

Dovetail Jigs

How to create a complex joint the easy way

BY ANISSA KAPSALES



I've been known to spend hours laboring over hand-cut dovetails. First, I fret over the layout, drawing half-pins at each end of the row and creating an attractive layout between. Once I'm satisfied, I move on to sawing and paring the pins, laying out the tails as precisely as I can, then more sawing and paring to sneak up on a good fit.

I enjoy the challenges and the satisfaction of cutting dovetails by hand. So when I decided to learn how to cut dovetails with a jig that guides a router, I began with a definite bias against any shortcut. By the time I'd finished my first drawer, I could appreciate the advantages that dovetail jigs offer.

A jig's greatest assets are speed and ease of cutting. After you go through a fussy initial setup, it takes very little time to cut a lot of perfectly fit dovetails, more than compensating for the setup time. A chest of drawers, a run of box parts, or drawers for an entire kitchen are ideal applications for one of these jigs. Once you dial everything in, you could easily cut all the joints you need in a couple of hours.

There's a learning curve with dovetail jigs, and every jig seems to have its own set of quirks. But in my experience, a careful trip through the instruction manual and a manageable period of trial and error are all it takes to successfully cut tight-fitting, attractive joints.

If you're a beginning woodworker and haven't mastered the hand-cut dovetail, a jig can allow you to use an extremely strong, attractive joint that you might otherwise have to leave out of your repertoire.

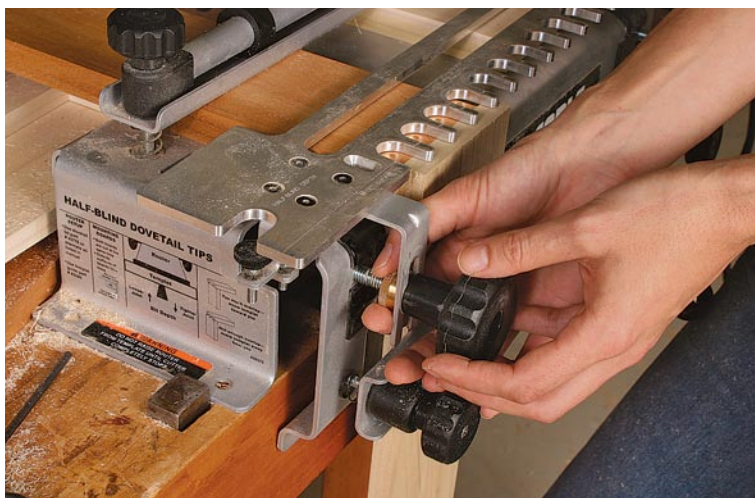
How they work

Dovetail jigs use one or more templates that resemble the spread-out fingers on a

Half-blind dovetails



Lock up. Cams on an adjustable locking bar secure the workpiece for the dovetail pins. A piece of scrap the same thickness as the workpiece will keep the jig's template in line.



Align the template. The small brass knob lets you align the template precisely over the pin board. The big knob locks down the template.

hand; guiding a router into the spaces between the fingers creates pins or tails, depending on how the workpiece is clamped into the jig. There are separate templates for half-blind dovetails and through-dovetails. For half-blinds, both boards are cut at the same time; for through-dovetails, the tails are cut first. Some jigs are designed to cut only half-blinds, but I think it makes sense to invest in one that also can cut through-dovetails.

The Porter-Cable 4212 jig shown here (street price, \$150), earned the Best Value distinction in a recent *Fine Woodworking* review. One of the easiest jigs to use, the Porter-Cable has fast-acting cam clamps to hold the boards, and it has setup lines and instructions etched into the router



Centering pins. The pin board registers against an adjustable stop at the left edge of the jig. Once you center the board under the template fingers, you can slide the stop into place.

Aligning tails. The same stop that registers the pin board also registers the tail board.

Half-blind dovetails (continued)



Half-blind bit depth. An adjustable stop lets you set bit height precisely for cutting half-blind dovetails. Labels on the jig provide useful reminders for adjustments that yield a tight-fitting joint.



A joint in one quick pass. A template cuts both halves of a half-blind dovetail joint at once. A guide bushing on the router base makes it easy to move the bit in and out of the fingers.

ADJUSTING THE FIT OF HALF-BLIND DOVETAILS



Raise or lower the bit. Even with careful setup, joints can be too loose (top left) or too tight (left). The solution is to tweak the bit height (above)—lower to make the joint tighter, higher if pins and tails are too tight.

templates. It also has a useful gauge to help you set the router-bit height.

Sweat the details for a better outcome

Simply using a jig doesn't ensure a well-made joint the first time. The wood needs to be positioned properly under the fingers of the jig, the template lined up evenly across the top of the wood, and the router-bit depth adjusted precisely.

There are a few things you should pay attention to that will ensure success with a jig. Just as you do when hand-cutting dovetails, you should mark the boards and keep track of their orientation to the jig. Note whether the outside or the inside of the board goes against the jig, and then mark the boards so you don't get things mixed up. Otherwise, you may well wind up with a board cut so that the face you wanted outside is now on the inside. Mill extra stock to use for the test cuts that are a necessary part of the setup.

Setting the depth of the bit can be the most time-consuming and critical part of using a dovetail jig. With many jigs (the Porter-Cable is an exception), you'll have to resort to trial and error.

If you're cutting through-dovetails, fit a tail board into the horizontal position of the jig, set the router on top, and adjust the bit to the depth of the wood plus a hair more. That will leave the pins slightly proud; trim them flush with a block plane.

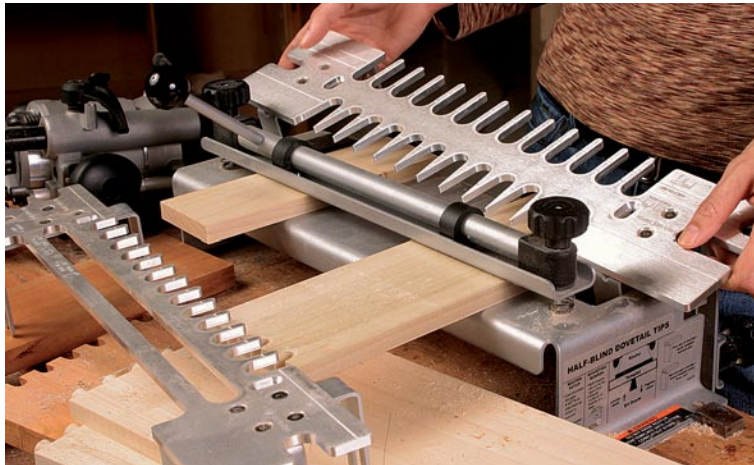
Setting the bit for half-blinds may involve more trial and error. Clamp the pin board in the jig horizontally, the tail board vertically, and set the router bit for the depth of the half-blind—or what you think the depth should be. I found that even with the Porter-Cable's bit-depth guide, it takes several test cuts to get the depth just right for a good, snug fit.

Expect the joint to look machine-made

No jig can produce the slightly irregular, super-thin dovetails that are the hallmark of hand-cut joinery. However, machine-cut dovetails are still attractive because they are neat and orderly, and they fit well. Some jigs let you adjust the spacing of pins and tails, up to a point. But most are uniform and fixed, and none allows a completely customized layout.

Jigs also limit the width and thickness of boards you can use. Generally, a dovetail joint should have a half-pin on each end. Because of the jig's spacing limitations,

Through-dovetails



Through-dovetail template. Through-dovetails require a double-sided template and two router bits. The straight fingers guide the router to cut tails; the tapered fingers guide the cut for pins.



The wood guides the depth. The workpiece thickness determines bit depth. Set the bit a hair past the edge of the board, leaving the pins slightly proud. They can be trimmed flush later.



Finished tails. The dovetail bit supplied with the jig cuts the tails. To prevent tearout, use scrap to back up the workpiece.



Beginning the pins. Once you've cut tails for all the pieces, you need to flip the template to get ready to cut pins.



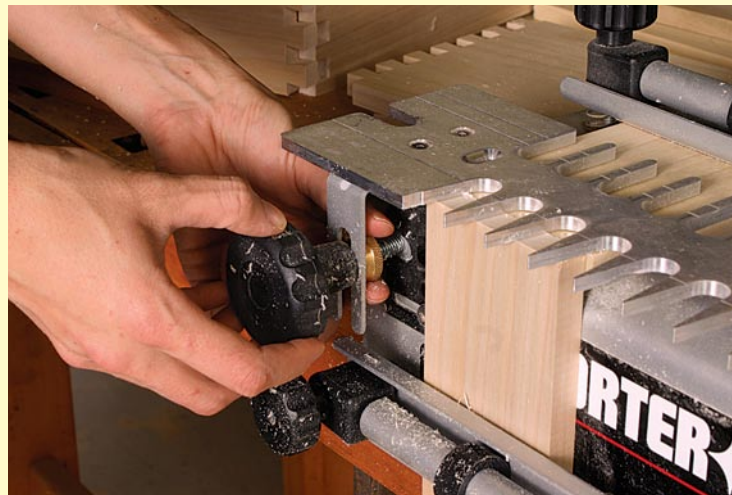
Finished pins. The straight bit supplied with the jig cuts the pins. Here, too, scrap backs up the cut to prevent tearout.

you can begin and end with half-pins only on boards of specific widths. For example, the Porter-Cable jig I used worked best with boards that measured 3¼ in., 4¼ in., 5¼ in., and so on.

I also learned from experience what can happen when you use stock that's too thin for a particular template and router bit. The half-blind joint was fitting together rather well and the layout was nicely symmetrical, but I had small crescent-shaped gaps on the inside of the joint. I had to check everything before I realized that the gaps were the result of using stock less than ½ in. thick. Once I recut the joint using thicker stock, everything worked. □

Anissa Kapsales is an assistant editor at Fine Woodworking.

ADJUSTING THE FIT OF THROUGH-DOVETAILS



Move the fence. If the joint doesn't fit well, the solution is to use the locking knobs to fine-tune the position of the template: forward to loosen the joint, back to tighten it.