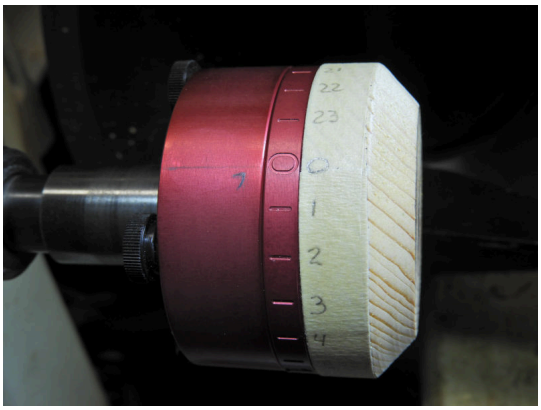
Joyner Off-Set Jig
The Pendant

By Dan Douthart

Stainless Steel Niles Bottle Stoppers

www.nilesbottlestoppers.com
www.facebook.com/ssniles

During the design phase as documented in the paper titled “Joyner Off-Set Jig Pattern Design”, I was using the silver 8-hole jig with offset hole #8. In this paper I will be using the red 10-hole jig with offset hole #7. The difference between these two holes is .015” from the center of the jig. Since I am using the offset hole as the reference point for the index plate position a nearly identical pattern will be produced. The only difference will be 2º in rotation. Hole #8 on the silver 8-hole jig is 1º from an index hole and hole #7 on the red 10-hole jig is 3º from an index hole.

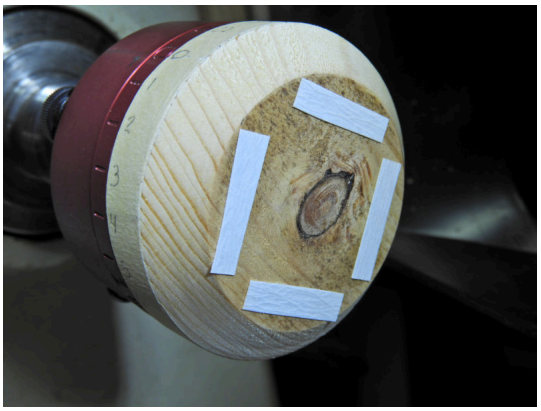


The index plate is positioned with hole #0 aligned with Hole #7 on the offset plate.

Hole #7 on the rim of the offset plate has been marked for easy reference.

The index holes are labeled on the waste block for easy reference.

The index holes are labeled on the red index plate counter clockwise to match the silver index plate.

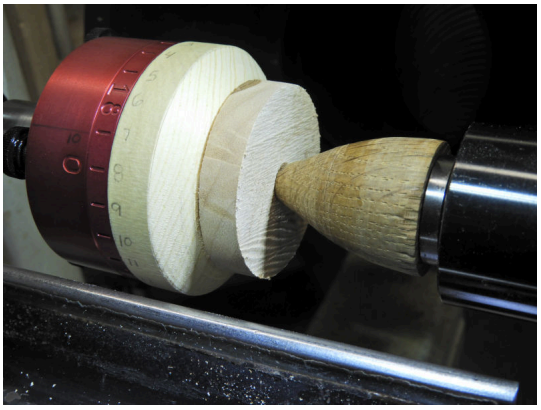


The pendant blank has been cut to near round shape on the scroll saw so there will not be a lot of material removed to make it round.

Four small strips of double sided tape will hold the material securely. It would be very difficult to remove the pendant if the surface was completely covered with the tape.

The thickness of the material is also close to the finished pendant thickness so the tape joint will not be subjected the forces of parting off.

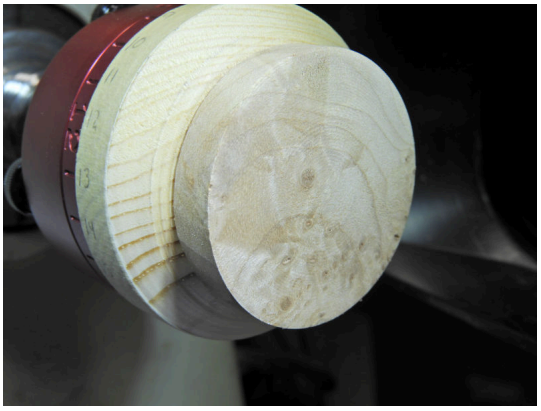
In cases where the material is cut much larger or thicker than the finished pendant CA is used to attach the material to the waste block.



Identify the desired location of the hanger hole and line that up with offset hole #7.

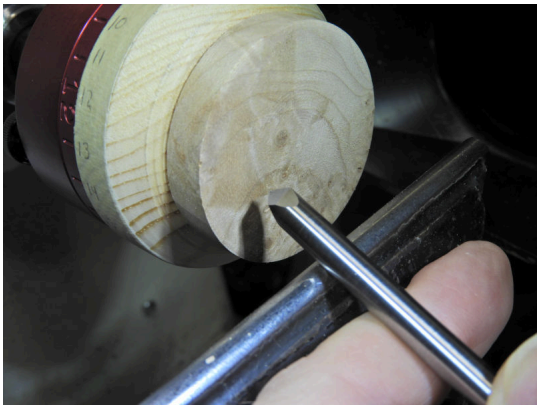
The material is manually centered on the waste block and pressure from the tail stock seats the double sided tape.

A wooden fixture covers the live center point so that the surface of the material is not damaged.



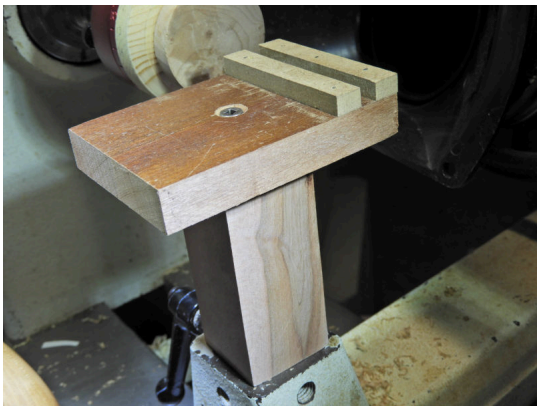
The material has been made round and the face has been surfaced flat.

Cutting the pattern while the surface is still flat allows for applying color to the grooves.



When I first started using the Joyner Off Center jig, I used a point tool held on the regular tool rest.

There were just too many variables with that method for my liking.

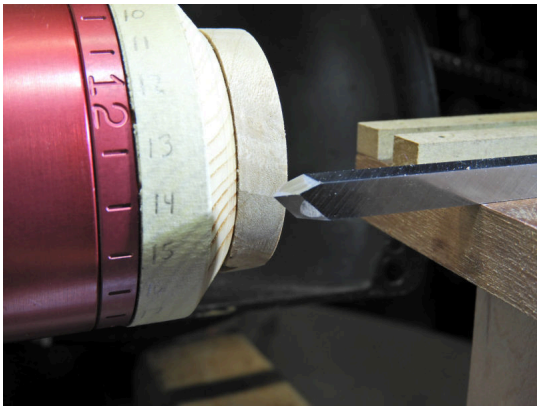


This tool rest allows the positioning of the cutter to the precise position before turning on the lathe.

The lower part of the post is turned to fit the banjo hole. The upper part is left square for additional support of the cross member.

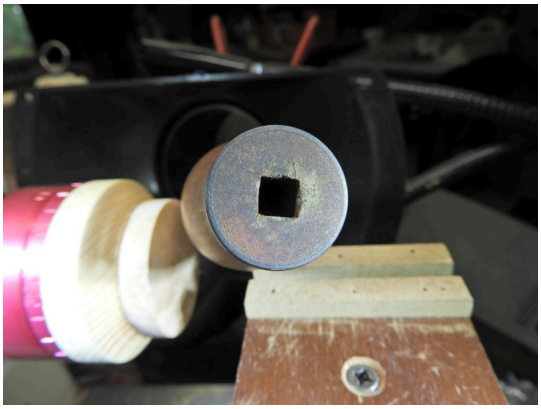
The height of the of the square portion of the tool rest post positions the point of the tool at the center of the spindle.

A 1/4” square point tool fits securely in the notch on the tool rest.



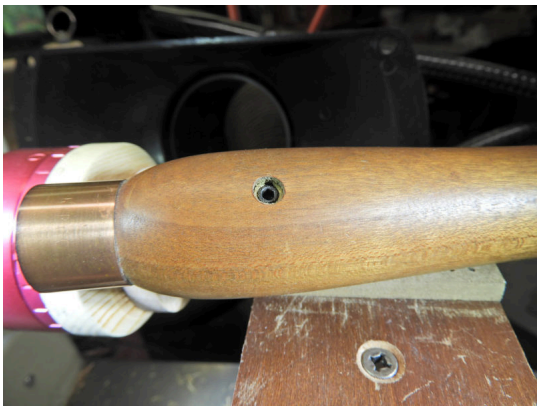
The tool has a “V” shaped bevel on the bottom portion of the tip like the prow of a boat.

The top surface is slanted down to give a negative rake.



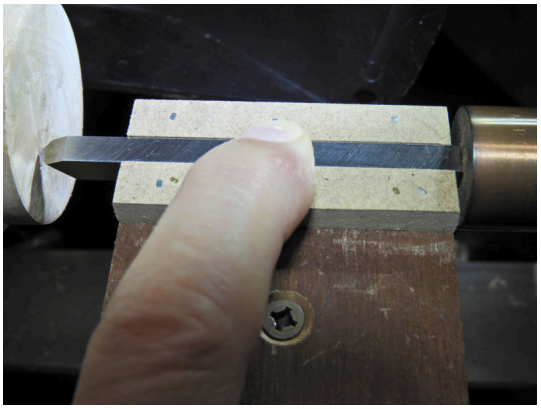
The tool handle is made up of two pieces of flat stock 3/4” thick and 1 1/2” wide.

A 1/4” wide and 1/8” deep dado was cut down the center of both pieces.



A threaded insert was installed in one of the pieces for a setscrew.

The two pieces were then glued together and turned to the desired shape.

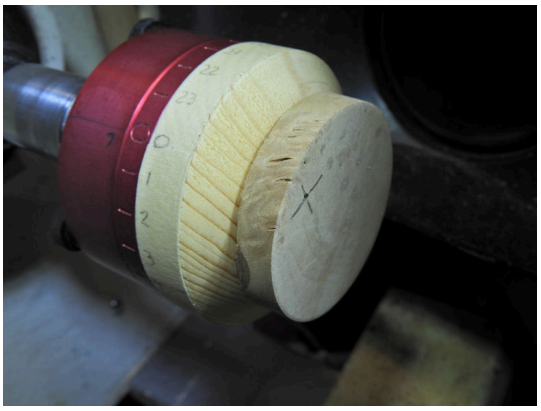


The tool tip is placed against the face of the material.

The tool handle is adjusted leaving a gap at the right edge of the tool rest. This controls the depth of cut.

The gap between the material and the left edge of the tool rest allows removal of the jig without moving the tool rest.

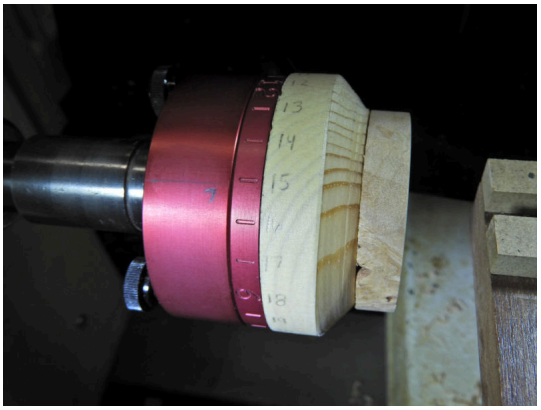
That pretty much removes all of the variables. All that is left to do is hold the tool down in the tool rest slot and provide forward motion to move the cutter into the material.



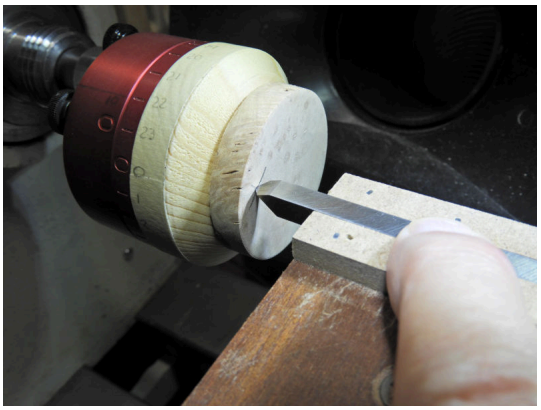
The offset plate has been moved to hole #7.

The center of rotation is marked with cross hairs and a 1/16” hole was drilled to mark the center.

This will be the center of the hanger hole and the reference point for the three arcs.

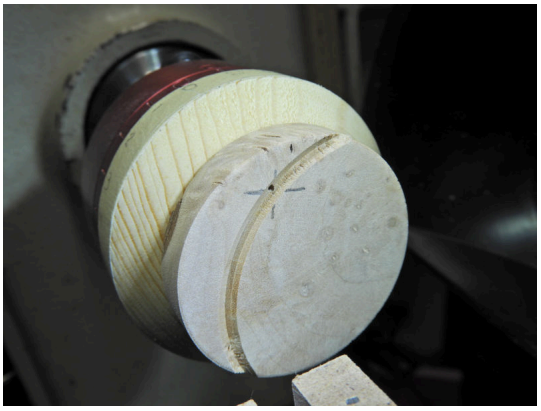


The index plate has been positioned to align index hole #15 with offset hole #7.

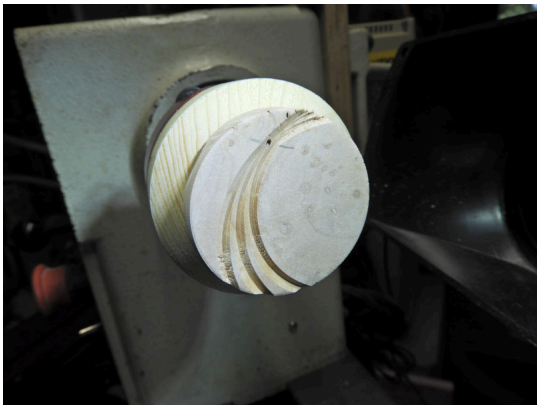


The tools rest is positioned so that the point of the tool is at the center of the hanger hole.

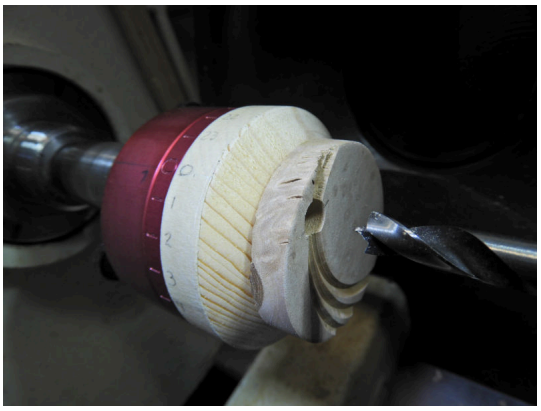
The tool handle has been adjusted to control the depth of cut.



The first cut is complete.

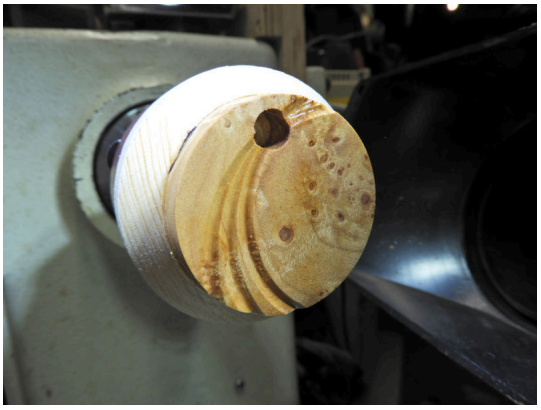


Two more cuts have been made using index holes 16 & 17.



The index plate has been positioned so that index hole #0 is aligned with offset plate hole #7.

A 5/16” brad-point bit was used to bore the hanger hole.



The grooves are a bit deep at this point, but that will be reduced as the surface is contoured.

The surface has been coated with shellac to seal the end grain areas so that the paint will not bleed into the wood.

Bronze paint has been applied to the grooves.

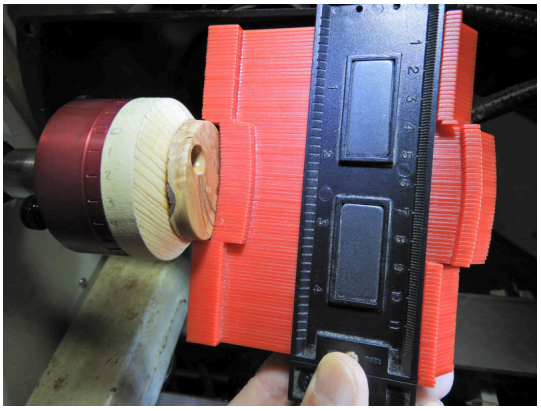
A 1/2” bowl gouge is used with the handle held low and the cutting edge at the center height.

A bevel controlled shearing cut from the center out to the rim produces a smooth cut only requiring minimal sanding.

The sharp edge around the hanger hole has been removed and the surface has been sanded.

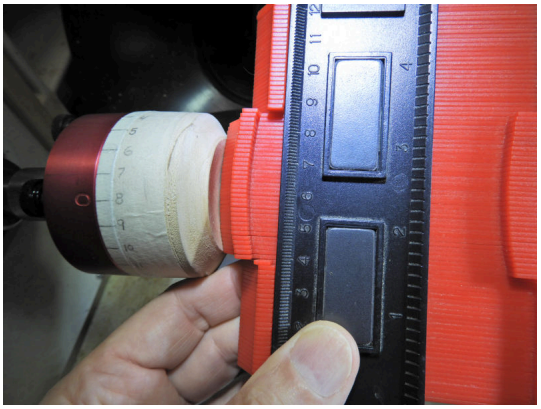
Two coats of thin CA seals the surface.

Note that the hanger hole and pattern was positioned so that it did not cut into the burl figure.

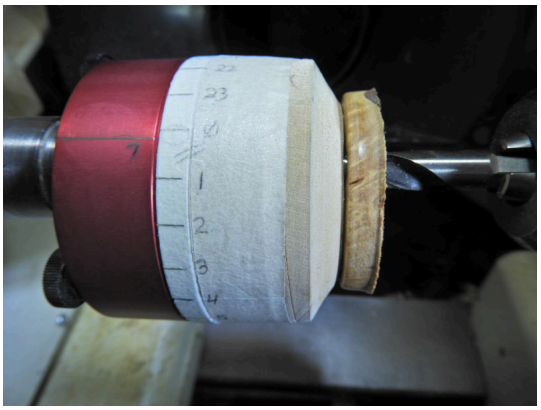


Most pendants that I have seen only have one surface contoured and finished. I contour and finish both surfaces so that the pendant can be worn either way around.

A contour gauge is used to record the contour of the 1st face of the pendant.



A second index plate is used with a waste block that has been shaped with a concave surface to match the convex recording of the 1st face of the pendant.



Hole #7 on the offset plate has been screwed onto the mandrel.

Index plate hole #0 has been aligned with offset hole #7.

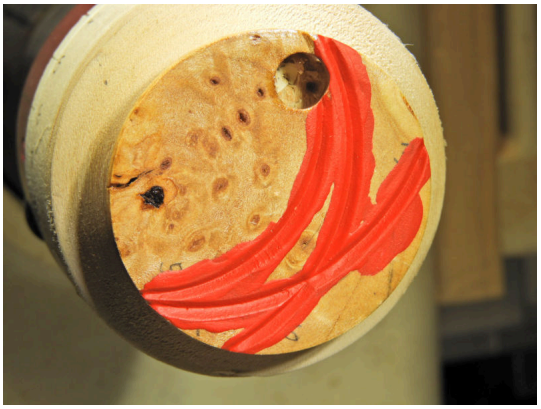
The drill bit that was used to bore the hanger hole is used to assist with centering the reversed pendant material onto the concave waste block.

Double sided tape was used for the attachment.

The offset plate was moved to the center hole. The material thickness was reduced to the desired pendant thickness. The surface was flattened

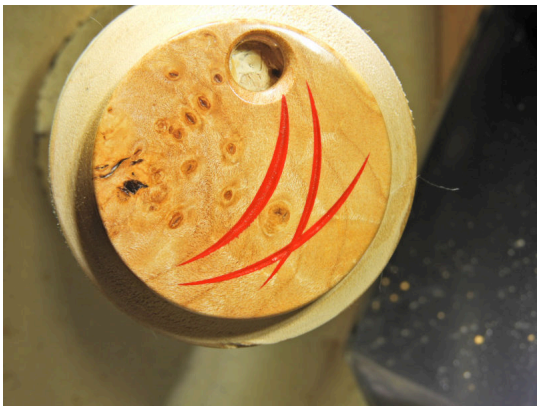
The offset plate was moved to hole #7. Index holes 3,5 and 6 were used to produce this pattern on the 2nd side to the pendant.

As with the 1st side, the pattern was positioned so that it did not cut into the burl figure.



Two coats of shellac was applied to stop the paint from bleeding into the end grain or raising the grain.

Paint was applied to the grooves.



The surface was contoured to match the 1st face.

The surface was sanded and several coats of CA was applied.

The CA was sanded and then buffed.