



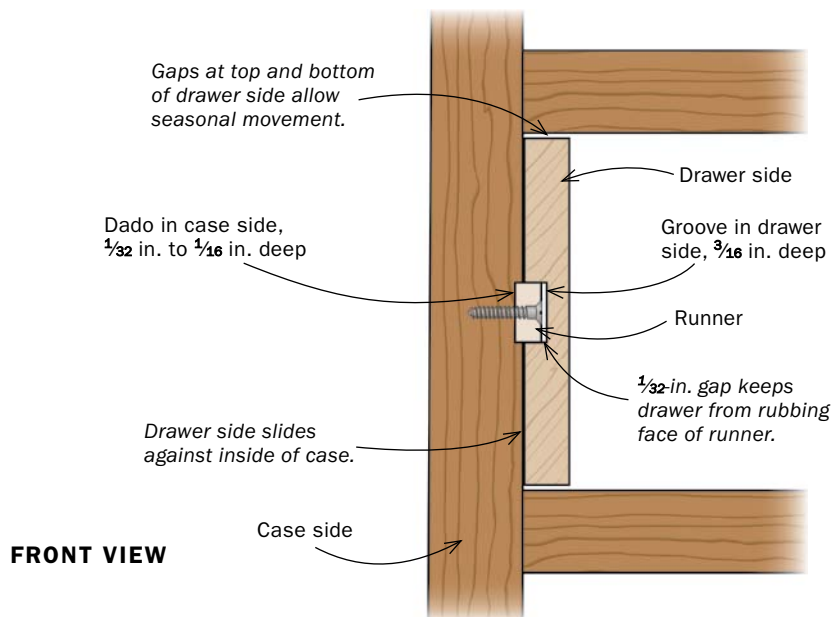
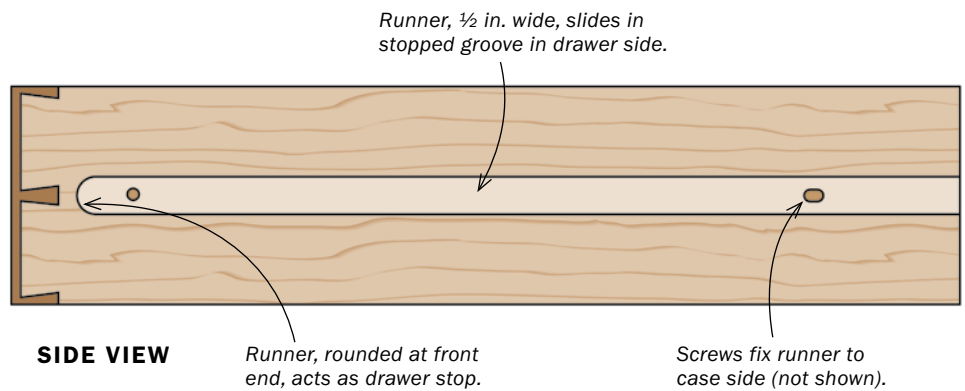
# Side-hung drawers

BUILD SMOOTH-SLIDING DRAWERS THAT SURVIVE THE SEASONS

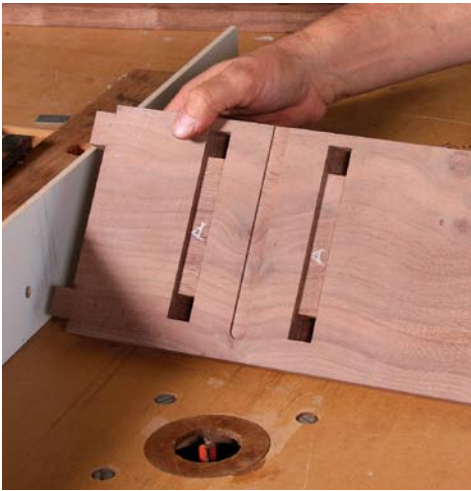
BY  
MICHAEL CULLEN

I learned to make drawers under the tutelage of David Powell, who trained in the 1940s in his native England at the renowned Edward Barnsley Workshop, where furniture was still made entirely by hand. As a result of his training, Powell could do handwork with extraordinary efficiency and accuracy. The drawers he made were simply beautiful, each one so elegantly constructed it could have been a jewelry box. The proportions of the parts and the spacing of the finely cut dovetails immediately drew your eye and conveyed a sense of purpose and permanence. And how they functioned! They slid with a velvety smooth action and without the slightest jog or rattle.

After emigrating to the United States in the 1960s, Powell altered his drawer design. The drawers he'd learned to build at Barnsley's, sized to fit the drawer pocket snugly in height as well as width, couldn't deal with wild swings in humidity, so he began making drawers that were grooved on the sides and slid on wooden runners. Since the seasonal movement of a solid-wood drawer is almost entirely in its height, Powell made his drawers so they still fit snugly side to side, but were suspended in the pocket with space for expansion above and below. This solved the humidity problem, and Powell found that side-hung drawers were also easier



# Mill the runners



**Rout for the runner.** To prepare for the side-hung drawers, Cullen routs the  $\frac{1}{32}$ -in.-deep stopped dado for the drawer runner.

to fit and smoother in operation. A side-hung drawer, he saw, could be pulled way out without pitching forward, and when pushed in, the runner would act as a stop. In addition, the usual wide gap above a drawer front was replaced with equal, narrow reveals above and below it. And with the drawer sides snug to the pocket, the runner was never visible. I've been using side-hung drawers for 30 years now. Here's how I make them.

## Do the dadoses

Begin by routing dadoses for the runners in the case sides. These are purely for location and can be as shallow as  $\frac{1}{32}$  in. You'll be screwing the runners into them, but don't be tempted to skip the dado and rely on screws alone—the dado offers insurance that the runner won't migrate over time. To keep from compromising the integrity of the case side, I never make these dadoses deeper than  $\frac{1}{16}$  in. While at the router table, cut two  $\frac{3}{16}$ -in.-deep test grooves—one stopped, one through—in a scrap piece. The test piece will help you fit the runners.

## Make the runners

Runners are best made from a dense, straight-grained hardwood like oak or maple, either rift- or quartersawn. Rough out blanks ahead of time so they acclimate to the shop. Make the blank wide enough



**Fit the blank.** Make a blank wide enough to produce all the runners you'll need. Plane the blank until it just fits a test groove.



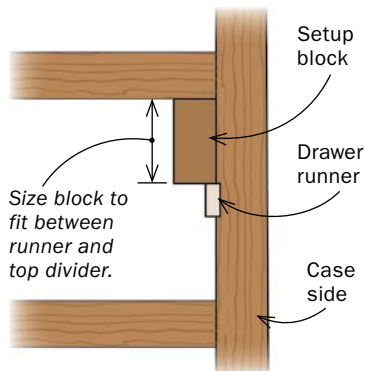
**Round the nose.** After slicing the blank into runners, sand the leading end round to match the end of the groove. Check the fit with a stopped test groove.



**Screwed, not glued.** Place the runner in the shallow locating dado in the case side, then fix it with screws. It's good practice to elongate the screw hole in back, for solid cases.

## Groove the drawer sides

**Size a block for setup.** Using a setup block to locate the fence on the router table, rout the runner groove in the drawer side in one pass.



**Contact the case, not the runner.** Leave a gap between the face of the runner and the bottom of the drawer groove. The drawer will be suspended on the runner but will slide against the case side.



**A little bit off the top and bottom.** After fitting the drawer sides tight to the drawer pocket, trim  $\frac{1}{16}$  in. off the top and bottom edges to allow for seasonal wood movement. Cullen gangs the drawer sides and trims them in the planer.



to slice into all your runners, and plane it so its thickness just fits the test groove, with little friction or play. Slice the blank into runners at the bandsaw, jointing the edge of the blank after every slice. For small drawers I make runners  $\frac{3}{16}$  in. thick by  $\frac{1}{2}$  in. wide; for large drawers  $\frac{5}{16}$  in. thick by 1 in. wide. Runners for medium drawers fall in between. At the disk sander, round the leading end of each runner with a few quick pivots. Check the rounding in the stopped test groove.

Then cut the runners to length, and drill and countersink them for flathead screws. The screw at the front should be an inch from the end of the runner; the screw at the back should be 2 in. or 3 in. from that end to provide clearance for screwing it in after the case is assembled.

### Groove the drawer sides

Next cut the stopped grooves in the drawer sides. The drawer should be ready to assemble at this stage, with all the joinery cut. For a middle-sized drawer like the one shown, the groove in the side needn't be more than  $\frac{3}{16}$  in. deep. Cut this stopped groove on the router table. Determine the location of the stopped end based on how deep you want the drawer front to sit in the case.

### Fit the drawer

The last and most important step is fitting the drawer; this should not be done

## Assemble and fit the drawer

**Clamp and trim.** After assembling the drawer box and letting the glue cure, plane the sides as needed to achieve a smooth, snug fit in the drawer pocket.



when you're tired or pressed for time. The drawer should fit snugly side to side in the drawer pocket at this point—it's good if there's some resistance to sliding. The trick is to figure out where the friction is. Unscrew the runners and see whether each one slides freely in its mating drawer groove. Next, check that the pocket is square and its sides parallel; do the same with the drawer. If everything checks out, begin handplaning the sides of the drawer, taking care to remove the same amount everywhere along the surface. Insert the drawer in its pocket and move it back and forth quickly; then, under a strong light, check the sides for burnished areas that will tell you where the drawer is hanging up. Plane off just a slight amount from these areas. Slow down and work ever closer to a perfect fit without going past it.

The last step, where I differ from Powell, is to add a very light coat of shellac and wax to the outside of the drawer side and the inside of the case. With the wax buffed, pull out the drawer and push it closed with one finger placed to one side. The drawer should slide back into the case without hesitation. This is a side-hung drawer with a piston fit. □

*Michael Cullen carries on English Arts and Crafts furniture traditions in Petaluma, Calif.*



**The front is last.** With the sides trimmed to fit, carefully plane the edges of the drawer front to achieve narrow, even reveals on all four edges.

