How to Make a Jam/Vacuum Chuck

by Ralph Thomas

Materials needed

1. 2" thick 3"x 3" face grain hardwood block for a 2” PVC collar or 5"x5" block for a 4" PVC collar, etc. If you use an end grain block, you will have to seal the end grain to pull a good secure vacuum.

2. PVC collar 2"or 4" or 6" you determine size you need, or you can use schedule 40 PVC pipe.

3. Hex nut or a dedicated face plate with threads to fit your head stock threads, i.e. 8 threads to 1", etc.

4. Hot melt glue

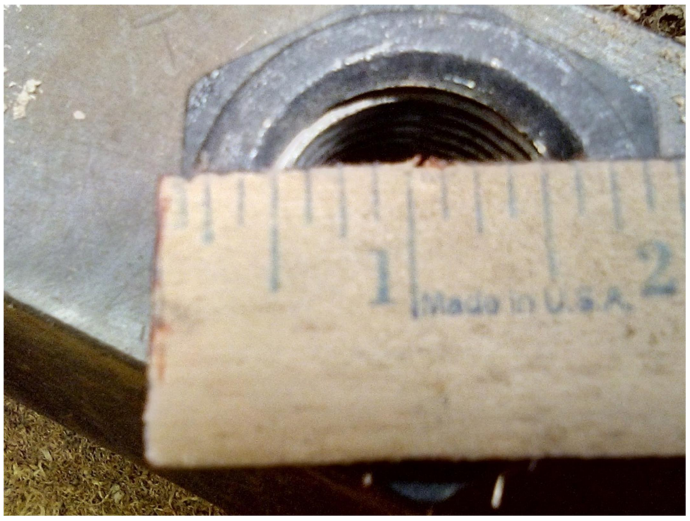
5. Epoxy or JB Weld

6. Sheet Foam

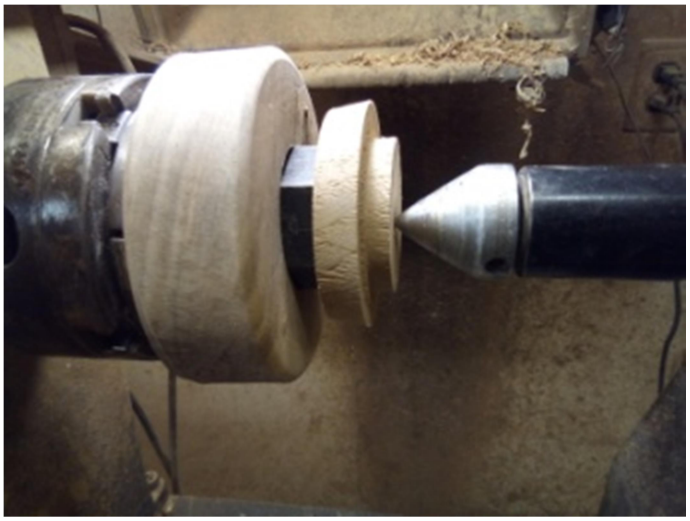
Construction

1. Chuck and turn wooden block to round with a tenon or attach a faceplate and turn round, if using a face plate skip 2-3-4 and proceed to #5.

2. Chuck block on tenon, true up block face and bore a hole 1" deep the size of the flat of the nut. If you do not have a fostner bit you can use a gouge and parting tool to cut the hole to size. You may need to mark the corners of the hex and use a dremel type tool to make room for the hex corners to fit in the hole.



3. Drive the nut into the hole making sure you bottom out the nut in the hole. You can use the tail stock live center and a flat board to push the nut into the hole.



4. Place epoxy in the area around the nut making sure you do not get epoxy on the threads. Let dry for 24 hours.

5. Screw nut block or faceplate onto head stock and true up face of wood block. Mark center using tail stock pressure. Use compass on center mark to draw a circle the same size as outside of PVC collar. Next bore a 3/8 or larger hole through the block so you can pull a vacuum on your work.

6. Use parting tool to cut a groove on the face of the block 1/2" deep on the circle you drew. Check to make sure the PVC will slip into the grove. You need a firm fit. You can use the tail stock to press the PVC into the groove making sure you bottom out the PVC.

7. Here is the chuck with PVC fitted and the hole bored. If you use PVC pipe you must make your cut a perfect 90 degrees, if you use a collar it will be 90 degrees.

8. Remove the PVC from the groove, place hot melt glue the in the groove and quickly fit the PVC collar in the groove making sure you bottom out the collar in the groove. Use the tail stock and a piece of flat board to press the collar into the groove.

9. When the hot melt glue is set, screw on head stock and true up face of PVC with a gouge, if you use a collar it should require very little truing up.

10. Cut and glue the foam onto the outer edge/face of the PVC, make sure you cut a slot or cut the center out of the foam so you can create a vacuum to secure you work. I use CA glue for this; you can also use hot melt glue or shoe goo if you prefer.

11. Here is the jam/vacuum chuck ready to use on a deep bowl to clean up the bottom of the bowl.

12. Here is a chuck with a vase mounted ready to clean up the bottom of the vase.

13. Here is an 8" diameter chuck and a 14"x 16" hollow form mounted and ready to clean up the bottom and finish sanding.

Hope this helps you in your effort to make a jam/vacuum chuck.

BE SAFE, RALPH