

SEGMENTED RIM DECORATION:
WARREN BROWN

Last month we were privileged to hear and see one of the giants in segmental turning, Linda Salter. As I thought about the program later that evening, I couldn't help but marvel at her patience, persistence, perseverance, attention to detail, and her ability to solve problems and produce techniques that gave superior results. She has a personality type that most of us cannot match.

As inspirational as she is, most of us, whether beginners or long timers, will never match her level of competence.

Rather than throw our hands in the air in despair, let us consider a less lofty procedure, but one that is attainable by most. We'll use a bit of the segmental technique to decorate the rim of a plain bowl.

When hollowing the bowl, leave the rim area about one-half inch wide and absolutely flat. Check it with a straightedge.

Just a few words about design:

1. Don't over decorate. Unless you have a very plain bowl, let the wood grain be the design.
2. Ever since Roman and Greek times and Fibonacci's golden proportion rule, it is most pleasing to the eye to have the greatest width about $2/3$ from the top or the bottom.
3. The base or foot should be about $2/3$ smaller than the top or rim diameter.

Types of decoration:

1. Use various contrasting woods: Use Maple, Holly, etc., on dark woods and Walnut, Mahogany, Cherry, Oak, Zircote, or Ebony on light woods.
2. Use a sanding drum for scalloping the rim.
3. Use a router and jig for fluting.
4. Leather lacing: drill holes $1/4$ " from top and $3/8$ " apart.
5. Inlays with Malachite, Turquoise, Coral, etc.

We'll consider the first type today.

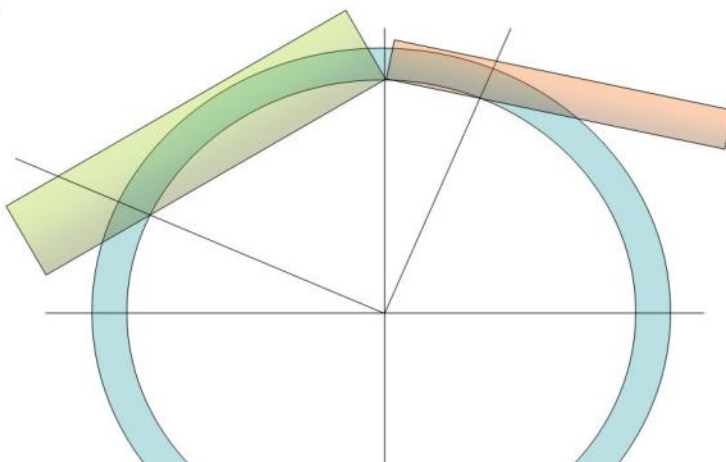
A few things need to be prepared before beginning.

1. A straightedge (anything that will go across the diameter of the bowl).
2. A pencil (a white oil pencil is helpful on dark woods).
3. Adequate lengths of decorating wood. Usually this stock is $3/8$ " to $1/2$ " thick and $3/4$ " to 1" wide with both sides parallel.
4. Cyanoacrylate (CA) glue (syrupy #4) and accelerator spray and solvent.

5. Paper towels and sharp, pointed knife.
6. A straight edged piece of scrap wood long enough to go across the bowl.
7. A radial-arm saw or miter chop saw.
8. A lathe with a 24-hole indexing head. (If your lathe does not have this 24-hole arrangement, refer to notes at bottom.)
9. Cut two pieces of lumber 1 x 2" about 12" long and glue them at right angles (on the long edge) to make an "L" sacrificial fence. This will be placed on the saw table to avoid cutting too much of the saw fence.

Now we begin with the ½" wide, flat rim of the bowl with the bowl mounted on the lathe.

1. Make a pencil mark (a circle) on the edge of the inner rim all the way around the bowl.
2. With the pulley retaining (indexing) pin, lock the pulley.
3. Mark the inner edge of the ½" wide bowl rim with pencil at any point as a starting point. (Any marks will later be trimmed off when the rim is cut to final thickness.)
4. At this time a decision must be made regarding the number of segments the rim will be divided into. It helps if the number is divisible into 24 (see #6 below). This determines the angles at which the strips of wood will be cut, and is an aesthetic choice. The strips of wood could be all the same or of differing colors. It is also influenced by the width of the wood strip that you are working with and leads to the points discussed in #5-#8 which is working backward from a given width of wood.



The Diagram shows the relationship of the width of the wood strip and the degrees of arc that could be covered for a chosen number of segments.

5. Hold the decorative wood strip against the flat rim at this mark so that both inner and outer edges of the bowl rim are covered. Allow about 1/8" extra width to the outer edge. Make a tentative mark on the rim where inner edge of decorative wood crosses the inner edge bowl mark. The arc length between the two marks will vary depending on the width of the decorative wood. The wider the strip, the longer the arc.

6. Remove decorative strip and back out retaining pin. Move pulley 1, 2, 3, or 4 holes (whatever will fit) in between the two marks on the inner ring. If 4 holes are too many, back off to 3, etc. The number of holes must be evenly divisible into 24. So 2, 3, 4, 6, 8, and 12 are usable. This number determines the total number of segments and also the saw angle. If the number of holes for a section (above) is 3, divide 24 by 3 and there will be 8 sections around the rim. Now divide 360 degrees by 8. This is 45. Because each 45-degree angle of the rim circle will consist of the ends of two sections, divide 45 by 2. This is 22.5 degrees, the angle at which each end of each section will be cut.
7. Set the tool rest at the height of the center of the bowl. Starting with the retaining pin in the starting hole, move the pulley three holes, set the pin and mark the outer rim at the tool rest. Advance the pulley 3 holes and mark the rim at the tool rest. Continue completely around the rim 3 holes at a time.
8. With a straightedge held at marks 180 degrees opposite across the bowl, mark the full width of the ½" bowl rim at all 8 rim marks two at a time.
9. Set the saw at 22.5 degrees to the right, and with the "L" jig in place and the blade at a height to cut just slightly into the "L" jig base, cut one end of the decorative wood strip.
10. Place the cut end on the bowl rim with the obtuse angle of the cut at the junction of the inner line angle and the first mark. Align the decorative wood strip so that it covers the rim as noted in step 5 above.
11. Mark the decorative wood strip where it crosses the inner line angle and the next mark. This is the key step in developing the rim. These inner rim marks of arc degrees were determined by the choice of the number of segments chosen for appearance and the width of wood strip being used.
12. To avoid resetting the saw blade angle after each cut, just flip over the decorative strip 180 degrees so that the point of the first angle cut is closest to the fence (closest to the vertical member of the jig). Both sides of the strip must be parallel for this to work. The jig need not be clamped to the fence and can be moved if necessary. Do not move the jig if the saw kerf in the jig is to be used as a reference point. Make one saw cut into the jig to establish a shallow kerf. Put the decorative strip in place on the jig with the length mark lined up with the right side of the saw kerf in the base of the "L" jig. Cut the first section.
13. Return the section to the bowl. It should fit perfectly as to length and angles. If not, make suitable adjustments and repeat until perfect.
14. Place a 1x2" piece of wood with a straight edge on the bowl at the first inner ring mark and the mark at 180 degrees opposite. This makes gluing the first section easier. Use double-sided sticky tape to hold the straightedge on the rim.

15. Hold the cut section in place on the rim and mark its back-side along the inner and outer limits of the rim. (Use a short pencil in order to reach under the rim inside the bowl.) This will show where to limit the glue. With the section between thumb and forefinger of left hand, lift it and rotate left wrist so that CA glue can be applied between the lines. Three thin lines of glue should do it, but stop 1/8" short of both ends to avoid squeeze-out at the angle cuts. If there is any CA squeeze-out, at the angle cuts, immediately clean it away with paper towel and/or sharp knife. Lightly squirt CA accelerator on glue line inside and outside only. Do not get accelerator anywhere else at this time. Hold in place for 10 seconds then remove straightedge scrap and its tape. (Don't glue this scrap piece to the bowl!)
16. Continue with the next section adjusting each saw cut (angle and length) to keep everything on the marks as above. Each successive section will now need glue on the end angle adjacent to the former section. Cut the last section 1/8" too long to allow for fitting. This takes a little experimentation. Fill any voids with glue.
17. When glue is set, turn rim to final form and thickness. Use a small sharp gouge (1/2" or 3/8") making light gentle cuts. Sand and finish.

Notes:

If your lathe does not have the 24-hole capability on the pulley, try the following. It will give you greater flexibility in determining the number of sections possible.

1. Purchase a 360-degree protractor (6") at Staples or any stationery store.
2. Cut out the center bar with Dremel or similar tool. Follow the rabbet on the inside of the ring.
3. Prepare lathe faceplate with 8" diameter x 3/4" waste wood. Determine center and with compass draw a circle with a 6" diameter.
4. Place several pieces of double-sided sticky tape in the circle and stick an adequate size of Plexiglas (sheet acrylic) over the circle.
5. Turn a hole in the center to just fit over the spindle (drive-shaft) of your lathe.
6. Turn the perimeter to fit into the rabbet (if there is one) of the 360-degree protractor. If no rabbet, a close fit will do.
7. Remove plastic from lathe, apply a thin line of CA glue and join the plastic center section to the protractor ring.
8. Drill a hole in the center of a 3 x 6 x 3/4" piece of plywood to receive a 6" long dowel the size that will fit in the tool rest. This "table" is adjusted to center of bowl height. A piece of 1/4" plywood is then cut to the shape

necessary to transfer any protractor reading to the rim (or any other point) on the bowl. Use spring clamp to hold.

This method can be used in laying out other designs such as scalloping, fluting, etc.

The foregoing procedures were calculated using a radial arm saw. A chop saw (or miter saw) may also be used, but make sure that the “L” jig is longer and reaches entirely across the gap in the fence. Set the blade depth to cut only slightly into the base. A jig with proper angles on a disc sander can also be used.

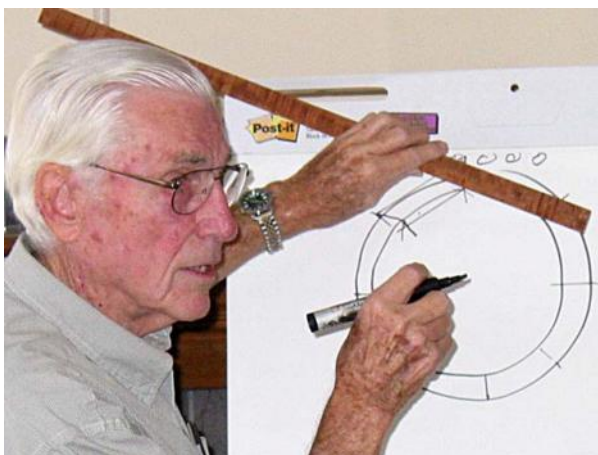
Sections:	12	$360^\circ \div 12 = 30 \div 2 = 15^\circ$	8	$360^\circ \div 8 = 45 \div 2 = 22.5^\circ$
	10	$360^\circ \div 10 = 36 \div 2 = 18^\circ$	6	$360 \div 6 = 60 \div 2 = 30^\circ$
	9	$360^\circ \div 9 = 40 \div 2 = 20^\circ$	4	$360 \div 4 = 90 \div 2 = 45^\circ$



Warren discussing method.



Samples of his work..



Warren showing how he lays out the arcs.



Protractor can be use if lathe isn't indexed.



Warren uses a radial-arm saw to cut the segments



Close-up of the L sacrificial fence. Notice the saw kerf, which helps cut to correct length.



Positioning the first decorative segment for glue up.



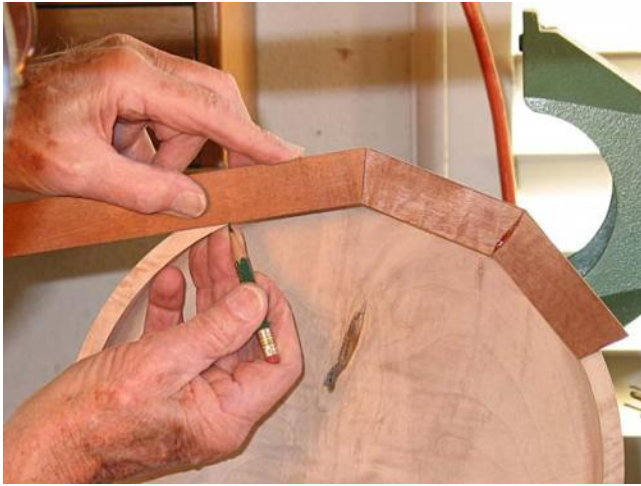
Applying CA glue between the pencil lines showing where segment contacts the rim.



Marking the length of the second segment.



Gluing in the second segment.



Etc., etc., around the rim.



All segments glued in place. Next step is to turn rim to final thickness and shape.



This photo show a bowl with the inlays placed into vertical cuts made with the chop saw.