431782 Hammer Tapering Jig

Using the Hammer Tapering Jig . . . . . ©1999 Bill Spurlock

Replacement hammers need to have their sides tapered prior to installation to adjust hammer weight and provide passing clearance. In some cases the overall hammer width will have to be reduced to match originals that are narrower than available replacements. This jig uses a table saw, rather than the usual belt or disc sander, to do the job. Accuracy and consistency are much better than with sanding, and discoloration of the hammers from colored underfelt and molding wood dust are eliminated. In addition, the hammers can be tapered over their entire length to remove the maximum amount of weight to match light weight originals. This jig will fit any table saw and just about any size of hammer, vertical or grand. The miter strip location is adjustable to work in different saws. The miter strip is also adjustable in width via spreadable slots and allen screws, to fit most tables. Some small bench top saws will have much smaller miter slots, and for these the user can make their own wooden strip or mount the jig to an auxiliary board which can be clamped or screwed directly to the saw‘s miter gauge.
Any sharp carbide blade will do, but as with any cutting tool, table saw performance is only as good as the blade quality. Basic saw alignments should be correct, such as blade 90 degrees to the table top, blade parallel to the miter slots, minimal blade runout, and arbor bearings free of excess play. And whenever operating a power saw, always wear hearing and eye protection and follow the safety procedures as outlined in your saw manual.

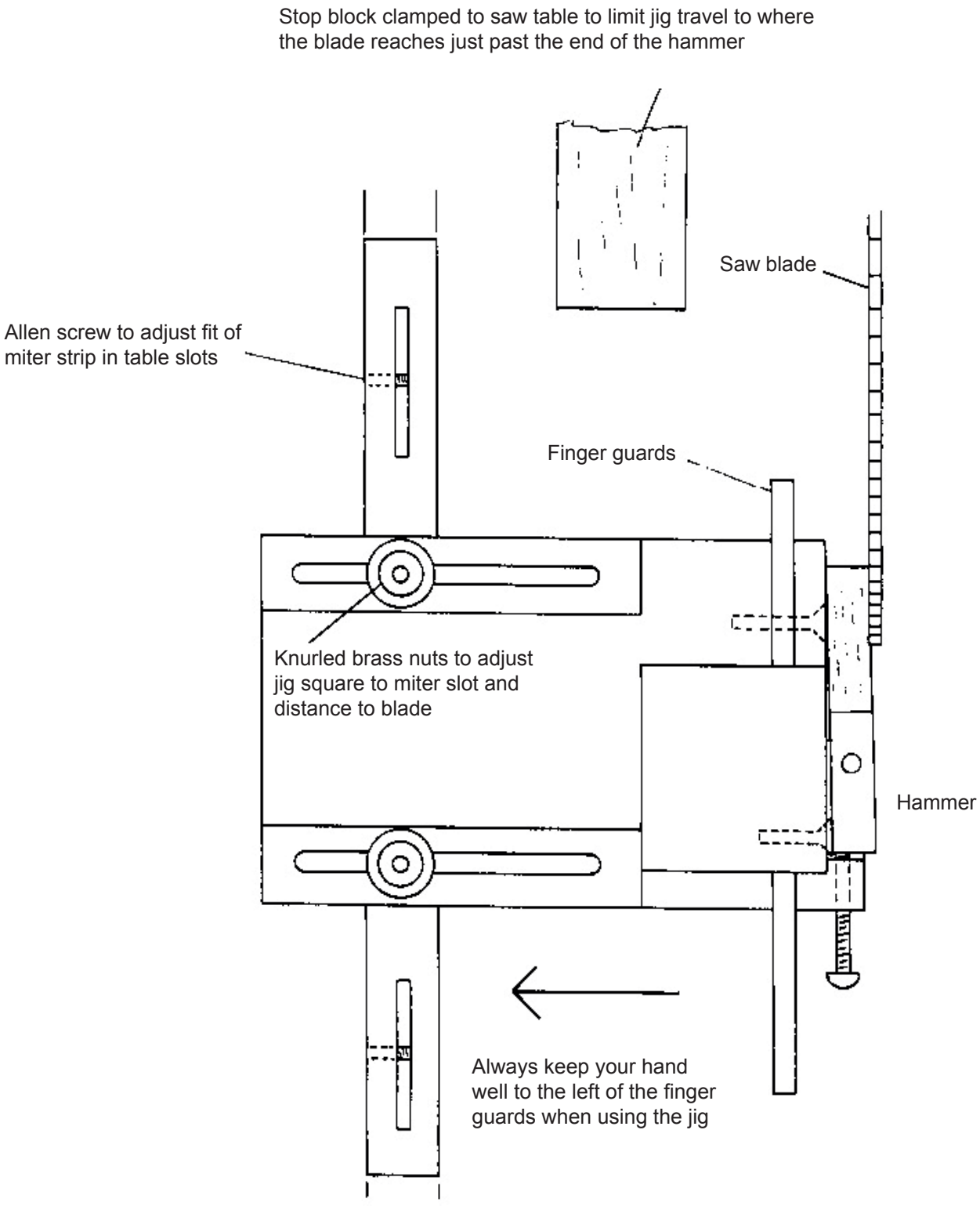
Setting up the jig

Note: Hammer tapering should be done after boring but before arcing the tails.

1. Using the wrench provided, adjust the allen screws in the miter strip so it slides freely in your saw’s table slot (the slot to the left of the blade) without excess play. See figure 1.
2. Turn the head and tail adjustment screws (1 & 2) down flush, so a hammer lays flush to the plastic.
3. Adjust the hammer position screw (3) to position the hammer molding as shown in Figure 2.
4. Clamp a bass hammer into the jig with the cam, and set your blade height about 1/4” above the widest part of the hammer felt.
5. Loosen the knurled brass nuts, and slide the jig over to the saw blade. Use a small square to set the jig square to the miter slot, with the hammer tip just barely touching the blade. Tighten the miter strip nuts. Remove the hammer, then double check that all parts of the jig clear the blade when you slide it past. Always hold the jig well to the left of the finger guards whenever using it.
6. Clamp a stop block to the saw table to stop the jig just past the point where the blade reaches the end of the molding. There is no need to slide the jig any further into the blade. For safety, always retract the jig well back toward the operator side of the table to change hammers.
7. To adjust the amount of taper, turn the tail adjusting screw (2) up approx. 1 1/4 turn beyond flush with the surrounding plastic surface, then taper one side of a test hammer. Readjust the screw as needed to give the desired taper, measured at the bottom of the tail. For 11mm hammers, I like to remove 1.5mm from each side for a final tail width of 8mm. Also check that the tapering starts at the desired point on the hammer. Screw (1) allows fine adjusting this point without having to loosen the brass nuts and upset your initial setting of the jig square to the miter slot. For maximum weight removal, you may want to back screw (1) out enough to make the entire hammer slightly narrower. If so, adjust to narrow the hammer crown half the desired amount when tapering one side, then readjust to remove an equal amount when tapering the second side. This way, the bore hole will remain centered in the molding.
8. Taper one side of each hammer, reset the tail adj. screw further out, then taper the other side of each hammer. The saw blade can be lowered to reduce blade exposure as you progress through the set to smaller hammers. When going from bass to tenor hammers, readjust screw (3) to maintain molding position as shown in figure 2.

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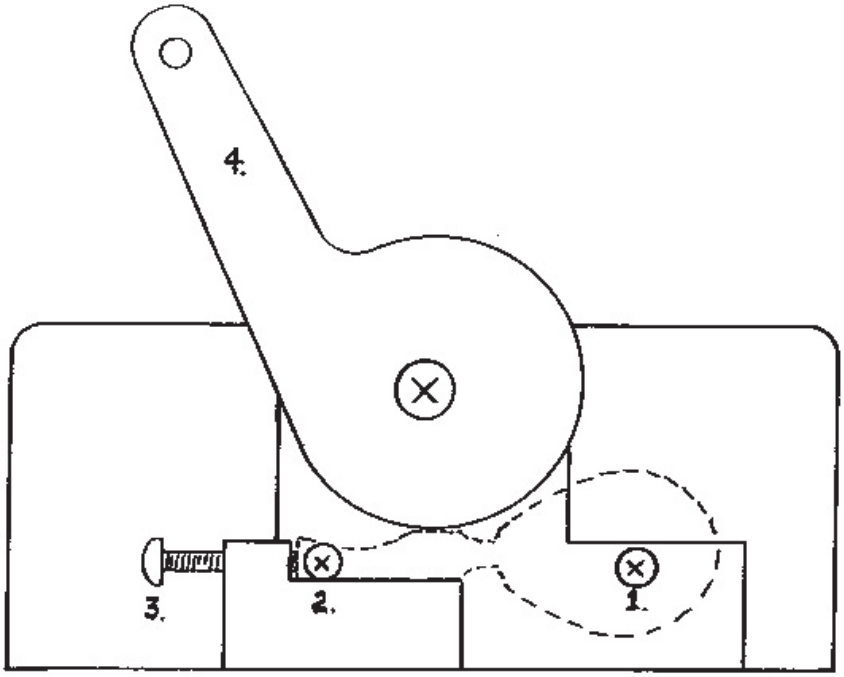
Figure 1: Hammer tapering jig - top view

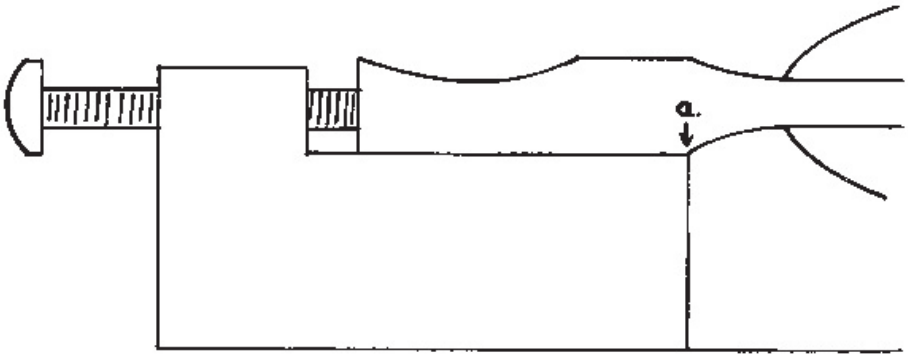


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Figure 2: Tapering jig - side view

1. Hammer head side adjustment: Use to fine adjust where the tapering starts and the overall hammer thickness.
2. Hammer tail side adjustment: Use to adjust the amount of taper. Set to taper one side of every hammer, then re-set to taper the second side.
3. Hammer position screw: Use to position the hammer lengthwise for most secure clamping and to accommodate very short moldings such as on vertical hammers. For the most secure clamping, adjust this screw to align point "a" on the molding with the corner of the hammer support ledge as shown.
4. Hammer clamping cam: Use to hold hammer into jig. Only moderate pressure is required. Get a feel for the correct clamping pressure by trying to pull a hammer out of the jig.





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