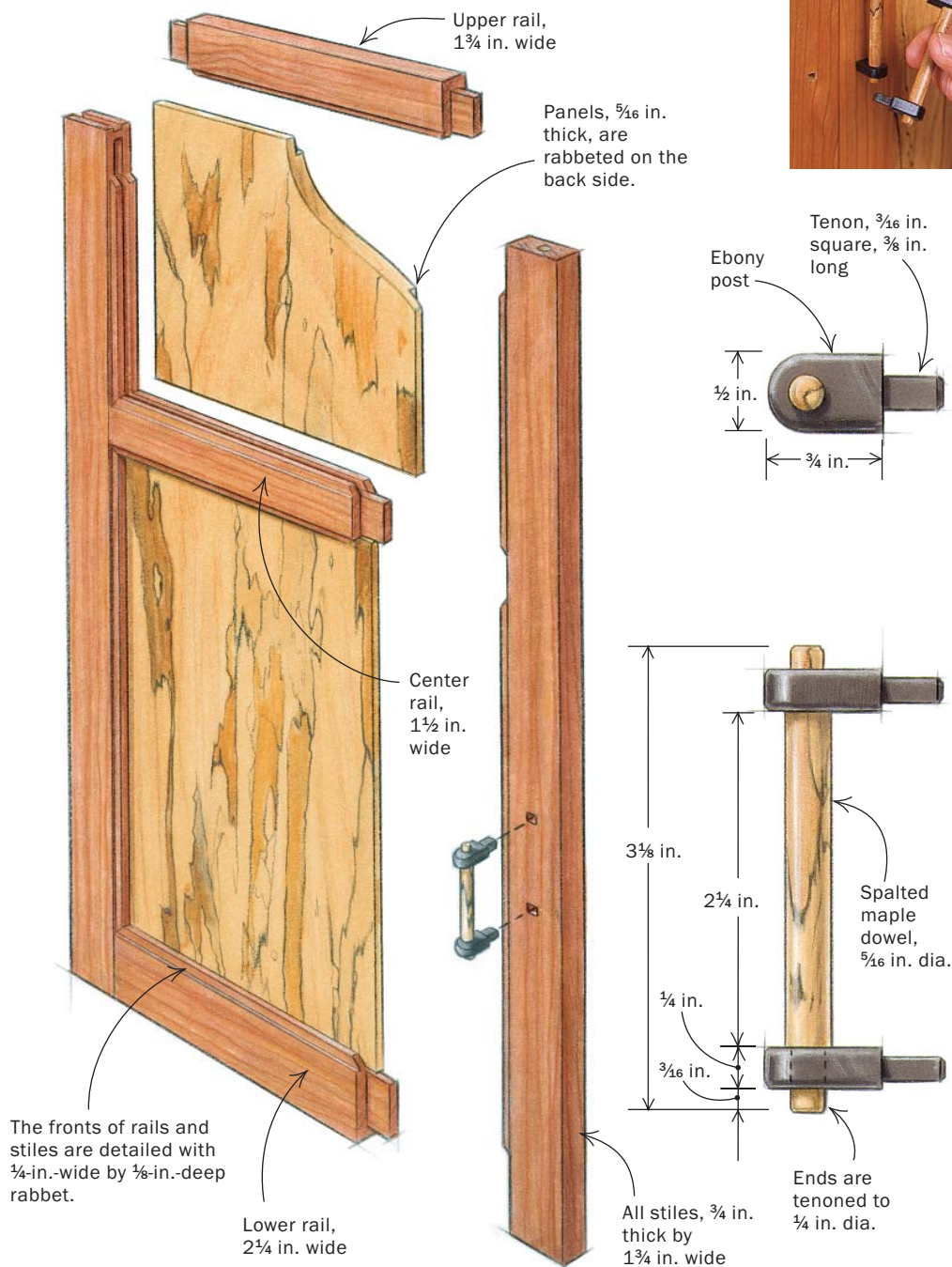
**In the first glue-up, the sides are joined to the top, back and shelf.** It's less stressful to leave the bottom for last and not have to worry about trying to get everything done at once before the glue sets.



**Spread glue on the surfaces of the mortises, tenons and wedges.** Gently tap the wedges in place. Clamps hold the carcass together. After the glue dries, trim the wedges. A flush-cutting saw makes the job easier.

## SPALTED PANELS HIGHLIGHT SIMPLE DOORS

To achieve a visual balance, the lower rails are wider than the upper rails. And the pulls are centered in relation to the lower panels.



cut a very slight rabbet on the faces of the rails and stiles, where they meet the panels (see the drawings above), to produce delicate shadow lines. The final touch is a pair of shopmade pulls.

The pulls are spalted-maple dowels, tenoned at each end, attached to the doors using ebony posts, also tenoned. Although a lathe could be used, I chose to shape the

dowels on my router table. I simply made two passes over a 5/16-in.-dia. bead cutter and did a little sanding. To shape the tenons on the ends of the dowels, I used a plug cutter, mounted in a drill press.

I needed only a sliver of ebony to make the posts, but I used a piece that was long enough to be milled safely. The stock had to be milled in steps, then ripped into nar-



### Shopmade door pulls

The pulls, made of spalted maple and ebony, complement the color and grain found in the panels.



**Dowels can be made on the router table.** Take two passes, leaving the end of the stock unmilled, to provide a flat, stable support.



**Begin with an ebony blank 3/4 in. thick by 3/4 in. wide and 12 in. long.** Rout the ends with a 1/4-in. radius roundover bit. The adjoining piece prevents tearout.



**Cut 3/16-in. square tenons on the posts.** Each blank is good for two posts, one on each end.

rower pieces, then machined again. I was surprised how much work went into these parts. When done, I slipped the dowels into the posts and glued the posts into mortises chopped in the stiles of the doors.

**Mounting the doors**—Knife hinges are a little tricky to install (for more on knife hinges, see *FWW* #111, pp. 48-51), because

they are mortised into the case and doors. To install the hinges, I first dry-assembled the cabinet. I put the hinges on the doors, then placed the doors against the case and marked the locations of the hinges. To take into account the gap between the door and the edge of the case when marking the hinge locations, I used a 1/16-in.-thick ruler as a shim. Then I disassembled the cabinet and cut knife-hinge mortises into the cabinet top and bottom.

### The cabinet hangs on a French cleat

A French cleat (also called beveled cleat) is a very sound way of securing a cabinet to a wall (see p. 38). The method employs two interlocking pieces. One cleat is attached to the top of the cabinet back and the other to the wall. A cabinet is simply hung over the cleat, and gravity keeps it from going anywhere. There are no ugly screws to mar the inside of the cabinet, and it's easy to move or relocate the piece should you decide to do so.

Any hardwood will do for the cleat. I chose maple because of its toughness. I strengthened the cleat by attaching it to the cabinet using mortise-and-tenon joinery. The cleat mounted to the wall must be securely fastened to studs using lag bolts or two #12 by 3-in. screws per stud.

### Don't glue up the carcass all at once

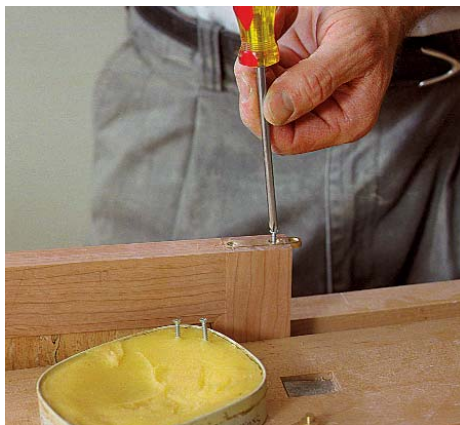
The glue-up of this cabinet poses a few challenges. To buy a little extra time on this complex glue-up, I use Titebond Extend wood glue. I broke down the glue-up into two phases, because even this glue would not give me enough time to complete the entire job. First, I glued up the dovetails, the back, the beveled cleat and the shelf. To help keep the carcass square, I dry-fitted the base in place and let the assembly dry for several hours.

Once the glue set, I glued the base in place. I used clamps to ensure that the tenons would seat themselves, then coated the wedges with glue and drove them home. Once the wedges have been driven, you're at the point of no return: The case will not come apart, so the clamps may be removed. Once the glue dried, I cut off the protruding wedges and planed the tenons flush with the base.

### Oil and lacquer finish is sprayed on

I chose an oil and lacquer finish for the cabinet because the oil brings out the rich-

## HANGING DOORS WITH KNIFE HINGES



**Mortise the doors and attach the knife hinges.** Note that the pivot pin must be located beyond the door's edge. Use waxed steel screws to cut the wood fibers. Later, replace them with the delicate brass screws.



**You need a slight gap between the door and edge of case.** The author uses a 1/16-in.-thick ruler as a shim, then transfers the location of the knife hinges.



**Rout knife-hinge mortises in the case.** It's much easier to cut mortises before gluing up the carcass. The author used a router plane.

ness and depth of the wood, and the lacquer produces a nice luster.

Spalted maple can be a difficult wood to finish. It is, after all, slightly rotted, and it often suffers from soft, punky areas that absorb finish at different rates, creating an uneven sheen. To get around that problem, I finished the maple panels first by spraying on numerous coats of lacquer, sanding between coats, until the finish built up to an even sheen.

For the cherry, I used clear Watco oil, thinned 50% with naphtha to speed up drying. Naphtha outperforms paint thinner because it's a faster-drying solvent. I sprayed

the entire cabinet with this mixture (don't worry; when the lacquer is dry, the oil won't harm it), then wiped down the piece and let it dry overnight.

The following day I sprayed on two thin coats of lacquer, which gave me the luster I wanted without the effort of a rubbed-out oil finish. The finish was dry to the touch a few hours later, but for peace of mind I waited a day or two for it to cure before filling up the cabinet with my collection of *Fine Woodworking* magazines. □

*Chris Gochnour builds custom furniture in Salt Lake City, Utah.*