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Table Saw Dovetail Jig

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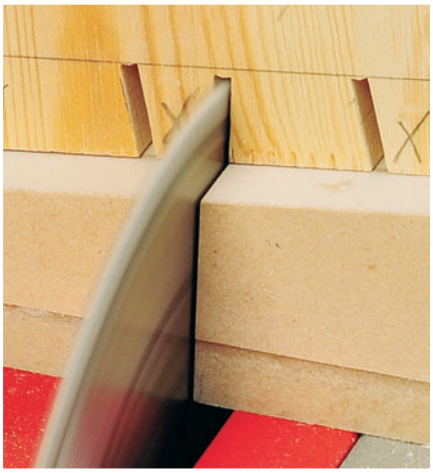
Table Saw Dovetail Sled

By Sandor Nagyszalanczy

In many ways, dovetails evoke the essence of woodworking. There are several avenues available to form dovetails, by hand and with a variety of manufactured jigs. Here is an ingenious shop-made jig for the table saw.



If you like the look of hand-cut dovetails, but don't have time (or patience) for all the meticulous work it takes to create them, then try this table saw method which uses a sliding dovetail sled to cut 90 percent of each joint. The jig cuts dovetails far faster than you can cut them by hand, and you can size the pins and tails and customize their spacing to suit just about any project — join drawer sides, build a box or small chest, etc.

With care and a bit of practice, you can produce large or medium sized, "furniture grade" 8° dovetails in both hard and soft woods. However, I think the jig is best for quickly cutting workmanlike joints that are serviceable for jobs like joining parts for tool chests and totes, drawers for kitchen or shop cabinets, and so on.

The drawing on page 36 shows the basic dimensions and construction of the dovetail sled, which you can make from either MDF or a high quality plywood, such as Baltic birch. Most of the jig is made from 1/2"-thick stock. As shown, this jig is capable of handling stock up to about 12" wide (you can build a jig to handle larger work: simply increase all dimensions proportionally to build a bigger jig — just keep all the angles the same).

Making the Jig

Start by cutting out the jig base (piece 1) and a pair of 1/2" pin fences (pieces 2) that align and support the pin boards. Bevel the inside-facing end of each pin fence at 82°. Glue and nail two triangular braces (pieces 3), cut at 45°, to the inside face of each pin fence, then attach them to the baseplate, as shown in Figure 1. Position each at an 8° slant relative to the front edge of the base.

Using a taper jig on the table saw, cut two pairs of 8° wedges out of 3/4" stock. Glue each pair together to form the wide ramps (pieces 4) that will support the tail boards at an 8° angle. Glue and nail each ramp flush with the long edge of the base, as shown in Figure 2 (don't drive nails in the area around the middle section of the ramps, where the table saw blade passes during use). Butt the tail fence (piece 5) up to the inside of the ramps and fasten it in place, using three more triangular braces to keep it perpendicular to the base, as shown in Figure 3. Set the jig aside to let the glued parts dry overnight.

To guide the jig, I fastened an adjustable miter bar (piece 6) to the underside of the jig's base with short washerhead screws, as shown in Figure 4. Center the bar and use a large try square or framing square to set it dead square to the base's long edges. Set the finished sled's bar into one of your table saw's miter slots and adjust the bar so it's free of side play, yet slides smoothly. With a regular, not thin-kerf, blade fitted, start the saw and carefully "cut in" a registration slot on the pin fence as shown in Figure 5 on the following page. Move the bar to the other miter slot and cut in the second slot, then flip the sled around and cut in both registration slots on the tail fence side. To make the jig safer to use, glue square 2x4 exit blocks (pieces 7) to the base at the back of each slot, directly over the saw kerfs you just cut. To keep the jig from sliding beyond the point where the saw blade passes through the exit blocks, clamp a stop block into both of the saw's miter slots (see the lead photo, opposite page).

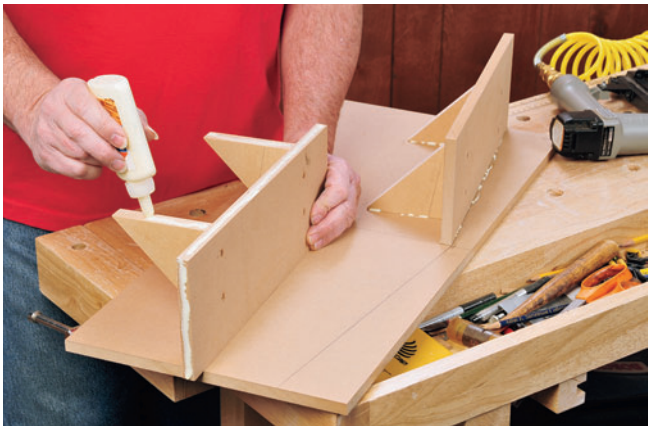
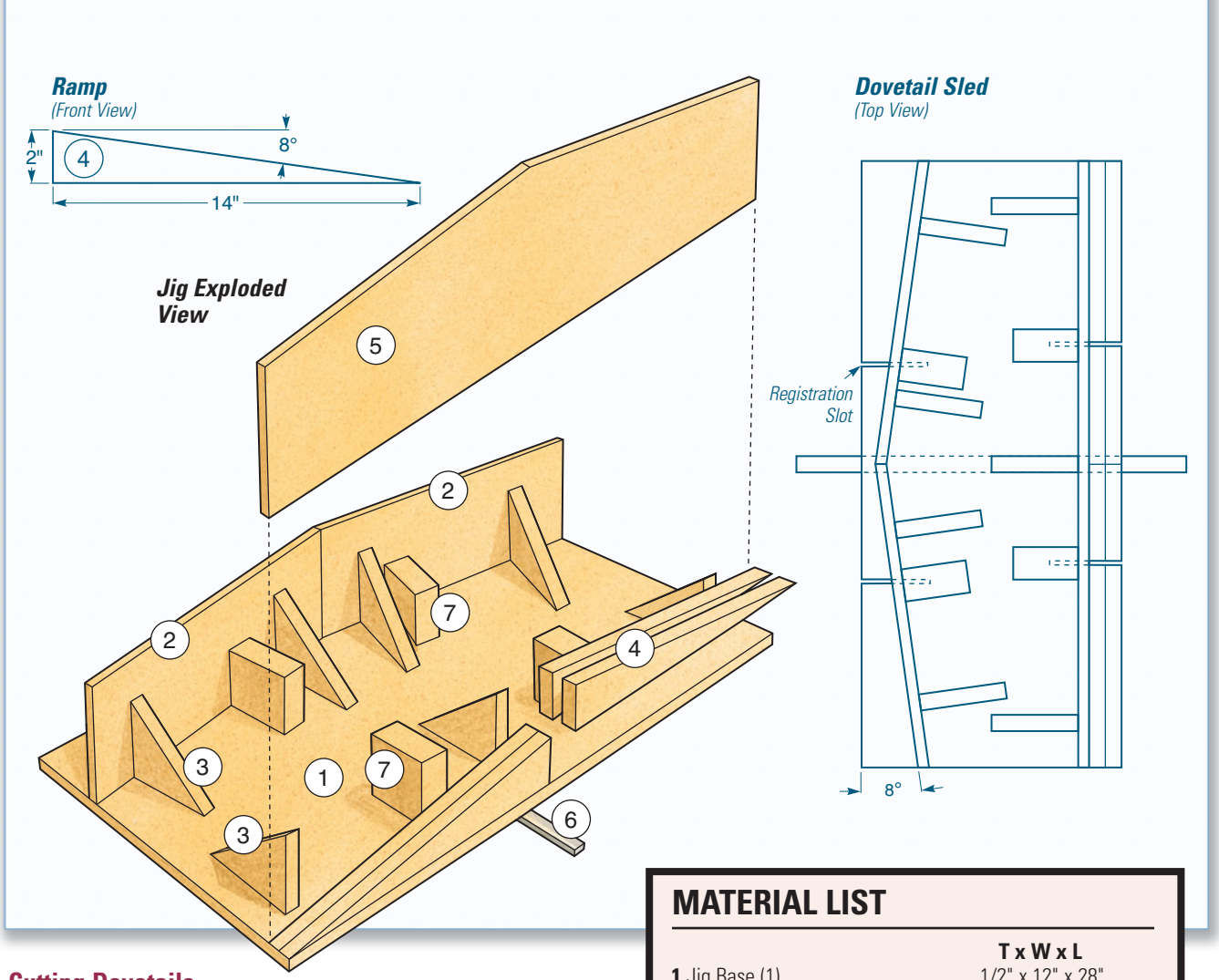


Figure 1: Attach the pin fences to the base at an 8° angle.

Figure 2: The 8° wedge ramp is formed from two 3/4" pieces.

Figure 3: Braces keep the tail fence perpendicular to the base.

Figure 4: Attach an 18"-long miter bar to the bottom of the jig.



Cutting Dovetails

To use the jig, start by marking out the width and spacing of the dovetail pins on the outside-facing side of all your project's pin boards (label the outside face, to help you orient the board for cutting later). Remember, you're drawing the "narrow" side of the pins. Figure 6 on the next page shows the angle of the pins in red for illustration; no need to mark pin angles on your boards, since those are set by the fence angles. Draw an "X" to indicate the waste areas between the pins. Use a square to draw a line across the end of each pin board to indicate pin depth — just a thin hair deeper than the thickness of the tailboards.

Figure 5. "Cutting in" a registration slot on all four of the jig's fences is essential for locating your dovetail cuts. Note the freshly glued-in blocks of wood: these cover the saw blade's exit points and protect your fingers.

MATERIAL LIST

	T x W x L
1 Jig Base (1)	1/2" x 12" x 28"
2 Pin Fences (2)	1/2" x 5½" x 14¼"
3 Triangular Braces (7)	1/2" x 4" x 4"
4 Ramps (4)	3/4" x 2" x 14"
5 Tail Fence (1)	1/2" x 7½" x 28"
6 Adjustable Miter Bar (1)	Rockler #22987
7 Exit Blocks (4)	1½" x 4" x 4"

Now set the jig in the table saw's right-hand slot. Hold the stock firmly against the left-hand pin fence, with the pin board's inside face against the fence. Set your table saw's depth of cut to just reach the depth line on the pin board. Now cut on the waste side of each mark that delineates the right-hand edge of the pin (Figure 7). For accuracy, use the saw kerf in the jig to line up your cuts. When all the right-hand cuts are done, move the jig to the saw's left-hand slot and repeat the process, this time cutting on the waste side of the left-hand edge of each pin. (If you have trouble keeping your lefts and rights straight, try labeling each pin mark "right" or "left.") You can remove the remainder of pin waste by taking multiple closely spaced saw passes, as shown in Figure 8.

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Figure 6: Here the angles of the pins are marked in red simply to illustrate the pin shape. Remember that you must mark out the "narrow" sides of the pins on the board's outside face. The "X"s indicate the waste areas.

Once pin boards are cut, use the pins themselves to transfer the dovetail layout to the inside face of each corresponding tail board (Figure 9). Label the inside face of each tailboard and mark the waste side of each line. Then, draw a square line across each joint to indicate tail depth.

Now flip the jig around front to back and use the tail-cutting ramps to saw out the tails (Figure 10). First, reset the saw's depth of cut so that the blade just nicks the joint depth line. Use the left- and right-hand ramps to cut along the right- and left-hand tail marks just as you did with the pins, moving the jig from one miter slot to the other as necessary. Hold the outside face of each tailboard against the fence and make sure to cut on the waste side of each line.

Rather than chopping out the waste between tails by hand, it's quicker and neater to saw the waste out using a band saw (or scrollsaw). I use a 1/8" wide, 14 TPI blade in my band saw, setting the saw's fence to guide the stock so that the blade cuts just shy of the joint depth line (Figure 11). Use a chisel and/or knife to clean up the inside corners of the tails and pins, as necessary, and to trim them for a tight, clean fit.

Figure 7: Start the process by carefully cutting the right side of each pin.

Figure 8: After establishing the left side of the pins, you can take multiple passes to remove the waste.

Figure 9: Mark out the tails on the tail board using the pin board as shown in the photo. Use a square to mark the depth of the tails. The process is similar to marking out for hand-cut dovetails.

Figure 10: Spin the jig around front to back and cut the tails, using the ramps on each side of the jig to make the right- and left-hand cuts.

Figure 11: An efficient way to remove the waste between tails is to use your band saw equipped with a narrow saw blade. Set the fence to the proper distance and carefully saw away the waste.

Sandor Nagyszalanczy is a furniture designer/craftsman, writer/photographer and regular contributor to Woodworker's Journal. *For more great jigs and fixtures, check out his book* The Complete Illustrated Guide to Jigs and Fixtures *available at* www.sandorsworkshop.com *or at* rockler.com.