Different Spin on Drawers

Add a twist to your furniture with a swing-out drawer

BY GARRETT HACK

I'm always trying to find amusing and different ways to incorporate drawers into my furniture. I've even made a drawer within a drawer. But one of my favorites is a drawer that spins out. Its surprising opening action is simply fun. Spin-out drawers work well in a square opening, as I'll demonstrate here, but they're also useful in situations where traditional slides and guides would be cumbersome, such as in a curved cabinet, where the pocket isn't rectangular. However, because the single pivot point replaces traditional runners, this drawer design is meant for light-duty work.

The challenges in building a spin-out drawer are drilling a precise pivot hole in the drawer front, laminating the curved side to the right shape so that the drawer opens without binding, and cutting joints for a non-rectangular drawer. I enjoy the process. I'll illustrate it from start to finish using a small table as an example.

When incorporating a spin-out drawer into a piece, you need to start with a plan, or top, view of the drawer pocket. This drawing will guide all the work, from locating the pivot point to making the curved form to laying out the joinery.

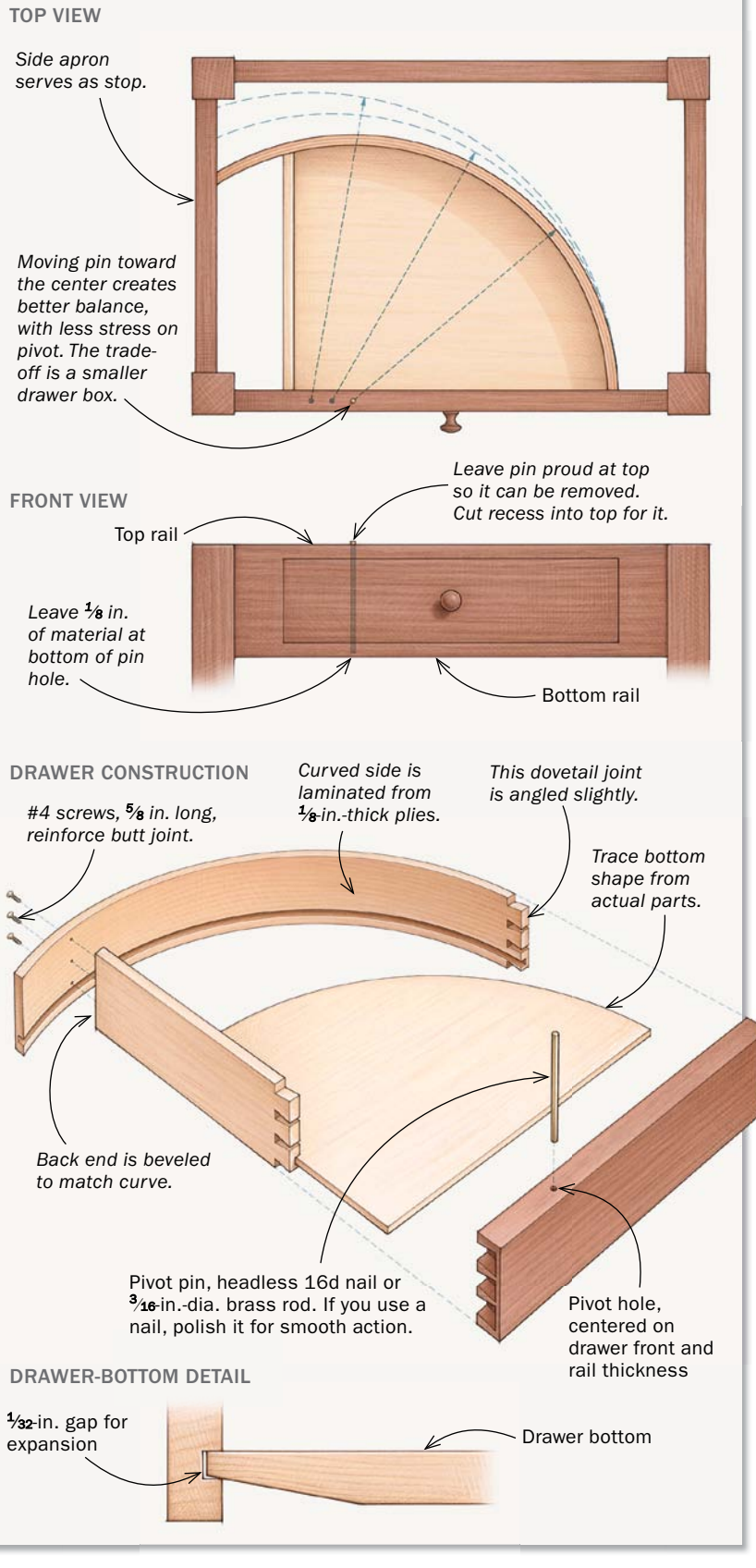
Set up the pivot point

For the pivot pin, you can use a brass rod or even a 16-penny nail. Size the hole so that the pin fits snugly but is still able to turn. To ensure that the pivoting action is

Photos: Thomas McKenna; drawings: Christopher Mills

TOP VIEW PLANS THE ACTION

A top-view drawing of the drawer pocket is critical to laying out and drilling the pivot point in the front apron and drawer front. It also determines the bending form for the curved drawer side, and it is vital to finding the lengths of parts and the angles at which they meet.

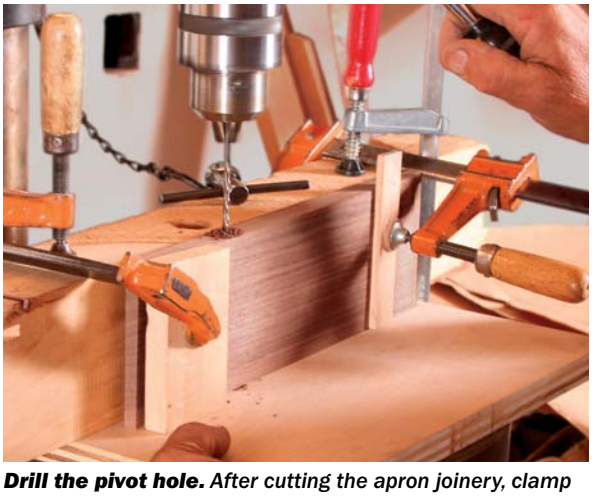


DRILL A PERFECT PIVOT

For smooth action, you must drill the pivot hole straight and true. Hack gets it perfect by drilling through all the parts at once.

First, cut out the front. *Rip and crosscut the drawer front from the apron board. This method also yields a perfect grain match between parts.*

Glue the apron back together. *Insert the drawer front in the opening and push the ends of the apron in until you get a snug fit. Then tighten the clamps.*



Drill the pivot hole. *After cutting the apron joinery, clamp the apron and drawer front to a tall fence that's squared to the drill-press table. You'll need a long bit, but don't go all the way through. Leave at least ⅛ in. of material between the bottom of the pin hole and the bottom of the lower rail.*

EASY WAY TO BEND WOOD

Hack makes the curved side by bending and laminating bandsawn plies on a form. His form is a glued-up block of pine, shaped to a smooth curve. He makes the arc of the curve more severe to allow for springback, and relieves the inside edge for clamping.

MAKE THE FORM

Cut out the curve. *With the pattern attached to the blank, rough out the form. Make sure that the bandsaw table is square to the blade.*

Fair the edge. *Smooth the form's curve using a block plane. Be sure the curved surface remains square to the top and bottom faces.*

LAMINATE THE PLIES

Resaw madness. *Make each layer roughly ⅛ in. thick, ⅜ in. to ½ in. wider than needed, and 2 in. longer. Rejoint the stock after each cut.*

Erase sawmarks. *Use a smoothing plane to clean up the sawmarks on the resawn face of each lamination.*

Bend away. *After brushing glue onto the plies, use a flat benchtop to align them with the bottom of the form, then clamp them in place.*

smooth, the hole must be perfectly vertical and centered in the thickness of the apron. To do that, I drill through all the parts at the same time, clamping the assembly to a fence on my drill press (see photos, p. 57). Now it's time for the curve.

Laminate the curved side

To make the curved side, you'll need to make a small bending form, based on the plan view. When laying out the arc for the form, I tighten the bend at least 3/16 in. on each end to allow for springback (when the arc of the laminations flattens out after unclamping from the form). Trace the arc, exaggerating the bend as mentioned, and attach the drawing to the blank. Cut it to shape on the bandsaw and fair the shape with a block plane. Be sure to keep the form's sides perpendicular to the top and bottom as you fair it; otherwise, you'll introduce twist in the lamination. Once you have the outside curve nice and smooth, cut away the inside of the form, roughly parallel to the outside, to give a solid registration point for the clamps.

I resaw the ⅛-in.-thick plies on the bandsaw. To laminate the side I use yellow glue, which has a limited open time. But with such a small lamination, the short open time isn't an issue.

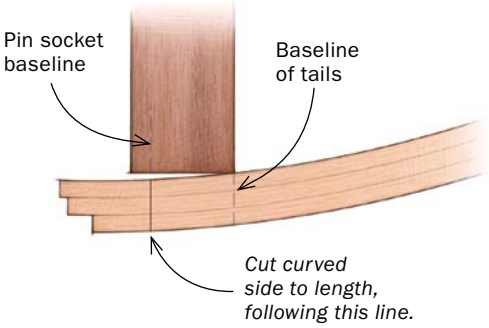
Once the glue dries, true up one edge of the lamination. I often joint the edge with a handplane, but a jointer works too. Now rip the lamination to rough width on the bandsaw, running the jointed edge

Rip it to width. *Cut the curved side to width on the bandsaw and clean up the edges with a jointer or handplane.*

CUT THE FRONT AND CURVED SIDE TO LENGTH

The curved side and the drawer front meet at a slight angle. Hack angles the end of the drawer front with a block plane and cuts the side to the right length and angle using a handsaw.

LAY OUT THE DRAWER SIDE LENGTH



against the fence. Cut the straight side of the drawer to width, and you're ready to work on the joinery.

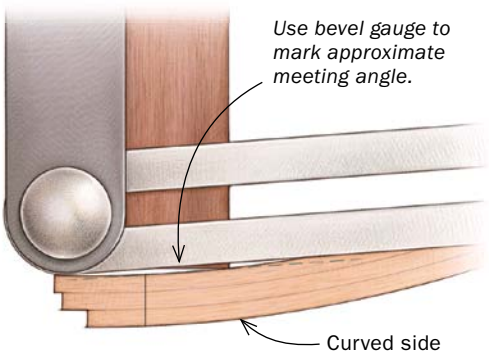
One angled dovetail joint

The curved side meets the drawer front at an angle, which means the dovetails are angled, too. Before you cut the joinery, though, you have to trim the parts at the correct angle (see photos, right).

Align the parts on the top-view drawing. Mark the baseline of the pin sockets on the drawer front and transfer that mark across the curved side. Use a square to bring those lines all the way around the side.

Now use a bevel gauge to scribe the approximate meeting angle of the two parts on the end of the drawer front. Plane the front to those marks. Use a crosscut saw to cut the curved side to length, following the layout lines. Clean up the cut with a block plane. Lay out and cut the joint by hand

MARK THE DRAWER-FRONT ANGLE



Use the plan view as a guide. *Place the front and curved side on the plan (top) view. Mark the baseline of the pin sockets on the front and put a tick mark on the top edge of the curved side.*

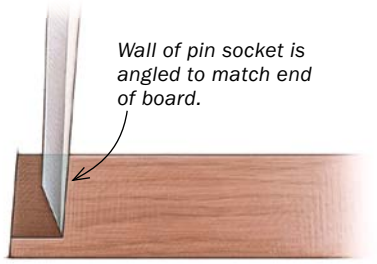
Continue the line. *Extend the mark across the top edge of the curved side (left), keeping the rule parallel to the face of the drawer front. Then bring the lines all the way around the side using a square (right). You'll follow these lines as you cut the side to length.*

Angle the front. *Use a bevel gauge to mark the angle on the end of the drawer front. (You'll use the same setting to mark the inside wall of the pin sockets.) Extend the line around and plane the end flush to it (right).*

HANDWORK BEST FOR ANGLED DOVETAILS

The best way to cut the angled dovetail joint where the curved side meets the front is by hand. Chop and pare the pin sockets at an angle, then lay out and cut the tails.

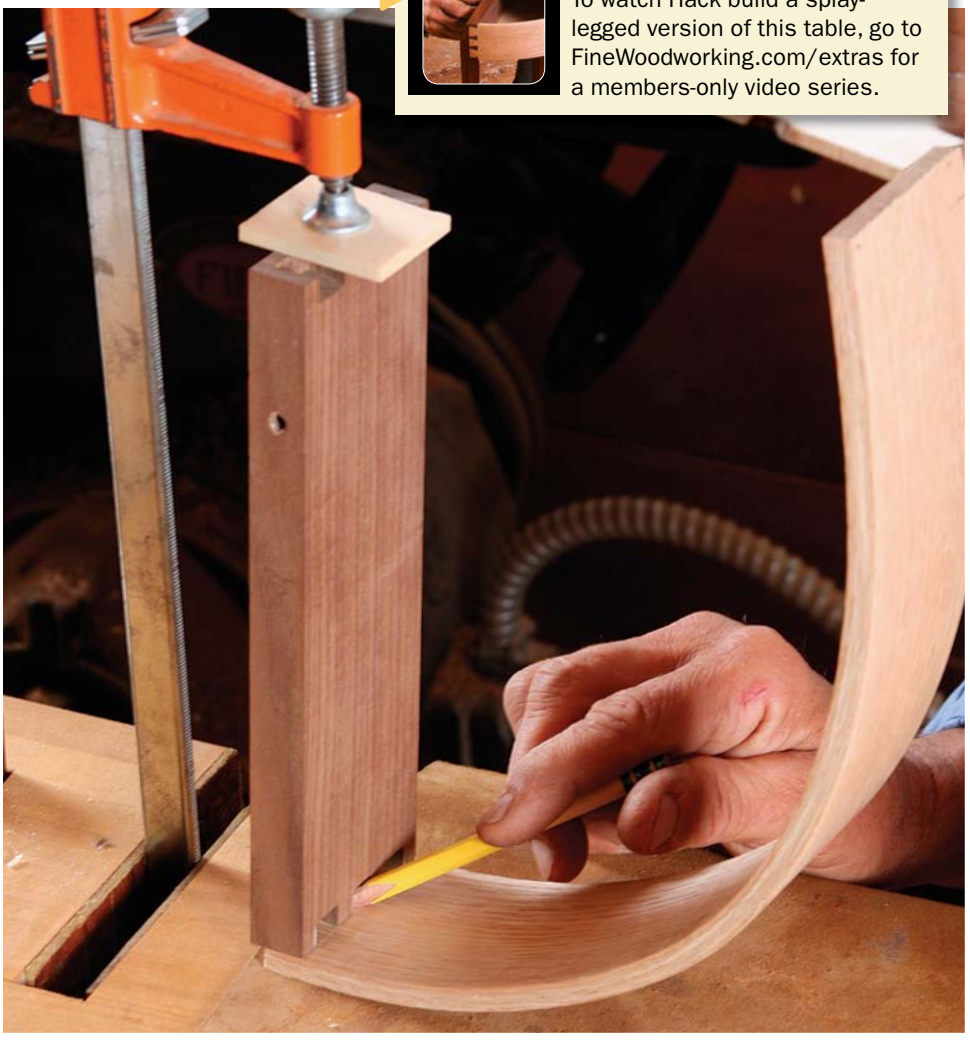
ANGLED SOCKET



Chop and pare. *Hold the chisel at an angle and follow the layout lines carefully. If needed, you can use a bevel gauge to eyeball the chisel angle.*

VIDEO WORKSHOP

To watch Hack build a splay-legged version of this table, go to FineWoodworking.com/extras for a members-only video series.



Mark the tails. *Cut the curved side to length, which is best done with a handsaw, then scribe the baseline of the tails. Clamp the drawer front vertically to mark the tails. Don't forget to cut the normal half-blind dovetails on the other end of the drawer front and transfer their layout to the straight drawer side.*

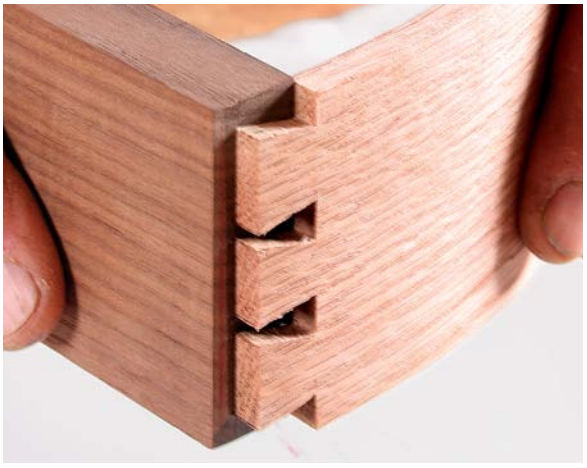
(see photos, left), starting with the pins. After you finish the curved side, dovetail the straight side to the front.

Trapped bottom eases assembly

I used to notch the curved side and slide the bottom in, but I wasn't happy with the process or the look. A better way is to make the drawer with a trapped bottom, allowing it to float in its grooves and leaving enough room for expansion—a gap of 1/32 in. to 1/16 in. in each groove, depending on the season. Overall, this method creates a stronger drawer box and also makes the glue-up easier, as the bottom helps stabilize the assembly.

To make the bottom, dry-fit the front and curved side and trace their inside profiles on the stock. Now dry-fit the straight side to the drawer front and lay the assembly along the layout marks on the bottom. Make sure the front corner is square, then trace a line inside from front to back.

Cut the tails. *Cut to the baselines on both drawer sides, clear the waste with a coping saw, and pare with a chisel.*

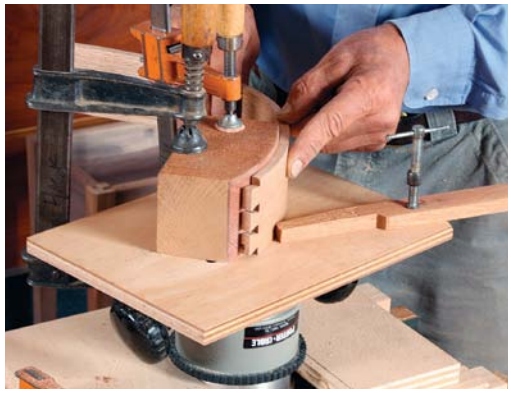


A nice fit. *With careful handwork, you'll have perfect joints in no time.*

FIT THE DRAWER BOTTOM

The most precise way to cut the drawer bottom is to first trace the drawer's shape on the stock using the dry-fitted parts. Don't forget to add the groove depth.

Trace the dry-fitted parts on the drawer bottom. *Extend the lines to account for the groove depth. Use the first mark to cut the straight side to length, then bandsaw the bottom to size.*



Curves need a curved fence. *The bottom grooves are cut with a three-wing cutter. For the curved side, Hack uses a fence that's shaped to match the inside curve of the side. A finger-board clamped to the router table ensures a consistent depth.*

Rear reinforcement. *Once the drawer box is glued up, screw the curved side to the straight side.*

Now's a good time to mark and cut the straight side to length. Use a block plane to bend the end of the side so that it meets the curved side seamlessly. Once that's done, cut the grooves in the parts and cut and fit the bottom to them. After that, drill the hole for the pull and glue and screw the drawer together.

Get spinning

With the drawer built, cut the end of the curved side to length so that the front is flush to the rails (see photo, right). Now put the drawer in the opening, with the pivot pin in place, and test the action. Use a block plane to fix any binding and to fine-tune the end of the curved side so that the front is perfectly flush.

Now install a pull, and I'm sure you will open your drawer more than a few times, intrigued with its fun action. Your friends and family will, too. I guarantee it. □

Contributing editor Garrett Hack is a woodworker in Thetford Center, Vt.

FINE-TUNE THE FIT

The side apron is the stop. *To ensure that the drawer front is flush with the rails, place the drawer on top and insert the pin. Align the front flush, and mark the curved side where it meets the side apron. Cut the side with a handsaw and then trim the cut with a block plane until the drawer front is flush when it's closed.*