Turning a Winged Bowl

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Tools needed:

- 1/2" bowl gouge, Negative rake scraper, Half round or full round nosed bowl scraper
- Drive center, Live center, Four jaw chuck

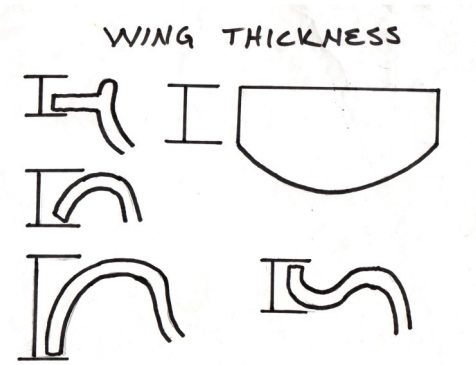
Two ways of turning a winged bowl

Waste Wood method—Glue on waste blocks to fill out a non-round shape, then turn a normal, round bowl. Remove the waste pieces to reveal a winged bowl. Lots of prep work, but can be easier to sand.

Natural method—Start with a non-round shape and turn that. This involves turning "air". Trickier, but saves time and easier to really see the piece evolve as you turn it. This is method I use.

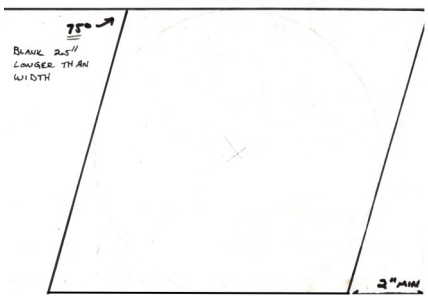
Prepping the blank

- Decide the shape you want to create. Square is easiest for first time. For this demo I will use a rhombus shape.
- Determine the wing shape. Straight/flat is easiest, but on this piece I will be doing a curved wing. The wing shape needs to be determined up front because it drives how the blank must be prepared.
- Determine the "wing thickness" — the distance from the top of the wing to the bottom of the wing. This measurement determines how much of the blank must be "flattened" on all sides. Normally on my rhombus bowls, the wing thickness is 1-1.5", so the blank must have 1.5" flat on all sides, but the bottom portion can still have the curve of the log. This allows you to maximize the bowl you can get from a half log section.



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- A rhombus shape has sides of equal length, but the corners are **not** 90 degrees. For a rhombus blank, a good starting size is 7-8" sides and 3" thick. I pick a blank that is at least 2" longer than it is wide. I don't really measure the angles, I just use an offset of about 2" which is about a 75 degree corner. If your offset is larger you will get more of a diamond shape and it will be harder to do.



- Mark the center of the blank on both sides. I just draw lines from corner to corner—X marks the spot.
- Mount the blank between centers with the top of the bowl facing the tailstock.



Safety tips

- Always spin the piece with the lathe off to make sure it doesn't hit the tool rest—do this every time you stop and make an adjustment prior to turning the lathe on.
- Always stop the lathe before making any adjustments. Always a good practice, but even more so with these pieces as the shadows produced by the wings can be hard to see.
- Always keep your hands behind the tool rest. The spinning wings are dangerous.

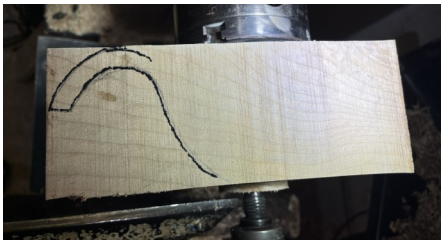


Process

- Flatten the top by taking cuts that start at the tips of the wings. When cutting in the wing area you will be turning lots of air. This is a great place to practice taking light cuts through this air space. Don't pull the tool into the wood, just let if glide across. Getting this cut mastered is key to turning most wing bowl shapes.

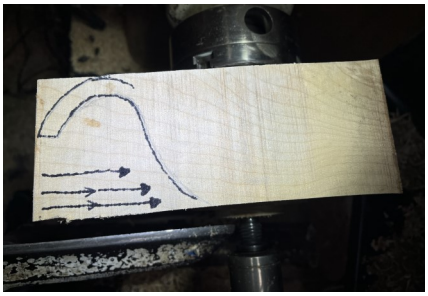


- With the top flattened, add a tenon to the top. When cutting the underside of the wings, the tailstock typically is in the way, so being able to mount the piece in a chuck is essential.
- Mount the blank in a four jaw chuck on this tenon. Bring up the tail-stock for support.
- Turn a tenon on the bottom and reserve space for a foot. You can practice the same cut you did when flattening the top.
- Sometimes it can be useful to draw out the wing shape on the blank.



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- The material under the wing can be turned away in two different ways. You can make the same kinds of cuts you used to flatten the top and bottom faces, starting at the tip of the wings and going straight across. This area gives you more practice with this cut.




- Alternatively, you can make cuts going in from the bottom.





- Either way, remove the material under the wing area, leaving a rough shape of a bowl.
- Begin to shape the outside of the bowl. As you get closer to the wing, you will have to remove the tail stock as it will be in the way when shaping the wings



- Under the wing, it is basically a big cove. You will need to shape half of it coming from the bottom of the bowl and the other half coming from the outside edge of the wing and going in.
- The space under the wings is very tight. Typically I need to use a bowl gouge with a 60 degree bevel here. The flute of the gouge needs to be pretty open to make the curve. Be extremely careful here! You never want the flute pointing straight up as it will most likely lead to a nasty catch.



- As you continue to shape the outside, stop the lathe frequently to check your progress. As you make the outside diameter smaller, check the flat portion of the side. You don't want the flat area to be too wide as the top of the bowl will be about 1/2" above where your cut stops. To bring it closer to the top you must reduce the outside diameter.



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- If you have a hard time seeing where you need to reduce the diameter, you can draw a line at that location. You will see the line as the piece turns and know where to start your cut.






- Also check the underside of the wing. The distance from the bottom of the wing to the top of the bowl should be no thinner than 1/2". That will give you a little room to shape the top of the wing.
- You can refine the cove under the wing using a round nose scraper, but you must be careful. This is in the area of turning maximum air. If you need to use a scraper here, make sure it is a heavy-duty one. The scrapers I use here are a minimum of 3/8" thick and the one in the picture is 1/2" thick. This gives the scraper the supports it needs in this area. Take very light cuts.



- With the bottom complete, remove the bowl from the chuck and remount the bowl on the bottom tenon. Bring up the tailstock for support.
- Start by working on the top of the wing. Nibble away at the corner of the wing, taking very light cuts. As you remove some of the corner, you can reposition your tool rest closer and finish shaping. Try to match the same curve as the underside of the wing.



- There will be some vibration here and you may not get a clean cut. That's ok as this area is small and is easily sanded. It's also ok if the wing is a little thicker at the tip as a little sanding will fix that too.
- Overall, you don't want the wing to be too thin. Mine are typically 3/8" thick. Leave the wing just a little thicker to take into account the sanding that will be done. Sanding can easily remove 1/16".



- Finish the wing by turning the curve that enters the bowl. Turn until you hit solid wood all the way around. Do not attempt to come back and turn on the wing again. Once you start removing the mass from the bowl, the wings will begin to flex and cannot be turned.



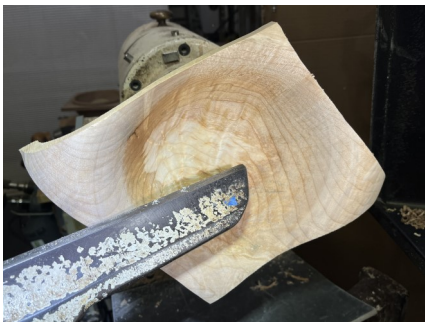
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- With the wings done, the rest is just an exercise in hollowing out a bowl. I leave the tailstock in place for as long as possible. When I can't turn anymore, I turn away the cone in front of the live center and remove the tailstock.
- As you remove material, the force of the wings spinning can cause the bowl to flex and move. To deal with this, I turn the inside in sections about 1-1.5" at a time. I clean up each section with a bowl scraper and then move on to the next section, never returning to the just finished section.









- Before sanding, check the flat part of all the sides. See if one side is wider that the others. If you got the bowl perfectly centered, they will all be the same—this rarely happens. To fix this you need to sand the sides that are the thinnest to match the widest one. I do this on large belt sander, but a disk sander works too. If you don't have one you can make one for your lathe using a piece of MDF mounted on a face plate with hook and loop sandpaper attached. I also round the tips of the wings at this time.



- With the sides all matching, next thing to look at is the width of the side in the middle to the width at the wing. The middle of the side is always wider. I like the flat portion to be the same width the entire length. To get this, a bit of sanding in the middle should be done. This will then create a flat on the inside that has to be blended by sanding some there. This is all done with the lathe off.







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- With the sides all “tweaked” you can now sand the rest of the bowl. I typically sand the wings with the lathe off. You can sand with the lathe running, but only using a power sander. Do not try to hand sand with the lathe running. If you do power sand with the lathe running, it is best to run the lathe in reverse every other grit so the wings get sanded evenly.



- To finish the outside, I use a vacuum chuck to remount the bowl or I use a slightly concave waste block in the chuck. With the waste block I put a piece of leather between the bottom of the bowl and the block and bring up the tailstock to hold it in place. It is now just being held with friction so make sure the quill is tight.



- I use a drum sander to sand the underside of the wings and power sand the rest. I then turn off as much of the tenon as I can, leaving the small bit under the live center to be hand carved or power carved off.





