Segmented Bowl Making
Presentation
(Polychromatic Stave-Type Bowl Making)
by
Jay Helland
In Remembrance of

George “Sonnie” Sharrar
(Patternmaker, Master Bowl Maker and Friend to All)
The contents of this presentation were made possible by Sonnie’s willingness to share his many years of knowledge and skill with others.

Sonnie and fellow patternmakers.
Frank Haight Jr., a reporter for The Examiner asked Sonnie what does it take to make a bowl? “It takes threes things to make a bowl: Time, Tools and Talent.”

June 29, 2007

‘I can’t look at a piece of wood Without seeing at pretty bowl in it,’ Sonnie Sharrar.

Sonnie and Ruth were married 62 years.
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.
Stave-Type Segmented Bowl Making Process

Objectives: The woodworker will know or be able to:

1. Design a stave-type segmented bowl. (see movie clip)
2. Calculate the length and width of the bowl’s individual segments using computer generated program.
3. Set-up the table saw sled used to cut the individual segments. (see movie clip)
4. Cut accent veneer used between the individual segments. (see movie clip)
5. Glue individual segments together. (see movie clip)
6. Sand bowl halves on disc sander. (see movie clip)
7. Glue bowl halves together.
8. Use drill press to mill top and bottom of bowl parallel to each other.
9. Construct and assemble the top decorative ring and bowl base.
10. Attach the top and base to the bowl body.
11. Turn the bowl round and cut mortise for tenon of base. (see movie clip)
12. Cut out individual pieces of wood used to form the star pattern for the bowl base. (see movie clip)
13. Turn bowl’s inside profile.
14. Glue decorative ring to bowl body.
15. Finish turn bowl and sand.
16. Reverse chuck bowl to turn the bottom and sand.
17. Apply finish the bowl.
Segmented Bowl Making Process
(Tools, Equipment, Materials, Jigs and Fixtures needed)

- Table saw
- Drill Press
- Wagner Safe-T-Planer
- Wood Lathe and face plates
- Band Saw
- Granite Surface Plate (or a smooth surface for alignment of segments when gluing)
- Clamp-On Straight Edge
- Segment-Cutting Table Saw Sled
- 12” Disc Sander
- Table Saw Veneer Wood Cutting Jig
- Abrasive Paper
- Finish
- Depth Gage

Begin with the end in mind!
Shop Tour (A virtual tour the shop is available on the website)
Three Main Parts of a Segmented Bowl

- #1 Bowl Body
- #2 Bowl Base
- #3 Top Decorative Ring
- Bowl Segments
- Accent Strips
- Granite Surface Plate
- Medallion
Designing Stave-Type Segmented Bowls

1. Determine rough dimensions of bowl (major and minor diameters and overall height).
2. Fold a graph paper in half and draw profile and then cut out with scissors.
3. Determine angle of bowl side measuring from the vertical centerline to the inside angle.
4. Using the Kevin Neely’s *Compound Angle Computer Program* calculate the dimensions of the individual bowl segments.
Designing a Stave-Type Segmented Bowl

Drawing Methods: Freehand or Use Drafting tools, AutoCAD, or other Drafting Programs to Assist in the Design Phase.

Motivation and Design Ideas?: Books, the Internet and other local craftsman.
## Kevin Neelley’s Computer Generated Table Saw Miter Angles

www.turnderwood.com or email: kevin@turnderwood.com (Click on photo to go to program)

<table>
<thead>
<tr>
<th>Type of Miter (from Side Inclined Angle)</th>
<th>Compound Miter</th>
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<tbody>
<tr>
<td>Project Setup and Design</td>
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<td>Number of Sides</td>
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<tr>
<td>Side Inclined Angle</td>
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<td>Outer Diameter</td>
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<td>Slave and Compound Only:</td>
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<td>Board Thickness</td>
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<td>Sawblade Thickness</td>
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<td>Secondary Diameter</td>
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### Segment Sawing and Ring Calculations

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<tr>
<th>Miter Gauge Angle</th>
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<td>Blade Tilt Angle</td>
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<td>Top/Bottom Trim Angle</td>
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<td>Wall Thickness</td>
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<td>Polygon Outer Diameter</td>
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Use Help to learn how to use this program.
Table Saw Compound Angle Cutting Sled

Modifications to a Kreg Miter Jig  (Designer: Jay Helland)

Segment Hold Down Clamp

Flip stop

A digital “Tilt Box” can be used for setting blade angle
Compound Angle Sled
Designer: Sonnie Sharrar.
Cutting Uniform Thickness Accent Strips or Veneer
Distance between Adjustment Screw Head and Outside of Saw Blade Determines the Thickness of Veneer.
Checking Angles of Segments

Quarter-Bowl Angle Gauge

Vernier Protractor Method

No Gaps

Confirming the Inclusive Angle of one Segment
Gluing-up Segments

Gluing Segments

Gluing Quarter Sections
Bowl Halves are ready for sanding on the disc sander. Mark the ends of the bowl halves with pencil before sanding to provide visual assurance that the halves are sanded flat.
Glue bowl halves together using rubber bands for pressure until the glue dries.
Use a Safe-T-Planer to Get The Bottom and Top Edges of the Bowl Parallel To Each Other.
After milling the bottom of the bowl; turn the bowl over and mill the top edge so that they are parallel to each other.

Edge Before Milling

After Milling: Top Flattened
Mount the faceplate in the lathe and bring the tailstock with a cup or live enter mounted in the tailstock. Slide the tailstock forward to the headstock to be able to locate the center of the wooden faceplate. Then draw a circle using a compass the dimension of the bowl’s largest diameter. You’re ready to glue the bowl to the face plate.
Small glue dots about 1/8” diameter is all that is needed to glue the bowl to a wooden face plate.
Glue Bowl to Face Plate
Turning Outside of Bowl

This photo shows the bottom of the bowl body to be flat and the mortise turned 90 degrees to the bottom.
Turning the Base of the bowl body flat and turning the mortise.
This step involves cutting the base flat and then cutting a mortise to receive the tenon cut on the base. Use a depth gage or a small adjustable square to check 90 angle between the mortise and the bottom.
Star Medallion Construction Method. Individual pieces are cut on the band saw. Sanding maybe necessary before gluing. Place a piece of abrasive paper on a flat surface (plate glass, granite counter top, or machinist surfacing plate).

Laying Out an 8 Point Star

Band Sawing Out the 8 Point Star
Band Saw Sled Measurements

Baltic Birch Plywood Base is 14”x14”
Registering or aligning the base on the wooden face plate so that it can be glued on center for future turning.

**Steps For Proper Alignment and Gluing of Bowl Base to Faceplate**

1. Headstock of Lathe
2. Registration Mark
3. Live Dead Center
4. Four or Five 1/8” diameter glue dots will secure the base to the face plate. Allow glue to cure before turning.

Align the Base on the Face Plate After Applying Glue

Apply Pressure While Glue Cures
Process: Face Plate Turning
Bowl segments and bottom ready to begin the turning process.
The Segmented Bowl Making Continued:
Process: Gluing and Clamping the Decorative Ring to the Bowl Body
Bowl with top decorative ring is attached to faceplate and mounted in lathe.
Reverse Chucking of Bowl

Purpose: To finish turn the bottom for appearance and so that it won’t wobble on a flat surface.

Shop-Made Chuck

“ONEWAY” Jumbo Chuck
Segmented Bowls
by
Jay S. Helland
Resources

- [www.turnedwood.com](http://www.turnedwood.com) Kevin’s Woodturning
- *The Art of Segmented Wood Turning* by Malcolm Tibbetts
- *Woodturning with Ray Allen* by Dale Nish
- Jay Helland H: 816-525-7193
- Beal Tool Company (Vernier Protractor) Newark Ohio