

# Router Dovetailed Drawers Done Right

*What the manual doesn't tell you*

By Craig Bentzley



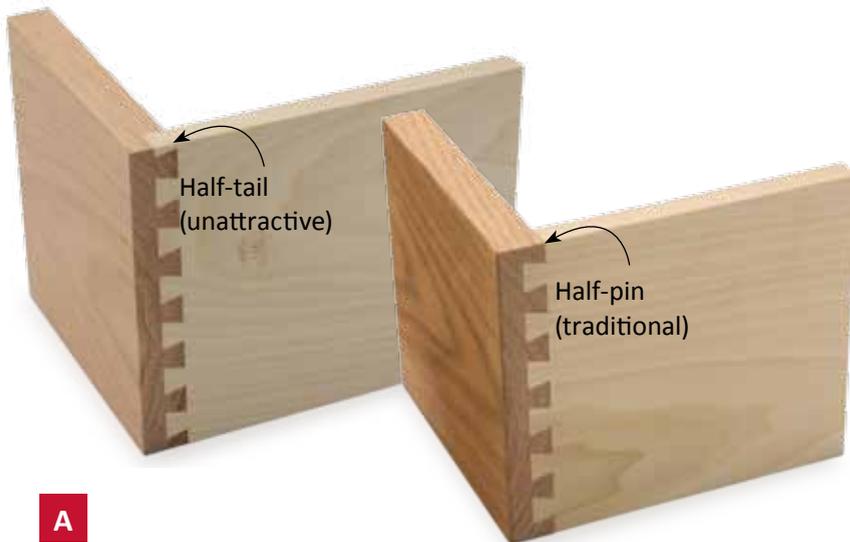
**E**ven if the process itself isn't intimidating, the prospect of a slew of drawers will convince even die-hard handtoolers to put down the saw and pick up their favorite router. And why not? Hand-cut dovetails may be the hallmark of fine craftsmanship, but they're also a lot of work. Most router-cut dovetails aren't as attractive, but the speed and simplicity of the jig-cut joint balances out the aesthetic shortcomings.

Despite this obvious advantage, many dovetail jigs wind up gathering dust, while their owners search for simpler joinery solutions. Whether it's because of a vaguely-worded instruction manual,

or an overly-complex setup procedure, many woodworkers think that router-cut dovetails require too much brainwork, or they curse their jig for failing to achieve a perfect fit.

To be fair, adjusting the jig and setting up the router takes some time, but not nearly as much as sawing and chiseling a few dovetail corners by hand. By following the tips here, you'll be able to set up your jig, rout a test corner, and complete your first drawer in short order. You'll soon discover that using a properly-tuned jig and well-prepared stock to create snug-fitting mating dovetails can be surprisingly simple.

# Joinery Made Simple



**A**

Adjust drawer joints to work with your jig. Good drawers start and end with a half-pin and are symmetrical on the top and bottom edge.

## Start with good stock

Ever hear the phrase, “garbage in, garbage out?” With dovetail jigs, stock preparation is everything. You need to make drawer material dead flat and straight. Twisted, bowed,

or cupped boards result in twisted or ill-fitting drawers. For this reason, joint and thickness-plane your material carefully. Because even minor snipe can cause grief in fitting joints, I suggest trimming a couple of inches off the ends to eliminate a potential misfit *before* cutting parts to length.

Decide on the drawer width next. A dovetailed drawer should start and end with a half-pin, as shown in **Photo A**. Half-tails not only look funny, but are weak and likely to splinter off. The simplest solution is to design

## Tip Alert

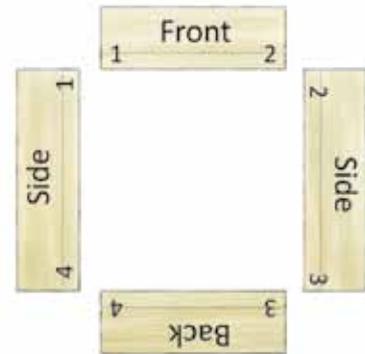
When preparing drawer stock, stick with standard thicknesses. By always planing fronts to  $\frac{3}{4}$ " , and sides and backs to  $\frac{1}{2}$ " , you can set your jig router once and forget it.



**B**

Make and save a full-width sample corner from your jig to quickly determine which box or drawer widths work best.

**Figure 1: Drawer Layout**



Marking the inside faces of the parts to indicate matching corners and the bottom groove can prevent miscuts and help with assembly.

your projects around your jig; this often means less than a  $\frac{1}{4}$ " difference in drawer widths, so your drawer ends with half-pins. I keep a sample corner (**Photo B**), and use it to make adjustments to drawer openings to suit my jig. (If the width is nonnegotiable, I put the half-tail on the bottom, so it won't be as noticeable when the drawer is open.)

Accuracy is equally important when cutting parts to length. Check your saw to make sure that it's cutting perfectly square. Next, use a stop to ensure that you cut all the duplicate parts to the same exact length. Saving money by using less-than-perfect stock is a smart move, but be vigilant. Small knots in the middle of a part are okay, but a knot on the end may blow out when routed. Don't let that inch of material ruin a drawer.

After cutting the parts to size, lay them out, label the parts as shown in **Figure 1**, and draw a line on each part that represents the drawer bottom groove. This will help you position the parts in their correct locations on the jig.

## Ready your router

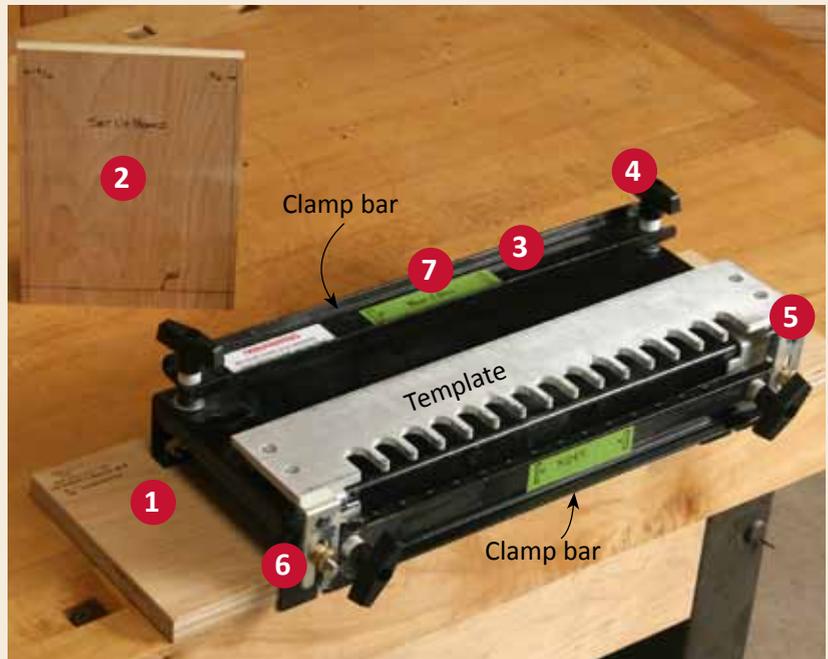
Better bits and bushings can make a big difference. If your jig and router will allow it, step up to a 1/2"-shank bit. You'll get less deflection, chatter, and burning, resulting in better-fitting, stronger joints. Before you buy, double-check your owner's manual to make sure you get the correct bit and bushing combination. While most jigs employ a 14° bit, a few use a 7° bit (**Photo C**).

Next, buy yourself a better bushing. The problem with most stock bushings is that they don't offer a means of centering them on the router base. If it's even slightly off, the bushing can cause a mysterious misfit where the tails fit too loosely on one side and too tightly on the other. A precision guide bushing,



**C**

The upper drawer was made with a 7° bit. The lower drawer was made with a 14° bit, which has a more traditional look.



## 7 Ways To Juice-Up Your Jig

The difference between a dovetail jig that's reached for day after day and one that gathers dust is in the details. After years of using my jig, and trying out several others, I've come up with a few simple upgrades that no jig should be without. More expensive jigs may already incorporate some of these features, but you're likely to find an upgrade or two that will make your dovetail jig even better.

1. Mount the jig onto a large board so you can clamp it securely to your bench. Copy setup info on the board so you won't need to dig out the instruction manual.
2. If your jig requires a set-up board for lining up the stops and template, make it, label it, and keep this board with the jig for future reference.
3. Apply adhesive-backed sandpaper to the faces of the clamping bars to ensure that parts don't shift in mid-cut.
4. Small wing nuts or locking knobs can become uncomfortable during long sessions at the jig. Replace them with larger aftermarket knobs.
5. If there is play between the slot in the template bracket and the mounting stud, mark the bracket and position the template in the same spot every time you lock down the template.
6. Replace the factory template-adjustment nuts with Nyloc nuts or apply a drop of Loctite to the studs to keep the nuts from slipping during use.
7. Tape notes on the clamping bars to remind yourself about part placement and stock orientation.

# Joinery Made Simple



**D** Inserting the alignment pin into the collet ensures that the guide bushing is centered.

like the one shown in **Photo D**, uses a pin to ensure that it's centered on your router's collet.

You'll notice that I've left any mention of the router for last. I've found that any good router can make great dovetails. If your budget allows, treat yourself to a designated dovetail router. Compared to the time I previously spent fine-tuning the height and making test cuts, keeping the bushing and bit installed on a designated router is a bargain.

## Tip Alert

Prevent the locking ring from backing off the guide bushing during use by wrapping it with Teflon tape.



**E** Score the side first, then plunge the router into the template's fingers. Focus on keeping the router flat and maintaining contact between the bushing and template fingers.

## Routing the joint

Set your parts up as they would be arranged in the drawer, then lay them flat and mark them as shown in **Figure 1**. These notes not only ensure correct orientation but will also assist with later assembly. Insert a pair of mating corners in the jig. Drawer fronts and backs are clamped horizontally on top of the jig; sides are clamped vertically to the front of the jig. All parts are positioned outside-face down (the groove lines for the bottom should always face up and out). Be careful to align the parts, making sure that both are fully seated against the stops and that the end of the tail board is flush with the top of the pin board before tightening the clamping bars.

Routing the joint isn't difficult, but a few tips can help. First,

make a light scoring cut from *right to left*. This light climb-cut prevents chip-out on the inside face of the pin board.

Now, routing *left to right*, as shown in **Photo E**, move the router in and out of the fingers. To avoid any chance of bushing-related problems, make a habit of keeping the router handles in the same position, when moving in and out of the template. As you're driving the router, listen to the motor to help you determine the best feed rate. If the whine begins to sound labored, slow down. (Don't go too slowly, or you may burn the stock.)

The most important thing to remember is to keep the router base flat on the template. When you reach the end of the cut, *do not lift the router up!* Turn the router off and wait until the

## Tip Alert

Check the bit frequently when routing resinous woods. Resin will cause burning, sloppy cuts, and ill-fitting joints. To remove buildup, wipe the bit with acetone and a Q-tip.

bit stops before removing it from the jig. Make sure you've routed into every finger before releasing the parts from the jig.

You're now ready to test the fit. Compare your test joint to the joints shown, right, and adjust your bit and/or jig accordingly. Do a second test joint, and you should be ready to start serious drawer work.

## Final assembly

After dovetailing your corners, cut the grooves for drawer bottom. Center the groove in the lowest socket (between the half-pin and the full pin) of the drawer front so that it won't be visible after assembly.

To assemble the drawer, apply glue to two corners at a time. Apply glue to the sockets on one end of the front and back boards and install a side. Next, slide in the drawer bottom. Now apply glue to the remaining socketed ends and install the side piece, as shown in **Photo F**. Use clamps to press the tails into the sockets, and then check for square. ■

## Tip Alert

Cut the bottom  $\frac{1}{16}$ " shy of the full length and width dimensions of the drawer-box groove to ensure easy assembly.

## 4 Adjustments for Fine Fit

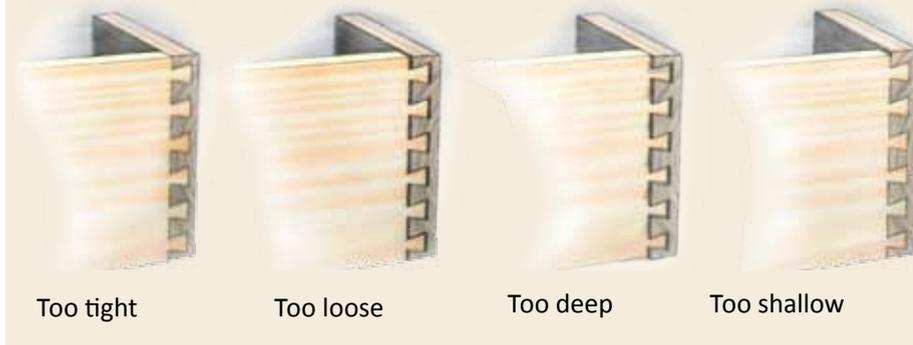
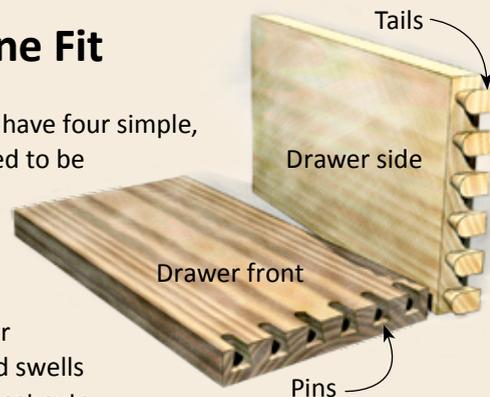
All jigs, regardless of manufacturer, have four simple, but important adjustments that need to be made for the best joint fits.

**Joint too tight:** Raise the bit slightly to make the cut shallower.

**Joint too loose:** Lower the bit slightly to make the cut deeper. Bear in mind that glue takes up space and swells wood fibers. When you make your test cuts, you'll want your parts to fit together snugly, but not hammer-tight.

**Sockets too deep:** Adjust the template closer towards you. Be sure to adjust both nuts equally in small increments. (For jigs with a router base fence, move the fence forward slightly.)

**Sockets too shallow:** Adjust the template away from you. (For jigs with a router base fence, move the fence back slightly.)



Use a stiff brush to work glue into the sockets and then install the side. Square up the assembly and clamp it until the glue sets.