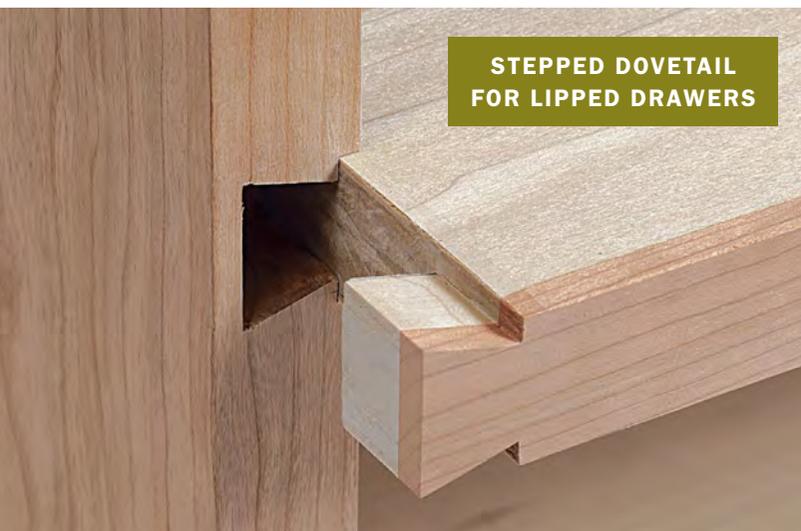# Strong and Stylish Dovetailed Dividers

Three options for these classic components of casework

BY WILL NEPTUNE

HALF DOVETAIL FOR FAST WORK

STEPPED DOVETAIL FOR LIPPED DRAWERS

FULL DOVETAIL FOR INSET DRAWERS

When installing horizontal dividers in a case, I like to use a combination of dovetails at the front with dadoes across the case sides. A traditional solution, this method combines the ease and efficiency of dadoes with the strength of dovetails. But just because this joint is traditional doesn't mean it isn't equally useful today. Whether you cut them by hand or machine, dadoes are easy to cut, and the dovetails do a great job keeping case fronts from bowing or deforming because of wood movement or someone racking a drawer.

The key to cutting this joint efficiently is using simple wood paring blocks. Used to form the dovetail—and, in two varieties of the joint, the stub tenon that fits in the dado—these blocks simplify layout and allow for easily repeatable results.

I'll cover three variations of the joint here. The first, the half dovetail, is the simplest to cut but still plenty strong. The second, the stepped dovetail, pairs a dovetail housing—what some call a socket—with a wide dado that accepts the full thickness of the divider. These are great for lipped drawers. For inset drawers, I like the third option, the full dovetail, with its shoulder aligned

MASTER CLASS: DIVIDER WITH A BUILT-IN BEAD

Flip to the Master Class (p. 78) to see a fourth version of this joint, which is used for chests of drawers with mitered cock-beading.

Photos, this page: Michael Pekovich
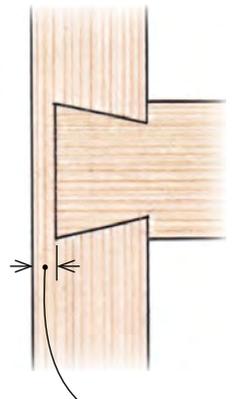
DADO THE CASE

The dado size depends on which dovetail you pick. *If you are making a stepped-dovetail divider and your dado stack's outside blades leave deeper scoring marks, level the bottom of the case dadoes with a router plane. Otherwise, the show face of the joint will have triangular gaps at the shoulder.*

CUT THE DIVIDER TO LENGTH

***Lay out the dovetail housing.** Use a combination square to mark the length of the dovetail on each case side.*

As a rule, make the lap ⅛ in. to ³⁄₁₆ in. wide.

with the inside of the case. The steps used to cut each of these are similar. They all start with cutting dadoes in the case and trimming the dividers to length. Then, after making the dovetails (and, if necessary, tenons), you'll tap in the dividers and trace the tail onto the front edge of the case side. From there, it's a matter of using a saw, chisels, and a router plane to form the dovetail housing.

By the way, I typically install dovetailed dividers only in the front of a case. They're not as vital in the back, as the drawer opening back there is less critical. So unless a case is taller than 32 in., I don't worry about dovetailed dividers in the rear, and even then, a single one installed halfway up does the job.

You'll need dovetail paring blocks

While the flat paring blocks that I use to size the stub tenons are simply small blocks of wood—albeit carefully thicknessed—the dovetail paring blocks involve a bit more work. To start, it helps to have an idea of the dovetails' scale, so pencil the dovetail on the case or create a full-size drawing. Set a bevel gauge to the dovetail angle and tilt the blade on your tablesaw to it. The block should be about 2 in. wide and 8 in. long, with the ramped surface about 1¼ in. wide. The thin edge of the ramp should be the thickness of your divider stock. If you overshoot it, simply plane the front edge of the block. I cut a flat on each end of the block so I can clamp it to the bench.

Half dovetails are simple and strong

The half dovetail is the simplest divider joint to cut and offers most of the holding power of the other, more complex variations. The main advantage of this version is that it relies on a single reference face, so variations in divider thickness don't affect the fit of the joint. This can simplify milling. You'll need a ramped paring block
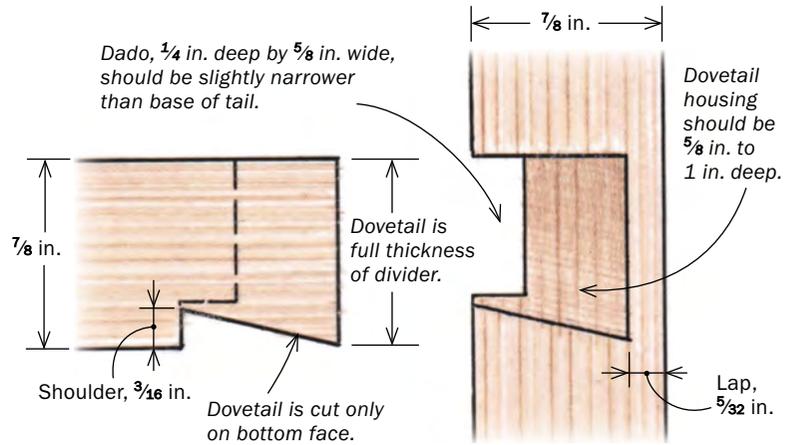
***Mark and trim the divider.** Lay the divider across the case to transfer the ends of the dovetails to the divider (left). Crosscut the divider at the tablesaw (below). If you're cutting more than one divider, set a stop.*

Half dovetail

This is the simplest version to make. You'll need two paring blocks to cut the joint—one for the stub tenon and one for the dovetail.

Dado, ¼ in. deep by ⅝ in. wide, should be slightly narrower than base of tail.

⅞ in.

Dovetail is full thickness of divider.

⅞ in.

Shoulder, ³⁄₁₆ in.

Dovetail is cut only on bottom face.

⅞ in.

Dovetail housing should be ⅝ in. to 1 in. deep.

Lap, ⁵⁄₃₂ in.

1. LAYOUT

Scribe the shoulders. *Set the divider in place and check that the dovetail shoulders align with the inside of the case (right).*
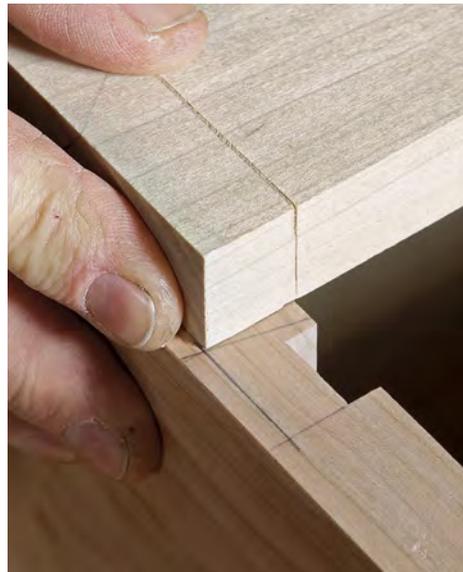
for the dovetail and a flat one for the stub tenon. The flat one should fit snugly in the dado.

Use a marking gauge to scribe the dovetail shoulders on the bottom and edges of the dividers. Be sure the distance between them exactly equals the case's inside dimension. This is crucial because if the shoulders aren't spot on, the divider will either push the case sides apart or draw them in.

Next, lay out the stub tenons. They need to match the depth of the dadoes. After that, draw the width of the dovetail on the divider and inside the case.

To cut the stub tenons, first saw them to length, being sure not to trim off the dovetail as well. Lay the divider facedown on the bench and push the flat paring block against its end. Roughly chop the tenon's shoulder with a chisel and mallet and begin to split the waste

Determine stub tenon length. *With the divider still in place, pencil the dado depth on the divider (above). This will be the length of the stub tenon. Use a combination square to carry the line across the divider (left).*

Drawings: Vince Babak
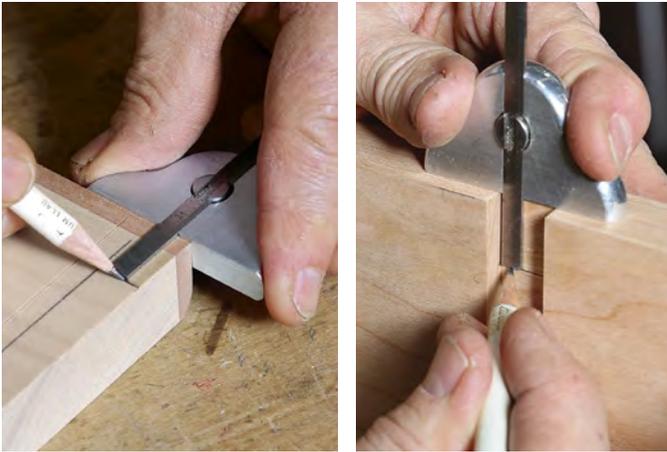
2. STUB TENON

Mark the dovetail and housing. *Use a depth gauge to mark the width of the dovetail both on the divider and the case side.*

Trim the waste. *Cut the stub tenon to length and the dovetail to width. Neptune uses a bandsaw and cleans to the line with a chisel.*

Size the tenon paring block. *Plane this block so it's a tight press-fit in the dado.*

in from the end. Finish by paring the shoulder back to the scribed line and the tenon flush with the paring block. Keep the back of the chisel flat against the block. I recommend a wide chisel for more support on the block.

Next, cut the dovetail using the same process, but with a ramped paring block. Starting with the shoulder, rough out the joint before refining it, making sure the chisel is kept tight to the paring block for the final strokes. Pare the back face of the dovetail flat so it lies flush to the case during scribing.

With the divider done, you can transfer the dovetails to the case. Tap the divider into the dadoes until the tails meet the case front. Use a clamp across the case to hold the shoulders tight. With a sharp pencil, trace around the tail. Remove the divider and knife the laps with a marking gauge. Saw the housing a bit undersize and pare back to the lines, testing the fit as needed. The top wall of the dado can be used as a registration surface as you pare the top of the housing, making this


Flat block ensures consistent tenons. Establish the shoulder with heavy vertical cuts, staying inside the scribe line (above). Then follow with careful cuts to the line. Use the paring block (left) to cut the stub tenon to thickness. Start by roughing out the bulk of the waste. For the final cuts, keep the back of the chisel pressed firmly against the paring block and take narrow shavings.
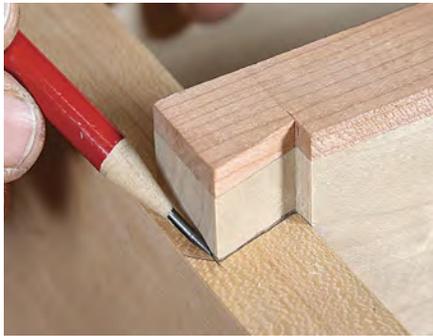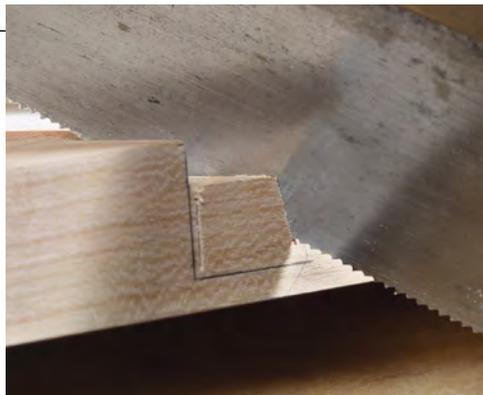
3. DOVETAIL

Angled paring block forms repeatable dovetails. Keep the divider square to the paring block. Remove most of the waste, then create the final surface with light paring cuts.

Ramp angle determines the dovetail angle.

End of ramp should match the divider thickness.
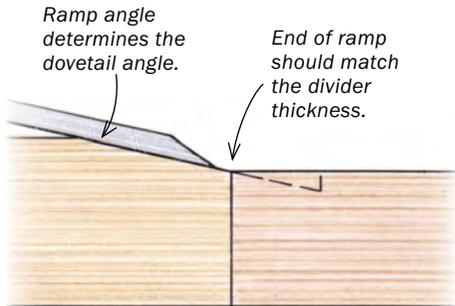
4. HOUSING

Trace the dovetail onto the case side. The stub tenon registers in the dado, ensuring the divider stays put. Trace around the tail with a pencil, then scribe the lap with a marking gauge.

Saw out the housing and chisel to your lines. To clean up the bottom of the housing, use a chisel (right) or a router plane.
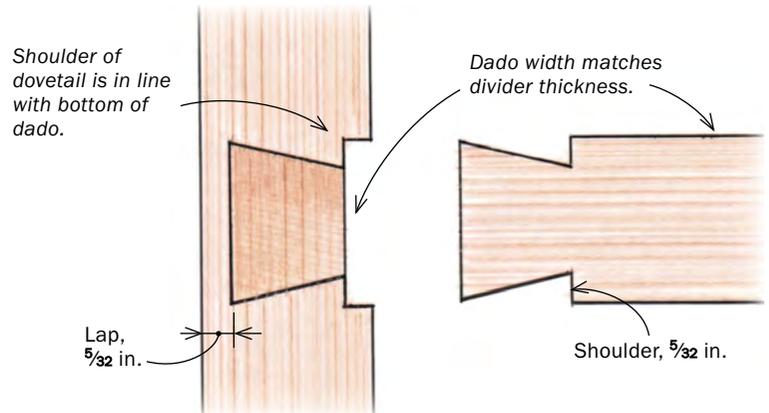
Making a paring block for dovetails

Transfer the dovetail angle. Set a bevel gauge to the angle of the tail. Tilt the tablesaw blade to match.

Rip the block. Saw the ramp, then smooth it with a handplane. Neptune bandsaws flats on each end of the paring block to create surfaces for clamping.

Stepped dovetail

The full thickness of the divider fits in a dado. This is a great option for lipped drawers, which cover the dovetail shoulder when closed.

Shoulder of dovetail is in line with bottom of dado.

Dado width matches divider thickness.

Lap, $5/32$ in.

Shoulder, $5/32$ in.

part of the joint much easier to cut. I use a router plane to bring each housing to a consistent depth, helping with repeatability.

When installing the divider, tap it home bit by bit, covering the tails with a block. Be careful not to get the divider out of parallel to the case front or it will jam.

Stepped dovetails work well with lipped drawers

Stepped dovetails look good with lipped drawers, where the base of the tail aligns with the lip molding. This joint has no stub tenon. Instead the full thickness of the divider fits into the dado. This means that you need a paring block only for the dovetails.

Again, start by cutting the dadoes. Lay out the dovetail shoulders so they correspond exactly with the bottoms of the case dadoes. Saw off the waste behind the tail, then pare its angled cheeks. This time, you'll be paring full tails, so flip the stock to work from both

Mark the dovetail length. The shoulder of the tail should align with the bottom of the dado. Neptune sneaks up on this dimension with a marking gauge at the back edge of the divider to keep the show edge clean.
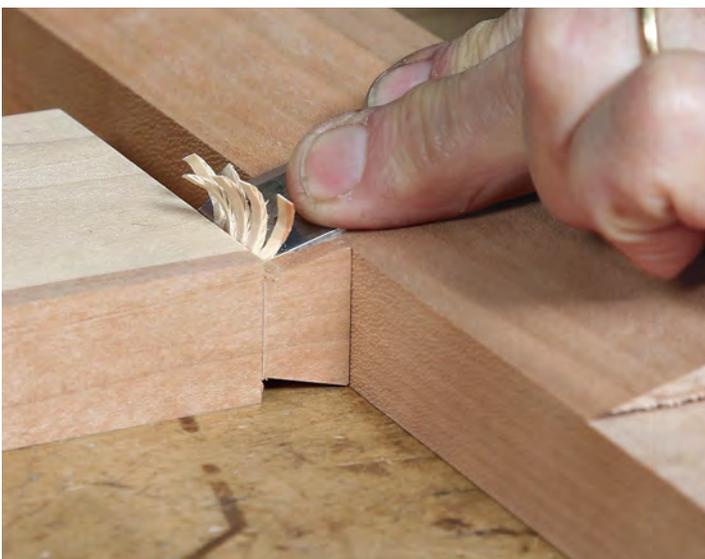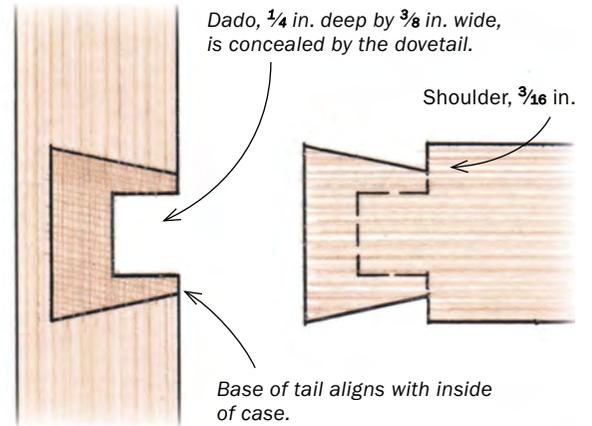
Pare the dovetail with angled paring block. Flip the board to pare both faces. Remove most of the waste before taking careful finishing cuts.

Trace the tail. Once the tail is pared, use it for layout. Then saw, chisel, and use a router plane to create the housing.

Full dovetail

The shoulder of the dovetail is in line with the inside of the case, letting this joint pair nicely with inset drawers.

Dado, ¼ in. deep by ⅜ in. wide, is concealed by the dovetail.

Shoulder, ³⁄₁₆ in.

*Base of tail aligns with inside of case.*

1. STUB TENON

Start with an overthick tenon. After sawing the stub tenon to length and chopping to the baseline (right), chisel it with a paring block that's intentionally too thick (far right). This leaves room to refine the block to get a perfect fit (below).

Sneak up on the fit

With a tenon that's too thick, you can shave the paring block (far right) to adjust the tenon. Check the tenon after paring each face and adjust the paring block as necessary. This is much easier than trying to nail the paring block's size from the start.
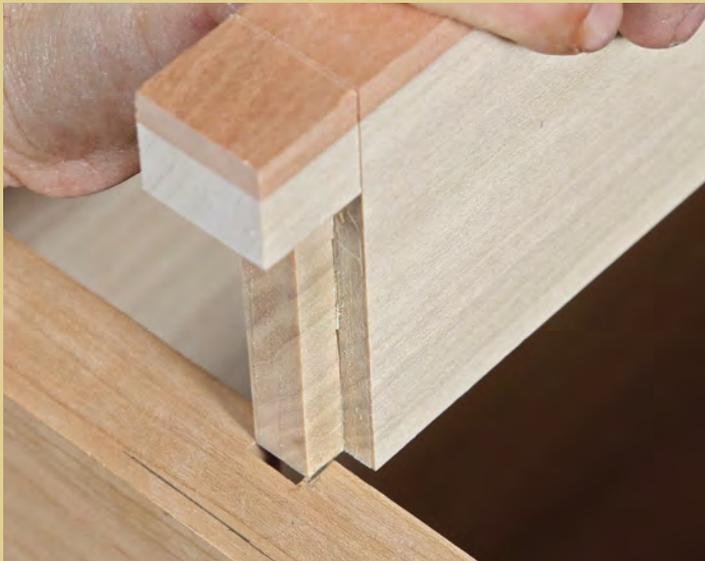
Pare both sides of the dovetail using the angled paring block. Begin by rough-chopping the shoulder away from the line and splitting off the waste before taking narrow shavings with a sharp chisel.

faces. Because you're flipping the stock, all the dividers must be uniform in thickness. Tracing the dovetail and cutting the housing follows exactly the same steps as for the half-tail: Transfer the dovetail's shape before sawing and chiseling the waste.

Full dovetails are perfect for inset drawers

For inset drawers, I recommend using a full dovetail whose shoulders are in line with the inside of the case and drawer openings. This joint uses a stub tenon centered on the divider and requires a dado narrower than the base of the dovetail. Two paring blocks are needed: one for the dovetail and one for the tenon.

Because the tenon is centered, fitting this joint can get especially tricky, but there's a simple way to nail that thickness during fitting. You'll be referencing from both faces of the divider, so the tenon's paring block needs to be as thick as the shoulder and tenon combined. This dimension is crucial, since any difference is doubled in the actual tenon. Don't be intimidated, though. It's simple enough to sneak up on this dimension as you fit the first tenon.

After trimming the first tenon to length, start paring with a block that's intentionally too thick. Form the tenon, paring from both faces, and check it to see how much it's oversize. You need to remove half that much from the block—a fussy thing to figure out, so I just take a shaving or two with a handplane. Then I pare the tenon on both faces again and check once more, repeating this process until I have a press-fit. With the paring block now the perfect thickness, I can handle the other stub tenons in one go.

Press the finished divider into the case to trace the dovetailed ends. From there, simply saw and pare the housing to receive the tail. □

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Tap in the divider. Use a scrap block to protect the workpiece as you drive the divider into the case.

Housing for dovetail. Pencil around the tail, then use a saw, chisel, and router plane to form the housing.