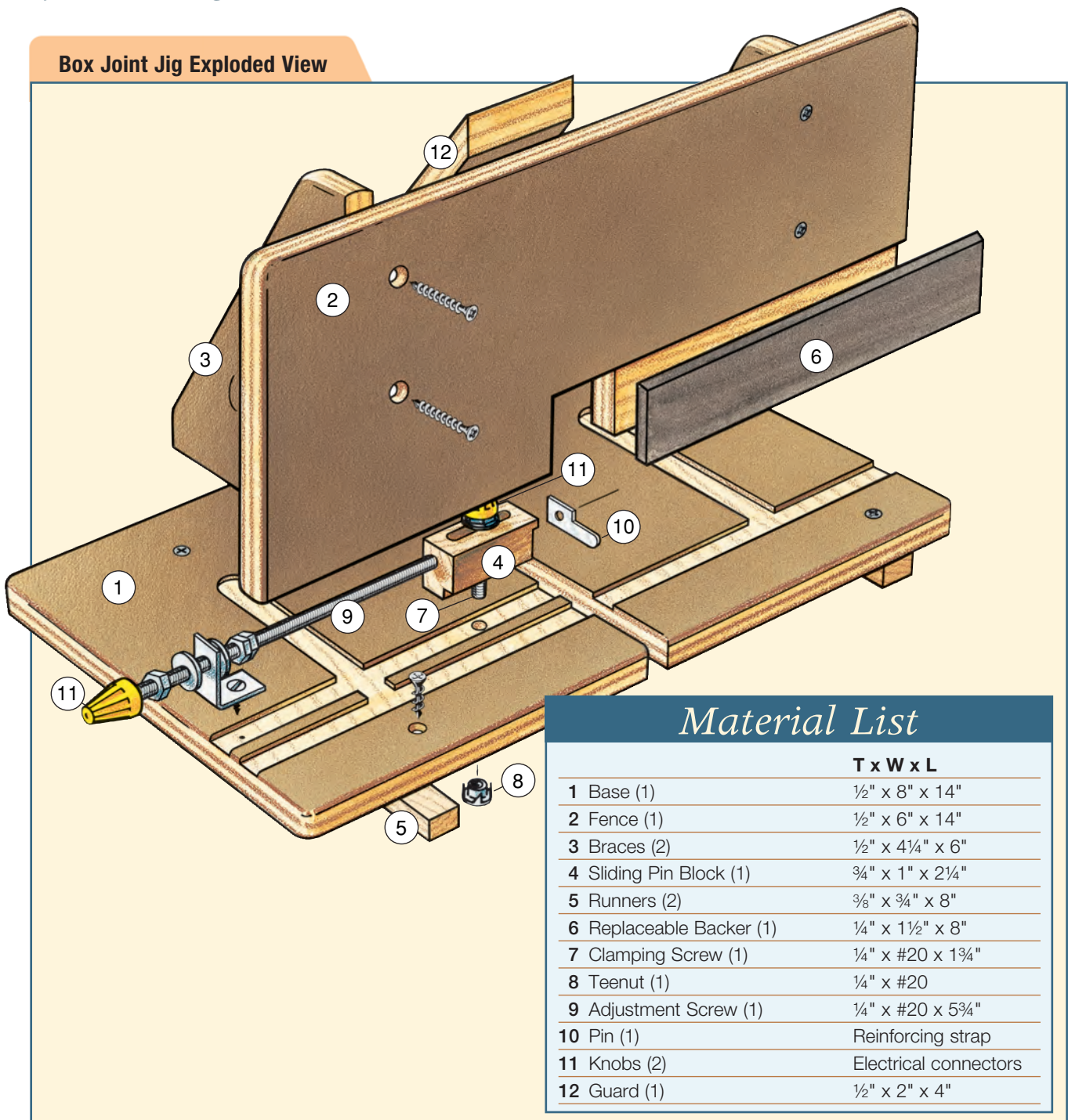


# ADJUSTABLE BOX JOINT JIG

On a standard-style box joint jig, setting up the pin to match the dado blade and getting the spacing just right makes the jig a fussy, single-use item. Here's an adjustable, reusable box joint jig that will suit any joint. It's the last one you'll ever make.

by *Ralph Bagnall*

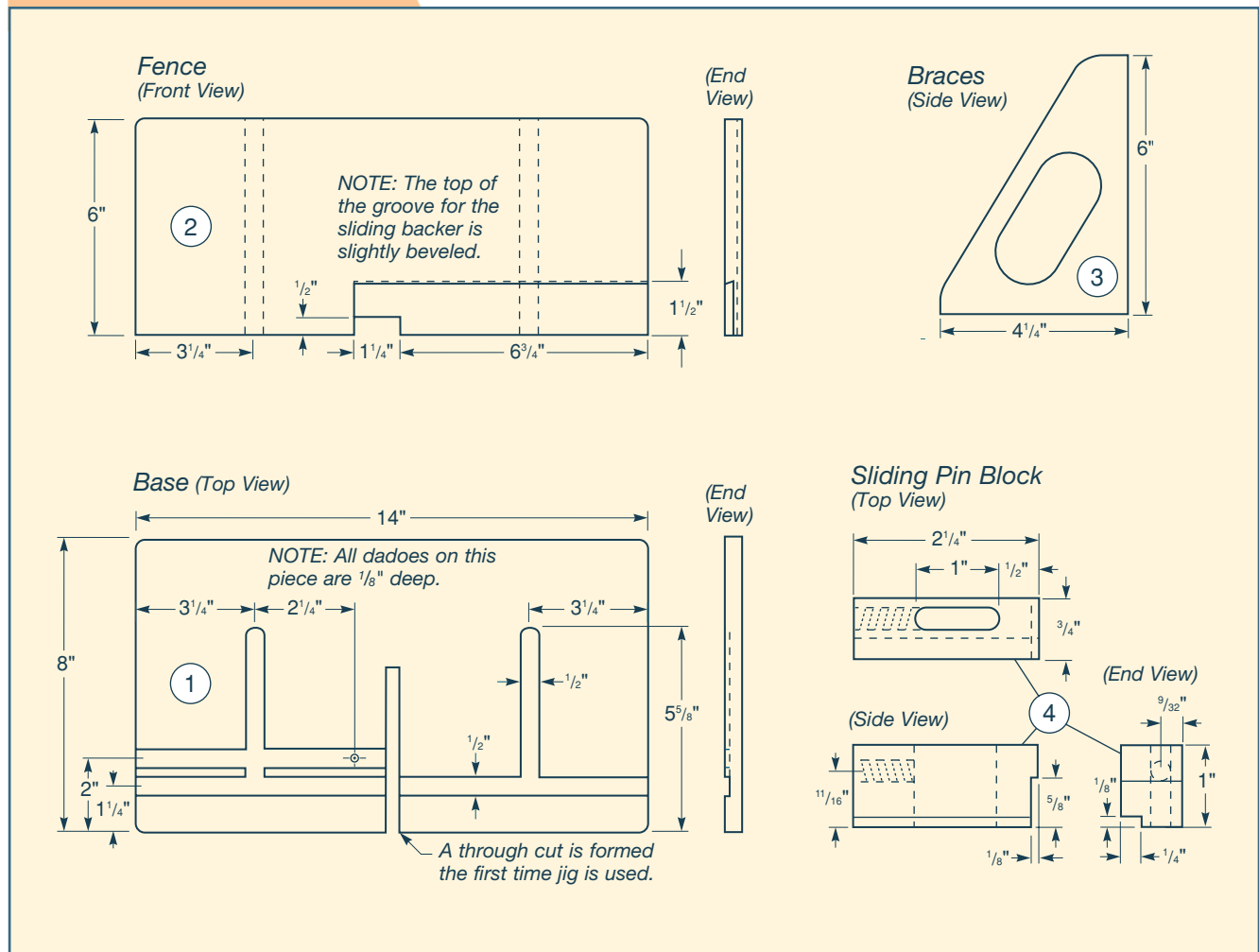
Box Joint Jig Exploded View



## Material List

	T x W x L
1 Base (1)	1/2" x 8" x 14"
2 Fence (1)	1/2" x 6" x 14"
3 Braces (2)	1/2" x 4 1/4" x 6"
4 Sliding Pin Block (1)	3/4" x 1" x 2 1/4"
5 Runners (2)	3/8" x 3/4" x 8"
6 Replaceable Backer (1)	1/4" x 1 1/2" x 8"
7 Clamping Screw (1)	1/4" x #20 x 1 3/4"
8 Teenut (1)	1/4" x #20
9 Adjustment Screw (1)	1/4" x #20 x 5 3/4"
10 Pin (1)	Reinforcing strap
11 Knobs (2)	Electrical connectors
12 Guard (1)	1/2" x 2" x 4"

## Technical Drawings



One of the significant benefits of this jig over fixed-style jigs is that the pin doesn't have to precisely match the dado blade. Only the leading edge is used to set the spacing. And, since it's mounted on a sliding block, you can make micro adjustments to the pin.

### Machining the Parts

Cut the larger pieces of this jig from 1/2" MDO. Mill shallow dado slots into the base (piece 1) for the fence, braces, and sliding pin block (pieces 2 through 4).

Cut two matching dados into the rear face of the fence to receive the braces. Cut the runners next (pieces 5), which must fit snugly into your saw's miter slots. It also helps to cut openings in the braces to provide a safe place for your hands.

The fence needs a wide slot to accept the replaceable backer (piece 6). Bevel the top of this slot to keep the backer in place. The bottom edge rides in the dado milled into the base. Use 1/4" hardboard for the backer. It is important

that the face of the backer is flush with the face of the fence.

Maple is a good choice for the jig's other hardwood parts. Make a rabbet on the bottom of the sliding pin block to create a step that rides in the dado in the base; then cut a 1/4" slot through the block for the clamping screw (piece 7). Next, drill a 5/16" clearance hole in the base and counterbore it on the bottom. This hole houses the Teenut (piece 8), for the clamping screw.



Drill one end of the sliding pin block and tap threads into it for the adjustment screw (piece 9). Mortise the other end to accept the pin (piece 10). Make all these cuts on a longer stick for safety, and trim off the short block last.

For hardware, you'll need a 1/2" x 3" reinforcing strap (for the pin), a 1/2" x 1"

corner strap and about 12" of 1/4" #20 threaded rod with a few 1/4" #20 nuts. Everything is easy to find at a home center.

The corner strap simply holds the end of the adjustment rod, so bore out one of the existing screw holes to 1/4". You can make your own knobs (pieces

11) for the threaded rods by dabbing a little quick-set epoxy into electrical wire connectors and screwing these onto the ends of the rods.

If your dados are snug, you can dry-fit everything together. You are going to need to cut a notch in the fence to allow for index pin adjustment, so mark the required opening. Drill a hole in the right side brace now, as well, for the threaded rod to pass through. Follow the drawings on page 27 to establish these locations.

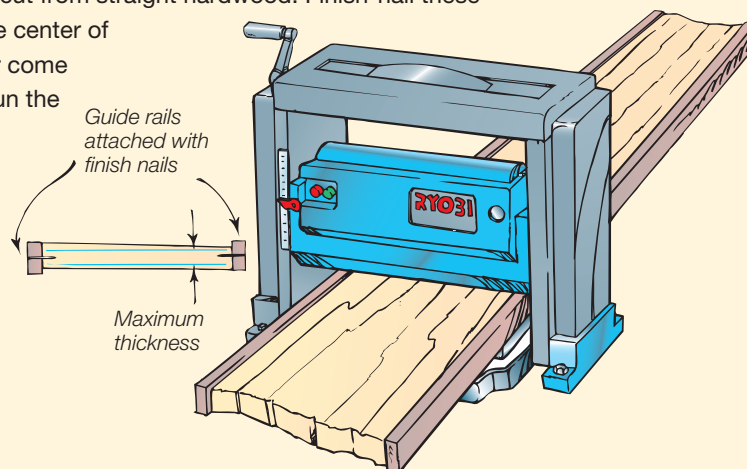
### Assembling the Jig

Time to glue and assemble the jig. This is also when you should add the runners for the miter slots. Set them into the

## QuickTip

### Straightening Twisted Lumber

Rough lumber with a diagonal twist can be difficult to straighten, unless you use this trick. Joint the edges of the board and set it on a flat surface. Shim the two high corners, then rip two guide rails from scrap stock: their height should be the same as the highest spot on the shimmed board, and they should be cut from straight hardwood. Finish-nail these in place, keeping the nails as close to the center of the guide rails as possible, so they never come in contact with the planer knives. Then run the assembly through the planer, alternating the sides: the top should be up on the first pass, down on the second, and so on, until the board is flat. The guide rails will keep the board perfectly aligned. You can use the same technique for flattening lumber on a wide belt sander.



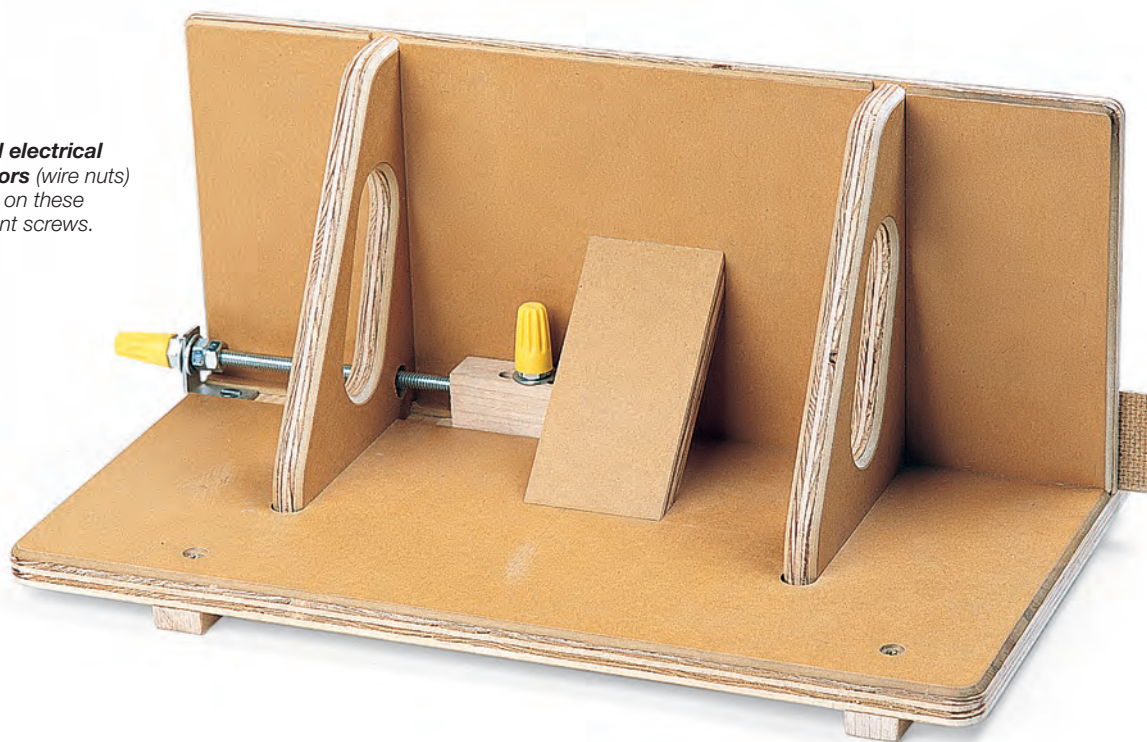


**Once the pin is adjusted properly**, the first series of pins and slots can be cut across the first workpiece (left photo, above).



**After the last cut**, clamp this piece to the jig fence and use it to index the first cut on the mating part, as shown in the right photo, above.

**We used electrical connectors (wire nuts)** as knobs on these adjustment screws.



miter slots, and use a square against the saw's fence to ensure the jig and runners will be square to the blade. For safety, add a guard (piece 12) where the blade comes through the fence to keep the blade covered during use.

### Cutting Box Joints

Using the jig couldn't be simpler. Set up your dado blade to match your desired

pin and slot thickness, and raise it to the correct slot depth. Slide the backer out of the way, loosen the clamping knob on the pin block, and turn the adjusting knob until the pin is the proper distance from the dado blade. (It helps to fit a spacer between the pin block and blade that matches the joint pin thickness.) Retighten the clamping knob and slide the backer up to the pin. Cut a pair of

test parts from the same thickness wood you'll use for the finished joints. If the spacing is off, re-adjust the pin slightly.

From here on, use the jig just like any other box joint jig. The next time you need to set up a different joint spacing, simply trim off the cut end of the backer (you can do this several times) and slide it back into place.