Sliding dovetails are clean-looking and strong, and I use them in cabinets, chests, tables, and more. They allow unique construction, letting me join case sides directly into a top that overhangs them or make a drawer with an overhanging front. Best of all, sliding dovetails are fast and easy to cut with a router.

But there's a problem. When glue hits these joints, they tend to swell, which can leave you permanently stuck mid-glue-up, especially on wide pieces. You can prevent this by leaving the fit a little loose, but that weakens the joint and can look sloppy.

The solution is to taper one edge of the dovetail and the corresponding edge of the slot. The beauty of a sliding dovetail is that it doesn't tighten up until it is slid all the way home. Though it might seem hard to get perfectly matching tapers, the whole process is easier than you think.

I use this joint most often on solid-wood cases that are deeper than 10 in. or 12 in. On chests of drawers, I use it to join the sides directly into the top, and for installing a solid shelf (instead of a web frame) at the midspan to help keep the case sides from cupping. And on cases where the sides extend down to the floor, the tapered sliding dovetail is the best way to insert a solid bottom.

The payoff is huge: new design and construction options, stress-free assembly, and unmatched strength.

Two options: seen or unseen

There are two variations of the joint—through and stopped. I designed this small stand to show how to cut each version, and to illustrate that this valuable joint is good for more than just big dressers. Tapered sliding dovetails let me use solid panels for every part of this piece, keeping construction clean and simple.

In practice I prefer the stopped version of the joint. The slot stops before it reaches the front edge and the dovetailed panel gets inserted from the back. The dovetail is notched in front to fit the stopped slot, which hides the joinery and means you don't need a perfect fit. In fact I sometimes

Photos: Asa Christiana

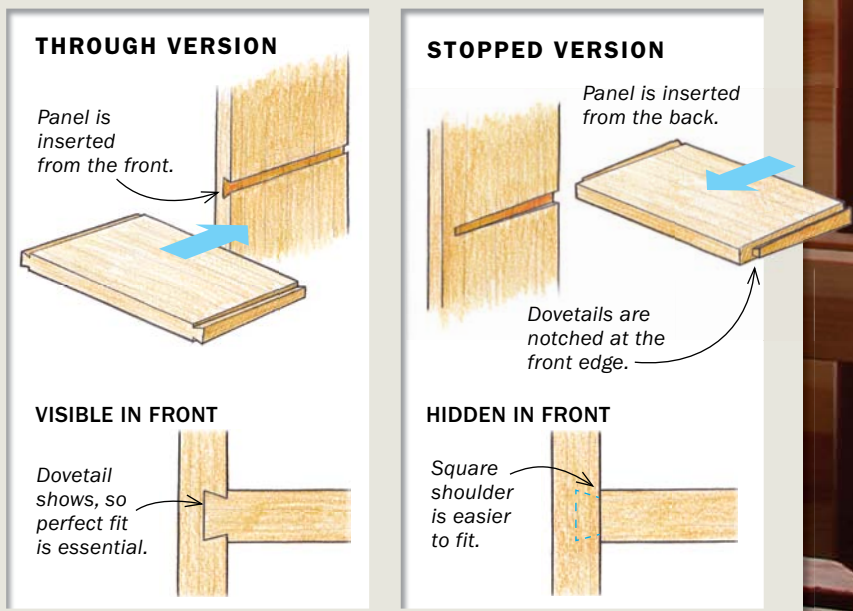
Tapered Sliding Dovetails Are Easier than You Think

This wonder joint simplifies assembly and makes cabinets bombproof

BY TIMOTHY ROUSSEAU

THROUGH VS. STOPPED

Rousseau made this small stand to demonstrate two versions of tapered sliding dovetails. The shelves have through-dovetails while the top dovetails are stopped.

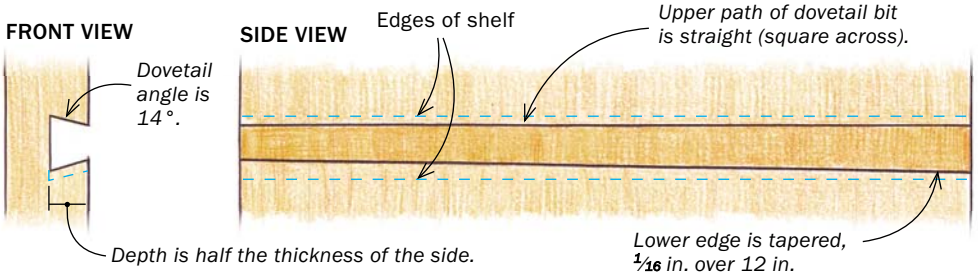


Through-dovetail

Start with the slot

ANATOMY OF THE JOINT

The straight side of the dovetail slot is easier to rout cleanly, so that goes on the top edge, where any gaps along the shoulders would be obvious.



LAYOUT BEGINS AT THE FRONT

With the through version of this joint, the panels (in this case, shelves) slide in from the front. That's also where layout starts.

Outline the slots. *After marking the top and bottom edges of the shelf, mark the width and depth of the slot. Note that each edge of the slot is inset 1/16 in. from the shelf edges.*

Angles match bit. *Rousseau uses a 14° bit for sliding dovetails, and lays out the sides of the slots to match.*

EXTEND THE LINES ACROSS THE FACE

These mark the edges of the slot, and are critical for setting up the router jig.

One straight, one tapered. *Now that you know the entry point of the top of the bit, extend a square line across the inside face of each case side (left). To mark the tapered edge of the cut (above), use a long wedge that matches the taper, in this case 1/16 in. over 12 in. To avoid confusion, Rousseau boldly marks the fat end of the wedge.*

leave the dovetail a little short of bottoming out in the slot, so it is sure to pull the shoulders tight, which is the part of the joint that you do see. If you prefer to see the joinery, use the through-dovetail. Since the tapered end of the joint is off center, hide that end at the back. So taper the joint toward the rear and insert the panel from the front.

One important note: With any type of sliding dovetail, you should do most of your surface prep before cutting the joints. If you do heavy planing on the inside faces of the workpieces afterward, you'll open up gaps at the joints. Save only light scraping and sanding for the end.

Lay out and cut the slots first

Cut the slot first, because it is easier to trim the dovetail to fit afterward. Only one edge of the joint is tapered, and it's easy to lose track, so I lay out every part of each slot and mark the tapered edges with an angled line nearby. Because of the way you rout the dovetail, it is easier to rout a clean shoulder on the straight edge. So I locate the straight edge on the top side of shelves, which will be more obvious to the viewer. Let's start there, with the through-dovetails that connect the shelves to the case sides.

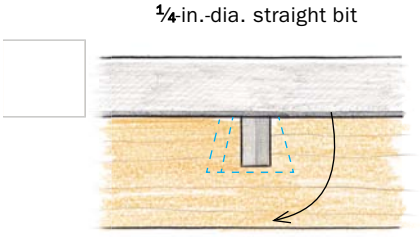
Clamp the two sides together, face to face. Using a sharp pencil with hard lead, draw two lines across the front edges to

ROUT THE SLOTS IN THREE PASSES

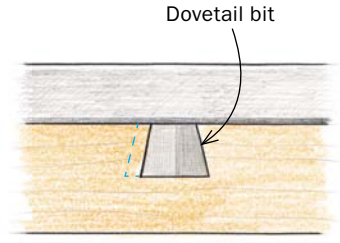
Cut the straight and tapered sides of the dovetail slots using a router jig. One of the passes is a climb cut, so the jig's two rails must hug the router base to keep it from wandering.

Steer clear of the lines. *Set a straight bit a little short of full depth and stay close to the straight side of the dovetail slot. Use double-sided tape to attach a straight stick to the front fence to record the path of the cut. Rough out all the slots before switching to the dovetail bit.*

1. REMOVE THE WASTE



2. ROUT THE STRAIGHT EDGE



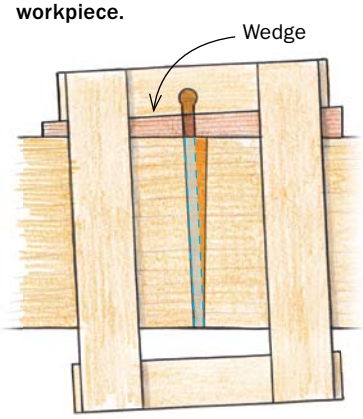
Change bits. *Insert the dovetail bit and make a cut through the stick attached to the fence.*

Setup is easy. *Just align the slot in the fence with the straight side of the slot on the workpiece.*

Rout all of the slots. *As before, wedge a board at the back to prevent blowout.*

3. ADD THE WEDGE FOR THE TAPER

To duplicate the slot's taper angle, insert the layout wedge between the fence and workpiece.



Same setup trick. *Replace the stick with the wedge, taped to the fence. Rout through it, and use the cut to align the jig with the tapered edge of the slot. Note the slash on the workpiece that indicates the tapered edge of the slot.*

Rout all of the slots. *Complete each of the slots by routing their tapered edges. Get as close to the pencil line as you can. You'll fit each joint individually.*

Drawings: John Tetreault

Cut tails on the router table

Rout the tapered side first, dialing in the fit of the dovetail when cutting the straight side. Rousseau adds a zero-clearance panel to the router-table fence to prevent chipout and a layer of slick MDF to the table to ensure smooth travel.

Adjust the bit height. *Rousseau tapes an extra layer of MDF to his router table to even out bumps, so he includes that when setting the bit height.*

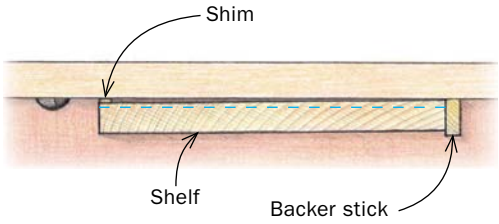
represent the total thickness of each shelf. Now make two marks 1/16 in. inside the two lines already drawn. These marks show the maximum width of the dovetail joint. The case parts here are all 3/4 in. thick, so the dovetails will be 5/8 in. wide. It's good to have the dovetail narrower than the shelf, so you don't risk little flats on the corners. Once the dovetails are laid out on the front edges of the workpieces, carry the lines across the inside faces. One line is straight and one is angled. The taper angle I use is 1/16 in. over 12 in. That works out to about 1/3 of a degree. To ensure consistency, I lay out the tapered edge with a long wedge.

I cut dadoes and dovetail slots with a souped-up version of the classic T-square

TAPERED EDGE FIRST

SHIM EQUALS AMOUNT OF TAPER

Use dial calipers to measure the difference between the width of the front and back of the groove, and handplane a shim to that thickness, including the tape you use to attach it to the workbench and workpiece.



Attach a shim. *Lay out the dovetail on the front end of the workpiece, and attach a shim at that edge using double-sided tape. On some dovetails, the shim will go on the back edge.*

Creep up on the layout mark by moving the fence. *Then rout all of the workpieces at that setting, attaching the shim where needed. Note the extra stick at the rear to prevent chipout.*

ROUT THE STRAIGHT EDGES ONE AT A TIME

This cut is simpler, as the workpiece rides flat against the fence, and this is where you'll fit the overall joint. Since each slot will be a little different, each dovetail has to be fit individually.

Use a test piece. *It must be the same thickness and width as the real thing. Rout its tapered side with the shim setup, and then flip the workpiece to rout the straight edge.*

Start with the widest. *See which slot allows the test piece to slide in farthest, and fit that joint first. Adjust the router until the dovetail goes in all but the last 1½ in. with hand pressure.*

Now the real workpiece. *Identify the dovetail that corresponds to that slot, and rout its tapered side. Now follow the same process for the next widest slot, and so on.*

dado jig (see p. 41). My first step is to remove most of the waste with a ¼-in. straight bit, staying inside the pencil lines. While the bit is in the router, make all four waste cuts for each slot. Then I load up a ½-in.-dia., 14° dovetail bit and set its depth to match my layout lines. Make separate passes to rout each edge of the slot. Do the straight edge, then use the layout wedge to set up the jig for the tapered edge. Just work to the pencil lines. Because of the fitting process later, you don't have to make every slot exactly the same. Do not unlock the depth setting until both edges of every slot are routed in the case sides. For accuracy, it helps to attach dust collection to the router, keeping its path clear. Also, if the final cut is a climb cut, hold the router firmly.

Do the tails on the router table

On the dovetails, you'll rout the tapered side before the straight one, as it is easier to fine-tune the straight side afterward for a good overall fit. The long wedge used earlier won't work for setting up this tapered cut on the router table. Instead, make a

Fit the joints by hand

Off the router table, each dovetail should slide in all but the last 1½ in. or so for hardwoods. During final fitting, the goal is to get them as close as ½ in. before assembly.

Tap test. *Push each panel in as far as it will go, and tap its sides. You'll hear and feel rattles where the fit is loose. Concentrate your fitting on the tight areas at first, and then make full passes along both sides.*

TWO WAYS TO TRIM

Sanding block. *Rip a block to the dovetail angle, and attach P80- or P100-grit sandpaper to its angled edge.*

Specialized handplane. *Rousseau added a 14° wood fence to his Lie-Nielsen side rabbet plane. He prefers this tool for trimming dovetails.*

Online Extra

To see how Rousseau hot-rods a handplane for tapered sliding dovetails, go to **FineWoodworking.com/extras.**

Fit each joint individually. *Trim each dovetail until it slides in all but ½ in. of the way with hand pressure only. Softer woods can stop shorter.*

Stopped dovetail

Layout starts at the back

Like before, the slots are cut before the dovetails. But with the stopped joint, the slot stops short, the front edge of the tail is notched, and the parts are slid in from the back.

ROUT THE SLOT

Layout first. *Start at the back edge. From there, layout is the same as before, aside from the additional mark for a stopping point.*

Rout a stopped slot. *The three passes are the same, but you'll stop each one at a pencil mark. Square the end of the slot with a chisel.*

FIT THE DOVETAILS

Measure the taper differently. *At the open end, you can measure the actual slot. At the other end, you'll need to measure between layout lines, where the mating piece will end. Make the shim accordingly.*

Rout tails the same way. *Start with a test piece again, fitting it to each slot individually before routing the real workpieces.*

thin shim that represents the difference in size between the fat and skinny ends of the slot. I make that measurement with calipers. The shim then gets taped to the workpiece, shifting one end or the other away from the router-table fence.

To make the shim, I cut a stick over thickness on the bandsaw, put a piece of double-sided tape on one side, stick it to the bench, and then handplane and recheck it until it is the precise thickness I need. Keep the tape on when checking, as it will be used to attach the shim to the workpiece.

To prevent tearout on the shoulders of these cuts, I create a zero-clearance auxiliary fence by taping ½-in.-thick MDF to the router fence, routing through it to expose the cutter. As with the slots, layout comes first. But this time, you'll fine-tune each cut on a piece of test stock before routing the real thing. While pushing the workpieces through the cut, try not to flex them by pushing too hard against the fence.

Use the straight side to sneak up on the fit—The straight side of the dovetail is cut without the shim. Each joint must be fitted individually, as all of the slots will vary in width a tiny bit. I don't try to achieve the final fit on the router table, though it's possible. Instead I leave the joint about 1½ in. short for a dense hardwood like ash, and then hand-fit the joint to about ½ in. short of all of the way in. With walnut you could leave the joint 2 in. short before fitting and then ¾ in. short

Notch the dovetail and fine-tune the fit. *Connect the shoulders with a scribe line (left) and then saw out the notch and pare it flush with the shoulders. Again, hand-fit the dovetails so they slide in about ½ in. short of all the way (above).*

Two ways to drive joints home

The joints are easy to assemble, tightening only as they are slid home. Not much clamping is needed.

TIP

BEST GLUE FOR THE JOB

For sliding dovetails, Rousseau prefers Old Brown Glue, a liquid version of hide glue, which is more slippery than yellow glue and offers more working time. Warm the bottle in a hot-water bath to keep the glue thin for use. To create a warm glue dish, pour hot water into a deli container and put the lid on loosely.

before assembly, and softer woods can be left as much as 2 in. short before assembly.

Stopped version is not much different

For this project, I used stopped dovetails to attach the overhanging top. The stopped joint is similar to the through version, except that the panels are inserted from the back and the dovetails are notched at the front. Layout starts at the back.

To lay out the slots, flip the top upside down, and then dry-fit the rest of the table and use it to locate the edges of the sides on the underside of the top. This time, the straight dovetail edges go on the outside, since those shoulders will be the most visible. The other new aspect is figuring out where the joint will stop. The overhang is 1 in. at the front edge, and I usually stop the dovetails ½ in. from the front edge of the sides. That means the slots will stop 1½ in. from the front edge of the top. □

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Two ways to drive joints home. *On the shelves, Rousseau pushes the pieces in as far as he can before tapping them home two at a time with a mallet, protecting their edges with a wood block (above). For the top, he uses another favorite method, pulling the parts the last inch or so with clamps (left).*