Full-Extension Wooden Slides

Shopmade hardware designed to fit any drawer, large or small

BY CHRISTIAN BECKSVOORT

I admire the resourcefulness of shopmade hardware. If it's entirely made of wood, all the better. I discovered full-extension wooden slides on an antique chest of drawers I restored. They are beautiful in their simplicity and can be made almost any size.

Full-extension slides are necessary whenever access is required all the way to the back of a drawer (file drawers and card catalogs, for example). The drawer must be held in a fully open position and should be easy to remove. This system of wooden slides meets both criteria.

There are a few rules to follow when making these slides. First of all, the drawers must be 15⁄16 in. narrower than the opening. The drawer must have an applied front, obviously, to cover the gap. The carcase must be built with solid vertical dividers or sides, which provide an attachment point for the slides, and horizontal dividers, which may be solid or open web frames.

The slides may be as tall as the drawer sides. For light-duty cases, you may wish to make the slides narrower, about two-thirds the drawer height. For very deep drawers, such as files, there's no need to make the slides any wider than 6 in. At that dimension, they will provide plenty of strength. For inset drawers, the slides must be ¼ in. shorter than the total length of the drawer sides (do not include the applied front when measuring the drawer length).

To make a pair of slides the same height as the drawer, mill two pieces of 7⁄16-in.-thick hardwood ⅜ in. wider than the actual drawer sides and the correct length. Measure about a third of the way across one piece, set the rip fence for that dimension and rip all of the stock in two. The exact width doesn't matter as long as everything is cut at the same setting. Put the narrow pieces aside and work on the wider halves, which will become the lower slides.

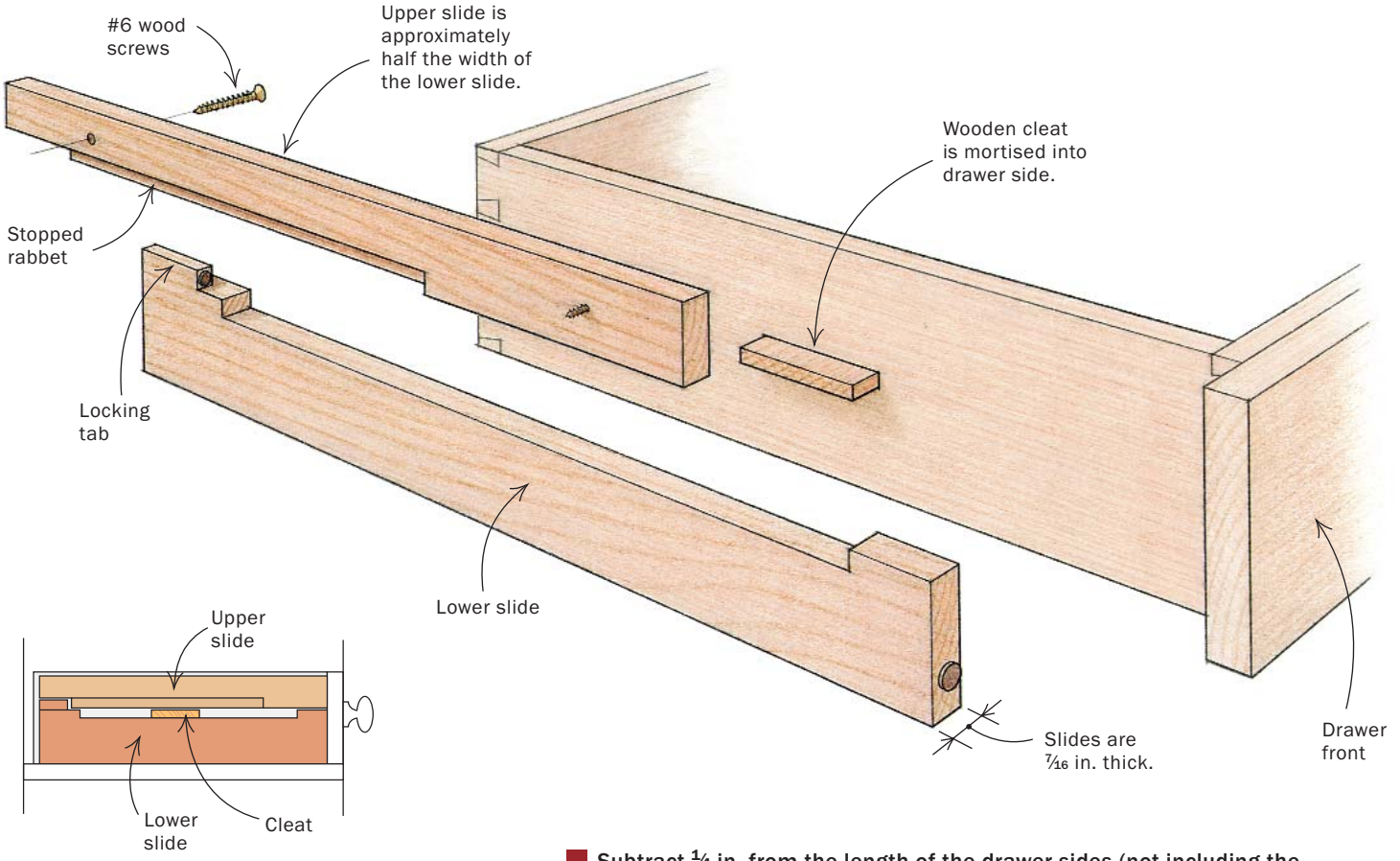
(If you're wondering how the slide parts end up becoming the same height as the drawer, here's what happens: The saw kerf will reduce the width of the stock by ⅛ in.; and once the parts are machined for the mechanical connection, the slides interlock, reducing the width by another ¼ in., for a total reduction of ⅜ in.)

Begin with the lower slides

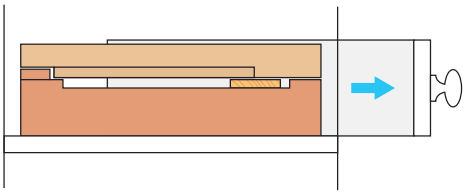
Start by cutting a rabbet 3⁄16 in. wide by 5⁄16 in. deep along the entire length of each lower piece (for more on making the lower slides, see the photos on p. 76). Next, set your tablesaw blade for a 9⁄16-in.-deep cut. Set a slide or slides (same-side slides may be ganged to-

Photos, except where noted: Vincent Laurence; this page: Michael Pekovich

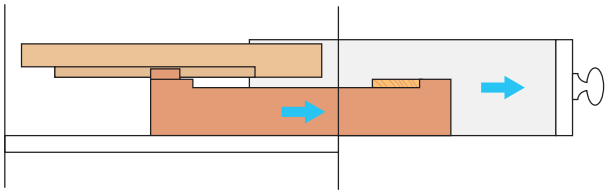
HOW THE SLIDES WORK



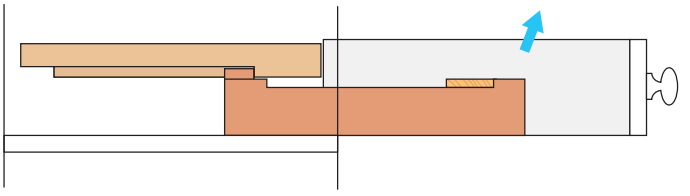
Subtract ¼ in. from the length of the drawer sides (not including the applied front) to arrive at the correct slide length. The heights of the slides may be equal to or less than the drawer height. The drawer cleat position is determined once the slides have been installed in the carcase.



1. As the drawer slides out, its cleats engage the lower slides.



2. The drawer and lower slides continue moving until the tabs on the lower slides reach the ends of the stopped rabbets in the fixed upper slides.



3. The drawer can be lifted off the slides when fully extended.

gether) against a miter gauge or sled and make two crosscuts, one 15/16 in. from one end and another 1¼ in. from the opposite end. Remember that the left and right slides are mirror images of one another. In other words, while making the crosscuts, the rabbet will be facing the blade for one slide and facing the miter gauge for the opposing slide.

Set up a couple of stops along your saw's rip fence and carefully cut away the rabbet between the notch. Clean up the corner of the rabbet using a handsaw and chisel. Go back to the tablesaw and make another crosscut on the stepped portion of each slide, ⅞ in. from the back and as deep as the rabbet, then remove the waste on the bandsaw to create a locking tab at the rear of the slide. This step engages with the rabbet on the upper slide and keeps the drawer from tipping out. Finally, go back to the tablesaw and rip off the portion of the step on the front of each slide that protrudes above the rabbet.

Machine the upper fixed slides

As with the lower slides, the uppers should be mirror images of one another (for more on making the upper slides, see the top

Drawings: Michael Pekovich (left); Vince Babak (top)

MAKING THE LOWER SLIDES

1 CUT RABBET

Begin work on the lower half of the slides. *Machine a full-length rabbet 3⁄16 in. wide by 5⁄16 in. deep.*

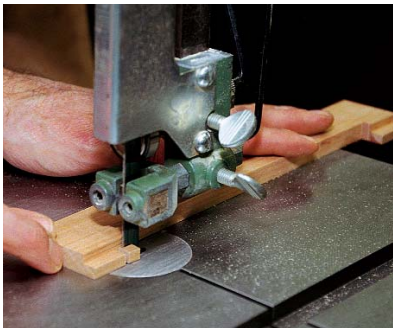
2 CUT NOTCHES FOR DRAWER CLEAT

Set the tablesaw blade for a 9⁄16-in.-deep cut. *Make crosscuts 15⁄16 in. from the front and 1¼ in. from the rear of the lower slides. Left and right slides are mirror images of one another.*

Using stop blocks, make a rip cut along the rabbet to remove the center portion. *Be sure to stop short of the notches. Finish the rip using a handsaw.*

3 DEFINE THE LOCKING TAB

Make another notch. *Set the notch 7⁄8 in. from the rear of the slide and as deep as the rabbet.*



Remove the waste behind the notch. *The locking tab engages with the upper slide and keeps the drawer from tipping.*

4 TRIM THE UPPER STEP

Remove the upper step at the front of the slide. *The step is removed right down to the base of the rabbet.*

photos on the facing page). First joint the edges to remove the saw marks. Then lay out and cut a stopped rabbet—¼ in. wide and 5⁄16 in. deep—in each slide equal to two-thirds its length, measured from the back. The rabbet must be located on the carcase side of each slide. One way to ensure this happens is to mill opposite slides on opposite sides of the tablesaw's rip fence using a stop block. Square up the rabbets using a handsaw and chisel.

At the back end of each slide, make a notch by cutting off 1 in. from the thin wall of the rabbet. The notch allows the other half of the slide to be inserted or removed. Drill and countersink two or three screw holes on each slide, going in from the sides that will face the drawer.

Fit together the two left pieces and the two right pieces, flat on the benchtop. Use a 1⁄16-in. spacer to separate each pair, and compare them to the height of the drawer sides. If necessary, trim the bottoms of the movable slides so that the total height (with spacers) is equal to or less than the height of the drawer sides.

Install the slides and check the action

Make sure the slides are lightly sanded and that all sharp edges are broken. I like to add leather bumpers to the slides. Cork or rubber discs would work just as well. The bumpers are applied to all of the parts that bump into one another.

Place an upper and lower slide inside the drawer housing. The movable slide rests on the bottom of a divider. Place the fixed slide atop it, being sure to use a 1⁄16-in.-thick temporary spacer between them. Now maneuver the lower slide (the one with the bumpers) so that the distance from the front bumper to the edge of the carcase equals the thickness of the drawer front. Clamp both slides in place, keeping the upper slide in line with the lower (wood to

MAKING THE UPPER SLIDES

1 CUT THE STOPPED RABBET

Stopped rabbet engages locking tab of lower slide. *The rabbet, ¼ in. wide by 5⁄16 in. deep, runs two-thirds the length of each upper slide.*

Square the corners of the stopped rabbet. *Remove the waste using a chisel.*

2 CUT THE CLEARANCE NOTCH

Cut a notch at the rear of the upper slide. *The notch is 1 in. from the back and as deep as the rabbet.*

wood, not wood to bumper). Screw the upper slide to the case and remove the spacers. Do the same for all of the slides.

The action of the slides should be smooth, with only 1⁄16 in. of vertical play. When pushed all the way in, the lower slides may be tilted out via the small notch at the rear of the upper slide.

Drawer cleats are added last

Once the slides have been completed, locate and install the cleats (see the photos below right). Pull out a pair of slides as far as they will go. Fit the drawer between them so that the inside of the drawer back is flush with the outside of the case. This is the fully extended position. Clamp the drawer so that the bottoms of the slides and the bottom of the drawer are flush. With a sharp pencil, mark the top of the slide (horizontal) and the step (vertical) on both sides of the drawer.

The antique cabinet that I used for a model had brass cleats set into the drawer sides. Aesthetically, I don't like the look of the metal in the middle of the drawer sides nor the green metallic streak it leaves on the slides. Instead, I use hardwood cleats, the same species as the drawer sides and slides.

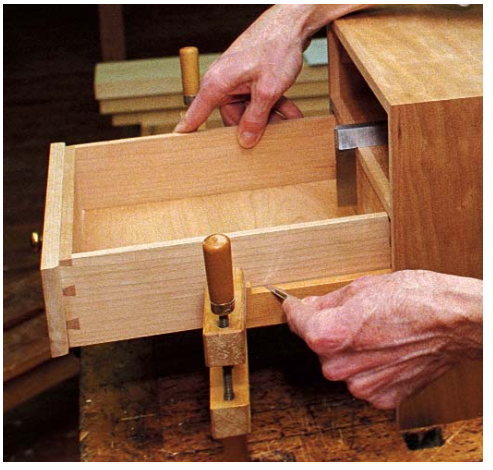
Make each cleat ¼ in. thick by 1½ in. wide. For drawers ½ in. thick or less, I make the cleats about 9⁄16 in. long and cut mortises 3⁄16 in. deep into the drawer sides, which leaves 3⁄8 in. of cleat exposed. For thicker drawers, the cleats may be longer; be sure to cut deeper drawer mortises, too. Glue the cleats in place.

When the glue has set, position the drawer back in its opening, lower it onto the slides and shut it. Now pull it out. It should ride smoothly and stop in the fully extended position. (Use a little paste wax if parts stick.) The drawer back will remain in the opening, while the cleats resting on the slides support the weight. If fine-tuning is needed, a little bit of material may be removed (or added) to the front steps of the lower guides.

I think these wooden slides are a pleasing alternative to using metal hardware on fine pieces, whether they're antique or contemporary, small or large. □

Christian Becksvoort is a contributing editor.

LOCATING THE DRAWER CLEATS



After installing the slides in the case, mark the cleat locations on the drawer. *Clamp the drawer at full extension and trace along the step and lower slide.*

Cut mortises into the drawer sides. *Once the cleats have been glued in place, the drawer is ready to be used.*