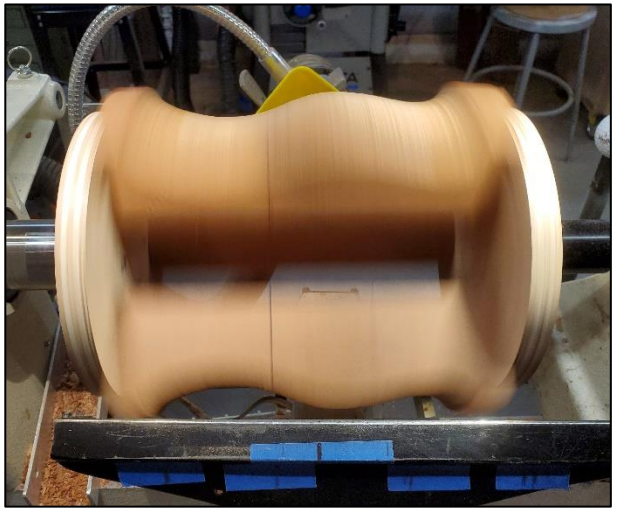
Therming on a Lathe:

Tri-State Woodturners



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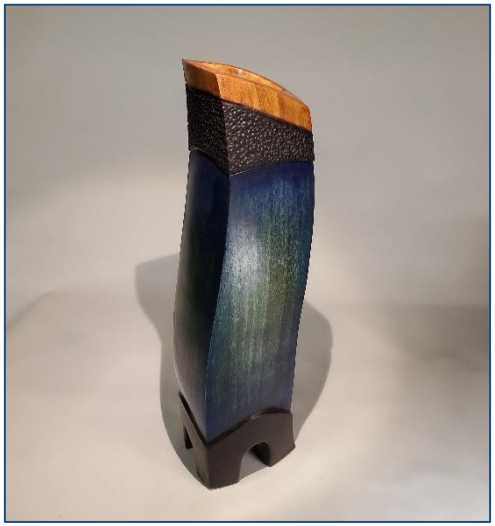
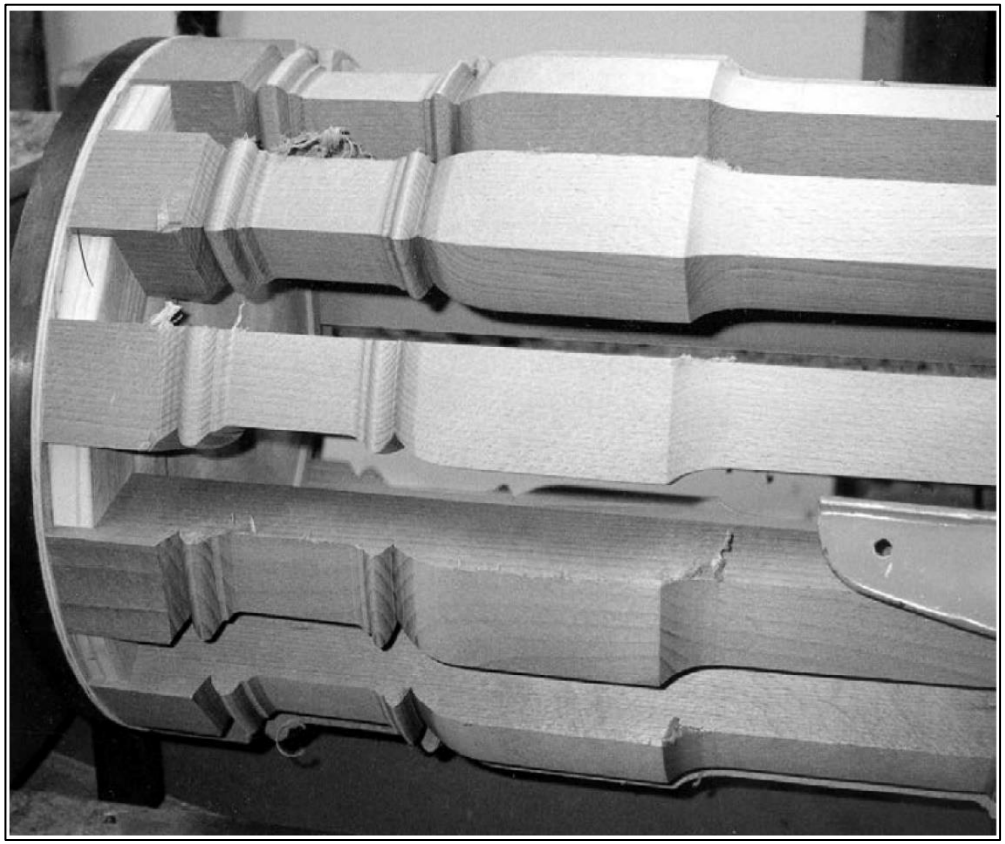
OCT 2022

What Can Therming Produce?

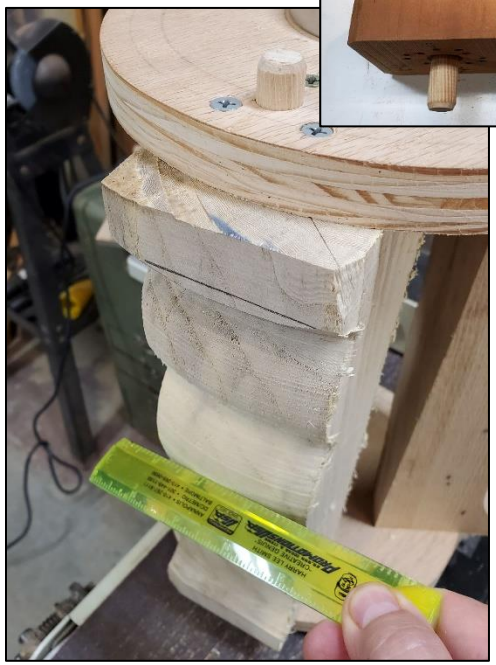


What is Therming?



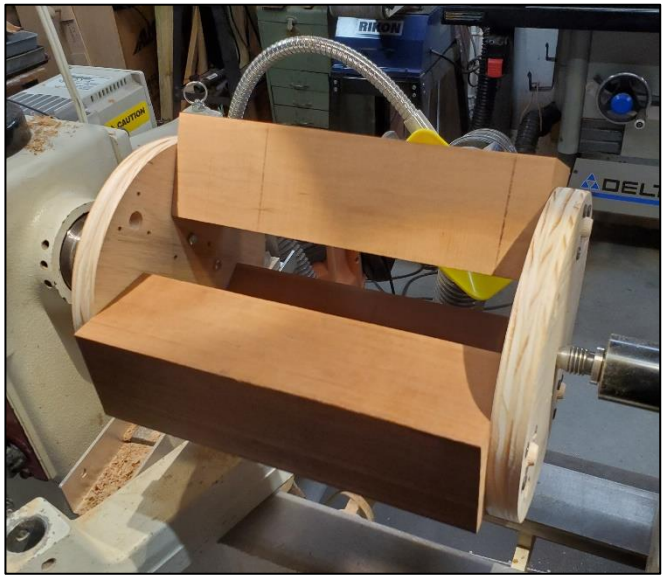
- Therming is a lathe technique that dates back to the 1700s.
- It is described by many as barrel turning or drum turning.
- In basic terms it is spindle turning, using a fixture that holds multiple spindle blanks off-center allowing curves to be cut into the spindles simultaneously.
- Therming has allowed furniture makers to produce spindles in quantity for use as furniture legs and balusters with shapes that were difficult to create by other means

What Does Therming Do?



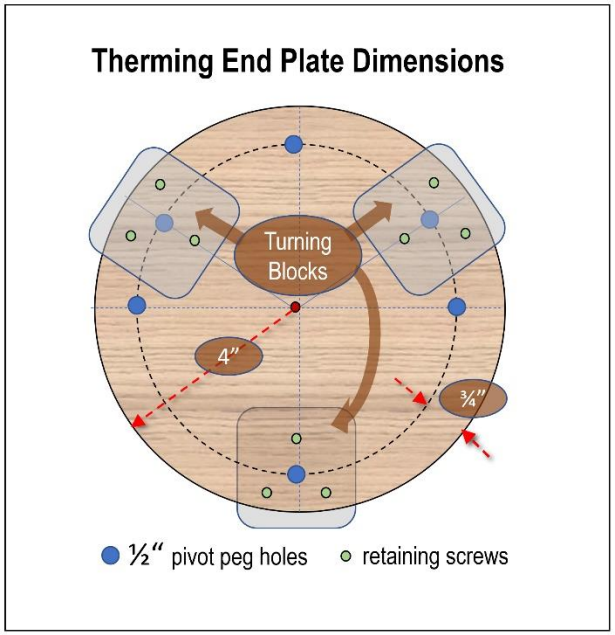
- You might look at thermed shapes and say ‘I could do that on a bandsaw’.
- Look more closely. Each surface on a thermed shape has curvature determined by the diameter of its holding rig.
- The therming rig used in this presentation has an 8-inch diameter, which determines the outer curvature of the turned/thermed spindles
- Therming allows you to make exact duplicates of three, four or however many spindles a therming rig can hold.

The Therming Fixture



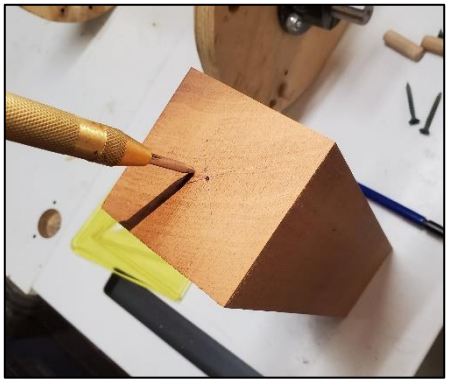
- Two variations of ***therming*** fixtures are shown here.
- The top one has a center shaft ending in a Morse taper and end plates that can be adjusted for different lengths.
  - This type of rig is best for frequent use.
  - For very frequent use, the end plates can be made from metal.
- The second fixture is simpler and is not meant to produce large quantities of thermed spindles.
  - It consists of two plywood end plates and a threaded faceplate for attachment to the lathe.
  - *We will be using the simpler fixture for this presentation.*

Making the Therming Fixture



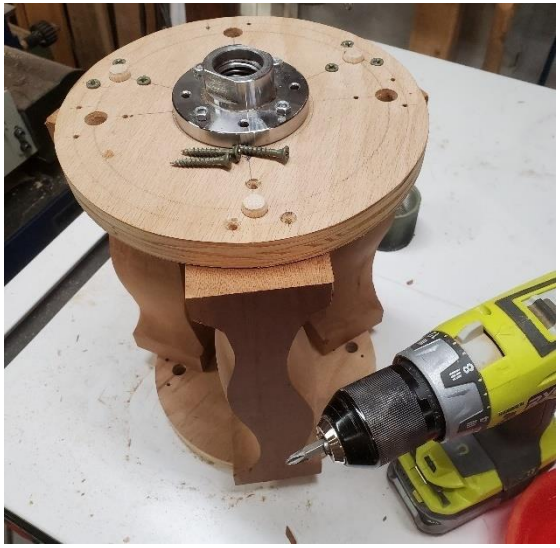
- The simpler therming fixture can be made from readily available items.
- The only costly item is the faceplate, less than 4 inches in diameter, for attaching to the lathe's drive center
- Two plywood end plates are cut to 8-inch diameter circles.
  - Be sure to maintain a mark/divot for your center.
  - To keep the end plates aligned on center, stack them together with the metal faceplate centered on top.
  - Then use 1 ½ inch screws to fix the faceplate on top
- Mount the joined plates on the lathe and smooth the edges (sanding)
- Now remove the joined plates and drill the ½ inch holes in the patterns shown – a drill press is best to get vertical holes
  - The smaller holes are for screws to hold the spindles in place
  - Patterns are shown for three and four spindles

Preparing the Spindles



- This presentation is using three spindles, each one is 10 inches long and 3 inches across
  - The ends are squared and all pieces are the same length
- Centers of each spindle are marked and drilled on each end with a ½ inch dowel pivot hole, ½ inch deep
- ½ inch dowels inserted in the end plates serve as pivot points for the spindles
  - Dowels are 1 ½ inches long

Mounting the Spindles



- Put three pivot dowels in each end plate in the three-spindle configuration and then mount the spindles on the pivot pins between the two end plates.
  - The assembled rig looks like a barrel, as shown here, with circular end plates and the turning blanks mounted between the ends.
- Each turning blank is mounted with a centering dowel on each end so that it can be rotated the desired amount between turning sequences.

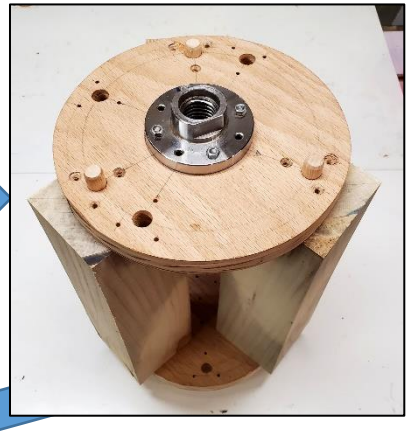
Mounting the Spindles - 2

- The faceplate end will be screwed together first, after aligning the outer surfaces of the spindles perpendicular to the centerline of the therming rig.
  - Three screws are inserted into each spindle blank through the faceplate end plate to immobilize the blank during turning. Tighten the screws on the faceplate end first.
- Now mount the assembled fixture on the lathe and engage the live center on the tailstock in the centering hole
  - This make take some movement on the fixture to get it aligned
  - Once it is aligned, tighten the tailstock and complete the mounting with screws on the tailstock end of the fixture

Assembling the Fixture

1. End Plates with Dowels

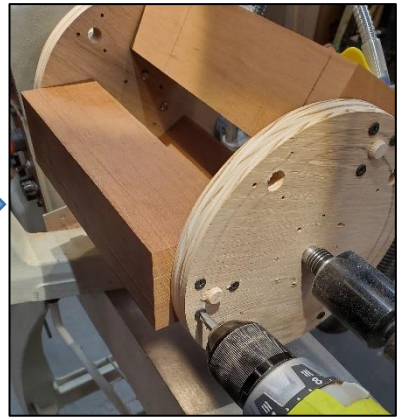
2. Stacking the Spindle Blanks



3. Stacking Complete

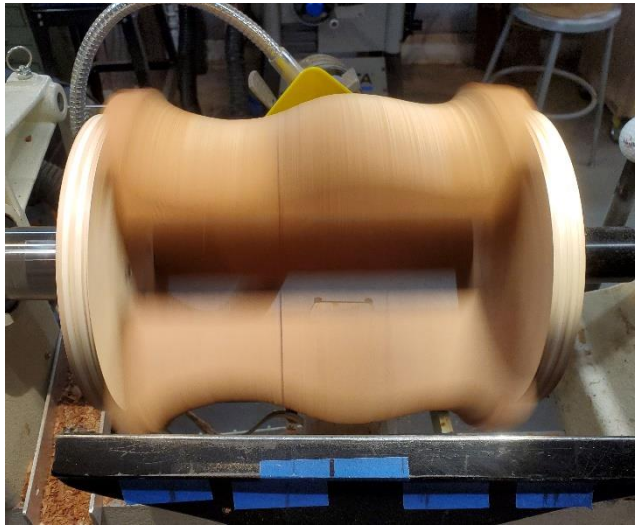
4. Inserting the Screws

5. Aligning the Fixture



6. Tightening the Screws

Therming/Turning the Spindles



- Because the spindles are mounted as separate surfaces, you will only be turning wood on a portion of each rotation.
  - This is known as ‘turning air’ as shown here.
  - All surfaces will be turned in succession for each of the three legs.
  - It is important to hand-rotate your assembled therming rig before each turning sequence to make sure the tool rest does not interfere with rotation.
- After each surface is turned, the blanks will are rotated 90 degrees for a four-sided shape

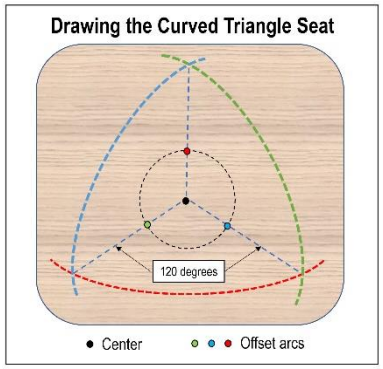
Demo of Therming Cuts

- Completing one side of a Thermed Spindle

Completing the Therming/Turning

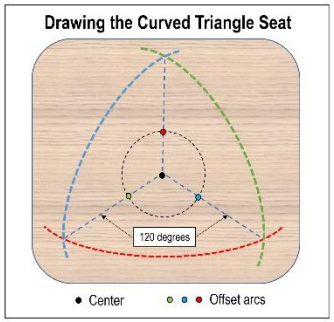
- After the first set of surfaces has been turned to the desired contour, unscrew the connections and rotate the spindles 90 degrees (for four-sided turnings) towards you as viewed from the lathe
  - By doing this direction of rotation, you will maintain a clean edge where the turned surfaces meet
- Once all sides have been turned it may be easiest to do the majority of sanding on the lathe with the spindles stationary
  - Remove the screws so you can rotate the spindles by hand to sand each surface
- Spindles can be removed from the fixture and turned on center as desired to add base contours

Making the Seat



- The seat can be made as a separate item that will be used in final assembly.
- Draw a pattern of the seat, using three intersecting circles to create a curved triangle as shown
- Cut out the seat outer shape on the bandsaw
- Mount the underside of the seat on the lathe using a 4-jaw chuck in a hollowed-out recess in the base
- Then turn the dished-out ‘comfort’ surface on the top of the seat as you would a shallow platter
- Drill holes as needed in the base of the seat to mount the legs on dowels

Cutting/Turning the Seat



Seat Cut Pattern


Seat Cut Out


Cut 4-Jaw Mount


Turn the Dish-Out


Finished Seat


Leg Brace

- Cut the triangular seat from a block of wood as shown
- Mount the seat on the lathe and turn the seat dish
- Attach the legs using dowels
- Add a support brace as needed

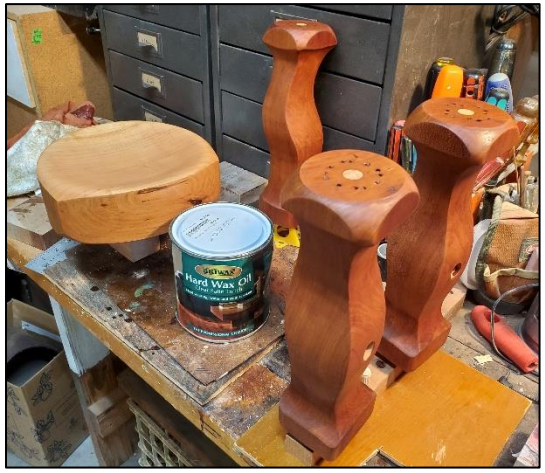
Variety of Shapes Possible

- You can rotate the spindles as desired on the fixture to make three, four and five-sided shapes

Three-Sided Spindles

Five-Sided Spindles

Finishing and Assembly



- Final sanding can be done to the individual spindles before assembling the parts
- A separate brace was fabricated between the three spindle legs to add strength
- Dry fit the parts before gluing/clamping
- The finish is of your choice. This was done with BriWax Hard Wax Oil
- Enjoy your unique thermed stool!

Completed Stool

A unique three-legged Thermed Stool