

# Dovetail Jig

Years ago when I first learned to cut dovetails, my first joints weren't things of beauty. Sometimes there were more shims than pins. Over time, my work got better and faster. But despite the improvement in my skills, I still had trouble cutting tails or pins consistently, especially if I got out of practice.

This jig allows you to make great dovetails on your first day. The idea came to me when I was building a Shaker stepstool using hand-cut dovetails. I made a jig that fit over the end of a board to guide my saw through the cut and provide a perfect tail. The jig didn't cut pins and only worked on 3/4"-thick boards. I guess I wasn't thinking big that day.

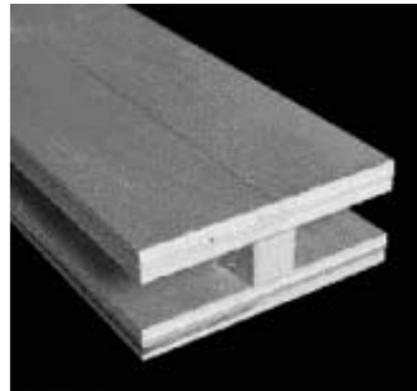
A few weeks later it came to me: Why not build a jig that cuts both tails and pins and is adjustable to a variety of thicknesses? So I made this jig. From the first joint I cut using it, I got airtight joints. It was very cool.

This jig uses a 9-degree cutting angle. Woodworking books say that 9 degrees is intended more for soft woods than hardwoods (which use a 7-degree angle) but I thought it a good compromise. You can build this jig entirely by hand, but I cheated and used a table saw for a couple of the precise angle cuts. Let your conscience be your guide.

One of this jig's peculiarities is that you'll sometimes have to cut right on the pencil line. As designed, this jig works best with Japanese-style Ryoba saws on material from 3/8" to 3/4" thick. Use the saw's ripping teeth when making your cuts. You could modify this jig to accommodate Western saws, but you'd have to take a lot of the set out of the teeth so you didn't tear up the faces of the jig. The set of a saw's teeth basically allow you to "steer" a blade through a cut. This jig does all the steering. You just have to press the gas. PW

By Jim Stuard,

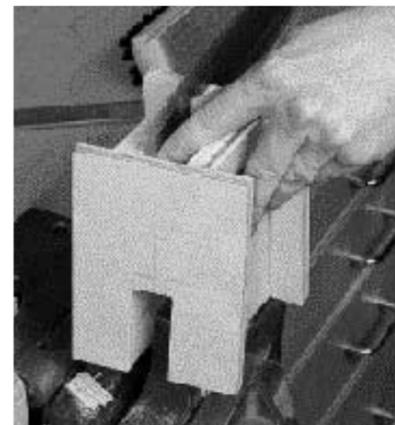
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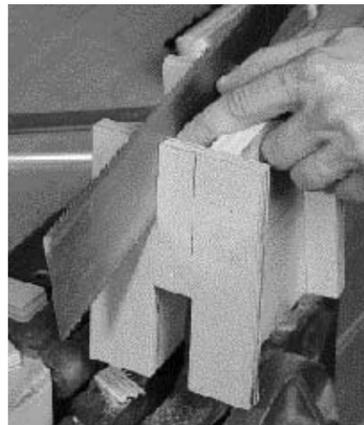
**Start With a Sandwich**  
Begin by sandwiching three pieces of wood. This part is made from two pieces of 3/4" x 6" x 36" plywood with a piece of 1" x 1" x 36" solid wood centered between. Use a spacer to index the center precisely in the middle of the larger panels. Glue and nail the sandwich together.



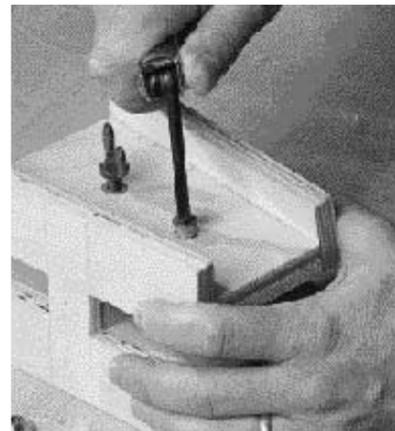
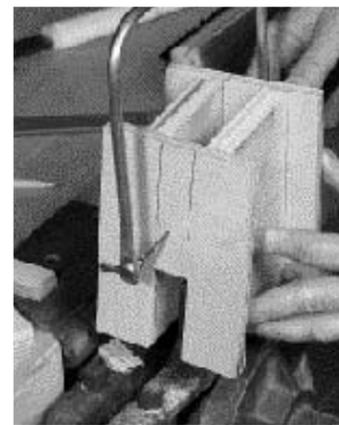
**Cutting the Angles**  
Set your saw's blade to 9 degrees and crosscut the end of the sandwich while it's flat on the saw. Next, tilt the blade back to square and set the miter gauge to 9 degrees as shown (above). You can use the angled end of the sandwich to set your miter gauge. Lay out a center line down the middle of the sandwich and mark from the end of the line about 3 1/2". Use a sliding t-bevel to transfer the angle to the flat side. This yields a jig that will let you cut dovetails in material as narrow as 3" wide. Any narrower and you'll have to shorten the jig. Lay the extrusion flat on the saw table and cut to the line. The jig will be a little narrower on the other side but that's OK.



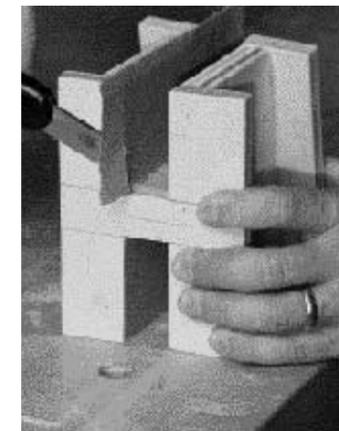
**Remove the Waste**  
Attach the 1/2" x 4 1/4" x 6" faces to the ends of the jig with nails and glue. Use a Ryoba saw to start the cuts to open up the channels in the jig (above and right). Use a coping saw to cut out



the part of the ends that cover the little channels in the sandwich (far right). Note the blade is perpendicular to prevent binding on the jig itself. Clean up with a rasp and sandpaper.

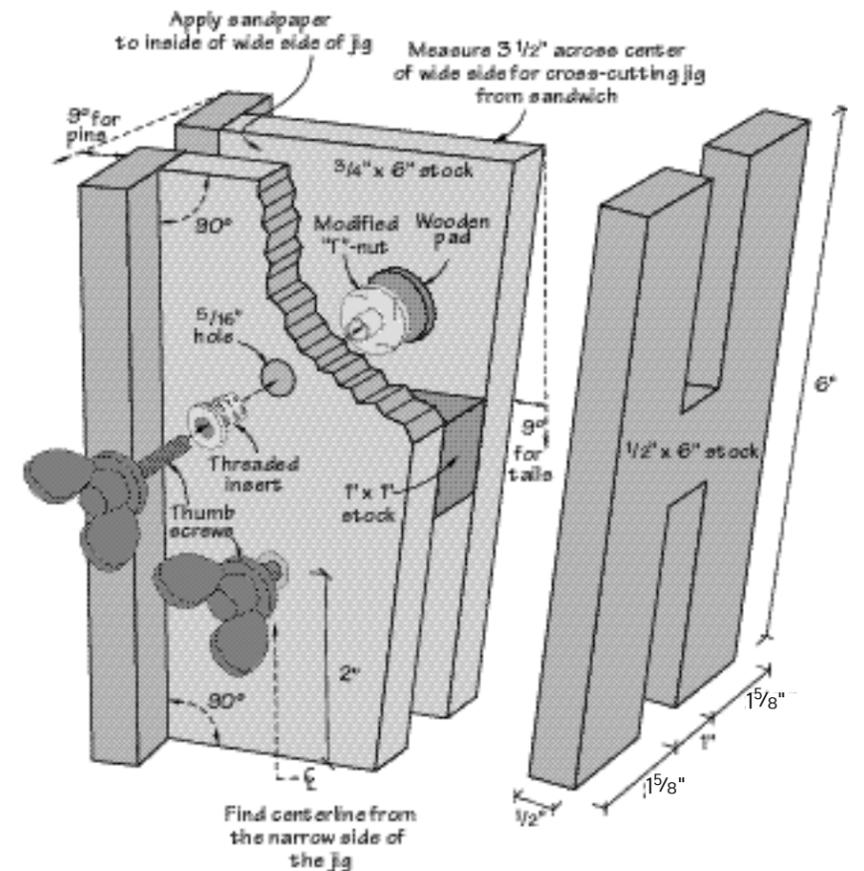


**Threaded Inserts**  
Lay out and drill 5/16" holes as shown in the diagram. These accommodate the threaded inserts for the set screws. Attach the threaded inserts using a hex key/Allen wrench.

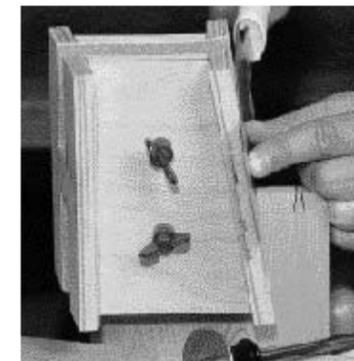


**Add an Abrasive**  
Using contact cement, attach 120-grit sandpaper to the same side of the inside channel, on both sides of the jig.

**Quick Clamping**  
Doctor up a couple of 1/4"-#20 T-nuts by pounding over the set lines and grinding off a little of the threaded barrels. With some two-part epoxy, attach some 3/8"-thick wooden pads to the face of the T-nuts. When the epoxy is set, sand the pads to fit the T-nuts. Run your thumbscrews through the threaded inserts and attach the T-nut/pads to the thumbscrews with some thread-locking compound (available at any automotive parts store). Finish the jig by attaching something slick to the faces. I used some UHMW (Ultra High Molecular Weight) plastic self-stick sheeting. It's 1/16" thick, and if you wear out the material on a face, you just peel off the old material and stick on some new. You could just as easily use some wax on the wood faces. You'll just have to sand them flat, eventually.



Schedule of Materials: Dovetail Jig			
No.	Item	Dimensions T W L	Material
1	Sides	3/4" x 6" x 36"	Plywood
2	Center block	1" x 1" x 36"	Poplar
2	Faces	1/2" x 4 1/4" x 6"	Plywood



**Cutting Tails and Pins**  
Using the jig couldn't be simpler. I cut tails first. That's a personal choice, but this jig will work well whether you're cutting tails or pins first. The layout is a little simpler than when going "free-hand." All you do is mark the depth of the cut with a marking/cutting gauge and lay out the spacing for the tails on the end of the board. Use the pencil marks to cut out the tails (above) and when you get the waste cleaned out, use the tail end of the board to lay out the pins (right). Use a sharp pencil for marking, then cut out the pins. Check the fit of the pins to the tails using a piece of scrap as a hammer block across the whole joint. If they're a little big, do some fitting with a four-in-hand rasp. The joint should be snug, but not so tight that it cracks the tail board when hammering the joint together.

