



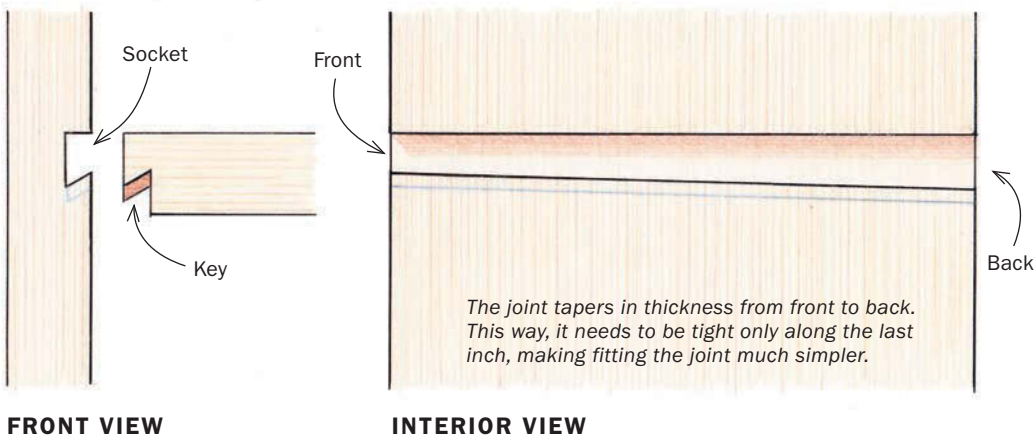
Sliding dovetails are a very useful joint in furniture making. I like to use them for partitions and fixed shelves in cabinets. Getting standard sliding dovetails to fit snugly along their whole length without seizing can be frustrating, however. That's why I taper the joint, making it narrower at the front than the back. This enables me to slide the key in from the back with ease until the very end, when it firmly tightens in the socket.

These joints are quick to cut by hand, and require a modest tool kit. In addition to some chisels and a saw, I use a dovetail plane to form the key, and a router plane to finish the socket. To guide my saw when cutting the socket walls I use a shopmade batten, which is square on one side and beveled to match my dovetail plane on the other. I typically make sliding dovetails as through-joints and conceal them with a face frame, as I did on the cabinet shown below. But making a stopped version doesn't require much more work.

Tapered sliding dovetails

SPECIALTY PLANE HELPS CUT THIS SELF-LOCKING JOINT

BY CHRIS GOCHNOUR



Built-in strength. This cabinet's shelves connect to the case via tapered sliding dovetails, creating a solid piece with concealed joinery.

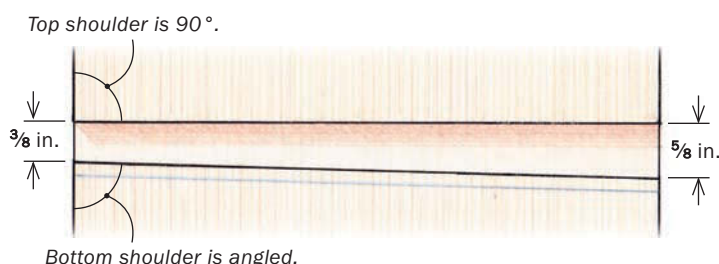
Dovetail socket



LAYOUT

Draw the socket.

Draw a line square across the case side (above left), at the top of the shelf. Then draw the angled bottom line (above right), creating a $\frac{1}{4}$ -in. taper.



Lay out and cut the socket

Start layout with the socket. The top line is square across the case side. The bottom one is angled to create the $\frac{1}{4}$ -in. taper. The dimensions of the tapered socket in the drawing (left) assume a $\frac{3}{4}$ -in.-thick by 12-in.-wide shelf; if the shelf is thinner or thicker, I recommend keeping the taper at least $\frac{1}{8}$ in. over this span.

When transferring the layout marks from the face of the workpiece to the edges, use a square for the top line and a bevel gauge set to the angle of your dovetail plane for the bottom line. Scribe the socket's depth last.

Now it's time to cut the joint. I clamp my shopmade batten to the case side when sawing the socket walls. The batten is $1\frac{1}{2}$ in. thick by $2\frac{1}{2}$ in. wide, and 2 in. to 3 in. longer than the workpiece is wide. One edge is square and the other is beveled to the angle of my dovetail plane.

I hold the plate of my saw tight to the batten when cutting both the square and angled kerfs for the two walls, and then I remove the waste with a paring chisel and router plane.



Top remains square. Use a square when transferring the top layout line to the edges of the workpiece.



Bottom is angled. Grab a bevel gauge, set to the angle of your dovetail plane, when wrapping the bottom line onto the edges of the workpiece.



Scribe the bottom. Use a cutting gauge to mark the bottom of the socket.

Online Extra

Watch Gochnour create tapered sliding dovetails as he makes his Enfield Cupboard in a members-only video at FineWoodworking.com/274.

Lay out and cut the key

To ensure the key fits snugly in the socket, pull dimensions from the socket itself when laying out the key. Use dividers, setting them to the width of the bottom of the socket at the front and back edges of the case side. Transfer these dimensions to the end of the shelf and connect them with a straightedge. Scribe the key's shoulder last.



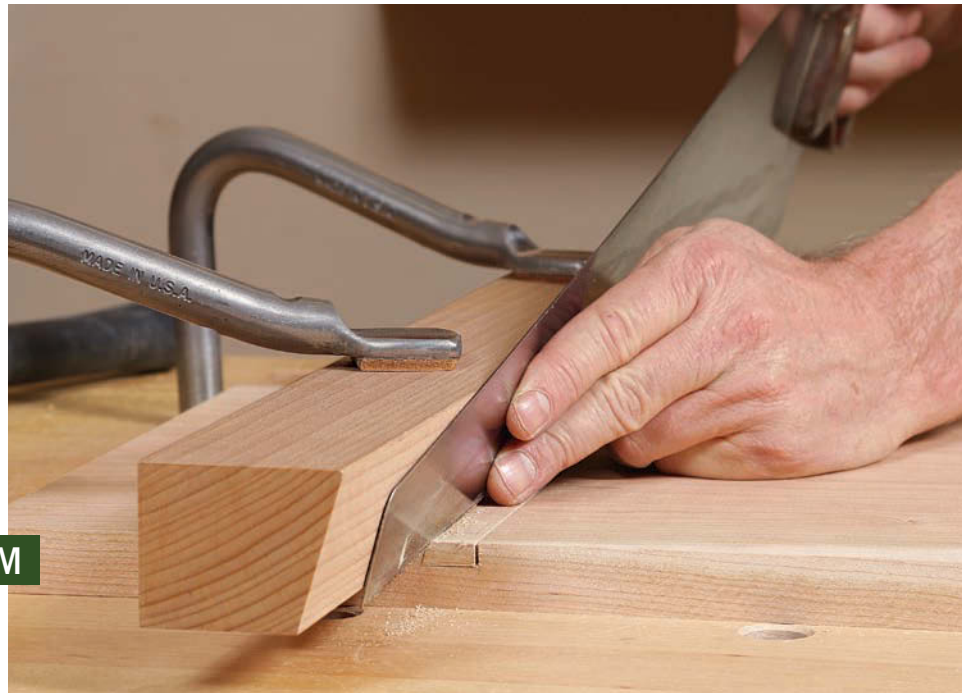
SQUARE CUT ALONG THE TOP

Batten guides the saw. Start with the top of the socket. Position the square edge of the batten so it just covers the line. Gochmour secures it with holdfasts (above). Holding the saw plate against the batten, establish the kerf before taking full-length strokes (right).



ANGLED CUT ALONG THE BOTTOM

Beveled side for angled cut. Reposition the batten so its beveled side, cut to match the angle of your dovetail plane, just covers the tapering bottom layout line. Again, keep the saw tight against the batten to ensure an accurate cut.



Pare most of the waste. Work in from both edges to prevent blowout.

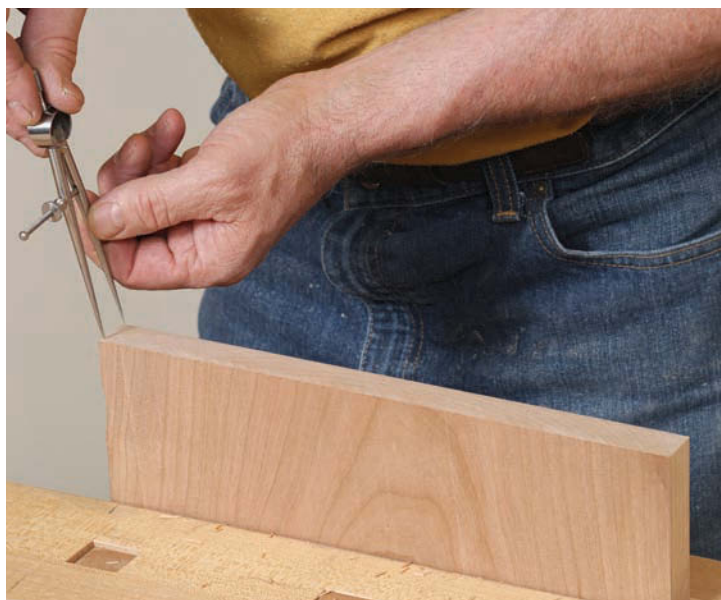


Router plane finishes the socket. While a chisel can level the joint, a router plane is more efficient and reliable.

Dovetail key

LAYOUT

Transfer the socket to the key. Set dividers to the width of the bottom of the socket at the front and back edges of the shelf (above). Make prick marks to transfer these dimensions to the ends of the shelf (right).



Connect the dots. To finish laying out the key's taper, use a straightedge and connect the divider marks.



Scribe the key's baseline. Use the same marking gauge setting you used to mark the depth of the socket.

Dovetail plane quickly cuts key



A dovetail plane is essentially a rabbet plane with a fence—except that its sole is angled to produce a dovetail. The fence setting determines the length of the dovetail, and the depth of cut is set using a hammer. A scoring cutter slices the wood fibers ahead of the blade, leaving a clean shoulder even when planing across the grain. The amount that the blade projects from the side is not critical; it can be anywhere from $\frac{1}{32}$ in. to $\frac{1}{16}$ in. It is crucial, though, that the blade and scoring cutter are aligned and set to the same depth.

ECE and Ulmia dovetail planes both do the job well. Vintage models can also be found.



Hammer adjusts depth of cut. Tap the blade to advance the blade, and tap the body to retract it.



Align the blade and scoring cutter. Gochmour uses a straightedge to check that they are in line. Additionally, he sets the scoring cutter to the same depth as the blade.



CUTTING KEYS

Relieve the front corner. Because he must plane across the grain to create the key, Gochnour cuts and chisels off the front edge to prevent blowout (which could be caused even by the plane's scoring cutter).



Plane close to the pencil line. Because the key tapers, you'll take more passes at one end than the other, using the layout line as a depth guide. Keep a square handy to make sure the plane isn't tilting.



Pencil lead reveals high spots during test fits. When you're ready to fit the joint, pencil some lead onto the angled wall of the socket (left). When you push the joint together and it seizes (center), the lead will rub off on the high spots of the key (right). Plane these down.



I cut the key with a dovetail plane (opposite page), setting the fence to the depth of the joint's shoulder. Before the first pass, draw the plane backward to score the cross-grain fibers with the scoring cutter. Take a few full-length passes to establish the shoulder before tapering your cuts.

I test the fit when I am just shy of the pencil line. Stopping short now lets me nail a perfect fit later. When you can push the joint together so the key is about 1 in. shy of the front, tap it home with a mallet. You can glue the joint, but it's not necessary. When you fit the shelf's other end, be sure the joints seat simultaneously.

Stopped dovetail for sleeker look

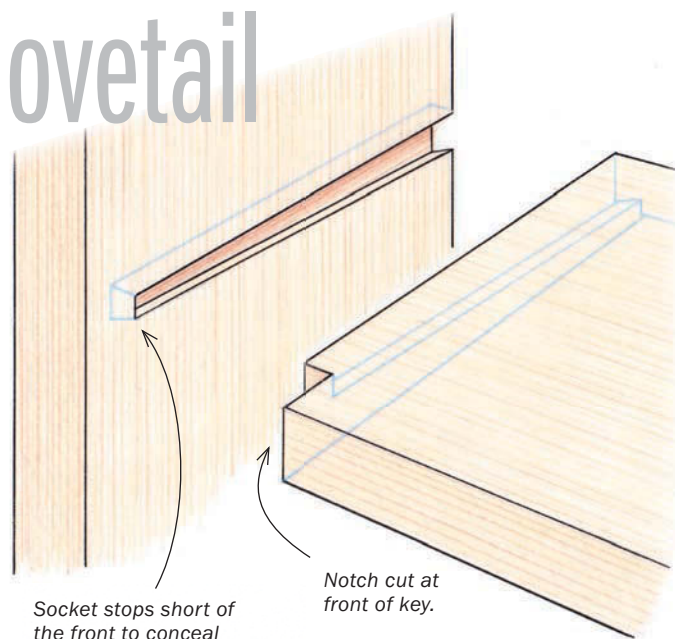
If you want to hide this joint but don't want a face frame, try the stopped version. Layout and execution are



Tap it home. When the key fits 1 in. shy of the front of the socket with just hand pressure, use a non-marring mallet to drive the shelf flush.



Stopped dovetail



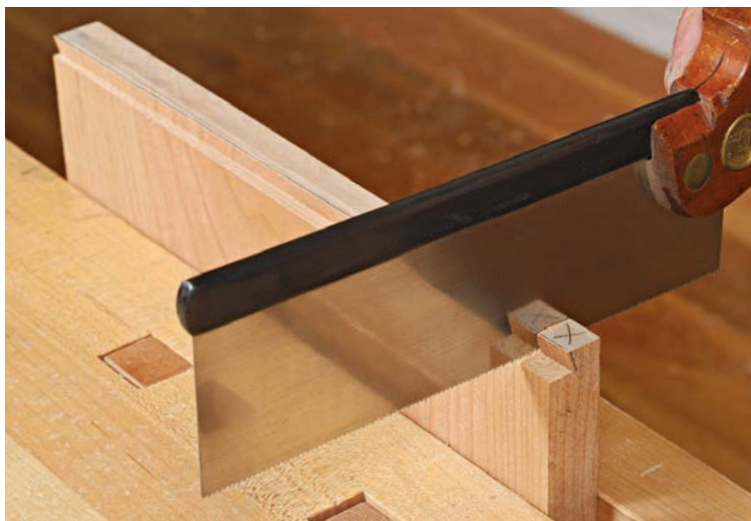
Stopped socket starts with mortise. A mortise at the front of the socket provides a place for the saw's toe when sawing the socket walls.



Start sawing. Just as it did for the through version, the batten serves as a guide while you saw the walls of the stopped dovetail. After chiseling out most of the waste, bring the socket to final depth with a router plane.



Create a notch in front of the key. After cutting the key and fitting it with hand pressure, saw off the extra inch at the front so the shelf can slide all the way into place.



nearly as simple as they are for the through-dovetail.

Lay out the socket as you did the through version. Since the joint is stopped, scribe the depth of the socket only on the back edge of the case side. Next, chop a mortise at the front of the socket to give the toe of your saw a place to travel when you cut the socket walls. Use the batten as a guide when paring the cheeks of the mortise. Cut the rest of the socket as you did the through-dovetail.

To lay out the key, scribe the shoulder lines on the face and edges of the shelf. Use dividers again to transfer the width of the socket at its wide end to the shelf.

You'll need a different tactic for the narrow end. First, set the dividers to your layout lines at the narrowest part of the socket. Transfer this dimension to the scribed shoulder line at the front edge of the shelf. Then, using a bevel gauge set to the dovetail angle, pencil a line from the divider mark at the shoulder to the end grain. Use a straightedge to connect this line to the divider mark at the other end of the key.

Use a plane to cut the joint. Saw off a notch at the front and then begin fine-tuning the fit (see p. 83). □

Chris Gochnour makes furniture in Salt Lake City. His hand tools may be faster than your router.