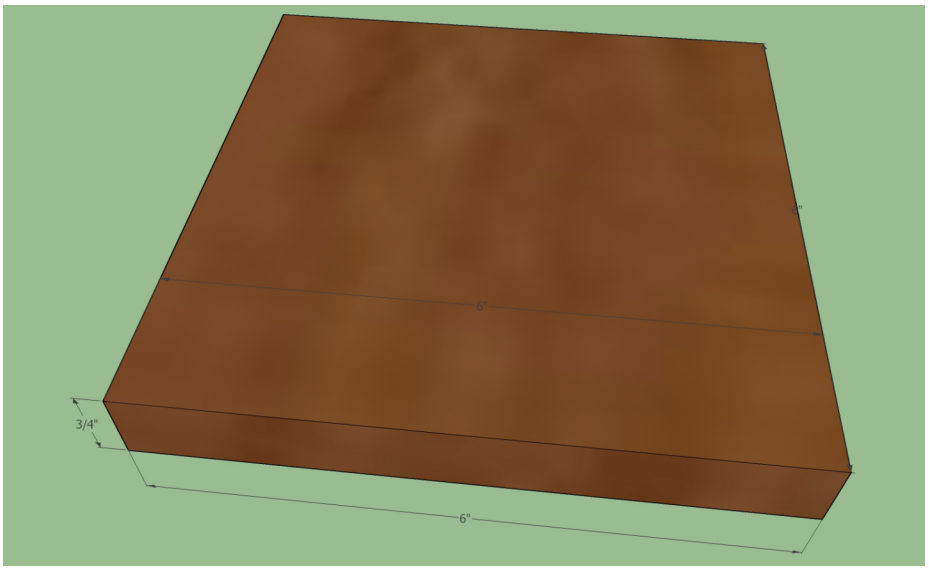
Instructions to create sliding pendant jig

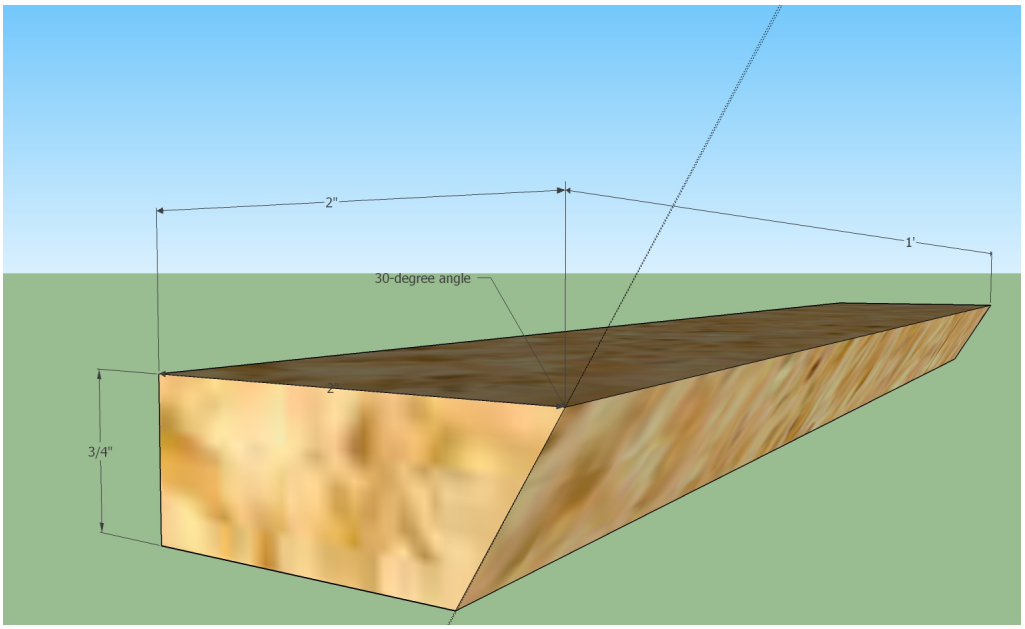
Leave the plywood, and slider guides square until the jig is assembled – this will aid greatly in layout.

Materials list at end of document.

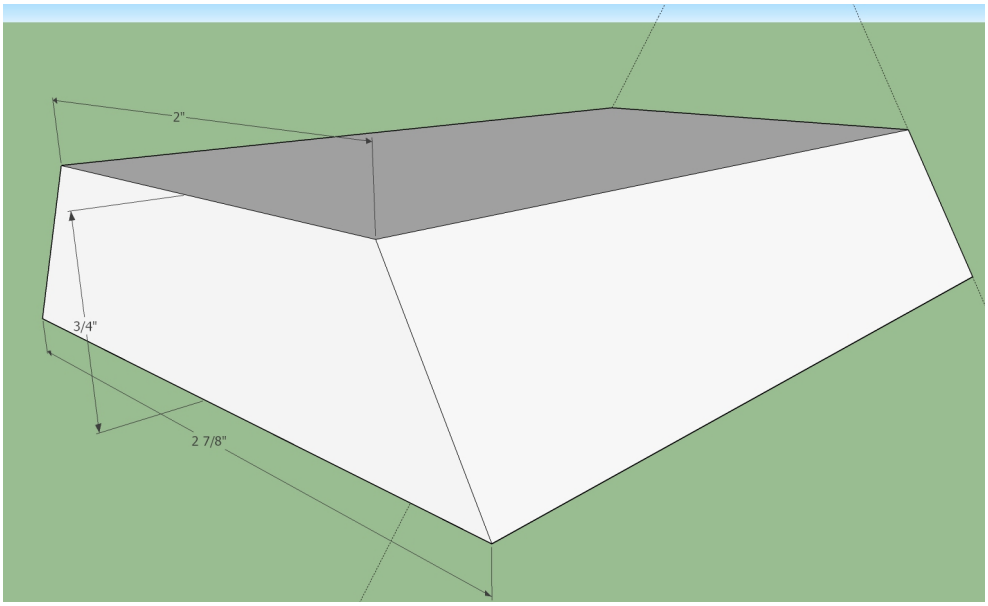
1. Cut a 6 inch square piece of high quality plywood – squareness and same length of the sides is more important than being exactly 6 inches



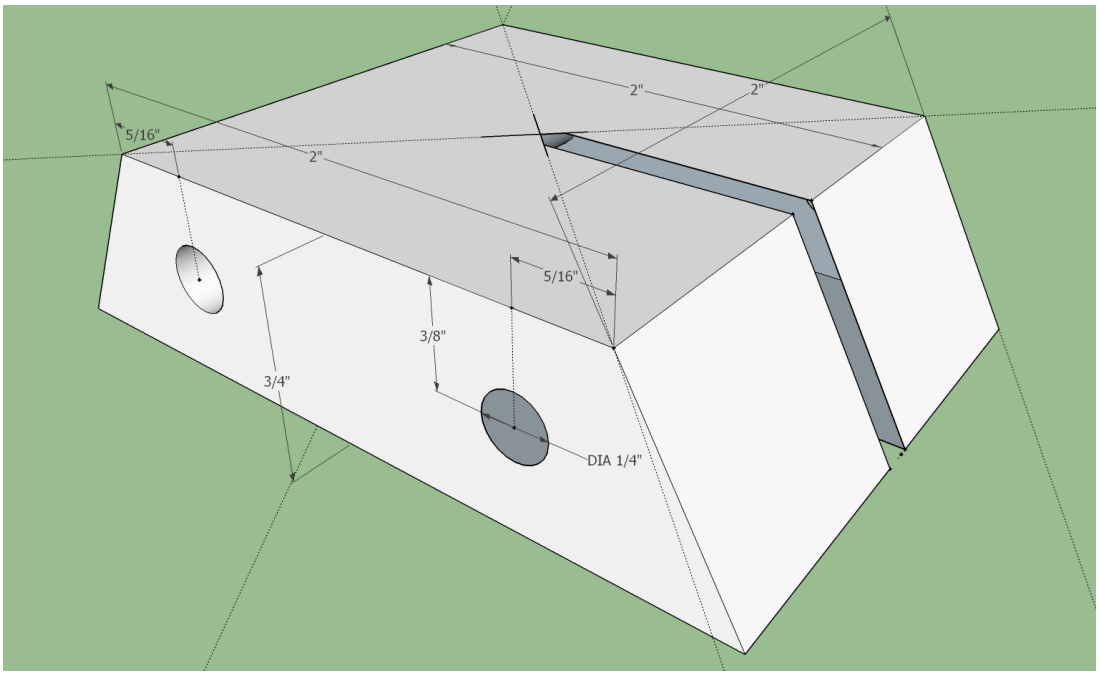
2. From a piece of S2S hard wood, cut two pieces with a 30-degree bevel on one side – these pieces must be 6 inches long and 2 inches wide at the widest part of the bevel. The grain of the wood should run lengthwise.



3. From the same hardwood cut a piece that is beveled 30-degrees on two sides and is 2 inches wide across the narrowest part of the two bevels. Cut this piece long enough to have a piece to insert into each end of the slot in addition to the 2-inch sliding pedestal mount (SPM) – make it at least 3 inches long. When this piece is assembled with the two pieces described in step 2, they should be the same width as the plywood cut in step 1.

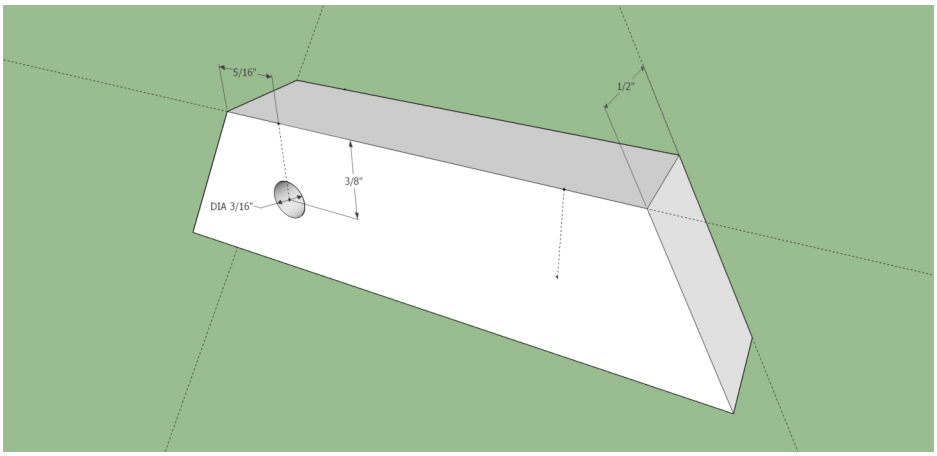


4. Cut a 2 inch piece off piece cut in step 3 – this becomes the actual Sliding Pedestal Mount (SPM). Save the remainder of the piece to cut end blocks (see picture below). Sand the sharp “points” of the bevels back a little bit.

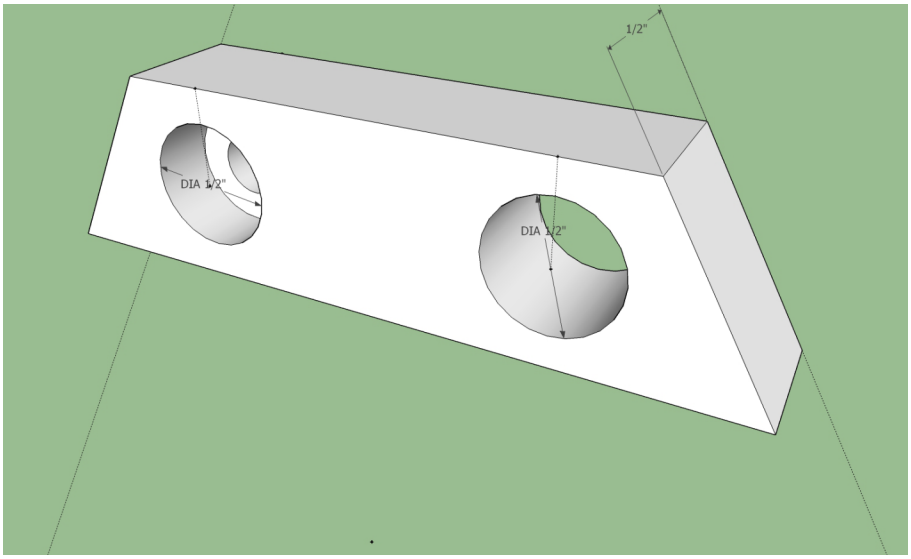


5. Cut two end blocks from the piece cut in step 3 – the end blocks should be short enough to allow the sliding pedestal mount to move at least 1-1/2 inches from center, and long enough to leave sufficient material at the ends when the jig is rounded.

6. Mark the two end blocks and the SPM at 5/16 from where the bevel intersects the top plane of the block on both sides/ends. Assuming the thickness of the material is 3/4 inch, mark a point 3/8 inch from the bottom and drill at the intersection of the 5/16 and the 3/8 measurement. NOTE: the size of the hole needs to be large enough to allow the lead screw to pass through and to allow for some misalignment between pieces. The leadscrew needs to pass through the SPM and from one end of the piece to the other. Drill both sides of one of the end blocks and the sliding pedestal mount. Only one side of one of the end blocks needs to be drilled.



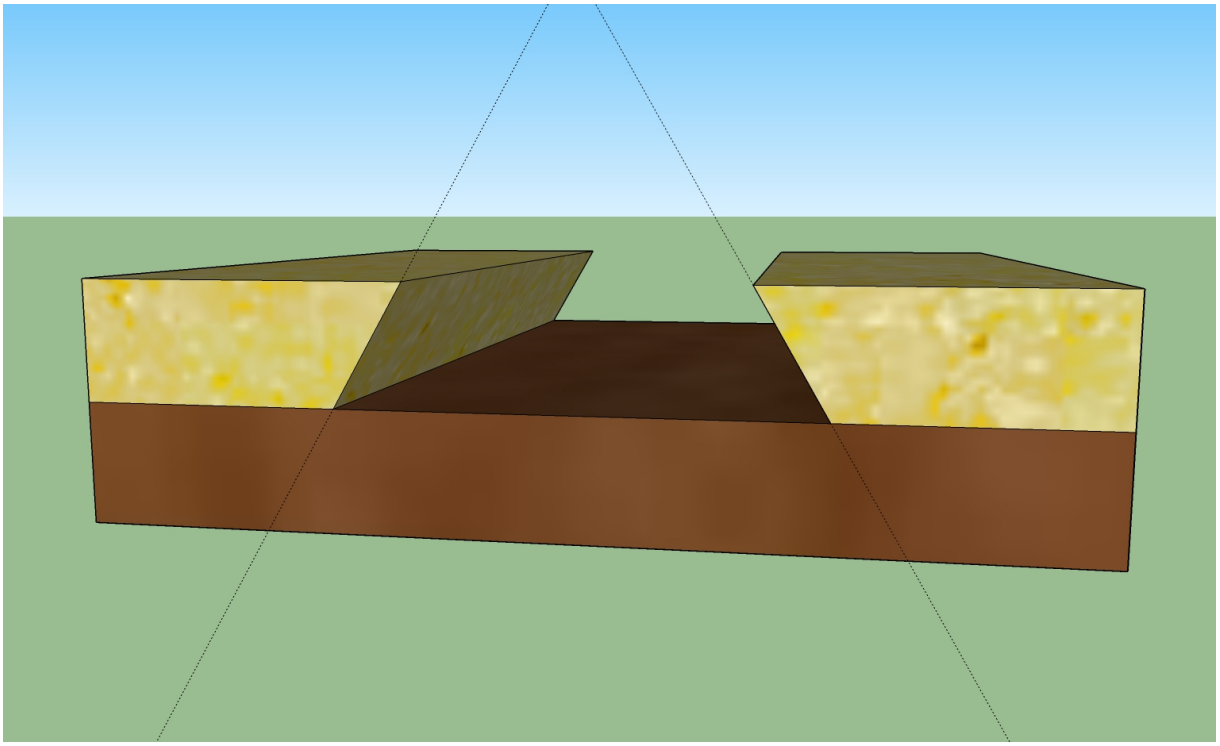
(Above) End block - non drive end - (Below) End block - drive end.



NOTE: The end blocks shown above are representational only. For your jig, determine which side is the “drive” side to enlarge and countersink the correct holes. The counter sink allows the head of the lead screw to be recessed into the jig for safety. The same side may need to be drilled out on the non-drive end to allow clearance/support for the end of the lead screw.

7. Assemble the jig. Screw and glue one of the pieces cut in step 2 onto the plywood square cut in step 1. Determine the area that lies inside a 6-inch circle and keep the screws inside that circle. Countersink the screws.

8. Use the end blocks and SPM to space the second of the 2 pieces cut in step 2. Glue and screw it into place. Ensure the SPM can slide between the two with finger pressure. The fit can be adjusted a little by sanding. It should have a minimum of play.



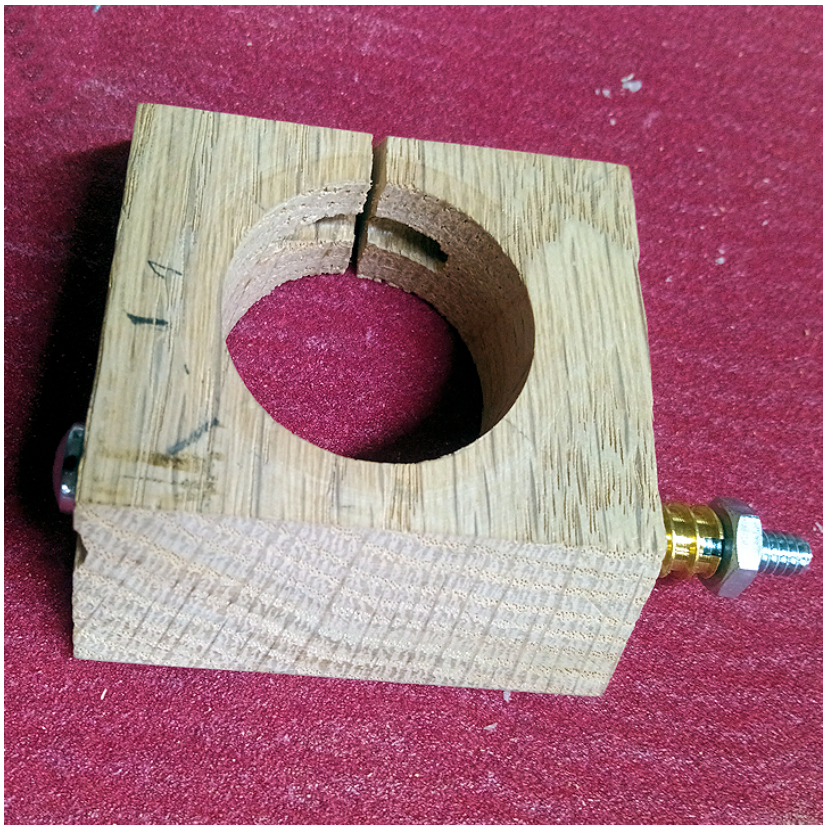
9. Center the square plywood and mount it to the faceplate (see material list) to be used.

10. Mount the jig on the lathe, slide the SPM to the center position. Mark the position of the SPM on the jig for reference. Use a forstner bit to drill a hole for the pedestal mount. Doing this at this point ensures the pedestal hole is centered to the lathe (I used a 1-1/4 inch bit). After the hole is marked, if desired, the SPM can be removed and the hole completed on the drill press.

11. Determine the “drive end” of the jig.

12. Mark the center of the SPM. Cut a slit from one side to the center (see picture at step 13).

13. Determine which side of the SPM will be the drive side. This will be the side away from the slit cut in step 12. On the non-drive side, the side with the slit, enlarge the hole ***away from the drive end*** and install a brass threaded insert. I used a 8-32 screw and insert. See NOTE about installing the brass insert.

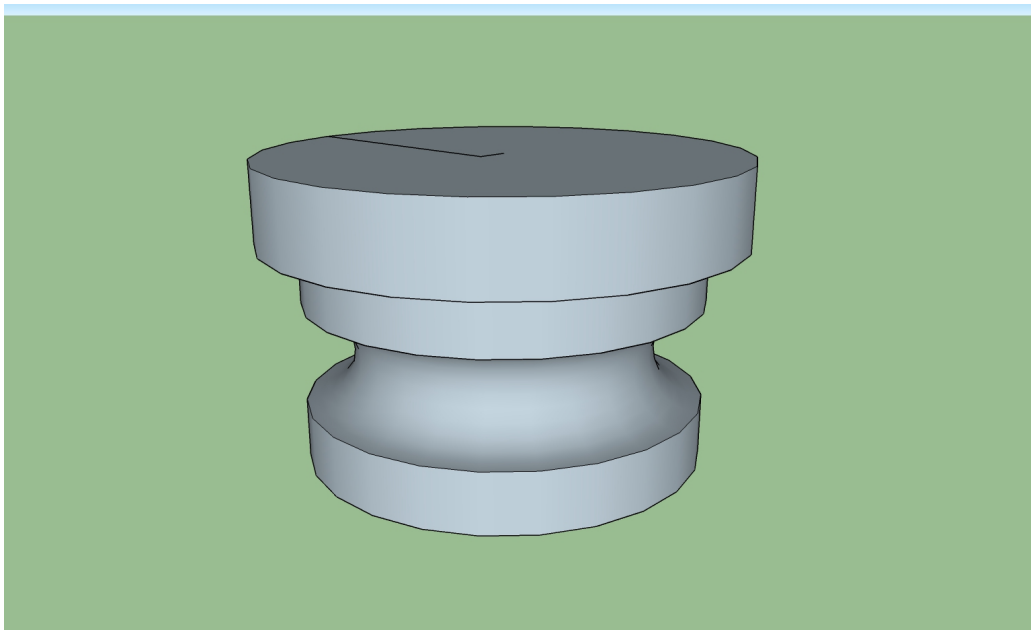


NOTE: Threaded brass inserts come with screwdriver slots in one end. Generally, these slots are useless except to determine which end is inserted first. The best way to install a brass insert is to place a screw through the hole and thread the insert up to the wood, then thread a nut up to the insert. Use a appropriate driver to turn the nut, which will drive the insert into the wood. The screw will aid in keeping the insert in alignment. It may be worth drilling the hole for the insert considerably over size and using epoxy to retain the insert.

14. On the drive side of the SPM enlarge one end of the hole and install a brass threaded insert. It doesn’t matter which end of the SPM the insert is installed in, as the lead screw will pass completely through the SPM. I ended up using a 10-24 screw and threaded brass insert for a lead screw. See NOTE above about installing the brass insert.

15. On the drive end, enlarge the hole on the clamping screw side of the end block so a screwdriver can be inserted to tighten and loosen the clamping screw. (See picture at step 6)

16. Turn a pedestal. If the holes drilled through the SPM in step 6 pass through the side of the hole for the pedestal mount, cut a cove in the sides of the pedestal to accommodate the screws that pass through that area. Use 1-1/2 inch diameter for the top of the pedestal. The bottom is 1-1/4 inch diameter to fit the hole drilled in the SPM in step 10. The pedestal should rotate freely but with no play in the SPM. (Optional: if your lathe has indexing mark the flange of the pedestal for reference when clocking the pendants for decorative purposes.)



17. Assemble the end blocks to the jig, drill and countersink screw holes. Do not glue the end blocks as they need to be removable for maintenance. Ensure the screws do not interfere with rounding the jig (step 19). Install one screw in the center of the end block and one screw through side of the end block in the dovetail ares in such a manner that it passes through the guide block and into the end block.

18. Assemble the slide drive components. The slide drive moves the SPM back and forth by threading through the threaded insert installed in step 14. Slide the 5 inch 10-24 screw through the end block, and through the lock collar, then thread it into the SPM. When the head of the screw seats against the end block, slide the lock collar against the end block and tighten the screw.

19. Remove all the sliding hardware, and install the end blocks. Mount the jig on the lathe and round over all corners. It will be easier if the jig is first cut into an octagon (Google: Turn a square into an octogon).

20. Reassemble the jig and make a pendant.

Materials list

One of each item unless indicated

- 6 inch square high quality plywood
- Faceplate (or other means of mounting) - could be a mounting block for a 4-jaw chuck, glued and screwed to back of plywood.
- 4 x 16 inch select S2S 4/4 kiln dried hardwood 3/4 thick actual measurement - guide blocks, SPM and end blocks
- 2 x 2 x 2 inch block of hardwood - pedestal
- 10-24 x 5 screw - completely threaded, referred to as “lead screw”
- 10-24 threaded brass insert
- Locking steel collar that slides over 10-24 screw
- Allen wrench to tighten locking collar
- (2x) #8 washers, will slip over 10-24 screw
- 8-32 x 2 screw - referred to as “clamping screw”
- 8-32 threaded brass insert
- Approximately 20 #6 or #8 wood screws, 1 inch long
- Wood glue