



using the Leigh Dovetail Jig

When it comes to cutting dovetails of all shapes and sizes, this jig can handle it all.

- One of the hallmarks of fine furniture is the dovetail joint. Whether it's through dovetails that join the wide panels of a cabinet, or half-blind dovetails that keep a drawer front in place through repeated use, you can be sure a dovetail is a sign that a project is built to last for generations.

The biggest problem is the time it takes to cut dovetails by hand — especially when you have a lot of them to cut. To solve this problem, it's a good idea to consider using a dovetailing jig.

Now there are a lot of dovetailing jigs on the market. But if you're looking for a way to cut just about any type of dovetail arrangement you can think of (and maybe a few you haven't), then you don't need to look any further than the *Leigh D4* dovetail jig shown above. **Note: The latest version of this jig is the *D4R*. From a capability and use standpoint, the *D4R* is identical, the major changes relate to its manufacturing, new built-in stops, aluminum clamping bars, and textured clamping surface.**

The *Leigh* jig is arguably the most versatile dovetailing jig available (check out the Closer

Look on page 2). It's strength is cutting through dovetails in a wide range of material thicknesses from $\frac{1}{8}$ " to $1\frac{1}{4}$ " and up to 24" wide.

You can even cut a host of other dovetails, like half-blind dovetails for drawers and sliding dovetails for cabinet work, using the same jig. But what I think is the best feature of the whole jig is that I can arrange and space the dovetails just about any way I like. I'm not limited by the fixed spacing and size of most conventional dovetail jigs and their templates.

FINGER ASSEMBLY

To allow for this, the "template" on the *Leigh* jig is adjustable. Instead of a fixed template, there's a reversible assembly with a set of "half-fingers" and a pair of dual scales, like you see in the first two margin photos on page 2.

One end of the half-finger controls the tail location and spacing, while the opposite end of the finger handles the pin. The dual scales help you accurately position the assembly depending on which type of dovetail joint you're cutting.



To lay out the dovetails, you loosen the fingers and slide them along the support bars to match your dovetail layout — unlike most jigs which force you to design or adjust to match the spacing of the template. And since each finger controls both parts of the dovetail, any change you make to the tail is automatically accounted for in the pin.

Locking the fingers in place with a screwdriver (supplied with the jig) fixes the arrangement of both the tails and the pins so they mate perfectly once you cut the joint. As with any jig, you'll probably need to do a little "tweaking" to get a perfect fit (more on that later). But once that's complete, you can cut joint after joint knowing each one will fit perfectly.

As I mentioned, the finger assembly is reversible. With the assembly set so the white portion of the scale is to the right, like you see in the center photo, you're ready to cut through dovetails. Flipping the assembly end for end places the green part of the dual scale to the right, allowing you to cut half-blind dovetails.

Assembly. You will need to do some assembly before using the jig. The finger assembly goes together quick. All you have to do is attach the scales to each end. The stops, cams, and clamping bars go on next. Add in the time it takes to make

a plywood base (for clamping the jig to a benchtop), and you'll have a couple hours invested in the entire assembly process.

Setting up the Jig. With the assembly complete, you'll need to spend a little time adjusting the stops so the workpieces are positioned perfectly square once they're in the jig (bottom margin photo).

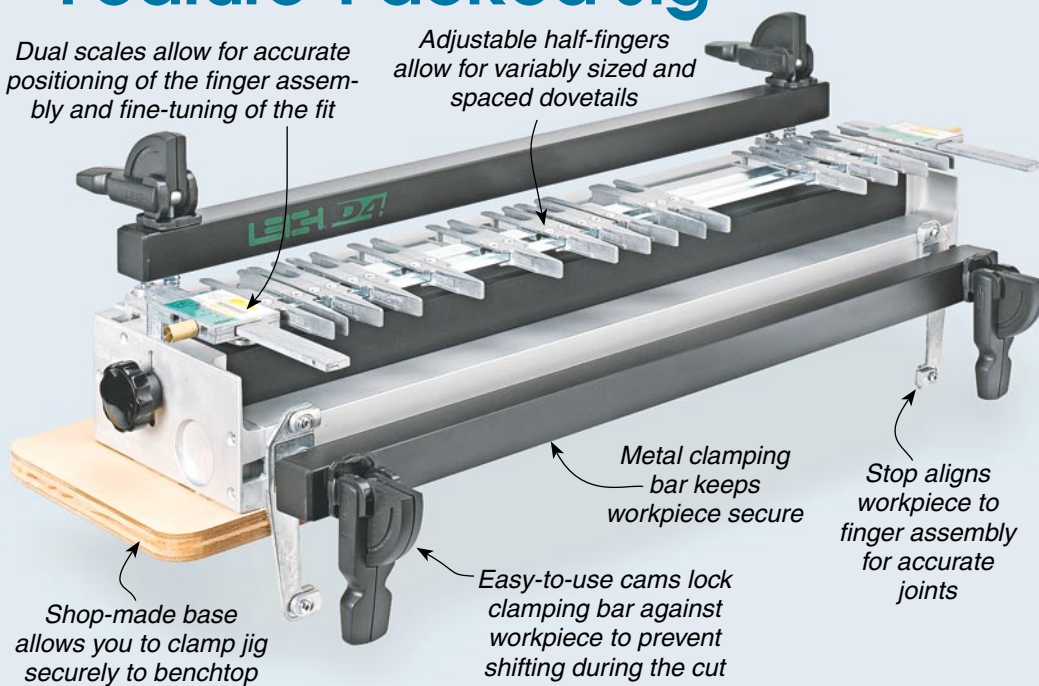
This doesn't take much time after making a couple squaring blanks from some scrap plywood. Plus, it gives you a chance to familiarize yourself with the jig.

Instruction Manual. The manual that comes with the jig is one of the most detailed I've ever seen. And its step-by-step sections cover the wide variety of dovetails you can cut with the Leigh jig.

Cost & Availability. As you might expect, a dovetail jig with all this capability won't be cheap. For the bread-and-butter work of through and half-blind dovetail joints, the basic jig (with a set of bits) will run close to \$500 (D4R). And you can run the cost hundreds more by adding additional bits and accessories for cutting through mortise and tenon joints, box joints, and even some custom joints.

The Leigh D4R dovetail jig and optional accessories are available through many woodworking stores and catalogs. To find a list of sources, visit www.leighjigs.com.

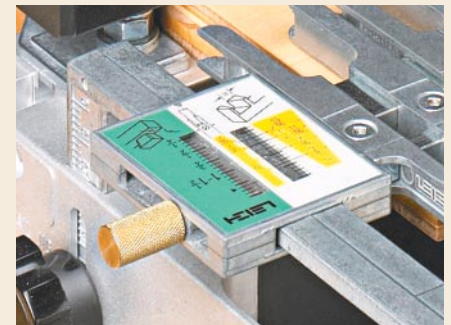
Closer Look at the Original D4: Feature-Packed Jig



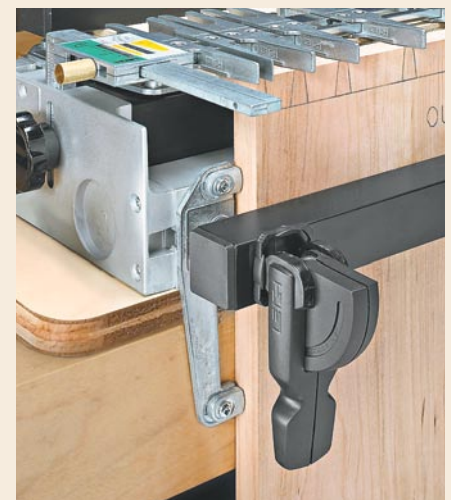
Checking out the Details



▲ **Fingers.** The adjustable half fingers allow for variable spacing and sizing of both the pins and tails of a dovetail joint to suit your project design.



▲ **Scales.** A dual scale (white/green) at each end of the finger assembly helps align the fingers parallel to the workpiece and allows you to accurately "dial-in" the fit of the joint.



▲ **Cams & Stops.** Adjustable cams lock the workpiece securely in place and adjustable stops ensure the workpiece is positioned properly.

Routing the Through Dovetail

Once the jig is assembled, you're just about guaranteed a perfect dovetail. All you need to do at this point is follow a few key steps.

SET UP THE FINGER ASSEMBLY

To keep the finger assembly level during setup and use, you'll need to install a spacer under the upper clamp bar to begin the setup for cutting the tails (photo 1 at right).

After clamping the spacer in place, install the finger assembly in the "PIN" position. So why place the fingers in the "PIN" position if the tails are cut first? Simple, it's the only way to access the screws that allow you to adjust the fingers.

Sliding the fingers around is how you arrange the dovetail pattern. To do this, I find it works best to lay out the pattern on the end of one of my tail boards first, then slip it into the jig (photo 2 at right).

Locating the fingers is just a matter of mating a pair of fingers and centering it over the pin portion of the layout. This gives you the smallest pin possible (my preference). For larger pins, space each pair of fingers slightly apart. Note: You only need a half finger for the half pins at each end of the board.

ROUTING THE TAILS

Now you're just about ready to cut the tails. To do this, you'll need to flip the finger assembly around, place it in the "TAILS" position, and then lock it in place.

The exact placement of the assembly isn't critical since you'll be making a cut straight through the workpiece. But it is important that the finger assembly be *parallel* to the workpiece. The scale at each end of the finger assembly will help you align it just right.

To cut the tails, you'll need to install one of the many dovetail bits available for the jig along with a bushing. The jig is supplied with a pair of bits (margin photo). And they work fine for through dovetails in materials $\frac{1}{2}$ " to $\frac{13}{16}$ " thick.

Cutting Depth. Once you have the bit and a bushing installed, you're ready to set the cutting depth. I drew a baseline on my tail board to match the thickness of the mating pin board. With the baseline in place, I found it easy to split the line with the bit to cut just a hair deep (inset photo below). This way, once you glue things up, you can sand the ends of the joint perfectly flush.

At this point, you're ready to rout the tails in *all* the tail boards. Note: The *inside* face of the tail boards should be facing out as you make the cut for the tails. And as long as you have the depth of cut

set correctly, you can cut the tail boards for the actual project.

Routing the tails is just a matter of guiding the bushing along the inside edges of the fingers (photo at left). Just be sure to rout down the slot formed by the rounded ends of the fingers, not the straight ones.

ROUTING THE PINS

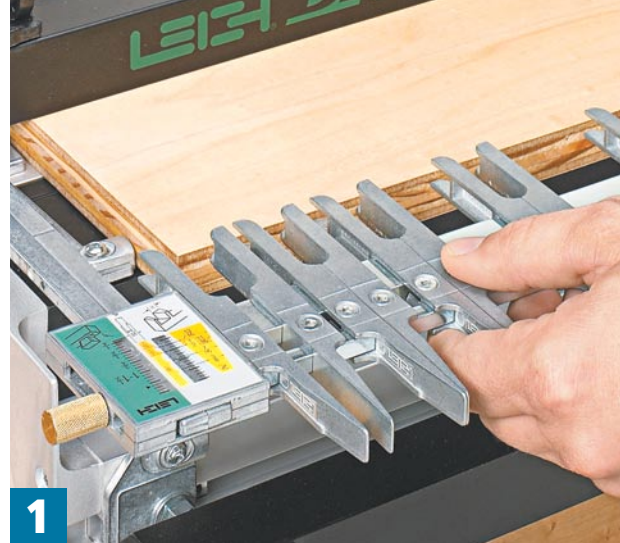
With the tails routed, you have half the joint complete. To rout the pins, you'll need to turn the finger assembly over so it's back in the "PINS" position, without making

◀ **Routing the Tails.** After setting the bit to "split" the baseline in half (inset photo), rout the tails by guiding the router bushing into the slots to remove the waste.



▲ Bits by the pair.

Through dovetails require a pair of bits — a dovetail bit for the tails, and a straight bit for routing the pins.



1

▲ **The Initial Setup.** Although you'll rout the tails to start with, the first step is to install the finger assembly in the "PIN" position.



2

▲ **Adjust the Fingers.** Using the tail board as a guide, adjust the fingers to match nearly any layout you can come up with.



3



any change to the position of the fingers. And here's where the scale setting will really come into play.

Since the finger assembly guides the bushing (and bit) along the angled fingers, how far in (or out) the assembly is changes the fit of the joint. So you'll need to make some test cuts in some scrap to fine-tune the fit (the same thickness as your pin boards).

It's best to set the finger assembly so the pins start off too big. Then you can slide the finger assembly in and shave a little off each pin until the fit is just right.

The pins are cut with the straight bit. So after installing it in place

of the dovetail bit, you'll need to adjust the depth of cut to match the thickness of the tail boards. Here again, I like to set the cutting depth just a hair deep.

Once that's complete, you can rout out the waste between the pins. Note: The *outside* face of the pin board should be facing out.

TESTING THE FIT

Completing the pins allows you to test fit the joint. But as you may recall, the finger assembly on the jig was set to make the pins a little oversized to start with.

This means the two halves of the joint probably won't fit together perfectly. What you're looking for is a nice sliding fit (photo at left).

If you find the joint is too tight or won't fit at all, simply slide the finger assembly away from you a little and lock it in place. Then reinstall the same board and "shave"



◀ **Test the Fit.** The goal is to adjust the finger assembly to rout the pins so they just slide into the tail board with firm pressure. Once you're there, you can rout all the pin boards.

Expand the Possibilities: Additional Joints with the Leigh Jig

You can do a lot more with the *Leigh* jig than cut through dovetails. A couple common dovetail joints you can handle easily are the half-blind and sliding dovetails shown at right.

Half-Blind. The design of the finger assembly on the *Leigh* jig makes quick work of cutting variably sized and spaced half-blind dovetails. You can design a drawer any size you'd like, instead of having to "fit" it to the fixed templates on most other dovetail jigs.

Sliding. Another handy joint you can cut with the *Leigh* jig is the sliding dovetail. For that, the finger assembly and a guide bar (supplied with the jig) guide the router as you cut each half of the joint.



▲ **Half-Blind Dovetails.** Building drawers with half-blind dovetails is a snap — even with the variable size and spacing shown above.



▲ **Sliding Dovetails.** The sliding dovetail shown above is the perfect way to join shelves and partitions together securely in any project.



▲ **Routing the Pins.** To rout the pins, flip the finger assembly around and set the cutting depth of the straight bit. Rout the pin board with the outside face facing out.

the pins slightly with the assembly in the new position.

You'll need to repeat this process until the joint slides together. If the fit is too loose, just slide the finger assembly towards you slightly and try again with a new pin board (or cut the end off the old one).

Once you have the fit the way you like, you can rout the pins in all the pin boards — and then you're ready to assemble your project. 🛠️