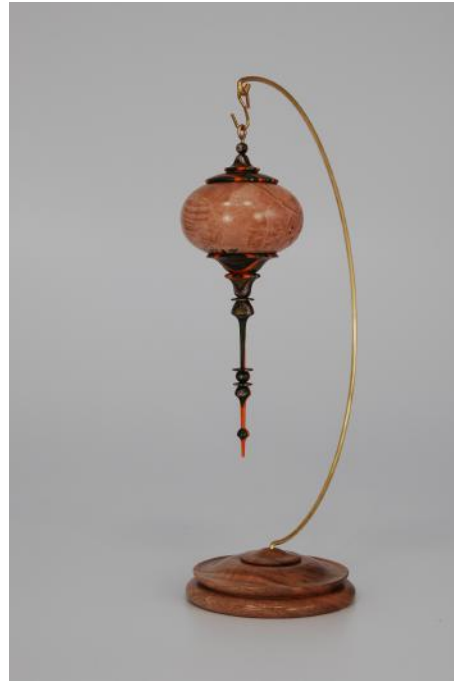


Hollow Globe Ornament With Icicle



Introduction & Thoughts on Design:

The globe should be turned from an interesting wood such as maple burl, dogwood or some other figured wood or burl. The icicle should be turned from a good dense wood that is of a contrasting color from the globe. The globe can be dyed or colored in some way to make it more interesting if a figured wood is unavailable or if you would like to experiment with color. The parts can be friction polished while on the lathe or sprayed off the lathe, after they have been glued together, with lacquer or some other finish. Try not to turn the globe into the shape of a perfect sphere, for when the cap and the icicle are glued on the balance is disturbed and the ornament looks odd. I think that the best shape for the globe is that of a squashed sphere. The curves of the globe should flow nicely together avoiding any sharp transitions in the flow of the curve. I have seen some pear shaped hollow globe ornaments that turned out pretty nice. What makes my ornaments stand out is the exquisitely turned delicate finials. A word of warning once you have started making ornaments with delicate finials, you may discover that you are unhappy with those finials that are not so delicate. I have also noticed that while customers and fellow turners are very complimentary concerning the delicateness of my finials they are hesitant to purchase them for fear that they may break

Materials:

- 2 1/2" x 2 1/2" x 3" + or - Maple,
Dogwood, or some type of Burl wood for
the globe
- 1 1/2" x 1 1/2" x 5 1/2" contrasting wood for the
cap and icicle
- 3' x 3" x 3" optional blank for a glue block
- Screw Eye from Packard Woodworks Catalogue
or other suppliers



Set of Three 1/4" Square

Tools:

- 3/8" Spindle Gouge
- 1 1/4" Spindle Roughing Gouge
- 1/4" Parting tool
- 1/2" or 3/4" Skew
- Hollowing tools for a 3/4" or 5/8" access hole;



Dale Nish Birdhouse Scraper

I use the set of three 1/4" square hollowing tools available from Packard Woodworks Catalog, but they must be modified by grinding off approximately 3/8" of the bent tools to minimize torque when hollowing. If used as they are, they may cause a nasty catch.

Dale Nish Formed Scrapers Shape C or D are excellent Hollowing tools for small globes and bird houses.

- 5/8" or 3/4" Drill bit (I use a Fisch spurbit)
- Vernier calipers
- Jacobs chuck for holding drill bit in tail stock
- Four Jaw chuck (such as a Talon or Stronghold Chuck)

Procedures:

1. Turn the globe for the ornament first. The reason that I do the globe first is so that I can fit the cap and the icicle to the globe. Sometimes the shape of the globe is a bit off and the shape of the icicle and cap can be adjusted to visually change the appearance of the globe and of the completed ornament. There is also the occasional catch or other unforeseen occurrence that changes the diameter of the holes in the globe that accept the tenons on the cap and icicle. The tenons can be turned to fit each globe insuring a good tight fit, which in turn helps to align the icicle so that it hangs straight down as opposed to at an angle.

2. The diameter of the globes that I turn, varies from 1 3/4" to 2 3/4". For a beginner I would suggest turning a globe approximately 2 to 2 1/2". The larger the diameter of the globe the larger the access hole can be. With the 1 3/4" globes I drill a 5/8" access hole, with the larger globes I drill a 3/4" hole. The woods that I like to use are Dogwood, Maple, Maple Burl, and any other light colored wood or burl that has an interesting grain pattern. Red Cedar also makes an interesting globe. For the icicles I use a contrasting wood with dense grain.

Turning the Globe:

1. Blank preparation; If you are going to use a chuck, choose a blank that is approximately 1 ½” longer than the intended finished diameter of the globe. Turn the blank to a cylinder between centers and turn the appropriate size tenon with a proper shoulder for mounting in the chuck.

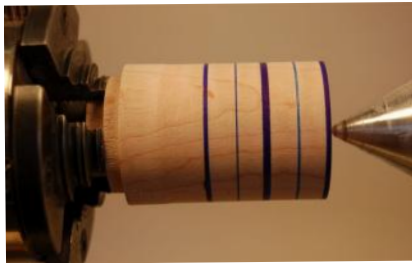
2. For hollow turning, I like the tenon to be about 3/8” long. It is important that the bottom of the tenon does not rest on the bottom of the chuck but rather sits flat on top of the jaws. In other words, the shoulder of the blank should rest on top of the chuck jaws not on the inside bottom of the chuck.

3. Mount the blank in the chuck and true it up with the spindle roughing gouge.

4. Measure the diameter of the cylinder and mark the diameter on the blank parallel with the axis of the lathe. I feel that a perfect sphere is not as attractive as a squashed sphere, so I reduce the mark by approximately 25% to 30%. (If the cylinder is 2” in diameter, I would then mark the blank at 1 ½”) This is a judgment call as there is not an exact measurement or ratio involved.

5. Use a parting tool to remove some of the material between the chuck and the globe. I leave a tenon about 1” to 1 ¼” in diameter to support the globe which hollowing.

6. Mark the center of the proposed globe and divide each half in half, thus dividing it into four equal parts. I mark the centerline a bit darker and thicker than the other lines, to provide room for adjustment, in case of a catch or other mishap.



Globe Marked and Quartered



Globe Roughed Out

7. Using a 3/8” spindle gouge, I proceed to turn both corners off the blank to the line marked. I start on the outside and work my way to the middle following the bevel.

8. Now start rounding the blank, taking material away from both sides in an attempt to maintain a symmetrical globe. Finish shaping the globe.

9. Once the globe is shaped, I then sand it to 120 grit sand paper to insure that I am satisfied with the shape and that it looks good. To better view the profile, place a contrasting background like black poster board behind the globe to help increase the contrast and highlight the shape of the globe.

10. The next step is to use the skew to make a dimple or indentation for the drill bit to start in.

11. Next use a pair of Vermeer calipers to find and mark the depth of the hole to be drilled. Remember when setting the depth to reduce the calipers to leave room for the final wall thickness. I use a piece of masking tape to transfer this measurement to the drill bit for a depth stop. Using a Jacobs chuck, mounted in the tailstock and fitted with a 5/8”

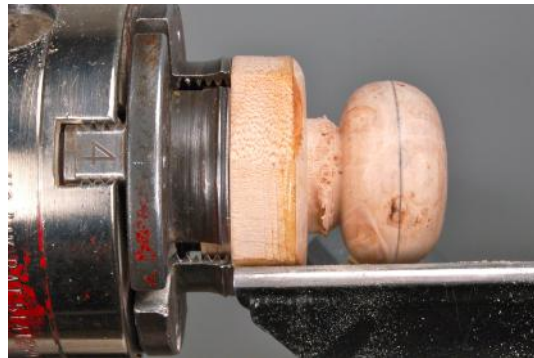
or $\frac{3}{4}$ " drill bit, set the lathe speed to between 300 and 500 rpm's, then drill a hole to the depth marked by the tape on the drill bit.

12. Once this is done, I remove the Jacobs chuck so that I will not put another hole in my elbow when hollowing the globe. You may also want to remove the tailstock at this time to give yourself more elbow room.

Note: The procedure for using a glue block is similar to the procedure above, with the exception that the blank is either glued to a glue block attached to a faceplate or to a block mounted in a chuck. When I am using expensive wood or small scraps, I sometimes use a glue block in my chuck.

The procedure for using a glue block is as follows:

- 1. Mount a block of wood to either a faceplate or in a chuck.*
- 2. The next step is to turn it round and flatten the face for receiving the blank. The face of the glue block needs to be perfectly flat in order to insure a solid glue up. The bottom of the blank also needs to be flat. I generally flatten my blanks on a sanding station or a belt sander.*
- 3. Once the parts are flattened I then apply thick CA glue (Cyanoacrylate glue) to the blank and then center it on the glue block moving it around to help spread the glue and insure the glue is evenly spread. I then bring up the tailstock to clamp it in place for a minute or two. I sometimes add a line of glue to the outside of the joint and then spray it with the accelerator. When turning on a glue block, I try to avoid turning where the glue has seeped from the joint as this sometimes crystalizes on my face shield or safety glasses.*



13. The next step is to begin hollowing. Using the straight scraper hollowing tool, I open up the inside of the hole as much as I can. Starting at the upper inside and working my way down. I take a light cut going in and a heavier cut on the way back out. As we are hollowing end grain the best cut is from the inside out.

14. I then proceed to use the 45 degree bent angle scraper to hollow those parts that can not be reached with the straight scraper and then use the 80 degree bent angle scraper to get the inside of the top. If I were doing a larger hollow form I would get the top third of the hollow form down to final thickness and then proceed to hollow the bottom area. The finished thickness should be somewhere between $\frac{1}{16}$ " to $\frac{1}{8}$ " or whatever thickness you feel comfortable stopping at.

Note: Check the wall thickness frequently. I use homemade gages that are made from coat hangers that have been bent in a variety of shapes to enable them to gage the wall thickness at various points of the globe. The home made gages are made from coat hangers bent into shapes that will allow the gages to enter the small hole and accurately gage the wall thickness. Two gages are needed, one for the top area of the globe and one longer for the bottom half of the globe. I also listen to the sound produced when I am hollowing. As the pitch gets higher the wall thickness is getting thinner.

15. Once the inside is turned to an even thickness, the tenon is reduced slightly to less than the diameter of the drill bit used to open up the ornament. As I reduce the tenon, I am also shaping the bottom of the globe while trying not to be too aggressive and keeping in mind how thin the bottom of the globe was hollowed. Be sure to leave enough of the tenon to support the globe while sanding.

16. The next step is to finish sand the globe. I sand from 120 grit all the way up to 1500 grit and sometimes I burnish the globe with 3M scotch Brite pads the grey and the gold.

18. If you are going to use a friction polish now is the time to apply it.

19. To complete the globe, turn down the tenon to a diameter smaller than the drill bit that you will be using, remount the Jacobs chuck with the drill bit. Remember to remove the tape from the drill bit. Carefully with the lathe off, feed the bit into the globe just shy of the bottom of the globe. I then turn the lathe on at a slow speed 300 to 500 rpm's and drill the globe out completely. The finished globe will rest safely on the drill bit. I then remove it and set it aside or if using lacquer spray it off the lathe as soon as possible.



Ornament Parts Icicle, Globe and Cap



Turning the Icicle and Cap:

1. To turn the icicle and the cap, I start with a contrasting wood that is 1 ½" x 1 ½" x 5 1/2" long. I like to turn the blank to a cylinder between centers and turn a tenon to fit in the number one jaws of my Talon chuck. You can also turn the icicle between centers without putting it into a chuck but it is more difficult to turn a delicate icicle between centers.

2. Once mounted in the chuck, I mark the rough length of the icicle and proceed to turn a cone shape similar to sharpening a pencil. Remember to leave enough room for the cap. When turning a delicate icicle, I turn the blank thinner than I think it should be turned.

3. The next step is to mark your pattern. Use a gouge or skew to turn the pattern. Be aware that you may have to adjust the pattern if the tool slips or some other creative opportunity arises.

Note: I do not measure my patterns. I tend to space them out in a visually pleasing ratio that rises upward toward the globe in increasing diameters sort of like an upside down pyramid. I also tend to try to come up with a variety of new designs where the icicle meets the globe. I do not want all my icicles to be the same pattern.

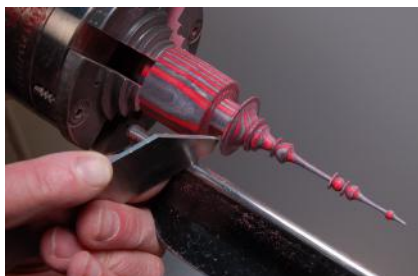
5. Each section of the icicle has to be sanded as you complete it. Sections of approximately 1" to 1 ½" should be okay depending on the amount of vibration in your lathe or the wood itself. I spray my icicles with lacquer off the lathe. **It is very risky to go back over a thinned section without risking snapping it off.**

6. As the bottom of the icicle needs to conform to the shape of the globe, I use the globe as a guide in turning the base of the icicle. I hold the globe in front of the icicle to get a visual idea of the shape to turn the cap for the bottom.

7. Once the base of the icicle is turned, I turn a tenon to fit the hole in the globe. At this time I also remove some of the material behind the base to match the curve in the bottom of the globe, for a better fit. In other words I relieve the back (undercut the back) of the bottom cap to make for a better fit.

8. Before parting off the icicle, I turn a shape parallel to the base of the icicle. This saves me some time when turning the cap as I will already have a rough shape for the top cap. It also relieves the sharp edge that may cut my hand when sanding the icicle. As the globe is somewhat symmetrical this helps to get the cap started. The icicle is now finished and parted off carefully.

9. The top cap is next. I check the curve to the globe then adjust it as necessary leaving a bit of wood on top for some sort of bead or ball or some other decoration.



10. Once the pattern for the cap is turned, I use a skew to create a starting hole for the drill bit. The drill bit is sized to fit the screw eyes that I am going to use for the top of the ornament.

11. Using a pair of vise grips to hold the drill bit, after turning the lathe speed down, I then bore the small hole for the screw eye.

12. Next I turn the tenon to fit the hole in the top of the globe. Once again I relieve the back of the cap to help the cap conform to the curve of the globe, insuring a tight fit

13. I then sand the cap and part it off. I sometimes screw in the eye hook before parting the cap off.

14. To complete the ornament, I dry fit the cap and icicle to check the fit. If they are not tight, I use carving tools or sand paper to improve the fit.

15. Occasionally I need to increase the size of the hole in the globe to fit an oversized tenon.

16. Sometimes material needs to be removed from behind the base or the cap with a carving tool or knife to improve the fit. I have to be careful not to apply too much pressure or I might break the icicle or the cap, as they are sometimes fragile.

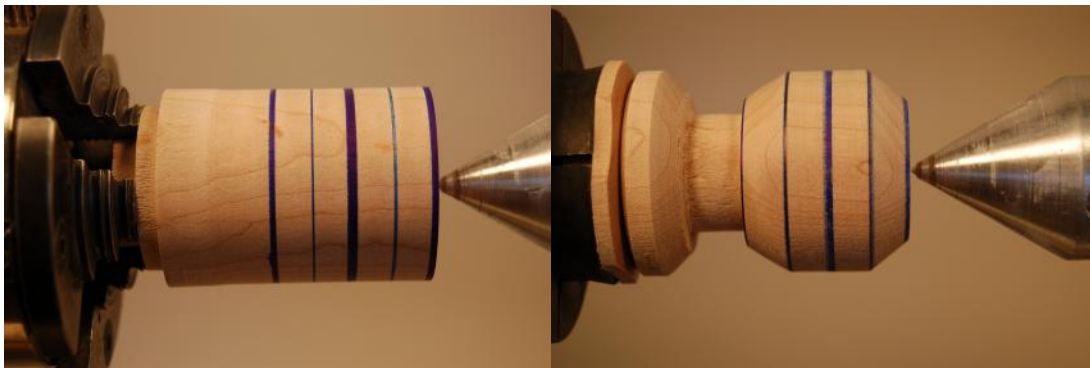
17. Use thick CA glue to glue the parts together, being careful not to use too much glue as the excess glue squeeze out looks terrible. I do not like to use the accelerator as this turns the excess glue white and there is usually some glue on the outside of the ornament. The ornament is now finished and ready for spraying with lacquer. The last step is to hang it up for display.

Note: Consider turning a base from a figured piece of scrap wood with a bent piece of brass or copper wire inserted in the middle to hang the ornament from.



Hollow Globe Ornament Quick Guide

1. Round Globe Blank between Centers just barely knock off the corners.
2. Turn a foot on Blank for holding it in the chuck.
3. Mount Blank in the chuck.
4. True up cylinder & turn cylinder to globe diameter 1 1/2" to 2 1/4" diameter plus or minus.
5. Use Vermeer Calipers to size globe diameters. *For a squashed globe reduce diameter by approximately 30 % to 40%.*



6. Divide blank into four sections by marking with pencil. Start by setting the outside dimensions of the globe then divide it in half and then divide the halves in half.
7. Part down on the waste side to make room for shaping the squashed globe leaving no less than 1" diameter on waste side to help support globe when hollowing.
8. Turn off corners to create an octagon shape.
9. Continue turning globe round.
10. Drill 3/4" (5/8" if you want a challenge) hole to approximate depth for hollowing.
11. Hollow out globe with your favorite hollowing tools.
12. Reduce diameter of support tenon to the size of the drill bit used for opening up the globe for hollowing.
13. Sand globe.
14. Reduce the tenon to smaller than the drill bit used for opening up the globe.
15. Now remount the drill bit and turn the lathe on at slow speed for drilling and drill the globe off the lathe.
16. Use a scrap piece of wood turned with a stub to hold blank for spraying and spray at least one coat of finish to minimize damage from dirt and grime.

Thickness Gauges for Small Hollow Forms & Hollow Globe Ornaments

Made from coat hangers and bent to shape
with needle nose pliers

