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Classic Project

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- Construction drawings and related photos.
- Tips to help you complete the project and become a better woodworker.

Shaker Style Cabinet

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Shaker Style Cabinet

This lovely cabinet, built by Greg Isaak of Clark, South Dakota, has a design based on a somewhat larger Shaker cabinet built around 1840. Although the adjustable shelves were not on the original, we incorporated them to make the cabinet adaptable to the variety of storage needs found in modern homes.

Cherry, a wood often favored by the Shakers, was used for most of the parts. As a concession to modern materials, though, we used cherry plywood for the back and the drawer bottoms. The highly figured wood used on the door panels and drawer fronts is called ''quilted'' cherry.

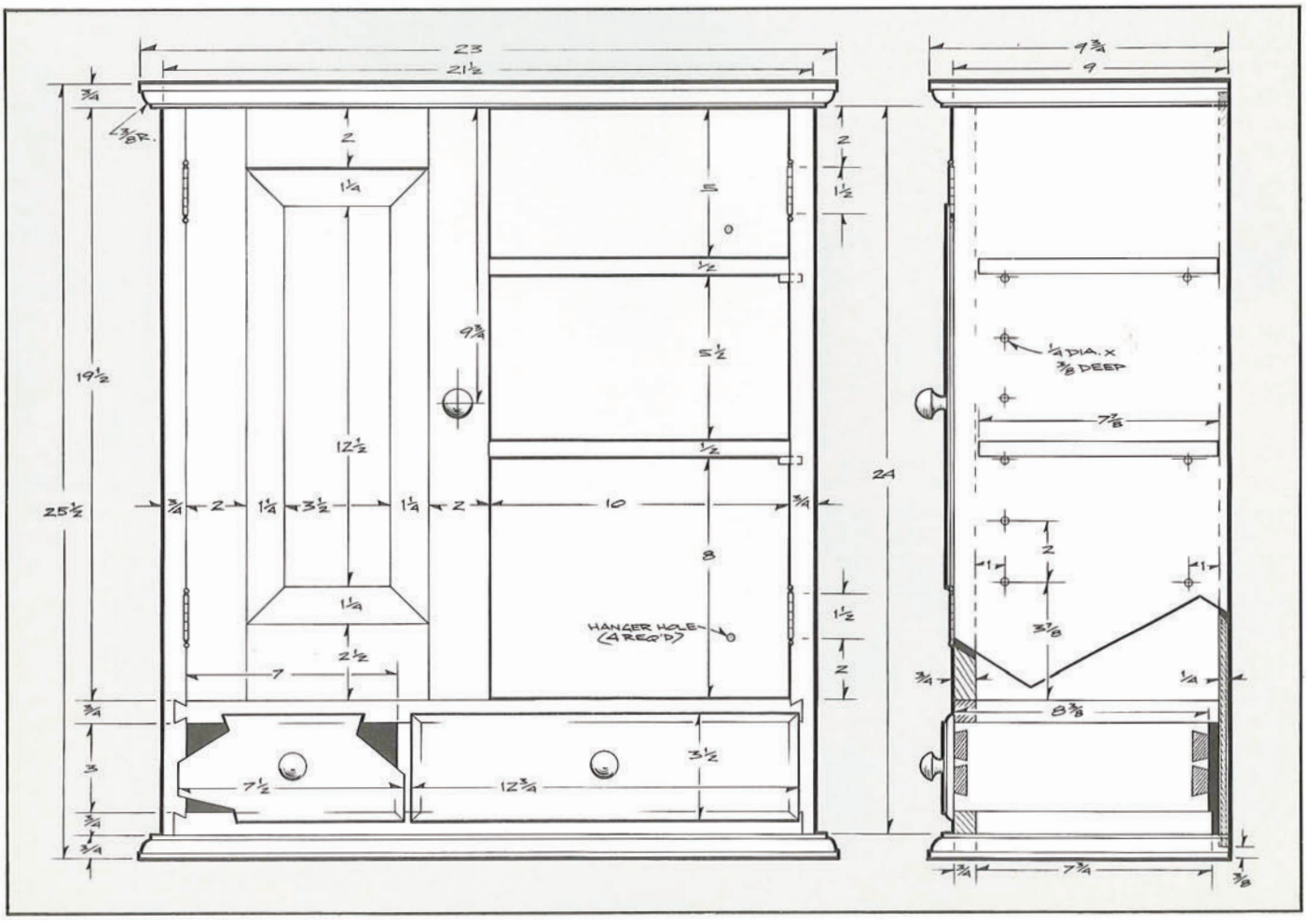
Make the Case

Begin by edge-gluing enough 3/4 in. thick stock to make the sides (A), top (B), bottom (C), adjustable shelves (D) and fixed shelf (E). You'll need a thickness planer, or some work with a hand plane in order to reduce the adjustable shelves to a final thickness of 1/2 in. Try to use stock that's straight-grained and free from large knots or other defects. Also, look for grain patterns that are pleasing to the eye. After edge-gluing the parts, the two sides, the top and the bottom can be cut to the length and width dimensions shown in the Bill of Materials.

Use the router table and a 3/8 in. radius beading bit to apply the bead along the front and ends of the top and bottom. Once the beads are completed, temporarily join the sides to the top and bottom using counterbored 1 1/2 in. long by no. 8 flathead wood screws as shown in the exploded view.

With the parts temporarily assembled, equip the router with a 3/8 in. bearing-guided rabbeting bit and cut the 1/4 in. deep by 3/8 in. wide rabbet all around the back edge of the sides, top and bottom. You'll need to use a chisel to square the rounded corners.

Now, measure the opening for the 1/4 in. thick plywood back (K) and cut it to fit. Cherry plywood was used on ours, but if



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Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Side	3/4 x 9 x 24	2
B	Top	3/4 x 9 3/4 x 23	1
C	Bottom	3/4 x 9 3/4 x 23	1
D	Adjustable Shelf	1/2 x 7 7/8 x 19 7/8	2
E	Fixed Shelf	3/4 x 8 x 20	1
F	Top Stretcher	3/4 x 3/4 x 20 3/4	1
G	Bottom Stretcher	3/4 x 3/4 x 20 3/4	1
H	Divider	3/4 x 3/4 x 3 1/2	1
I	Narrow Runner	3/4 x 3/4 x 7 3/4	3
J	Wide Runner	3/4 x 2 x 7 3/4	1
K	Back	1/4 x 20 3/4 x 24 3/4	1
	Door		
L	Stile	3/4 x 2 x 19 1/2	4
M	Top Rail	3/4 x 2 x 7 1/2*	2
N	Bottom Rail	3/4 x 2 1/2 x 7 1/2*	2
O	Panel	3/4 x 6 3/8 x 15 3/8	2
	Small Drawer		
P	Front	3/4 x 3 1/2 x 7 1/2	1
Q	Side	1/2 x 3 x 8 3/8	2
R	Back	1/2 x 2 1/2 x 7	1
S	Bottom	1/4 x 8 1/4 x 6 1/2	1
	Large Drawer		
T	Front	3/4 x 3 1/2 x 12 3/4	1
U	Side	1/2 x 3 x 8 3/8	2
V	Back	1/2 x 2 1/2 x 12 1/4	1
W	Bottom	1/4 x 8 1/4 x 11 3/4	1
	Hardware		
X	Door Pull	See Full-size Pattern	2
Y	Drawer Pull	See Full-size Pattern	2
Z	Hinge	1 1/4 by 1 1/2	4
AA	Magnetic Catch	2 1/2 in. long (double)	1
BB	Pins	1/4 dia. x 3/4 long	8

* Length includes tenons.

you're looking to cut down on costs, birch plywood with a cherry stain will also look good.

Next, cut the top stretcher (F) and the bottom stretcher (G) to overall length and width. Use a sharp pencil or scratch awl to lay out the full dovetail on each end of the top stretcher and also the half-dovetail on each end of the bottom stretcher (Fig. 1). Now, using a dovetail saw, carefully cut out each of the dovetails.

Once the stretcher dovetails are cut, mark their exact location on the front edge of each side. (Having joined the top and bottom to the sides makes this job a lot easier.) Hold the parts in their proper position and trace the shape directly from each dovetail. Note that the top stretcher is located 3 3/4 in. from the bottom of the sides, while the bottom stretcher is flush with the bottom of the sides (see Front View).

As shown in Fig. 2, a notch is cut in each stretcher to accept the divider (H). Lay out the notch locations, then cut them out with a chisel. Cut the divider to size and use a dovetail saw to notch the ends. Check for a good fit-up in the stretchers.

Before disassembling the parts, cut the two adjustable shelves (D) to fit inside. Ideally, you want about 1/16 in. clearance on each end.

Remove the screws to disassemble the top and bottom. With a sharp chisel, chop out the dovetails on the front edge of each side to a 3/4 in. depth. Work carefully to insure a nice snug fit. Also, in each side, lay out and bore the 1/4 in. diameter by 3/8 in. deep holes for the adjustable shelves.

Give all the parts a thorough sanding, finishing with 220-grit. Use the screws to reassemble the top and bottom to the sides. There is no need to add glue here. (End grain joints offer little strength, but often add a lot of messiness when glue squeezes out.)

Glue the stretchers and the divider in place. If necessary, use a few clamps to hold everything secure. Check for squareness and set aside to dry.

The three narrow runners (I) and the wide runner (J) are made and attached next. To allow wood movement, they are cut 1/4 in. short of the back and are screwed in place without the use of glue. As can be seen in the Exploded View, the middle narrow runner is attached to the top of the wide runner. To insure that the drawers slide smoothly, the top edge of the runners must be flush with the top edge of the bottom stretcher.

The fixed shelf (E) is made next. Rip the stock to final width before cutting it to a length that allows for a snug fit between the sides. Sand both face surfaces through 220-grit. Add a thin coat of glue to the front edge of the shelf and to the back edge of the top stretcher and clamp the two parts together. Check to make sure the shelf is square front-to-back. When dry, clean up

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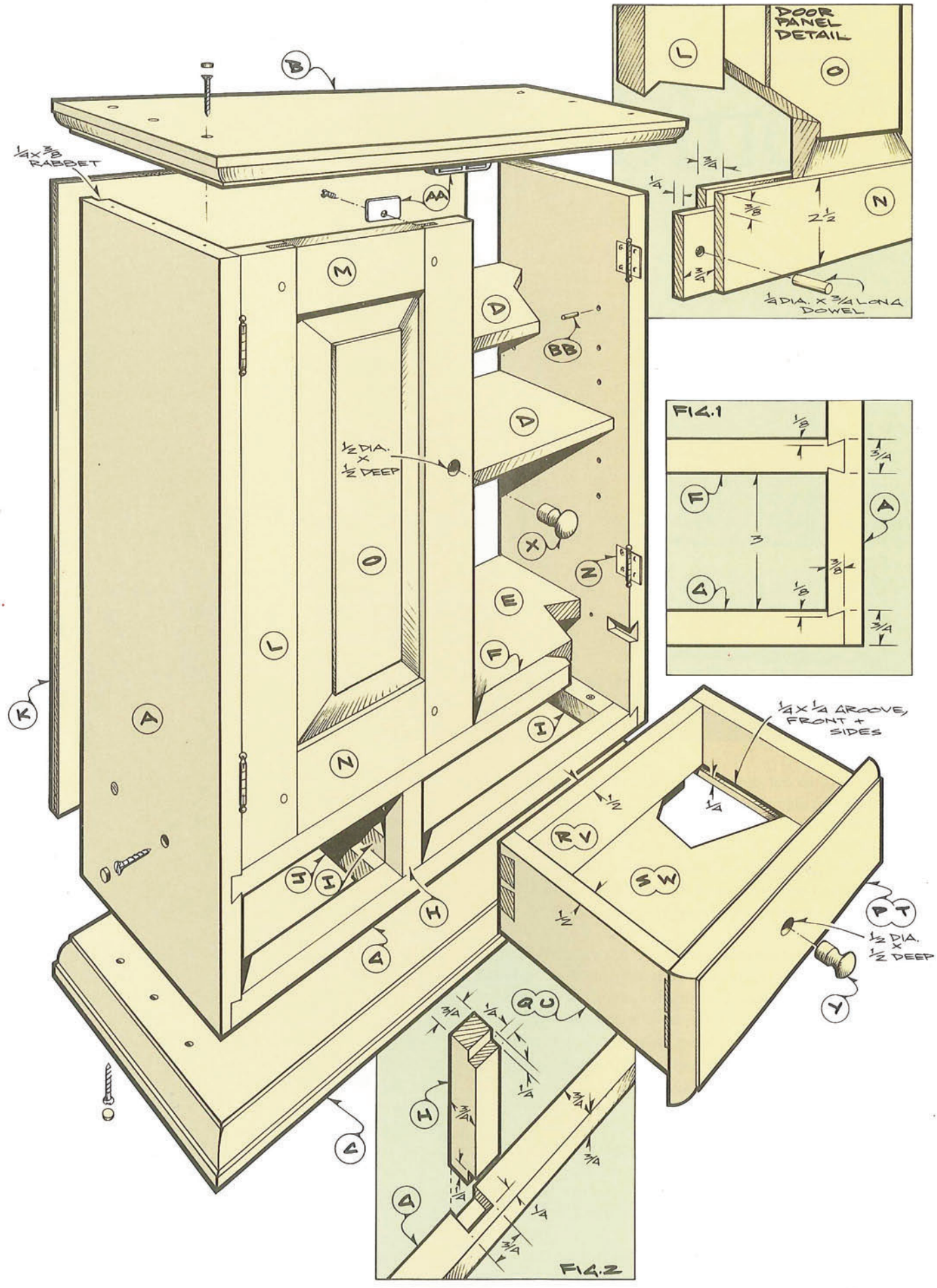

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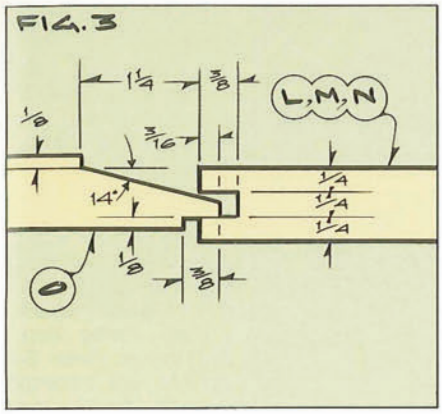
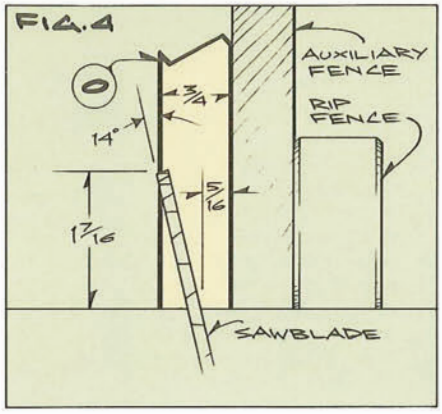
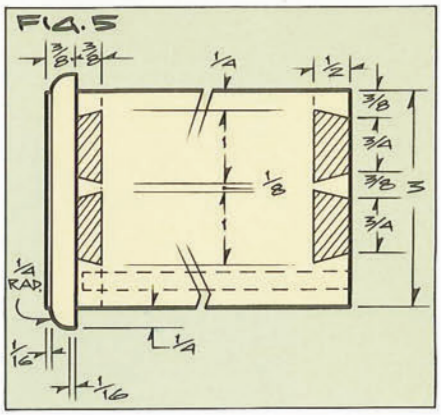




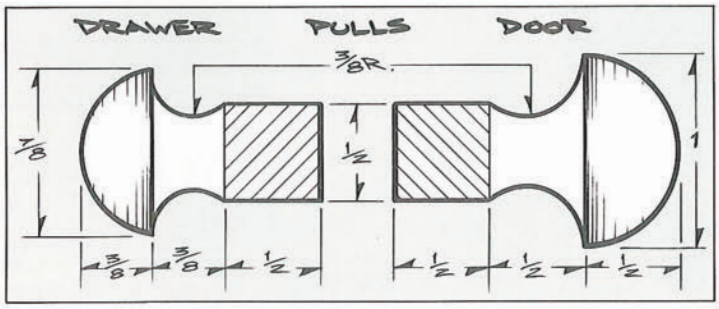


any glue that may have squeezed out and sand the joint smooth. Now, drill and counterbore on each end for two 1 1/2 in. long by no. 8 flathead woodscrews.

Make the Doors

Cut the stiles (L), top rails (M) and bottom rails (N) to width and length. Set up the dado head on the table saw to cut the 1/4 in. wide by 3/8 in. deep groove for the panel in each piece. The 3/4 in. deep mortise on each end of the stiles can be cut by hand or with the router table and a 1/4 in. diameter straight bit. After cutting the grooves and mortises, use the dado head to cut the 3/4 in. long tenon on each end of the rails.

The two panels (O) are made next. After cutting the stock to length and width, use the table saw to cut the bevel along the four edges (Fig. 3). As shown in Fig. 4, the blade is set at 14 degrees and a high auxiliary fence is attached to the rip fence. A featherboard is used to help keep the panel against the auxiliary fence as you make the cuts. Once the bevel is cut, use the dado head to cut the 1/8 in. deep by 3/8 in. wide notch all around the back edge (Fig. 3).



Final sand all the door parts through 220-grit. A scraper may come in handy for smoothing the panel bevels. It's difficult to thoroughly finish the panel once assembled, so at this point, it's a good idea to apply the final finish to the panel. (We added two coats of penetrating oil.) When the panel dries, add a thin coat of glue to the mortises and tenons and assemble the parts around the panel. Clamp firmly and check for squareness. If all looks okay, set aside to dry.

Once dry, bore holes for the 1/4 in. long dowels that help lock the tenons in place (see Door Panel detail). Cut the dowels to length and glue them into the holes, allowing about 1/16 in. to protrude. Trim flush with a chisel, then sand smooth.

Also, to keep the panel centered in the frame, drive a small brass brad through the back of each rail and into the top and bottom edges of the panels. You'll want the brads centered (left-to-right) on the panel to evenly distribute movement when the wood expands and contracts with changes in humidity.

Make the Drawers

Cut the drawer fronts (P) and (T) to width and length. If you've been holding on to a nice piece of highly figured wood, this might be the spot to put it to use. Using the router table with a 1/4 in. radius beading bit, cut the bead around all four edges of each front. Now, switch to a straight bit and cut the 1/4 in. by 3/8 in. rabbet all around the inside edges (Fig. 5).

To save cost, we like to use poplar for drawer sides and backs. Also, its naturally light color will contrast with the cherry drawer front, so the dovetails show up nicely. The bottoms (S) and (W) are made from 1/4 in. thick plywood. Cut the sides and backs to size, then rout the 1/4 in. by 1/4 in. grooves in the sides and front.

The dovetail layout is shown in Fig. 5. Once cut, the drawers are assembled as shown. Each bottom is secured to the lower end of the backs with a few flathead wood screws.

Turn the cherry pulls (X) and (Y) to the dimensions shown or, if you prefer, substitute something similar from your local hardware store. If the store doesn't carry cherry knobs, add a coat or two of cherry stain to their birch or maple knobs. As shown, the knobs are glued into holes bored in the doors and drawers.

The ball-tipped butt hinges (Z) can now be mounted and the double magnetic catch (AA) added to the underside of the top. Finally, cut the eight adjustable shelf pins (BB) to length from 1/4 in. diameter dowel.

Finish Up

Give all the parts a final sanding, finishing with 220-grit. Apply a slight roundover to any sharp edges and corners. Use glue and finishing nails to attach the back, then drive a few finishing nails through the back and into back edge of the fixed shelf.

Two or three coats of a good penetrating oil will make a good final finish. Penetrating oil is easy to apply and the resulting look is somewhat similar to that found on many Shaker pieces.

Filled with odds and ends, the cabinet will be pretty heavy, so be sure to securely mount it to your wall. Since the back is glued and nailed in place, you can mount the cabinet by driving four screws through the back (see Front View) and into the wall. We spaced the holes 16 in. apart, the standard stud spacing. If don't have wall studs, use wall anchors that will provide enough holding strength.

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