Petal Ring
Design and Construction Process
By
Jay S. Helland

The Design Intent: “I call this a petal design because they radiate out like a flowering petal”, George “Sonnie” Sharrar.

Turnings by Jay S. Helland

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Petal Ring Turnings

By

George “Sonnie” Sharrar


Sonnie demonstrated the ring petal technique to many in the Greater Kansas City Area and showed me the processes in July 2007. It’s my pleasure to present his techniques and those I’ve learned through my experiences and from Sonnie’s good friend Earl Reed.

Jay S. Helland (July 2010).

Sonnie’s original Petal Ring Plans are provided in the appendix of this presentation.
About Your Safety

- Working with wood is inherently dangerous! Improper use of hand and power tools can lead to permanent injury or even death.
- Don’t ignore the proper safety rules that come with your power tools.
- Don’t try to perform operations you learn here (or elsewhere) unless you’re certain they are safe for you.
- For your own safety, use guards and methods of work so that you can enjoy this craft for many years.
- The author of this material is not responsible for injuries relating to the procedures demonstrated or illustrated in this document.
Petal Making Terminology

“Sandwich Block” or Lamination

One slab makes one segment.

Segment Ready for Band Saw

(1) Draw or “Grow Half the Petal and then go back to the (2) the root,” phrase credited to Earl Reed.

3/4” to 1” Thick

Segment Slab

One slab makes one segment.
Petal Making Terminology

Aggressive Sanding is done with the disc sander on. Passive sanding is done when the sander is off and coasting. Freehand sanding means no guide fence or stops are used to replicate multiple pieces.
Design Considerations

- Determine the major diameter of the petal turning you are creating.
- Calculate the circumference (diameter X 3.14).
- Divide the circumference by the number of segments to determine the width or chord of the segments.
- Half-Petal angles range between 30-45 degrees.
- Adding accent veneer to the sandwich increases visual interest to the design.
- Larger diameters turnings will normally require a larger number of segments or rectangle shaped spacers can be added to a smaller number of segments as filler.
Design and Construction
General Guidelines

• The maximum length of the segment is determined by the equipment used to cut the slabs (table saw blade height or miter box depth of cut).
• The width or chord of the segment is calculated using the following formula: 
  \( \text{diameter} \times \pi \) / #of segments. Technically, the use of the work ‘chord’ is not accurate but close enough for our purpose.
• The angle of the segmented is somewhat controlled by the diameter of the bowl. Normally, the larger the turning the more obtuse the miter angle and the greater number of segments used. The larger (more obtuse) miter angle cuts will insure better bowl proportion on larger diameter turnings.

**Bowl Size and Miter Angle Rules of Thumb:**
- 6” diameter use a 30 degree angle cut
- 6.5 -7” diameter use a 35 degree angle cut
- 7-8” diameter use 40 or 45 degree angle cuts
- >8” diameter use a 45 degree angle cut

These relationships yield good proportions but are only suggestions!
The Petal Bowl Process

1. Create Sandwich Block
2. Cut Slab (table saw or miter box saw)
3. Layout and cut half petals
4. Sand Half Petals on Disc Sander & Glue
5. Layout Petal Segment
6. Cut out segment (pie shape) on band saw and sand on disc sander
7. Glue petals together after final fitting

Waste or Scrap Material (See Appendix #2 for possibilities for their use.)
Making the Sandwich Lamination

To prevent the wood and veneer from sliding all over the place in the gluing/clamping process. It is wise to clamp the sandwich together before gluing and drill a hole in the waste stock on both ends so that a dowel rod can be inserted. It is also recommended that you drill the hole slightly over size so that you don’t have to fight to get the wood to slide over the dowel. Rip the boards 1/8 to 3/16” over size so that there is enough waste for squaring the sandwich block after glue dries.
Cutting the Sandwich into Slabs

Stop Block Provides Additional Space between blade and fence and helps to prevent kick back after slab cut is finished. Removing the block before cutting will provide a route alone the fence if kickback occurs.

Clamp Sandwich Block to Miter Gauge
(Clamp not shown)

Slabs Thickness Range Generally Between 3/4” to 1”

Set miter angle to desired petal angle
Maximum Depths of Cut on the Table Saw Determines the Maximum Length of the Segment

Use extreme care when cross-cutting short sandwich blocks. Leave enough waste so that the block can be clamped to the miter gauge. Do not attempt to hold the block with your hands which are too close to the blade in this operation!
Overview of Steps Used to Construction Petal

Step 1: Layout Petal Halves

Step 2: Rough cut Petal Halves on Band Saw Leaving the Layout Line

Step 3: Disc Sand Petal Half

Step 4: Petal ready for Gluing

Step 5: Layout Segment w/ Plastic Template

See Appendix Regarding Template
Sand (called lapping) the petals bottom after gluing so that it is a dead-flat surface. In addition, sand off the glue on the top of the petal so that the plastic template sits flat on the surface for a more accurate layout. If you have a stationary belt sander, using it will be more efficient.

- Board used to hold down sandpaper
- Plate Glass
- Sand off the pencil lines to produce a flat surface.
- 80 grit
Tape a paper template to glass. Move the segment forward or backward to determine the width of the chord desired. Make a pencil tick mark and then draw 90 degree lines to the top surface. Photo shows both the width and segment shape (pie shape) already drawn on the segment slab.

Place pencil tick marks in two places.

Use Template to Form the Segment Shape
Top View of Segment Layout Using the Paper Template

See Appendix On How To Make a Plastic Template
Final Sanding of Segment Edges

After sanding the segments on the disc sander with 40 grit; I hand sand using 80 grit. Make sure to place the flat bottom against the 90 degree guide board. The abrasive paper is placed on a sheet of plate glass or flat surface. Use the same number of strokes on each surface. Light colored woods have a tendency to show the glue line if the two surfaces are not sanded with the finer grit. I use 80 but 100 grit or finer may produce a less visible glue joint to the necked eye.
Fitting the Segments to the Paper Template

Fit the segments to the paper template by sanding them on the disc sander. Gluing as you go. Use aggressive and passive sanding on the disc sander to achieve the seamless glue joints. Earl Reed only glues the first petal to the paper and then glues the segments to each other after fitting each one. Your preference on what works best for you.

I don’t glue the final three segments but instead remove a little wood here and there on the disc sander until they fit perfectly.
Glued Petal Ring

Though difficult to read, the segments were numbered before gluing for proper order for accuracy ease of clamping. Move quickly, set time is normally 1/3 of the dry time. I use Titebond Original glue.

Number the Segments

Large Hose Clamps can be purchased from your local auto parts dealers.
Glue the Petal Ring to a wooden face plate. Besides facing off the rough surface, I normally contour the inside or bottom of this ring before final sanding. Everyone always sticks their finger inside to see if it too has been properly sanded.

Before

After

Face off the inside of petal ring surface, contour and sand. I recommend the following sanding as a minimum: 80, 100, 120, and 150 grit.
Completed Project
Appreciation and Credits

2. Earl Reed: Technical assistance related to Petal Ring Construction and Assembly. Earl was a good friend of Sonnie’s and his generosity in sharing his knowledge is greatly appreciated!
DECORATIVE RING 2
By George “Sonnie” Sharrar

I call this the petal design because they radiate out like flower petals. The layout of this is similar to the zigzag pattern. If you use those instructions you can see how to convert them to the petal design.

The big difference is the width of the segment, or the long part. You can see this from the sketches below, how the petal shapes will be determined by the size, and shape of the bowl.

The gluing up of the sandwich block is the same, except the center band will be thicker to make the “petal” wider at the outer part. You can see how the thickness of the block will be determined by the layout. It makes a prettier looking petal if a layer of contrasting veneer is glued between the center and the outside layers. This makes the petal stand out. This block will have five layers rather than three of three kinds of wood.

The slabs are cut the same way as described in the zigzag pattern. One slab for each segment. Because you need a right hand and a left hand half. You cut both half segments from the one slab. The angle you cut the slabs at the center of the wood that will form the petal will determine the taper of the finished petal. (See sketch.) That is the inner width, and the outer width. From the end of the slab you square the half “V” formed by the glue joint formed by the contrasting woods. From the other end of the slab you make the opposite half.

Now cut angle determined by number of segments. Divide 360 degrees by number of segments (16). That is 22 1/2 degrees, and one half of that is 11 1/4 degrees the correct angle of each half segment. When one of each half segment is made they can be used as templates for the rest of the segments.
Sonnie Sharrar’s directions for creating a Petal Ring (page 2 of 2)

1/2 seg  |  Full seg.  |  Vertical lines are glue joints.

After turning
Alternate petal angle

Before turning

Length of block = thickness of slab times number of segments plus waste material.

16 Seg.

Width of seg. or block thickness.

Note extra stock.

Waste material

One full segment in each slab.

SANDWICH BLOCK.

Veneer

Saw cuts.

Thickness

Strip of waste between two halves

Thickness of seg.

SLAB
Appendix #2

Don’t Throw Away Those Scraps!

It is possible to make a smaller Petal Ring using the scrap using some filler segments as shown in the turning below.

Maple used as Filler Segments
Making the Segment Template

1. Cut out one paper segment over size leaving about 1/8” waste beyond the segment layout line.
2. Apply a Spray Adhesive on the plastic (3M works good).
3. Place paper cutout onto the plastic.
4. Using a compass, bi-sect the angle & scribe a line down the center of the angle (one side only).
5. Rough cut out the template using band saw.
6. Sand to finished size using a disc sander.
The End