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Shaker Chest of Drawers

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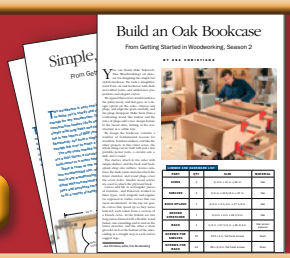

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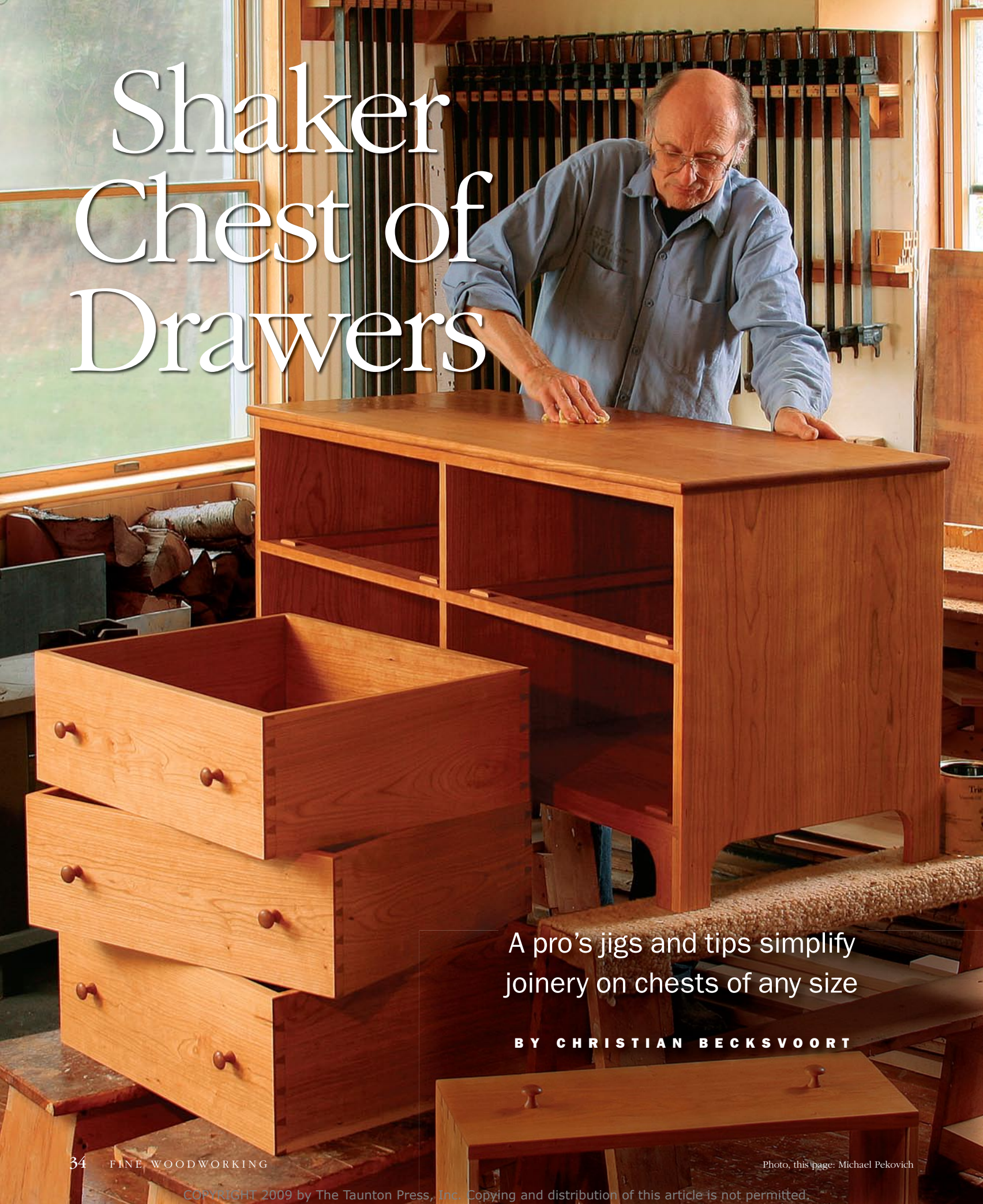
Shaker Chest of Drawers



A pro's jigs and tips simplify joinery on chests of any size

BY CHRISTIAN BECKSVOORT

Photo, this page: Michael Pekovich

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Pro method

DUAL-PURPOSE JIG FOR DADOES AND DOVETAILS

Like many chests of drawers, the sides of this one need a dovetail/dado combo for the rails and drawer runners, and a long sliding dovetail for the bottom. One simple jig handles them all.

Years ago, clients wanted me to make a blanket chest to store shirts and sweaters. Blanket chests are great for quilts and blankets, but they tend to allow small items to drift toward the bottom and get lost. For clothes, I mused, drawers would make the contents more accessible. And if I used the same outside dimensions as a blanket box, they could still place the chest at the foot of the bed and sit on it, or push it against the wall to use as a dresser. The different drawer depths would add to the versatility of what the chest could hold. They took my advice and they still love the finished chest.

As with much of my work, this design is heavily influenced by the Shaker design ethic, with its simple lines, functional design, solid construction, and cherry wood. There are a number of parts, but the construction is straightforward. I use half-blind dovetails to secure the sides to a subtop, and a sliding dovetail to secure the bottom to the sides. A vertical divider gets centered in the top and bottom and dadoed in place. Front and back rails are notched around the vertical divider and dovetailed into place. I use a sturdy frame-and-panel back, glued into a rabbet, so the piece looks beautiful from all directions. And the main top gets screwed in place from the underside of the subtop. This is the same construction I use on all my case pieces, so the anatomy could work for a taller chest, too.

Tackle the sides first

Most of the business happens on the side pieces. But before I hand-chop any half-blind dovetails, the side pieces get a rabbet, leg arches, a sliding dovetail, and a dado with a dovetail at the front.

First, rabbet the side pieces with two rip-cuts on the tablesaw. This rabbet will accept the back. Then, draw the leg arches on the side pieces and use a bandsaw to cut them out and a block plane to smooth the straight edges. I clean up the arches using a balloon sander on my lathe and finish up with hand sanding.

Online Extra

For Becksvoort's complete finishing recipe for cherry, go to **FineWoodworking.com/extras.**

Now it's time to pick up the router and tackle the dado/dovetail that holds the front and back rails and the drawer runners, as well as the sliding dovetail that

Setup is easy. *Registering off the front edge of the side, it's easy to clamp the jig square and cut dadoes and dovetails precisely.*

Dovetail meets dado. *Use a ¾-in. dovetail bit to cut the dovetail notch for the front and back rails (above left). Without moving the jig (Becksvoort has two identical routers so he doesn't have to change bits), use a ¾-in. straight bit to cut the dado that will hold the drawer runners (above right).*

Two cuts for a long sliding dovetail. *Before the final pass with a ¾-in. dovetail bit, Becksvoort uses a smaller straight bit to waste away the material, making the dovetail cleaner and easier to cut.*

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holds the bottom. For all three I use a shopmade jig with two parallel bars, spaced the width of the router base, clamping it square to the carcase side. The same jig works for the dadoes on the sides of the vertical divider and the dadoes in the subtop and bottom that hold the vertical divider. While the router and jig are out, cut the dadoes in each side of the vertical divider. Along with the dadoes in the sides, these will hold the drawer runners. Line them up with the dadoes on the sides, but leave the piece a bit long until you glue up the carcase and get an exact measurement.

Dovetailing a large case piece

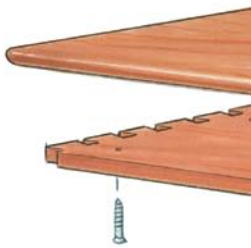
Cutting dovetails on a large piece is very similar to cutting dovetails on a smaller box or drawer, but there are a few more things to consider. Holding the pieces is more challenging, keeping them flat is important, and of course there is more material to remove. The good news, at least with this piece, is that even if your dovetails don't look perfect they'll be hidden by the subtop. I always lay out and cut the tails first, then transfer them and finish up with the pins (see photos, p. 38).

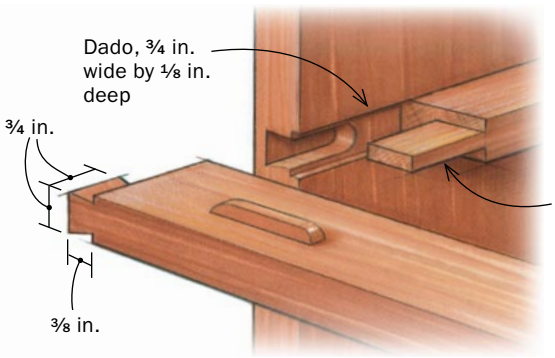
Once you have the dovetails cut, it's time to glue the subtop to the sides. But first rout the dadoes for the vertical divider in the subtop and bottom (using the same jig as before). To find the center of both, it isn't necessary to do a dry-fit. The subtop, the bottom piece, and the rails are all the same length, so just stack the top and bottom together with the ends flush and measure for the center. After routing the dadoes, glue the dovetailed subtop to the sides. The bottom doesn't go in yet, so use spacers at the bottom of the legs to keep everything straight and square.

While that assembly is drying, move to the router table to cut the sliding dovetails in the ends of the bottom and front and back rails. Then slide the bottom into place. I glued only the last 3 in.

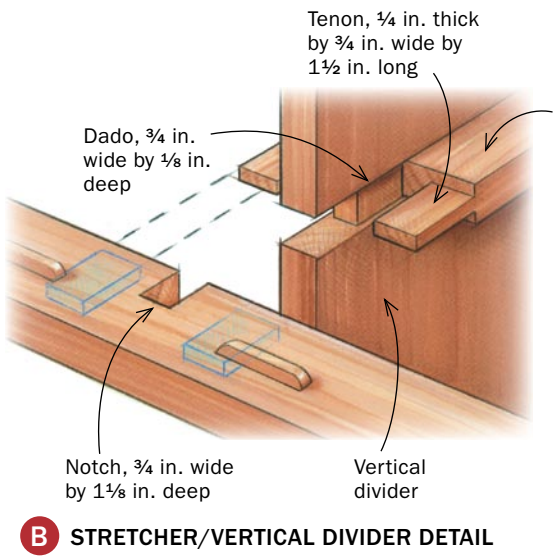
BUILT TO LAST

Half-blind dovetails, sliding dovetails, and dadoes ensure decades of flawless function. A frame-and-panel back makes the chest look good from all directions.



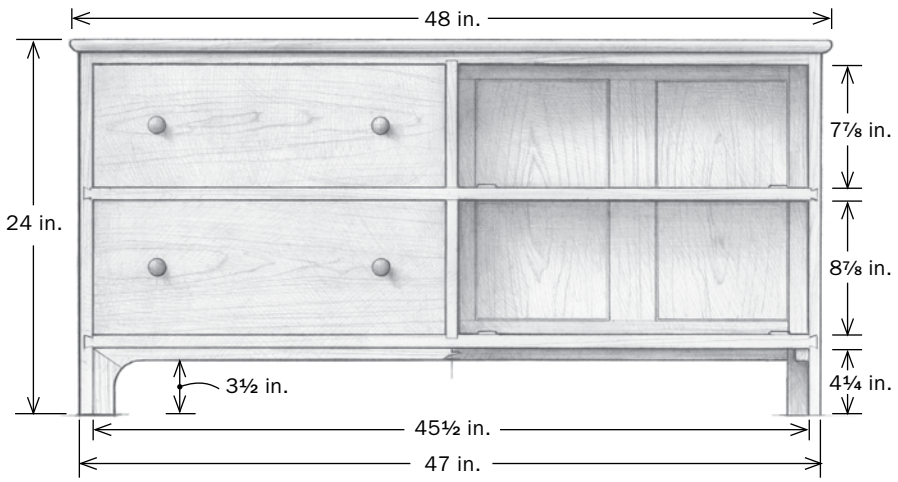


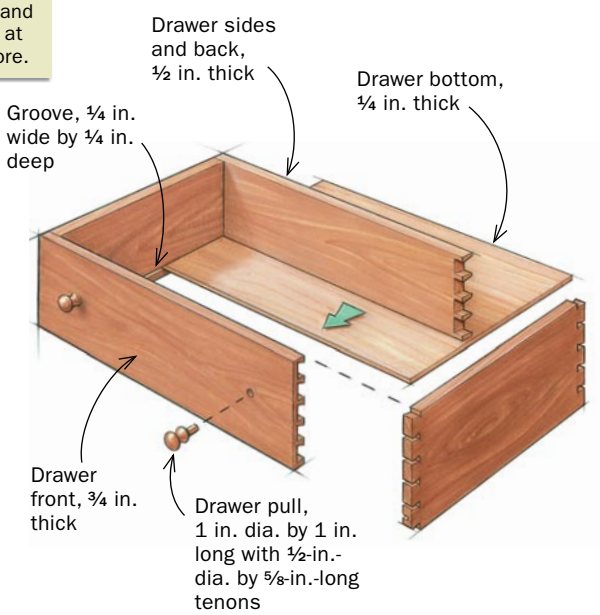
A STRETCHER END DETAIL



B STRETCHER/VERTICAL DIVIDER DETAIL

Full-size plans for this chest and other projects are available at FineWoodworking.com/PlanStore.





Photos, except where noted: Anissa Kapsales; drawings: Bob La Pointe

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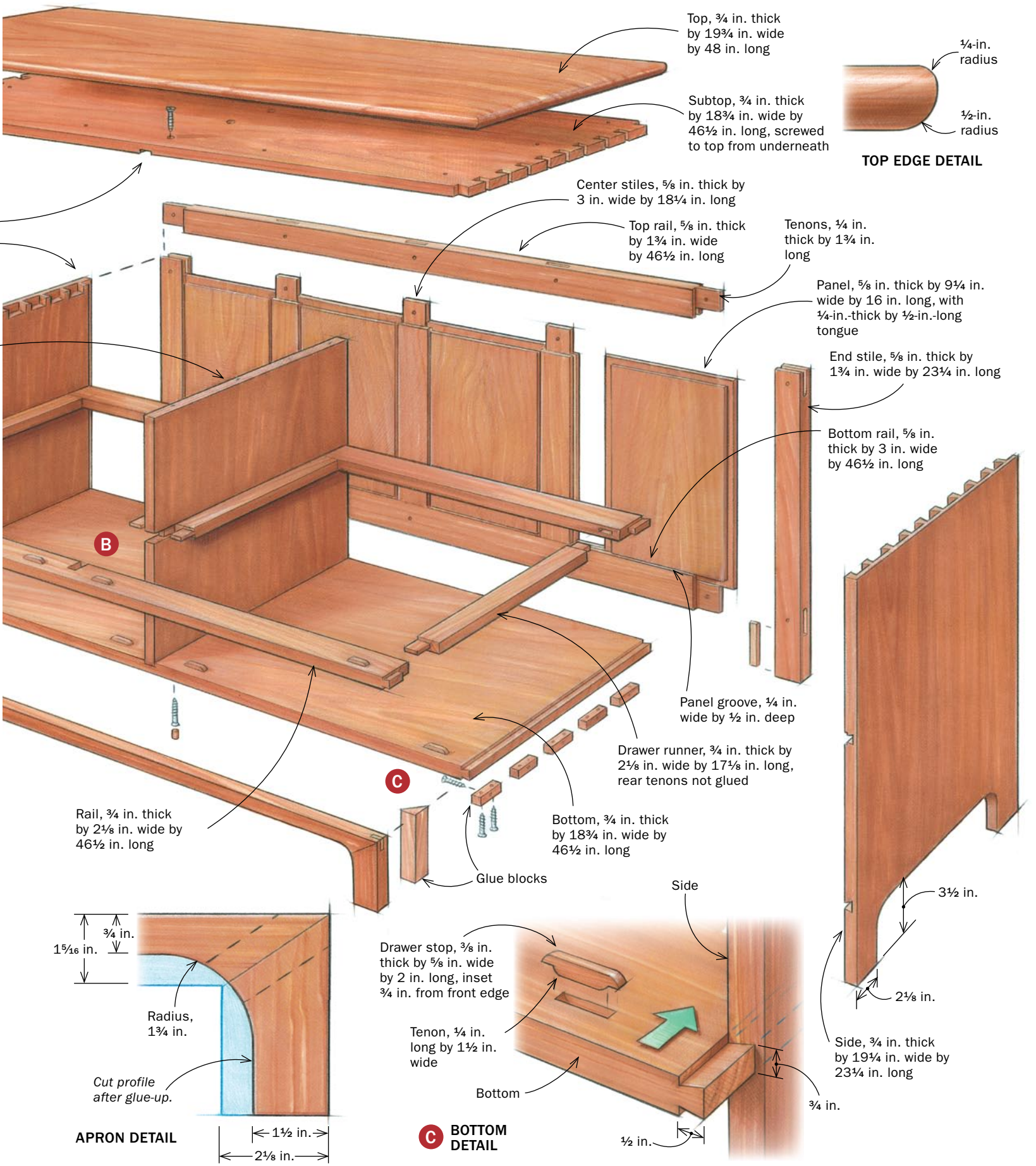

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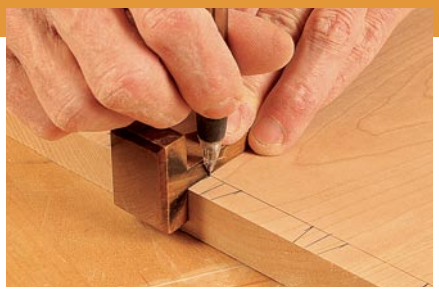
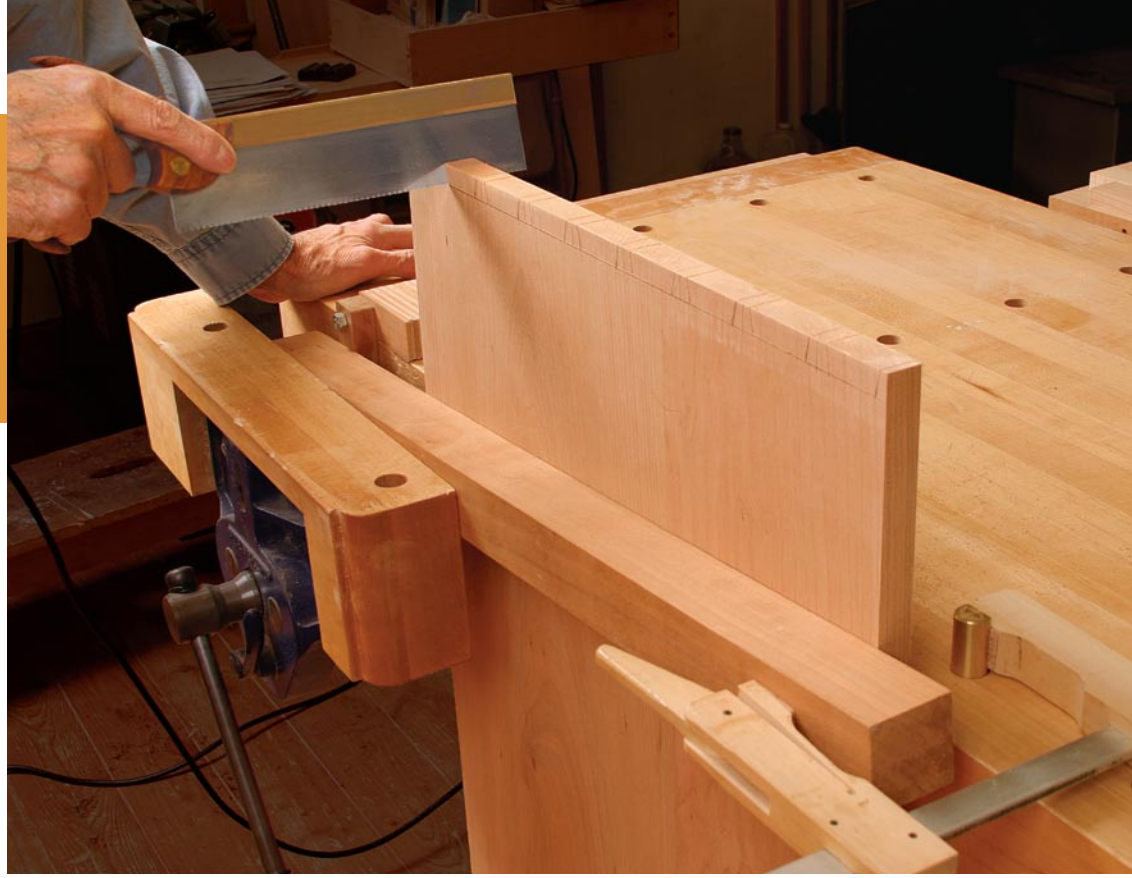
Pro method

HALF-BLIND DOVETAILS IN LARGE PANELS

Half-blind dovetails make a strong but clean-looking case. They can be a challenge on big pieces, but Becksvoort has tricks for keeping the pieces flat and aligned.





Tails first. *On the subtop, Becksvoort marks the centers of the pins and uses a dovetail guide to lay out the tails (above). To saw the long, wide board, he rests it on the floor and secures it in a vise. A thick, straight hardwood board clamped near the action keeps the wide board flat (right).*

Chop and pare, chop and pare. *Keeping the wide workpiece flat, make a vertical cut in the scribed line, tipping the chisel slightly forward (above). Make the first cut light. Then, paring horizontally in from the end grain, remove a chip (right). Alternate between cutting down and cutting in until about halfway through, then turn the board over and repeat the process until you've met in the middle. Follow the same procedure after sawing the pins.*

to 4 in. at the front of the sliding dovetail. Because the dovetail slot is deep, it weakens the sides of the case, so I added five glue blocks underneath each side. This strengthens and anchors the lower sections of the case sides to the bottom, yet still allows for wood movement.

Divider helps drawers run smoothly

The four drawers are separated by a vertical divider that is cut to fit after the case is assembled. With a handsaw, notch the vertical divider to accept the notched front and back rails, and then slide it in place. These notches line up with the dadoes that are already in the vertical divider. Don't glue the vertical divider in place because it is an end-grain to long-grain joint, and glue won't hold. Instead, screw it in place, plugging the holes in the bottom. The holes in the subtop will be covered by the top.

The bottom drawers run on the bottom of the case, but the top drawers run on a frame: two rails and four drawer runners. The runners are tenoned into the front and back rails. The tenons get glued into the front rail but are left loose in the back rail to allow for wood movement.

Finish panels before gluing in frames

A frame-and-panel back, although more work, gives as much diagonal racking resistance as plywood (unlike nailed ship-

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TIP

NAIL DOWN THE TAIL BOARD TO MARK PINS

Mark the location of the tails on the pin board. On long, wide workpieces, Becksvoort uses a small nail to help in the transfer. Align the boards and predrill. Tap in the nail partway so it can be easily removed (above right). Using a marking knife and working from the nailed corner, scribe the tails onto the pin board (below right). Pivot the tail board into alignment whenever necessary.

lapped, tongue-and-groove boards) and looks much better. Once the case and all the dividers are in place, make the frame-and-panel back, leaving it a little too wide so you can sneak up on the perfect fit with a block plane. I profile the four panels with a 22½° panel-raising bit. I pin the rails and stiles for extra support and a nice design detail. Then I sand the inside face and fit the back to the case. I glue the back in place, secure it with small brads, countersink them, and plug the holes.

Complete the base and profile the top

To finish the front of the case, miter and spline the three-piece base assembly, bandsaw the arches to the same radius as the sides, and glue it into place. A one-piece base would introduce cross-grain gluing and could self-destruct. This way, the base expands and contracts (up and down), while the case side it is glued to does not change in length.

Next, sand the entire case, and then cut the top of the case to size, allowing a ½-in. overhang on the front and on each side. Rout

Cut the pins and then glue the top and sides. *Spacers between the legs keep the assembly square while Becksvoort attaches the sub-top to the sides. To keep from marring the carcase with heavy bar clamps, he uses spacers on the top and cauls on the sides (left).*

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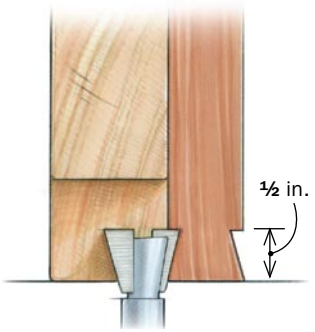
Pro method

HOW TO TAME LONG SLIDING DOVETAILS

Long sliding dovetails can bind and freeze during assembly, but not if you follow Becksvoort's steps closely.



Big workpiece is an added challenge. *A featherboard applies even pressure, keeping the long board on track and the cut precise. Go for a snug fit.*

the profile into the front and sides, sand the top, and screw it into place from underneath through the subtop.

Drawers are the final step

Before starting the dovetails on the drawers, groove the sides and front. Now lay out the tails, saw and chop them, and move on to the pins. I cut the pins and tails slightly proud and flush everything up with a belt sander after the drawers are glued. Knob holes also can be drilled at this point. I use a pencil to mark the tight spots and a belt sander to remove material as I carefully fit the drawers to their openings.

Insert the drawer bottoms, and hold them in place with two saw slots and roundhead screws in the underside of the drawer backs. The knobs are turned on the lathe, tenons cut to length, and then glued into place. My technique can be found in "Authentic Shaker Knobs," *FWW* #196.

Before applying a finish, I go over the entire piece to break and sand all edges including around the drawer openings, and the gaps between the frames and panels on the back. Then I sign the piece and give it three coats of an oil finish. The first coat is straight Danish oil, and the final two coats are a mixture of Tried & True varnish oil and spar varnish. □

Christian Becksvoort is a contributing editor.

Please don't freeze. *To prevent binding, don't use glue yet, and keep the bottom as straight as possible as you slide it in most of the way. Glue only the front 3 to 4 in. of the bottom; otherwise, the joint will seize while you are trying to bring the piece home. Use clamps to pull the bottom evenly and steadily. Clamping blocks that extend over the side keep the workpieces from getting damaged, but, more importantly, stop the bottom when it is exactly flush with the sides.*

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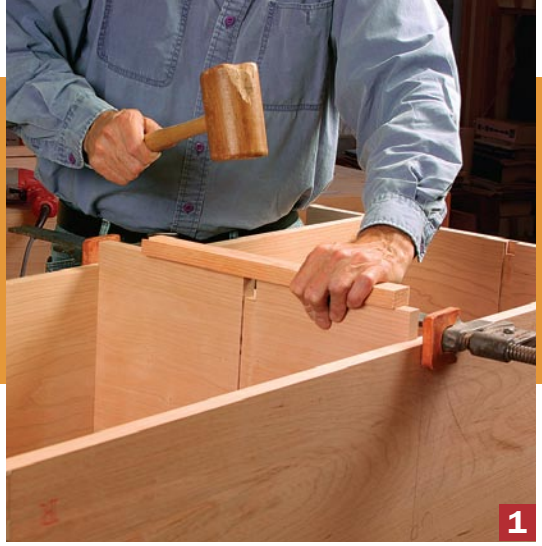
RAILS AND DIVIDERS GUIDE THE DRAWERS

This simple system keeps drawers from racking back and forth, tipping up, or dropping down.



1. *Fit the vertical divider, and tap it into position without glue. Screw it in from the top and bottom.*

2. *Fit the front rail and glue it into the sides and onto the vertical divider panel.*

3. *Install the four drawer runners. Apply glue only to the front tenons.*

4. *The back rail is glued into the dovetail slots and onto the vertical divider. The back mortise-and-tenon joints are not glued. This allows the web frame to telescope in and out as the case expands and contracts.*

5. *Fit the back. The end stiles extend beyond the bottom rail and become an integral part of the back legs. Use a block plane to sneak up on the fit before clamping and gluing.*

6. *Apply the mitered front base assembly. Add glue blocks afterward to strengthen the corner joints.*

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