

Tool Cabinet for a Workbench



Keep hand tools close at hand
but out of harm's way

BY LON SCHLEINING

It's exasperating when I can't find a tool. Usually I know it's in a pile somewhere, or on a shelf, or over there where I think I saw it last...

Well, all that frustration is behind me now. After 27 years as a professional woodworker, I finally have a real tool chest.

When the editors and I designed "The Essential Workbench" featured in *Tools & Shops*, Winter 2003/2004 (*FWW* #167, pp. 38-45), we deliberately positioned the stretchers to accommodate a tool cabinet as large as 24 in. deep by 44 in. wide by 16 in. tall. The idea was to follow up the bench article with this article on how to build a complementary tool cabinet.

As with all of my projects, I first drew the cabinet full scale in three views, including all the construction details I could think of.

Two boxes are easier to build and move

I like the look of mitered corners and made that basic decision early on. Then I realized I wasn't very comfortable mitering an edge on a plywood panel nearly 4 ft. wide by only about 2 ft. long, so I decided to break the cabinet into two separate boxes. This makes the parts smaller and easier to handle, especially on the table saw. I also like the idea that if you have to break down your bench to move your shop, the two boxes will be manageable.

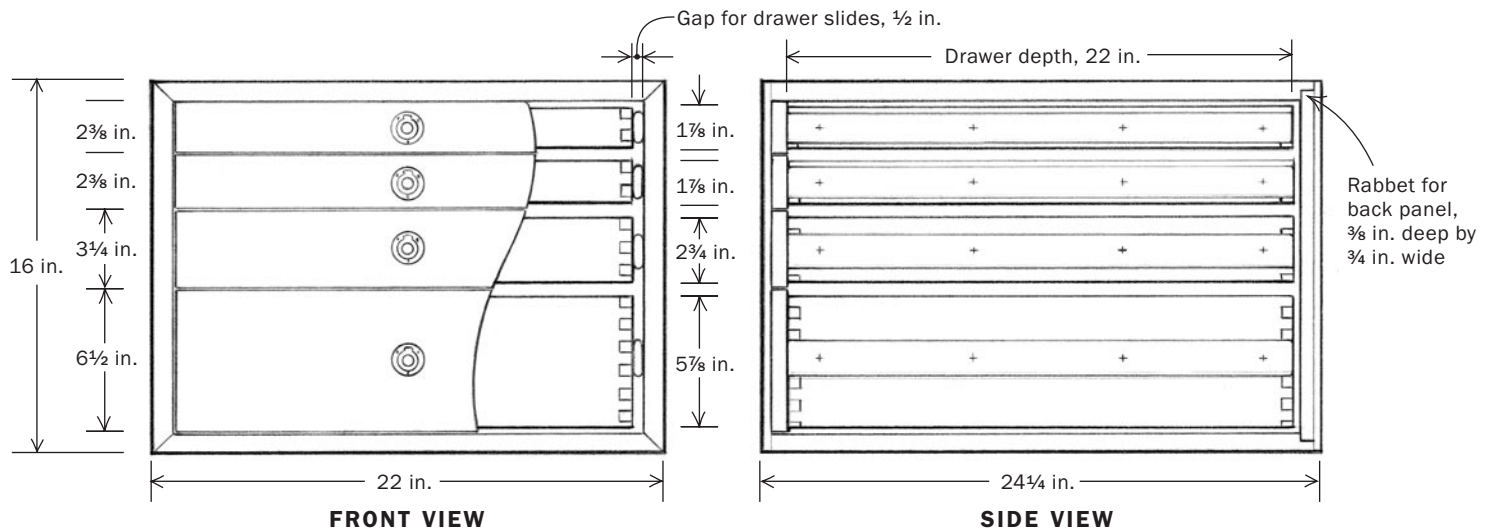
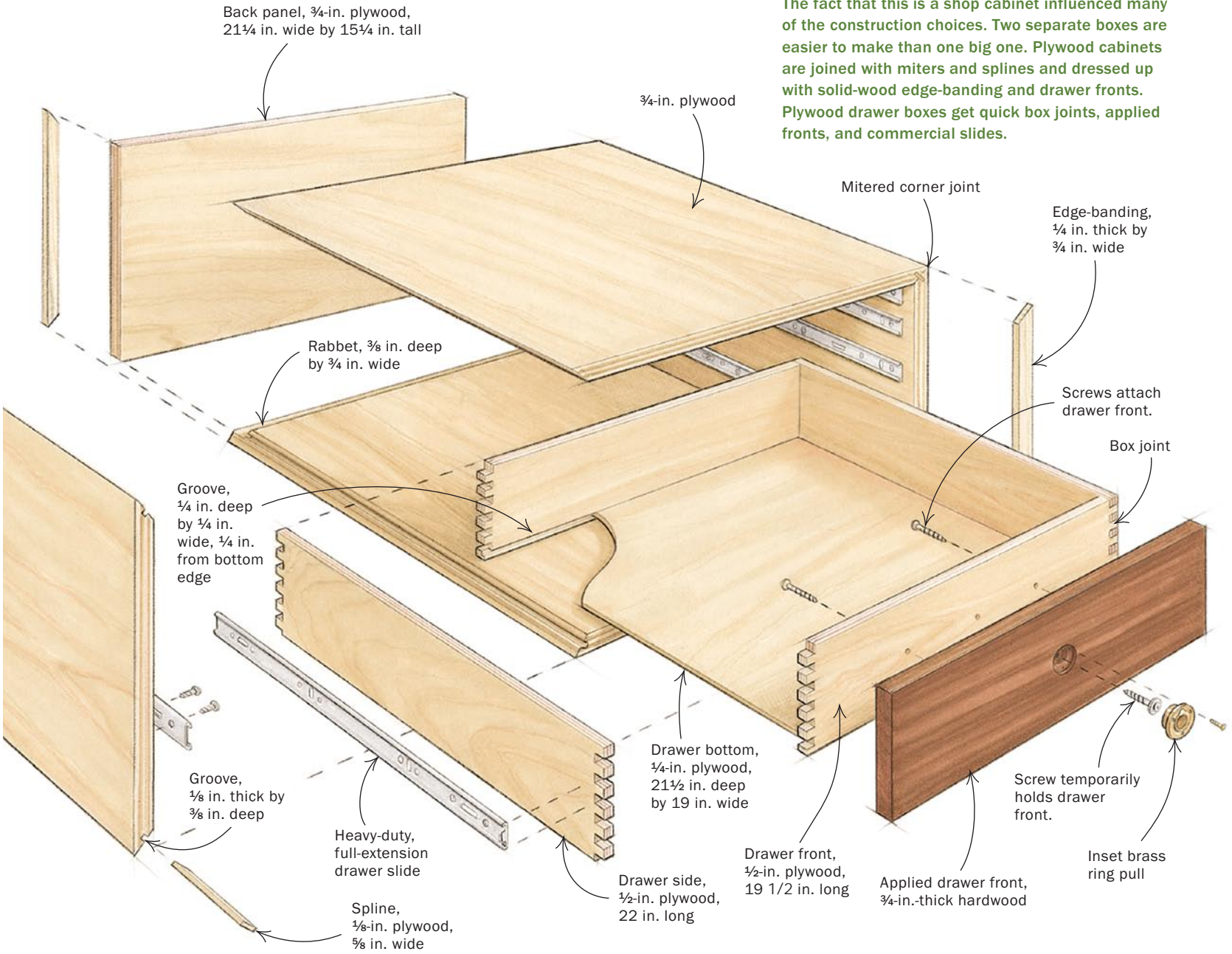
The workbench is maple, with walnut wedges in the trestle joinery. I like the visual contrast between these two woods, so I chose maple plywood for the carcasses, and solid walnut for the drawer fronts.

To make sure the carcasses would stand up to heavy use, I splined the miter joints and glued a full 3/4-in.-thick panel into a rabbet in the back of each carcass. On the front and back edges of each box, I glued solid edge-banding to cover the plywood edges and splines.

I measured the heights of the tools I wanted to keep in the cabinet and discovered I needed more small drawers than large ones. I standardized the drawer

BUILD TWO OF THESE

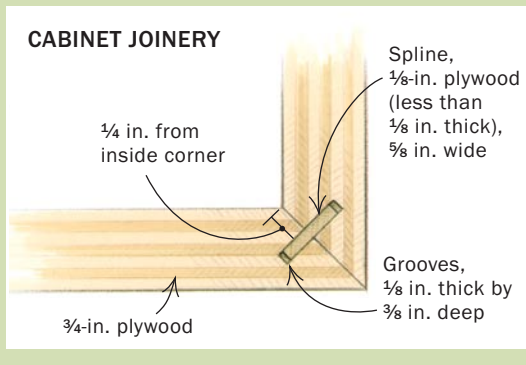
The fact that this is a shop cabinet influenced many of the construction choices. Two separate boxes are easier to make than one big one. Plywood cabinets are joined with miters and splines and dressed up with solid-wood edge-banding and drawer fronts. Plywood drawer boxes get quick box joints, applied fronts, and commercial slides.



Cabinet boxes

MITERED PLYWOOD MAKES FOR QUICK CONSTRUCTION

The joinery is cut on the tablesaw, and packing tape draws the joints together tightly. For a utility cabinet like this, it is quicker to apply edge-banding after assembly.



Miter the edges of the panels. Angle the sawblade just beyond 45° to ensure tight corners. Sneak up on the final width, and then cut the rest of the parts to size.

sizes as much as I could so that I could make several parts of the same size. Your tools differ from mine, so size the drawers accordingly.

One sheet of ¾-in. maple plywood is plenty for the carcases. I used three 5x5 sheets of Baltic-birch plywood for the drawers, one ½ in. thick for the drawer sides and two ¼ in. thick for the bottoms.

Heavy-duty, ball-bearing drawer slides offer smooth action and full extension, so they were an easy choice. I used Accuride 3832 slides rated at 100 lb., which should be plenty strong, even when I pull out a drawer slightly to help support a wide board or panel held on edge in the front vise.

For drawer pulls, I chose inset brass ring pulls, which match the brass benchdogs and won't catch on cords.

Miter and spline the cabinet parts

Some folks might prefer to edge-band the plywood before cutting the miters and assembling the boxes, but I chose to do the

edging afterward. This let me cut rabbets and spline slots all the way through on the tablesaw, because the front and back edges would be covered later. Also, the long miters had to be perfect only at their outermost edges.

The first step is to cut all the carcase pieces about 1 in. oversize, making sure the pieces are perfectly square. Next, mark the edges that get the miter cuts and rabbets: It is awfully easy to miter or rabbet the wrong edges.

Angle the tablesaw blade just a bit beyond 45° to ensure that the outside, visible edges will be tight. If you cut four small sample pieces, you can use tape to wrap them into a box to check your miter angles. Use very flat plywood for all of the cabinet parts; if it is bowed it might lift off the saw's table near the blade and the miters won't be accurate. Last, cut the rabbets for the backs.

Splines reinforce the miters—I used ⅛-in. plywood for the spline material, as



Slot the edges for splines. Angle the sawblade at exactly 45° and locate the grooves toward the fat corner of the edge.

it fits loosely into a single blade kerf. A loose fit, with glue, is enough to provide some insurance for the miter joints. If the fit is too tight, the splines will bind when inserted in the already-assembled box (see photo, facing page). Angle the tablesaw blade at exactly 45° for the spline cuts. When ripping the spline material to width, leave plenty of clearance in the slots.



Packing tape will be your clamps. For these large boxes, it is easiest to tape up pairs of panels at a time. To close the joints, pull on the tape as you apply it.



Tape is a great clamp for mitered boxes

You will insert the splines from the front and back after the boxes have been taped up, so cut the spline stock into halves lengthwise. A benefit of inserting the splines this way is that they force the excess glue into the center of the joint instead of out the front and back.

I assemble mitered boxes with stranded packing tape. Normally, I lay down the pieces in a line, outside face up, and run continuous strips of tape across all four sides, leaving a 4-in. or 5-in. tab at the end. When glue is applied and the pieces are wrapped up into a box, the tape puts firm, equalized pressure at the joints. In this case, however, I found the pieces too large to handle all at once, so I taped two panels at a time and assembled the box from there.

While the glue is wet, insert the splines and the back panels, which will square up the assemblies.

Edge-band the cases

Because you will apply the banding after these utility cabinets have been assembled, the easiest method is to make the edge-banding exactly as wide as the plywood is thick. It's not hard to apply it perfectly aligned with the edges.

Use the surface planer to bring the banding down to a final thickness of $\frac{1}{4}$ in. Take some pressure off yourself by making extra pieces. I used a nail gun to apply



Two pairs of panels make a box. After spreading glue on the miters, stand up the panel assemblies and draw the last two joints together with more tape (above). Apply glue to the spline stock and insert pieces roughly halfway into the joint (left), working from both ends. Nail and glue the back panel into its rabbet, and trim the splines flush.

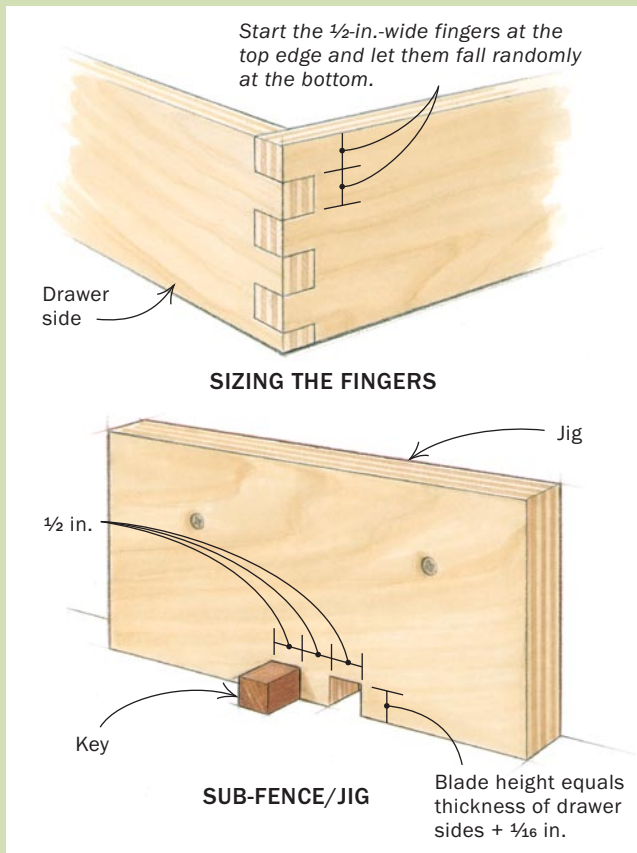


Apply thin banding cut to exact width, using your fingers to align it. Dry-fit each piece first to fit the mitered ends. A 23-ga. micro-pinner leaves almost invisible holes.

Drawer boxes

A LESSON IN BOX JOINTS

Made quickly on the tablesaw using a dado blade and crosscut jig, these finger joints create quick and sturdy drawer boxes. The drawer slides require an exact $\frac{1}{2}$ -in. gap on each side, so build a test drawer to dial in the final dimensions.



The ends of each piece are identical. For the first cut, butt the top edge of the workpiece against the key.

the edge-banding, using my fingertips to align it flush with the sides as I glued each piece. A 23-ga. micro-pinner leaves almost invisible holes. Clamps or strips of masking tape can replace the nails, but you will need lots of them. Work your way around the edges of the cabinets, fitting and mitering each piece as you attach it.

Size the drawers carefully

In keeping with the practical nature of this project, I chose box-jointed (also called finger-jointed) drawer boxes with applied fronts. Box joints are strong, attractive, and easy to cut using a sled on the tablesaw. (For more information on cutting these joints, see photos, above, and *FWW* #148 pp. 60-63).

The applied drawer fronts go on after the boxes are in place, making the fitting process much easier. In order for the drawer

slides to work properly, it's important to have exactly $\frac{1}{2}$ in. of space on either side of the drawer box. That's one reason to build the cabinet boxes first. Then, when cutting the drawer box joints, you must realize that raising or lowering the dado blade on the tablesaw will affect the size of the finished drawer box. Once you have set the blade height correctly, don't move it.

I run the box-joint fingers $\frac{1}{16}$ in. extralong so that I can sand them flush after the drawer box is glued up. This means cutting the box parts $\frac{1}{8}$ in. longer than I need them and carefully adjusting the blade height $\frac{1}{16}$ in. above the thickness of the parts.

Install the drawer slides

Because these heavy-duty slides can be mounted anywhere on the drawer side, I was able to place them at the center and work from centerlines, which is my pref-

erence. After attaching the drawer slides to the drawer boxes, align and mount the other half of the slides inside the cases. To align the slides front to back, use a scrap of material equal to the thickness of the drawer fronts plus the recommended offset. To align the slides top to bottom, use a spacer panel placed under the slides, inside the cases, to be sure they are installed uniformly.

Initially, I installed the slides with only two screws. I got all the drawers installed and adjusted so that they worked properly, and then I inserted the rest of the screws.

Applied drawer fronts are easier to fit

Now comes the fun part: installing the solid-wood drawer fronts. The challenge is to have as fine and even a gap as possible around each drawer front, while allowing for some shrinking and swelling with



Make the second cut. To cut the second notch, just place the first notch on the key. The final notch on this drawer will be partial.



Locating the mating side. Flip the first side, put its first notch on the key, and clamp it. Butt the mating side against the first side (above). Cut the first notch on the mating side (right). The dado blade should just clear the first side.



changes in humidity. First, cut the drawer fronts to length and width so that they all fit together into the opening, with no gaps. With all of them in place, mark a centerline for the finger pulls, remove the fronts, and mortise for the pulls. All of the mortising is done easily on the drill press, with just a bit of chisel work afterward.

The mortises for these pulls allow a neat trick for attaching the fronts. Drill a clearance hole in the recess, through which you can loosely insert a pan-head screw. Now you can fit the drawer fronts one at a time,

with the pan-head screws allowing some adjustment in all directions as you take light trimming cuts from the edges.

Once the fronts are in position, drive some screws into them from inside the drawer boxes to lock them in place. Then remove the pan-head screws and install the finger pulls.

Finishing up

For these cabinets I applied the same finish I used on the bench: a few coats of varnish thinned about 50% with turpen-

tine, applied with a rag and rubbed off before it dried. Last, I added a few thin cleats to the bottoms of the boxes, to keep them in place on the lower stretchers of the workbench.

Now everything is in its place. Sure, I can't remember which drawer my mortising chisel is in, but I know it's in there somewhere. □

Lon Schleining makes furniture and stairs in Long Beach, Calif., and teaches woodworking throughout the United States.

INSTALL THE DRAWERS

The drawer fronts are fit and applied after the slides and boxes are in place, making it easier to achieve fine, uniform gaps and a neat appearance.

HARDWARE SOURCES

ACCURIDE FULL EXTENSION BOX DRAWER SLIDE

Series 3832
www.rockler.com

LEE VALLEY 1½-IN. ROUND RING PULL

Product #00L01.01
www.leevalley.com



A trick for installing slides. Working off the centerlines of the drawers and slides, Schleining uses a spacer panel to set the distance between the slides and the cabinet bottom. A small block sets the distance from the front edge.



Fit and attach the drawer fronts. Drill a slightly oversized hole in the round mortise for a pan-head screw. Use credit cards to set the gaps, and use the screw to lock the drawer front in place. Then screw the front permanently from the inside, remove the temporary screw, and install the pull.