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Turning a Side-Hollowed Christmas Ornament

Put a Proper Lid on It

Make a Jig to Turn the Bottom of a Goblet

Turn a Miniature Goblet Jig

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Woodturning FUNdamentals

Dedicated to providing education and information to those interested in woodturning.

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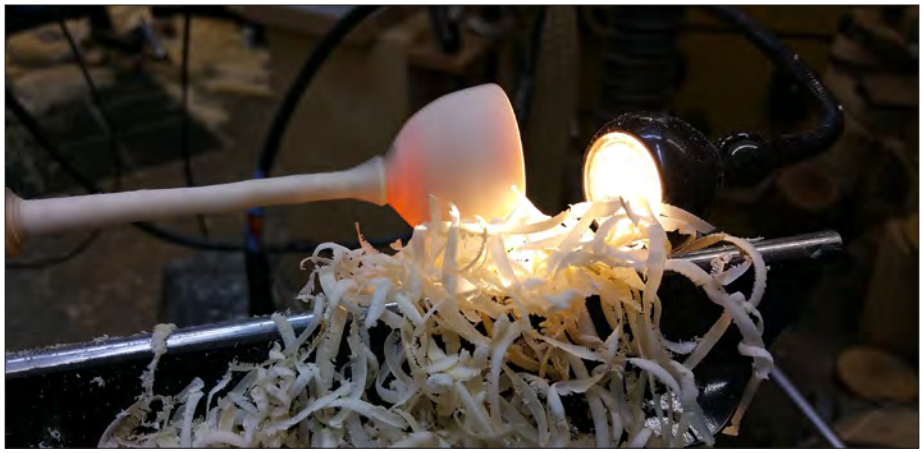


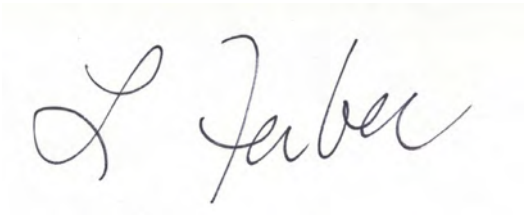
Hello fellow turners!

Woodturners love to pick up a turning and turn it over to scrutinize the bottom. As you develop your skills, there is no greater satisfaction than seeing someone inspect your work from the bottom and finding your finishing details. In this issue of *Woodturning FUNdamentals*, we have provided you with a few processes to hold your work so the beautifully finished piece is complete from top to bottom. I find I can tackle a new project more easily if I break it down into small components. We have done that for you in the goblet articles. To top it off, you'll enjoy learning how to make the perfect lid.

I hope this issue will help you find the information, ideas, and encouragement for a productive visit to your shop! As always, *Woodturning FUNdamentals* invites you to submit your questions, tips, projects, and problems. Every turner develops techniques that work. They also run into frustrating obstacles from time to time. You're not alone. Please send your submissions to us at linda@woodturner.org.

I welcome your suggestions and concerns.

Stay Sharp and Turn Safe,



Linda Ferber
linda@woodturner.org

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Turning a

Side-Hollowed Christmas Ornament

John Lucas

I was asked to do a Christmas ornament demo for the Tennessee Association of Woodturners. They have seen many of my Christmas ornaments and several members asked if I would do a demo on texturing. I decided to see if I could combine both. So I designed an ornament that would be easy to turn and let the turner experiment with texturing. I call it a side-hollowed ornament because the hollowing is done by drilling through the side, which is the opposite orientation used for most traditional ornaments. To make a side-hollowed ornament, you will need to make a simple jig that can be used as an expansion, or collet chuck. The steps are easily accomplished.

Let me give you a bit of insight on how this started. When I use a chatter tool, I often use it on a large turned endgrain blank because you need endgrain for a chatter tool to work best. My preferences are woods with very little grain color that would otherwise obscure the chatter effect. Cherry and maple are both good choices. Ebony and blackwood can be chattered with a beautifully elegant effect. When using very dense woods, even crossgrain can be effectively chattered. I experiment with the chatter tools to see what results I get. Each wood responds a little differently. More pressure must be applied to denser wood to achieve a successful chatter effect. If I don't like the result, I simply turn it away and try again. When I get what I like, I part off this textured "button." Then it's easy to insert the button into the lid of a box or the interior of the lid, or around a platter rim, etc.

There are endless possibilities, one of which is this ornament. It also is fortunate that tools like the Sorby texturing tool and the Henry Taylor Elf also work on endgrain, so I can practice all I want and save these buttons for possible use elsewhere. The long endgrain blank also gives me a chance to try crossgrain texturing with these tools to see what might work. I can turn this portion of the blank away and still have the endgrain portion for my ornaments. Whatever you do, I urge you to spend a lot of time on scrap wood practicing with the texturing tools because there are so many variables. There are some good videos available to get you started.

Turning the Sphere

For this project, I'm using some dry ash cutoffs. Mount an endgrain blank 2 ½" x 2½ " x 4" between centers and turn a tenon on one end. Mount this in a chuck and use a parting tool or spindle gouge to turn the diameter down to 2 ¼" (Photo 1). Measure 1" from the end and turn the diameter to a little less than 1" on the left side of the 1" mark (Photo 2).

AAW Video Source

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- In the box labeled **KEYWORD**, click the down arrow and select **HOLIDAY ORNAMENT** from the dropdown menu.
- Next, click the button labeled **SEARCH**.
- All the results that match your criteria will be displayed
- Locate the video you wish to view on the list of results. Click the **GLOBE** icon, which appears in the column labeled **LINK TO VIDEO** display the video.

Photo 1 - Turn the endgrain blank to a diameter of 2 ¼".

Photo 2 - Reduce the diameter 1" from the end to a little less than 1".

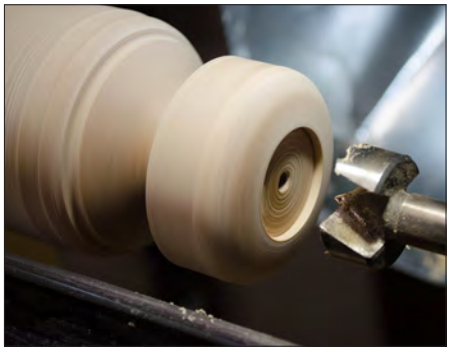

Photo 3 - Use a Forstner bit to create a 1/8" deep recess.

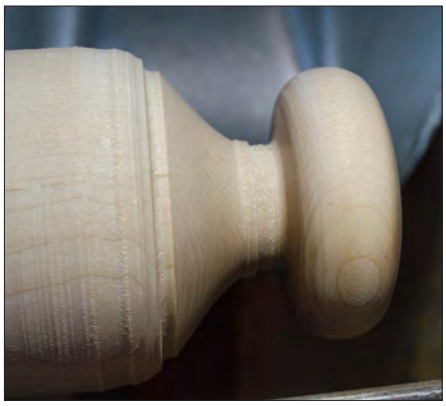

Photo 4 - Shape the ornament using a spindle gouge.

Photo 5 - A texturing tool can be used to create a pleasing design on the side of the ornament.

Photo 6 - Adding color to the textured area adds interest to the ornament.

Photo 7 - Use the Forstner bit to drill all the way through the ornament.

Mount a 1 1/8" Forstner bit into a drill chuck mounted in the tailstock and drill a shallow hole, approximately 1/8" deep. This will show you where the border of the insert will be (Photo 3).

Use a spindle gouge to round both sides, shaping the ornament. I find that a round, bead-looking shape looks best for the final ornament (Photo 4). It's important to sand at this point.

Use a texturing tool of your choice and create a detail outside the hole. In this case, I'm using the Henry Taylor Elf (Photo 5). I use a three-point tool or the nose of a skew to cut one or two rings defining the textured area.

Once that is done, use a permanent marker or a paint marker to color the textured area (Photo 6).

After these steps are completed, use the Forstner bit to drill the rest of the way through, which frees the ornament (Photo 7).

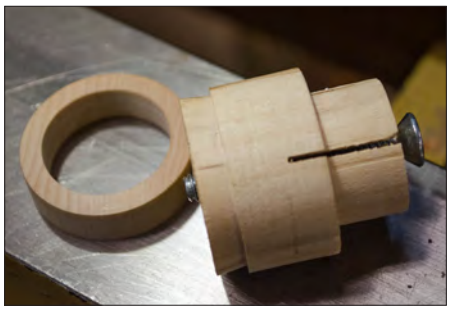

Photo 8 - Prepare the expansion, or collet, chuck blank by turning a tenon on each end. (The ring moves the ornament out a little so the collet chuck works better.)

Photo 9 - Drill a 5/16" hole through the collet chuck to accommodate a threaded insert.

Turning the Expansion, or Collet Chuck

To mount the ornament in reverse to decorate the other side, turn a 1 ½" x 1 ½" x 3" endgrain blank between centers and turn a tenon for the expansion jaws of a scroll chuck on one end. Mount this end into the chuck and turn a 1 3/8" tenon about ¾" long on the other end. Leave a good square shoulder on the base of the tenon since it will be used to align of the ornament (Photo 8).

Use a 5/16" drill bit mounted in your tailstock and drill all the way through the workpiece. Taper the hole at the end of the long tenon so that it matches the taper on the head of a ¼" screw. Now turn the blank around and center drill it for a threaded insert. I used a 1/4x20 threaded insert (Photo 9).

Put a ring on the ¾" tenon to keep it from splitting and screw in the threaded insert. You can also bore a shallow hole and epoxy a nut inside the opening instead.

Photo 10 - By tightening the screw, the collet jaws expand and hold the ornament securely.

Photo 11 - Matching the designs on the two sides is an option.

Collet Chucks

For making other expansion collet chucks, see "Make a Jig to Turn the Bottom of a Goblet," by Roger Jones, and "Turn a Miniature Goblet Jig and Enhance the Bottom of the Goblet," by Janice Levi featured in this edition (November 2017) of the Woodturning FUNdamentals digital publication.

Cut four slots in the end of the small tenon. Cut the slots as far back as you can without hitting the threaded insert. I found that it was hard to get the collet chuck to expand properly so I added a ring that moves the ornament out a little so the collet chuck works better. As you tighten the screw, the bottom of the tapered head pushes against the jaws and opens them up, clamping the work securely in place. Photo 10 shows the ornament clamped in place and ready to sand, texture, and color on one side. I try to match the other side, but it's your ornament so use your own imagination (Photo 11).

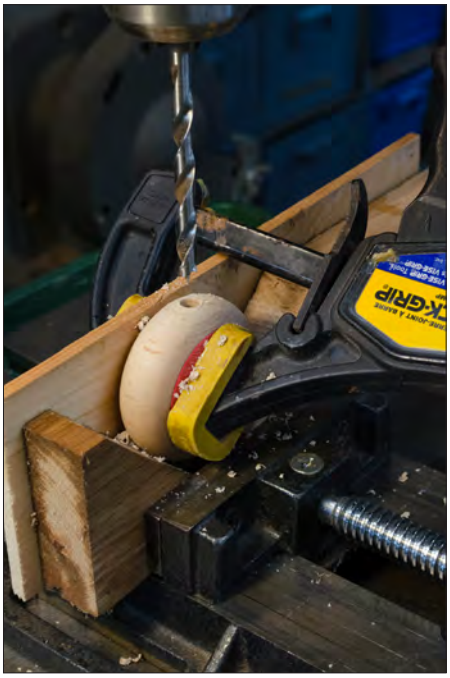

Photo 12 - To safely drill the hole through the ornament, build a V jig.

At this point, you can hollow a little if you want your ornament to be lighter. Don't hollow too much because you will be drilling through the side to fit the finials into place, and I find it easier to keep the finials aligned with each other if the holes have more thickness, about 1/8". I use a V jig mounted on my drill press to drill a ¼" diameter hole all the way through (Photo 12).

My V jig is made from a piece of 1x4 stock with a "V" cut in the edge of the stock. I use a thin piece of plywood and a clamp to complete the jig setup. The jig makes using the drill press much safer and the hole can be accurately drilled all the way through the ornament. Drill very, very gently as you exit the bottom or it will chip out. If you get chip-out, I find that carving a slight cone or recess disguises it. At this point, I coat the surface with wipe-on poly. I dab it on the colored areas and try not to smear it. Always do a test on your markers and finish to see if they are compatible. One way to assure that the markers do not run is to spray the surface with two to three coats of fixative, a product that artists use to set pastels and charcoal.

Photo 13 - To turn the button, use a hardwood endgrain blank.

Photo 14 - Sand the button insert before texturing the surface. Use whatever tool you prefer to texture the surface.

Turning the Button Inserts

Mount a hardwood endgrain blank measuring 2" x 2" x 2" between centers. Use a parting tool to turn a tenon on one end, then mount the blank into a chuck. Slightly round over the outside, leaving it fairly flat (Photo 13). Measure 1/8" from the end and use a parting tool to reduce the diameter to 1 1/8". Make sure this is the proper size to fit the opening in the ornament sphere. Turn down the button portion to a 1/16" thickness or slightly more. Sand at this point because you cannot sand after texturing (Photo 14).

Photo 15 - Texture the button with the texturing tool of your choice.

Photo 16 - Gold Rub-N-Buff adds a festive touch to the ornament.

Photo 17 - Here are the completed parts for the body of the ornament.

Texture the button with a texturing tool of your choice (Photo 15). After texturing, I used gold Rub-N-Buff (Photo 16) then I used a three-point tool to define the textured area. If some of the Rub-N-Buff spills over onto the untextured area, it can be removed with 400 grit abrasive. Finally, apply a coat of wipe-on poly. Now you make another button for the other side. The parts for the body of the ornament are now completed (Photo 17).

Photo 18 - Support the finial with your fingers while turning.

Photo 19 - The parts are turned and ready to be assembled.

Turning the Finials

I use my 1" spigot jaws to turn the finials. I support the finial with my fingers from the back side of the piece while taking light cuts. Turn from the bottom of the finial at the tailstock end toward the top at the headstock end. Once the tip is turned, do not go back to this area. This reduces the chatter. If you are burning your fingers, you are pushing too hard on the bevel of the tool. By using a sharp tool, light pressure on the tool bevel, and making light cuts, turning the finial will not be too difficult (Photo 18).

AAW EXPLORE!

helps members locate woodturning information, projects, articles, tips, and more quickly and easily using keywords. Here's how find more articles on finials quickly using the EXPLORE! search functions.

- **LOG IN** to the AAW website at woodturner.org.
- Hover over **READ** on the main toolbar. A drop down menu will be displayed.
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- In the white search box (beneath the Category and Keyword boxes), type in the word **"FINIAL"**
- Click the **MAGNIFYING GLASS** icon to the right of the search box.
- The results that match your criteria will be displayed (along with related articles).
- Locate the article on the list of results. Click the **GLOBE** icon, which appears in the column labeled **LINK** to open/view/download the article.

Photo 20 - Inks, dyes, markers, and an abundance of texturing tools can be used to enhance the ornaments.

Photo 21 - A simple ball cutter attached to a drill can create interesting designs.

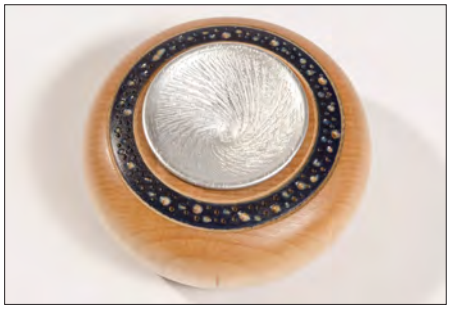

Photo 22 - Silver on a recessed button creates an unusual illusion.

Before parting off the finial, be sure the tenon is the same size as the hole you have drilled into the ornament. Photo 19 shows the finials and all the parts for the ornament ready to be glued in place. I use medium CA to glue everything together, although wood glue can also be used but additional time will be needed for the glue to dry.

One of the joys of making ornaments is the opportunity to experiment with variations.

In Photo 20, I used calligraphy ink to dye the red and blue ornaments. I painted one finial black. I used various texturing tools to alter the button appearance. If you don't have a lot of texturing tools, you can create them by using a Dremel and various ball cutters or by using a small drill fitted with ball cutters. I colored one ring with a blue marker and then used my Dremel outfitted with a ball cutter to carve through the blue. When I made the insert, I sprayed it silver, turned through it, and colored the middle with the same marker (Photo 21). I continued to experiment by making a recessed cone, texturing it with the Elf tool, and painting it silver (Photo 22). There are lots of possibilities: perhaps pierced buttons, maybe even a real button insert, or perhaps a small magnifying glass, or a mirror. Let your imagination take over and I'm sure you'll think of all sorts of ways to enhance your ornaments.

Your finished ornaments can become heirlooms. ■

Author

John Lucas, a retired photographer, has been working in wood for about 35 years and also dabbles in metalworking. Additionally, he enjoys modifying machines, making tools, and sharing his knowledge through written articles and videos. He has taught classes at John C. Campbell Folk School, Arrowmont, and The Appalachian Center for Crafts.

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Explore Two Basic Lid Types

Put a Proper Lid on It

Walt Wager

When you are turning a lidded box, it is important to make a lid that is fitted to the purpose of the box. For example, if you have a dresser top box for jewelry, you want to open the box by simply lifting the lid without effort. However, if you have a pill box, you want a lid that will stay on without falling off. This article will look at how to turn and fit a lid for these two popular types of boxes. The first lid simply sits on top of the box, with a small tenon that holds it in place. It is a close fit, but not so tight that it binds on the box (Photos 1 and 2). I will call this a "drop-fit" lid.

The second lid fits snugly, like one on a pill box. You have to apply some effort to remove the lid; usually the lid fits over a tenon that is turned onto the box itself. The tenon is on the bottom portion of the box, creating an uninterrupted interior, so that the contents won't interfere with the top closing. I will call this type of lid a "friction-fit" lid (Photo 3).

Generally, boxes are turned endgrain. That is, the grain runs perpendicular to the bottom of the box. Humidity can create movement in the wood and the box may become slightly oval causing a problem with how the top fits. This problem is greater with boxes turned sidegrain.

Photo 1- A drop-fit lid.

Photo 2 - Turning box with a drop-fit lid.

Photo 3 - Friction-fit lid.

Turning a Simple Box with a Drop-fit Lid

Round a blank and put a tenon on both ends so both the top and base of the box can be held in a scroll chuck. Match the style and shape of your tenon to the type of scroll chuck you will be using (Photo 4). This blank is roughly 3" in diameter and 5" long.

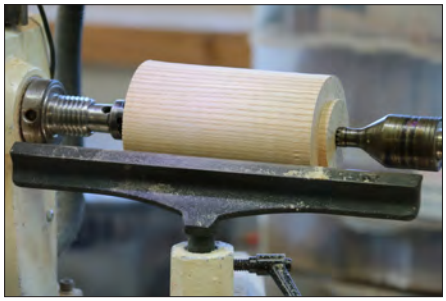

Photo 4 - Round the blank and put a tenon on both ends.

Photo 5 - Pencil lines denote the lid, the tenon that will be on the bottom of the lid, and the body of the box.

The pencil lines in Photo 5 mark the lid (on the right), the tenon that will go down into the body of the box, and the bottom of the box. The tenon space is 1/2" long.

This can be a little confusing because there will be two tenons on the lid. One of the tenons is used to hold the lid in the chuck (call this the chuck tenon). The other tenon is on the bottom of the lid and it fits down into the box after it is hollowed (call this the lid tenon). Using a 1/8" parting tool, turn the lid tenon to a depth of about ¼". For a functional box, a wall thickness of about 1/4" is approporiate (Photo 6). The top is parted off, leaving a thin portion of the lid tenon on the body of the box (Photo 7). Since this is the same dimension as the lid tenon on the top, it will serve as a visual reminder of how wide the opening of the box has to be to accommodate the lid when the box is hollowed (Photo 8).

To hollow the box, use a Forstner bit to drill a hole to the desired depth inside the box. Leave about ¼" in the bottom for the foot of the box (Photo 9). This helps to hollow from the center to the edge, and it lets me know when I have reached the inside bottom of the box.

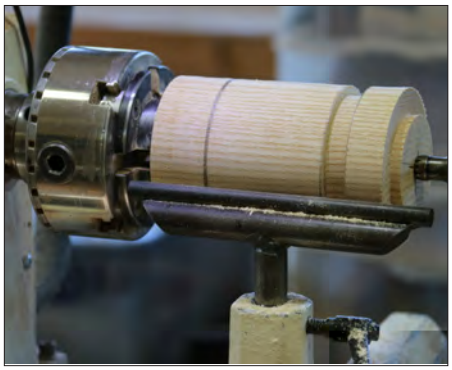

Photo 6 - Turn the lid tenon about ¼" deep.

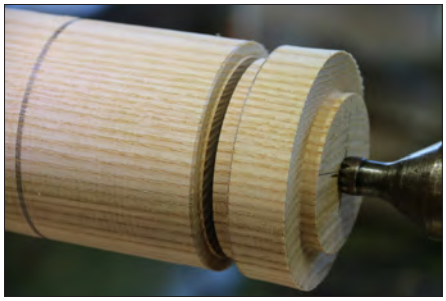

Photo 7 - Leave a thin portion of the tenon on the bottom of the box.

Photo 8 - The edge serves as a visual reminder of the lid's tenon size.

Photo 9 - Drill a hole to aid in hollowing the box.

Photo 10 - When hollowing the box, leave the upper edge for last.

The box edge is the same size as the tenon on the top, so a shallow cut to the depth of the tenon will allow the top to fit into the body of the box (Photo 10). The only consideration is how much to remove. Start with a very shallow cut and check the fit of the lid (Photo 11). If it is too tight, the sides may not be exactly parallel, so you might have to remove a bit more, or sand the cut to make it slightly wider. These should be small cuts; it doesn't take much to go from too tight to too loose. The object is to have the lid tenon slide into the box without effort, but be tight enough so it doesn't move around. This is about 1/32" difference between the diameter of the lid tenon and the inside of the box. The cuts should be parallel to create a proper fit; even a slight taper will affect the fit Photo 12).

Photo 11 - Remove a small amount of wood from the inside edge so that the top will slide down into the box.

Photo 12 - Check the fit and remove more if necessary.

Once the lid is fitted, sand the box and remove it from the chuck. When you are sanding the inside of the box, stay away from where you just fit the lid. Apply a finish to the inside of the box while it is still on the lathe.

Put the lid in the chuck as shown in Photo 13 to finish the inside of the lid, hollowing it to remove some of the bulk. Sand through your grits

and apply a finish to the inside. Then reverse the lid in the chuck and finish the top, as shown in Photo 14. All that remains is to part off the bottom of the box from the original blank (Photo 15).

Reverse the bottom in the chuck, expanding the jaws into the slight indentation, and finish the bottom (Photo 16). Sand through the grits, apply the finish of your choice to the box, and you've just created a box. (Photo 17).

Photo 13 - Finish the inside of the lid.

Photo 14 - Lid reversed in the chuck to finish the top of the lid.

Photo 15 - Part off the bottom of the box.

Photo 16 - Finish the bottom.

Photo 17 - The turned box with a drop-fit lid.

Turning a Simple Box with a Friction-Fit Lid

The second box has a tight-fitting lid and uses friction to secure the top. This type of box, which can have any number of shapes, requires turning a tenon on the body and a mortise on the top that the tenon fits into.

Photo 18 - Hollow the box.

Photo 19 - Measure the exterior of the tenon.

Photo 20 - Transfer measurements.

The tenon needs to be long enough to secure the top. After turning the tenon (Photo 18) and hollowing the box using the same techniques as described earlier, use a vernier caliper to measure the exterior of the tenon (Photo 19). Transfer that measurement to the bottom of the lid (Photo 20) that is hollowed (mortised) to fit over the tenon as shown in Photo 21. For the best fit, it is important for the sides of the mortise and tenon to be parallel or straight. The body of the box can then serve as a jam chuck for turning the top (Photos 22, 23). Reverse the body of the box on the scroll chuck. The last turning step is finishing the bottom of the box. Sand through the grits before removing the box from the lathe. If you select a wipe-on finishing material, this should be applied before it is removed from the lathe. The finished box is shown in Photo 24.

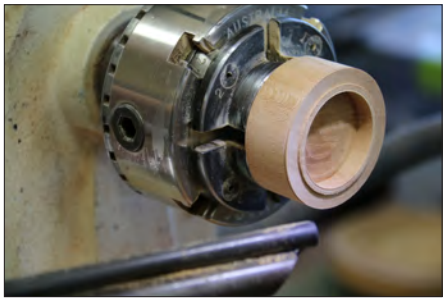

Photo 21- View of tenon.

Photo 22 - Jam chuck.

Photo 23 - Finishing the top.

Photo 24 - Finished box.

Concerns when turning are that the mortise in the lid is deep enough to accommodate the tenon on the box, and that the edges are square where they meet the bottom of the tenon. Getting the exact fit is a process of cutting away the tenon on the body or the mortise in the top a little at a time until the desired fit is attained.

The box with the loose fitting lid is easier to make and a good place to start your box turning. As you practice and your skills improve, you can accomplish more. The old adage is true, "Just one more cut," but with boxes, make that last cut slowly and with precision and care. When you select the wood for your box, a tight grain will be strongest. A wood that is hard shows crisp lines and cuts cleanly. Turning boxes is a joy and they are always popular as gifts. There is an infinite variety of shapes and sizes for you to develop your creativity in design and decoration. ■

Author

Walt Wager is a 15 year member of North Florida Woodturners Chapter of AAW. He is the coordinator of and woodturning instructor at Camelot's Woodworking Studio in Tallahassee, FL, (woodturner.com). His website is http://www.waltwager.com, and he can be reached by email at waltwager@gmail.com.

More About Tenons

Check out the article entitled, **The Benefit of a Well Made Tenon**, by Jim Piper, from the August 2017 issue of *Woodturning FUNdamentals*.

Find this article on AAW EXPLORE!

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FINISHING THE Bottom OF A PLATTER

Walt Wager

Photo 1

Walt Wager believes turners should take as much care with the bottom of a platter as with the rest of it.

Like Rodney Dangerfield, the bottom of a platter gets no respect from most people. However, the first thing a woodturner will do is turn it over to scrutinize the bottom. So, this article will focus on one way to finish the bottom of a platter.

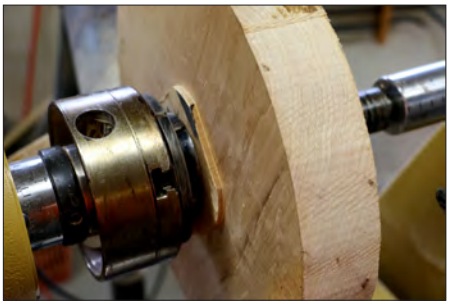

Photo 2 – Secure the platter blank to the lathe.

Photo 3 – Mark the location of the foot and tenon.

Turning a platter starts with securing a blank to the lathe. I typically use a 1.5"-thick x 11"-diameter platter blank, and drill a 3/8" hole in the center about 3/4" deep to secure it to a screw in my scroll chuck. If the screw is too long, I will use a plywood spacer between the chuck and the surface of the platter blank (Photo 2). Secure the blank between the tail stock and live center firmly on the lathe (Photo 3). Use the hole created by the point of the live center to center the platter on a jam chuck when finishing the bottom.

To make a functional platter that will sit securely on the table, the foot on my platters is approximately half the diameter of the platter, so for the 11" platter, the foot would be approximately 3" from the center (marked in red on Photo 3). To hold the platter on the lathe to turn the top when I reverse the blank, requires a tenon by creating a slot into the bottom using a bedan (Photo 4). The wood between the tenon and the foot will be removed later when I finish turning the bottom.

Photo 4 – Use a bedan to turn the tenon on the bottom of the platter.

Defining the outside of the foot and the contour of the bottom of the platter are important design considerations. My personal preference is an ogee curve from the foot to the bottom edge of the rim (Photos 5 and 6). I turn this with a 3/8" bowl gouge from the foot toward the rim. To create the ogee curve which is shaped somewhat like an S, consisting of two arcs that curve in opposite directions so that the ends are parallel measurements, I draw reference lines at the critical points as guides. I turn each section of the curve blending them together to create a smooth continuous curve. Sanding the bottom between the foot and the rim, starting with 100-grit abrasive. Go through the grits, ending with 400-grit abrasive. If I am going to do any painting or staining on the rim, I will spray the bottom with lacquer to keep the paint from staining the bottom.

Photo 5 – Turn the ogee between the foot and rim.

Photo 6 – The profile of the ogee resembles an S curve.

I reverse the platter on the lathe (Photo 7) and turn the top rim with a gentle slope curving toward the center of the platter. This directs the eye toward the center of the platter (Photo 8). I pay attention to the edge where the bottom and top meet. All sharp edges need to be rounded in this section to make sure it feels good in the hands of the user. If I am going to embellish the rim, I'll sand it and add the embellishment before turning the center of the platter, so that I can keep a nice clean cut between the embellished rim and the inside bottom of the platter. If I am not going to embellish the rim, I simply finish turning and sanding the inside of the platter. To turn the center portion of the platter, I measure the thickness to create a uniform width. Typically, the center of a platter has a flat area to provide function.

Photo 7 – The blank is reversed to turn the top.

Photo 8 – The rim is turned and any embellishment would be added now before finishing the inside of the platter.

Photo 9 – Platter with embellished rim.

In Photo 9, I embellished the rim with web paint and interference blue acrylic. Spray-on web paint creates a spider web effect while interference paint adds an irridescent effect. This is only one of many options for painting, woodburning, or carving to embellish the rim, but this article is intended to give the fundamental steps so you can practice your skills. Reversing the platter to finish the bottom is what will take your work to the next level in answer to the woodturner that will pick up your platter to look at the bottom. Secure the platter between a jam surface on the headstock and the live center on the tail stock (Photos 10 and 11). The center point on the back side will give you guidance in mounting. It is critical the platter be centered when it is reverse-mounted. The jam chuck is turned from scrap wood and has a soft surface added (a piece of foam I cut from an anti- fatigue mat), so as not to scratch the finished surface of the platter's top. The foam can be held onto the wood jam chuck with double-sided woodturner's tape.

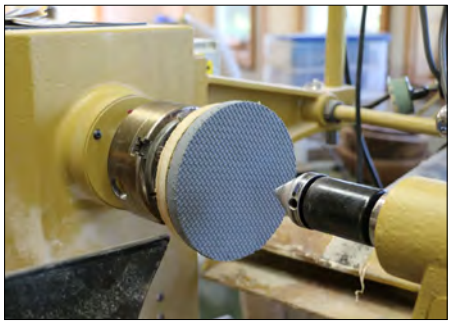

Photo 10 – Jam chuck and foam.

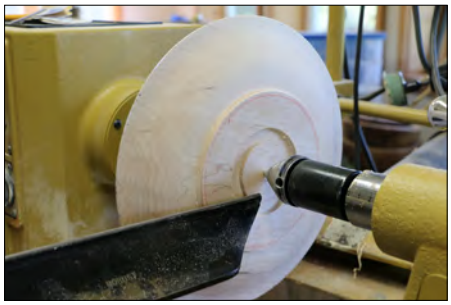

Photo 11 – Secure the platter between jam chuck and live center.

Turn away the wood between the foot and the live center which was used as the tenon earlier, leaving only a nub to be removed later (Photos 12 and 13). The finished shape of the foot is turned at this point. I had plenty of wood, allowing me to create a pleasing rim for the platter to rest on. There are options here of making beads and other turned embellishments on the bottom of your platter to show your attention to finishing details. Sand the wood between the foot and the nub beginning with 100-grit abrasive and ending with 400-grit.

Photo 12 – Remove the wood between the foot and the tenon.

Photo 13 – Sand between the foot and the nub.

I remove the nub with a flexible Japanese razor saw (pull saw) (Photo 14), making sure I do not damage the rim of the foot with the edge of the saw. However, it can also be removed with a chisel.

Photo 14 – Use a pull saw to remove the nub.

Photo 15 – Sand where the nub was removed.

Photo 16 – Sign your work.

Finish sanding the bottom off the lathe with a drill and 2" sanding disk, gently blending and flattening inside the foot of the platter (Photo 15). Sign your platter before applying a finish (Photo 16).

Since a platter is meant to be handled, use a good water-resistant finish like acrylic lacquer, tung oil or polyurethane. My finish of choice is Krylon acrylic spray lacquer. I use the matt finish, and buff it with the Beale buffing system (Photo 17). This will give you a bottom to be admired by any woodturner (Photo 18)! ■

Photo 17 – Buffing the platter

Photo 18 – Finished

Author

Walt Wager is a 15 year member of North Florida Woodturners Chapter of AAW. He is the coordinator of and woodturning instructor at Camelot's Woodworking Studio in Tallahassee, FL, (woodturner.com). His website is http://www.waltwager.com, and he can be reached by email at waltwager@gmail.com.

More on Platters

Playing with Fire, by Nick Cook, from the Summer 2005 issue of *American Woodturner*.

An Eye for Platters, from the Spring 2005 issue of *American Woodturner*.

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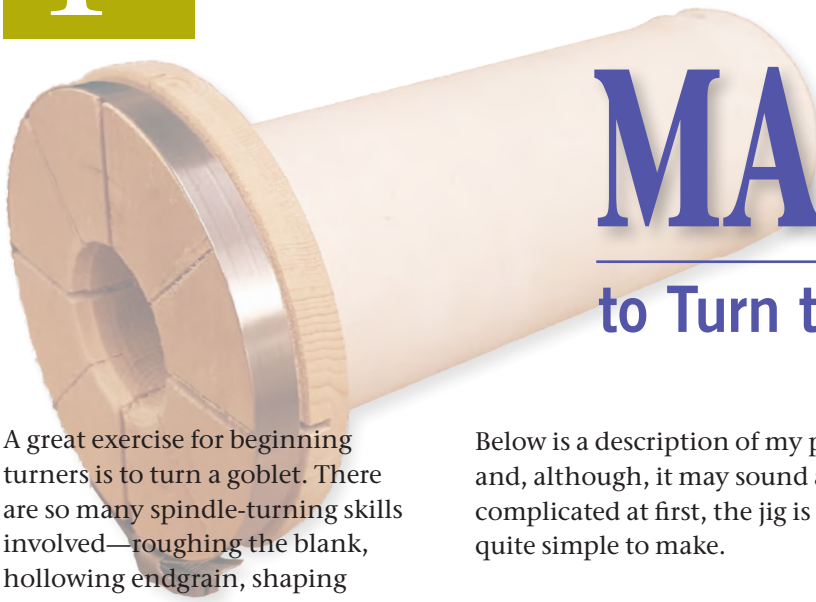

MAKE A JIG

to Turn the Bottom of a Goblet

Roger Jones

A great exercise for beginning turners is to turn a goblet. There are so many spindle-turning skills involved—roughing the blank, hollowing endgrain, shaping the exterior so the bowl wall is thin, turning the thin stem, and creating a base that makes the goblet functional. What do most turners do next? They part off the goblet with a slight undercut, sand the nubbin, and call it finished. Even experienced turners usually follow this process when it comes to dealing with the bottom of the goblet. Why? For obvious reasons, even though you might create a jam chuck to hold the bowl of the goblet, the thin stem makes it impossible to apply any pressure to the bottom without creating unwanted chatter. Even worse, the thin stem is likely to snap, ruining your beautiful goblet.

My friends know that I enjoy making useful jigs for all sorts of turning challenges, and the bottom of the goblet was just such a challenge. I like to make goblets as wedding and anniversary gifts, and even though I always carefully finish and embellish the bottom of bowls, platters, and such, I was leaving the bottom of goblets plain, painfully plain. Here was a challenge that I could not ignore. After several jig iterations, I finally settled upon one design that works. And, I have not left the bottom of a goblet plain since then.

Below is a description of my process and, although, it may sound a bit complicated at first, the jig is really quite simple to make.

Materials:

- 1 piece of scrap 2" x 6" x 6" (I used construction lumber)
- 2 pieces of 1" x 6" x 6" construction lumber
- 1 piece of 3" heavy wall PVC pipe, 8" long
- 1 large hose clamp 6" interior diameter

To make sure that the ends of the PVC pipe are perfectly square, use a chop saw to trim each end. You may also want to lightly sand the ends to remove any tearout.

Photo 1 - The jam chuck made from 1" x 6" x 6"

Use a screw chuck to mount one of the 1" x 6" x 6" blanks. Use a bowl gouge to turn it round. Then turn a tenon that will fit inside the PVC pipe. This should be a snug fit and act as a jam chuck. Repeat this process for the second piece of 1" x 6" x 6" (Photo 1).

Photo 2 - Turn a dovetail tenon into the PVC pipe.

Fit each of the turned 1" x 6" x 6" pieces into the ends of the PVC pipe. Mount the jig back onto the screw chuck and bring up the tailstock. Use the tool of your choice (I used a skew) and turn a dovetail on one end of the PVC pipe to fit your chuck (Photo 2).

Remove the 1" x 6" x 6" pieces from the PVC pipe.

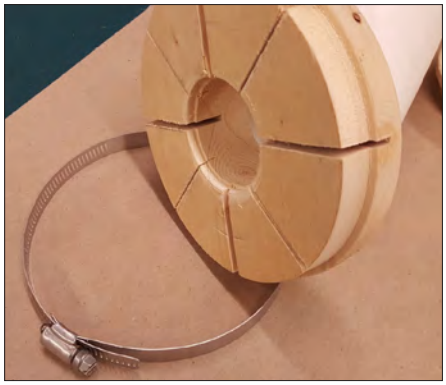

Photo 3 - Saw kerf cuts to create the collet.

Before turning the 2" x 6" x 6" piece of lumber round, mark the center of the blank and draw four lines through the center. If the blank were a clock, the lines would be drawn from 12:00 to 6:00, 3:00 to 9:00, 1:30 to 7:30, and 4:30 to 10:30. Now use a table saw to make kerf cuts about 3/4" deep along each of the four lines. These cuts will form a type of collet that will eventually hold the base of the goblet (Photo 3). You may also use a bandsaw or a hand saw to make these cuts.

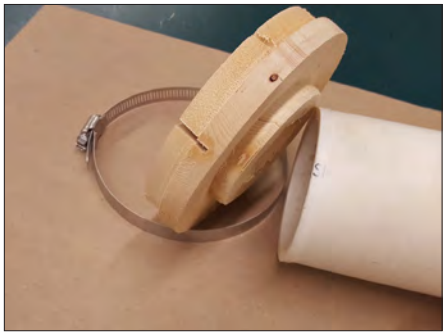

Photo 4 - Turn a recess for the hose clamp.

Secure the wood pieces to the PVC pipe with short screws. Mount the blank onto your screw chuck on the side into which the collet kerfs have been cut. Turn the blank round. On the non-collet side, turn a tenon that will snugly fit into the end of the PVC pipe. On the collet side, turn a slight recess (about 1/8" deep) into which the hose clamp will be placed (Photo 4).

To save some time, remove the rounded blank from the lathe and secure it to a stable work surface, such as a workbench or table for a bandsaw, drill press, etc. Select a Forstner bit approximately 1 ½" in diameter and drill through the entire thickness of the blank (Photo 5). Now insert the blank's tenon into the end of the PVC pipe on the end opposite the dovetail tenon. Mount the tenon into your chuck and turn on the lathe at a slow rate. If the dovetail was cut properly, the jig should run true.

Photo 5 - Drill hole with Forstner bit.

Photo 6 - Turn a small shoulder for the goblet base to rest on.

Photo 7 - Insert the goblet, bowl first, into the jig. Rest the goblet base on the jig's shoulder/rabbet.

Photo 8 - Tighten the hose clamp so that the collet will fit snugly around the base of the goblet.

Photo 9 - You may now safely enhance the bottom of the goblet.

Photo 10 - The bottom with spiral enhancements.

Photo 11 - The finished goblet is now complete from top to bottom.

Use a parting tool, bedan, or beading tool to true up the Forstner bit hole to fit the diameter of the base of your goblet. (Note that the diameter of the goblet bowl cannot be larger than the base or the goblet will not fit into the jig.) Make the cut about 3/16" deep. Turn a little shoulder about 1/8" wide for the base of the goblet to rest upon (Photo 6). Insert the goblet into the jig (Photo 7) and tighten the hose clamp to allow the collet to fit snugly around the base of the goblet (Photo 8). You can now safely sand, chatter, cut grooves or beads, or add any other enhancement to the bottom that suits you (Photos 9 and 10). Add the finish of your choice and your beautiful goblet is now complete (Photo 11). ■

Author

Roger Jones is a member of the Brazos Valley Woodturners, Waco, TX, where he often demonstrates and teaches hands-on classes. Roger has also demonstrated at area clubs and at the Southwest Association of Turners (SWAT) Symposium. He can be reached at rjones@insurorsindemnity.com.

Turn a Miniature

GOBLET JIG

and Enhance the Bottom of the Goblet

Janice Levi

Photo 1- By making a simple jig, the bottoms of miniature goblets can be beautifully enhanced.

I was inspired by Roger Jones' demonstration for the Brazos Valley Woodturners in Waco, TX. Roger turned a full-sized goblet then made a jig so that he could sand and enhance the bottom. I was scheduled to do a demonstration on turning miniatures a few months later for the BVW club, so I decided to try to make a jig for enhancing the bottom of a miniature goblet.

The jig for the miniatures has a few variations to the full-size jig Roger designed. Determining the dimensions of the goblet is the first step in creating the jig. My goblet would have a base slightly larger than 1", and it is necessary that the bowl of the goblet be smaller than the base.

In selecting the wood for the jig, a straight-grained wood works best. The blank should measure about 2" x 2" x 4" (Photo 1). The dimensions of the goblet base I turned were 1 1/16" x 1 1/6" while the height measured 2 ¼". The opening for the goblet base in the jig is approximately 1 1/8" so the goblet base and the jig opening must be about the same. This jig can also be used for turning the base of miniature bowls or hollow vessels with a diameter of approximately 1 1/8".

Photo 2 - Measure down 2 ½", to mark the depth of the interior hole.

To make the jig, turn a tenon on one end of the blank then measure 2 ½" from the end (Photo 2). This will mark the depth of the interior hole which will be the area to hold the goblet. Use a 1" Forstner bit and drill a hole 2 ½" deep (Photo 3). Use a spindle gouge to turn the cylinder to a wall thickness of ¼" (Photo 4).

Photo 3 - Use a Forstner bit to drill the interior hole 2 ½" deep.

Photo 4 - Turn the cylinder to a ¼" wall thickness.

Photo 5 - Use a parting tool to turn a shallow rabbet inside the cylinder.

A small shoulder or rabbet is necessary to support the base of the goblet. Use a parting tool to turn that rabbet to a depth of about 1/8" and a width of about 1/16" (Photo 5). On the outside of the cylinder, measure 3/16" from the end and mark two pencil lines ½" apart (Photo 6). Use a parting tool to turn the ½"-wide recess just deep enough to accommodate the hose clamp (Photo 7).

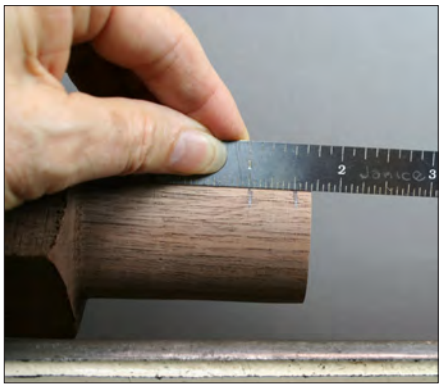

Photo 6 - Use a pencil to mark a ½" wide area for the hose clamp.

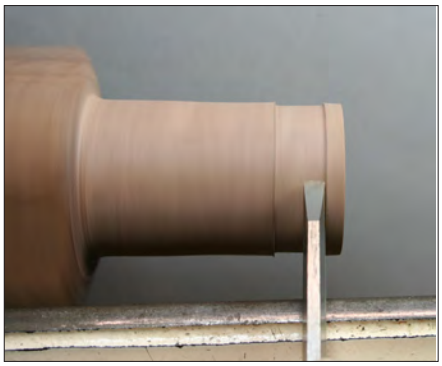

Photo 7 - Turn away the ½" area to a depth of about 1/16".

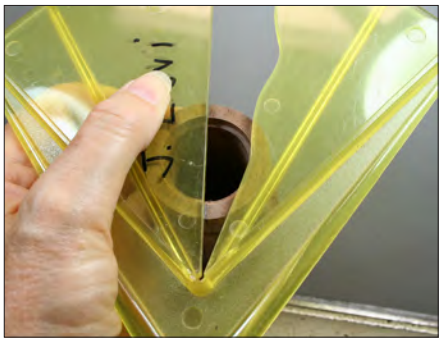

Photo 8 - Use a center finder to mark the four cut lines.

Photo 9 - For safety, place a wedge under the cylinder while using the bandsaw.

The next steps are to make the kerf cuts that will allow the jig to function as a collet. To indicate where the cuts are to be made, use a center finder to locate then mark four cut lines (Photo 8). It is not necessary for the cut lines to be at exactly 90 degree increments, although the cuts should be close to that measurement.

Use a bandsaw to make the cuts 2 ½" deep. The base of the jig has been left square so that it can sit flat on the bed of the bandsaw and flat against the stop. A wedge is placed under the cylinder to hold it firmly in place (Photo 9). To allow for more flexibility, I made two passes with the bandsaw blade to widen the kerf to about 1/8" (Photo 10). Be sure to use a push-stick to guide the jig. The jig is flipped to make the remaining cut, still making the two passes.

Photo 10 - For more flexibility, make two passes with the bandsaw along the cut lines.

Photo 11- Insert the hose clamp into the 1/16" deep channel.

Photo 12 - Insert the goblet into the jig, bowl end first, and tighten the hose clamp around its base.

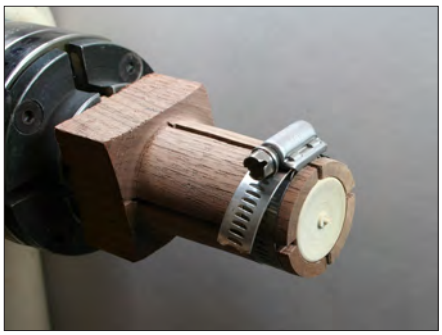

Photo 13 - Use light cuts to remove the little nubbin on the base of the goblet, then sand.

Photo 14 - Enhancements can now be added, using light cuts.

Photo 15 - After applying the finish of your choice, your miniature goblet goes from good to great.

Once the kerfs are cut, the hose clamp can be attached to the jig (Photo 11) and it is ready for use. Insert the bowl of the goblet into the jig and tighten the hose clamp until it fits snugly around the base of the goblet (Photo 12). Do not over-tighten or the goblet may break. Light cuts can now remove nubbins and tool marks (Photo 13). Enhancements may also be added including chatter tool marks, spiral tool marks, three-point tool cuts, etc. (Photo 14). The finish of your choice can now be applied to the base of the goblet, or you may choose to apply the finish after removing the goblet from the jig. By making this simple jig, the miniature goblet can go from good to great (Photo 15). ■

Author

Janice Levi is a member of the Brazos Valley Woodturners, the Gulf Coast Woodturners, and the AAW. She can be reached at jlevi@rightturnonly.net or at www.janicelevi.com.

Bandsaw Safety

Cutting a round workpiece on the bandsaw without proper support is a dangerous proposition. Without the aid of a jig or other holding method, you can lose a finger.

In article entitled, **A Jig for Bandsawing Round Objects**, by Betty J. Scarpino, from the February 2016 issue of *American Woodturner*, you'll learn how to keep all of your fingers intact.

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Turn the Bowl of a Goblet

Bob Rosand

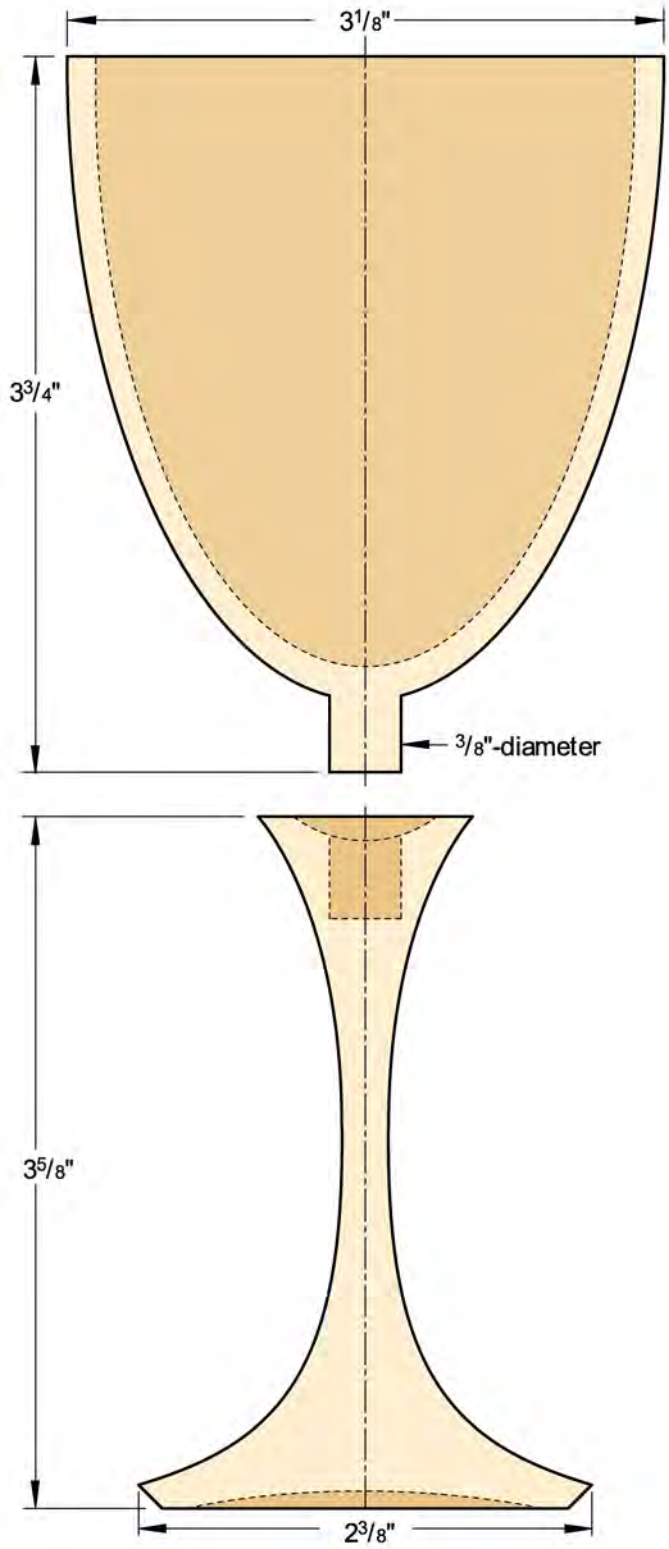


Figure 1 - The illustration above provides rough dimensions for a goblet. (Illustration: Roxanne LeMoine)

When you turn the bowl section of the goblet, think of the project as just a bowl. The walls are steeper and thinner, and, in this case, you need to turn a tenon on the bottom to fit into the stem. But nonetheless, it's still a bowl.

The focus of this article is the bowl section of the goblet. You will have already rough turned your turning blank between centers, making a tenon on one end. The blank now is remounted on your lathe, putting the tenon into your chuck.

Using a ¼" spindle gouge, true up the sides of the blank, then true up what will become the top. (If you don't true the blank, you will get a fair amount of vibration.)

Begin to define the shape of the bowl section with the gouge. You need to leave enough material at what will become the base of the bowl so that you can hollow it without getting a lot of vibration.

Once you can see the shape of the bowl emerging, begin hollowing the interior. After you true up the top, bore a 1½" Forstner bit almost to the bottom of the bowl section. The more material you remove with the drill bit, the less you have to remove with the gouge.

Begin hollowing with the small gouge. Don't hollow too deep. Why? As you go deeper, the wall becomes flexible and chatter develops. After you get a finish cut on that top third, proceed with the middle third.

Once you have hollowed the vessel about two-thirds of the way down, return to the outside and continue refining the bottom section of the goblet. When you're satisfied with the shape, remove more material from the inside.

You may need to do this two or three times until the wall thickness is consistent and you have hollowed as deeply as necessary. As you get near the bottom of the interior of the bowl section, you will no longer get a smooth cut because you can no longer rub the bevel of the gouge. When this happens, switch to a round nose scraper to finish the bottom of the interior of the goblet.

When you are satisfied with the depth and wall thickness of the bowl section of the goblet, sand the inside and outside of the bowl. You will not be able to return to this section of the goblet because the walls become flexible, preventing a good finish later.

It is a good idea to break a project into segments, reinforcing skills learned from other projects.

Author

Bob Rosand lives in Bloomsburg, Pennsylvania, and can be reached via email at bobrosand@gmail.com. This project has been adapted from the article "Two-Part Goblet," by Bob Rosand, which appeared in the Fall 2005 issue of *American Woodturner*.

P

The Jam Chuck

This is the simplest device for reverse chucking: it is a wooden disk with a groove turned into it to match the diameter of the bowl. The bowl is reversed onto the disk and held in the groove by a snug fit, the groove serving also to center the bowl. The tailstock is brought up to help keep the piece in place. At low revolutions and with light cuts, the foot is shaped, leaving a small stub at the tailstock point. (See Figure 1.) This stub will finally be chiseled off and the spot sanded to blend in.

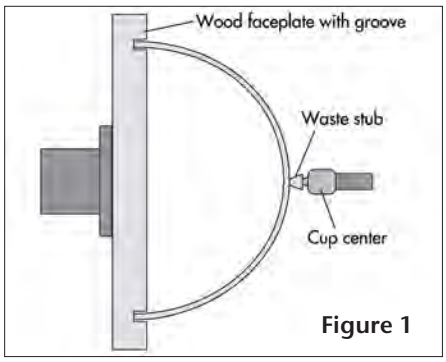
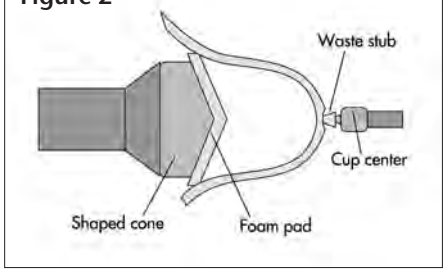


Figure 1

The wooden disk can be held via faceplate or screw chuck. It can be any material – plywood is just fine. One jam chuck disk is used per bowl, so you end up with a pile of disks on various diameters, but they can be reused with smaller-diameter bowls.

Figure 2



The tailstock support also works for irregular or natural edge bowls, when a foam-padded cone is used inside the bowl to jam against. (See Figure 2.) The cone is readily made from scrap wood to match the unique size and shape of the bowl; at its simplest it is the wasteblock left behind when the bowl is parted off. This approach is pretty straight forward and works well.

~ Peter M. Smith

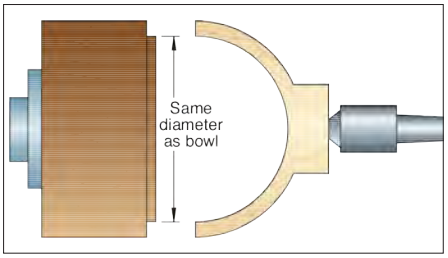
This item has been adapted from the article "Introduction to Chucking," by Peter M. Smith, which appeared in the June 1995 issue of *American Woodturner.*

Better Success with Jam-Chucking

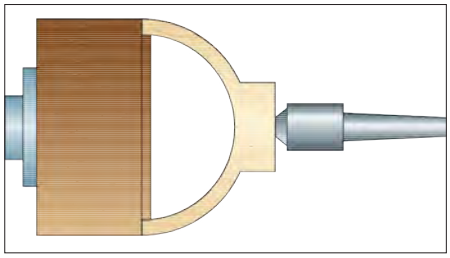
I've helped a few woodworkers who have had problems when turning with a jam chuck. This three-step process might help you be more successful.

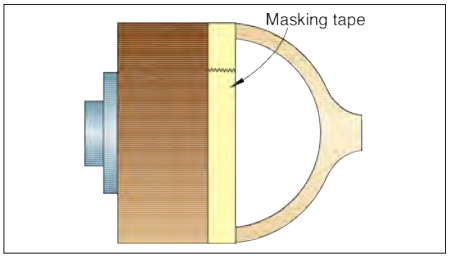
- **Step 1:** Turn a jam chuck with a small tenon that fits inside the bowl. Turn the outside diameter of the jam chuck so the diameter matches the outside diameter of the bowl.
- **Step 2:** Fit the bowl over the tenon and apply pressure with the tailstock. For added security and antislip protection, wrap the joint between the bowl and jam chuck with masking tape.
- **Step 3:** With the foot turned, leave the masking tape in place but back off the tailstock. Slow the lathe speed and turn away the nub. When removing the nub, use light cuts that apply pressure toward the center of the form and toward the headstock. Then sand the bottom.

~ Chris Wright



Step 1


Step 2

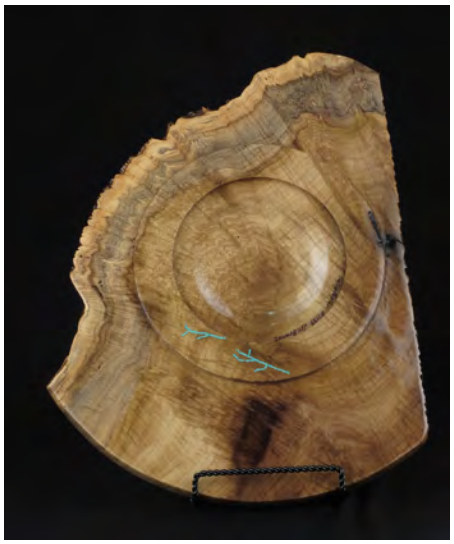


Step 3

Turn a GROOVY GROOVE - Hanging a Platter

Les Brandt

Turning a dovetail groove on the bottom of a piece allows versatility for hanging in any orientation. This can be done with the platter held on the lathe with a screw chuck or faceplate, so that the bottom can be finished before reverse mounting in a recessed dovetail. (While the recess allows for later remounting, you must leave enough wood around the opening to resist the pressure of expansion.)



My inspiration for developing this method came after completing a piece to be hung on the wall, I couldn't decide how I wanted it to hang; which way was up? I decided that I wanted to leave the orientation decision up to the future owner.

Another benefit of using a recessed dovetail is that it leaves the bottom free of any attachments to make it sit on a table, mantle, or be placed on a plate holder with either top or bottom showing.

Turning a dovetail groove on the bottom of a piece allows the orientation to be changed whenever or however you like. It can be changed simply by swiveling the piece on a hook attached to the wall.

To turn the dovetail groove, mount the front of the blank on a screw chuck or faceplate so the bottom can be finished before reverse mounting. You will be turning two dovetail grooves; the smaller recessed dovetail will be used later for remounting the platter to turn the front or inside.

The second dovetail will be positioned outside the first one about an inch or so. Planning the placement of the two recesses can be done before any turning. Measure the complete diameter of the blank, marking the center recess to fit the size of jaws you have. The exact placement of the second recess will depend on the available remaining room. You can use the photos included as a rough estimate for the placement I use. Do remember to leave enough wood outside the center recess to support the pressure of expanding jaws.

After shaping the base (foot), turn a groove to allow a skew to be inserted to cut the sharp dovetail (I repurposed a used forty-year-old Craftsman tool. I shaped and reground it to a fifty-seven degree angle to securely fit the wall hanger. This is a good way to reuse your older or non-HSS tools. The angle should match the angle of the hanger you use, as shown in Photo 3. The depth of the groove should be slightly longer than the hanger for optimum security. (3/16" works well for most hangers.)

Hangers come in various sizes, depending on the weight of your hanging. I like tthe types shown below because the hanger supports are of higher quality, being almost polished so they don't do as much damage to the wall when removed. (These are from United Manufacturers Supplies but are now readily available.)

When you are finishing the bottom of your next platter, give this a try. Adding a little versatility in the display options will please the new owners. ■

Author

Les Brandt has been turning since 2003. He began by attending workshops and attending symposiums. In 2010, Les decided to work at his woodturning fulltime. For four years he was turning from ten to twelve hours a day, using repurposed wood from Northwest Arkansas. Since then, Les has begun teaching, although he still enjoys attending workshops and symposiums. Many of his turnings are embellished with texturing, painting, dying, carving, and burning. You can reach Les at: www.lesbrandtstudios.com.

T

TURNIN' N LEARNIN' ABOUT

TENONS

Mike Porter

In my career I have worked with a lot of people in training, or in what is sometimes called the "human performance" field. One of the most effective tools for getting repeatable, high quality performance is the use of "Job Aids," as they're called by those schooled in how adults learn and perform on the job. They capture information that does not have to be memorized, but can be, and is information crucial to job performance. When I was in the US Navy, my first exposure to this practice was cockpit checklists. Even after hundreds of hours in the cockpit, those checklists ensured we didn't forget the critical items which were safety protocol and performance related. Well, that was the hope, that pilots would use them and not get complacent! I have a few stories to tell you over a beer or a cup of coffee about a couple times when I got a bit careless. My next career was in engineering and construction. We had our own versions for checking safety and quality, both in the design process and in the field.

Now applying this practice to my woodturning career, I have created my first "Job Aid." It was only after repeating the same mistakes many times. Have you ever turned a tenon that was too small for your chuck jaws? I've had to remount and recut the tenon, thereby wasting time and precious wood on a bowl or spindle blank. Or, I've made the recess too small and discovered that only after I'd removed the blank. I had to remount it and adjust its size. Drives me crazy when I do this! In an attempt to save returning the tenon to the lathe, I've even changed chuck jaws thinking they'd work, only find out they didn't. Grrrr!

I finally took the time to take the different sets of jaws on my three chucks and measure the dimension from the smallest to the largest openings, outside and inside. I paid attention to the optimum or recommended grasping of the wood by the jaws so the jaw contact was appropriate. For most chucks, the optimum gripping distance between jaws is about 1/8" between jaws when they are tightly closed onto a tenon. Following is the chart that I have developed for my chucks. I have it laminated and placed where it can be seen and used. I recommend you go through this process for all of your chucks and their jaws. ■

Author

Mike Porter is the Vice President of Northwest Woodturners of Portland, OR.

Chuck	Jaws	Closed OD	Closed ID	Open ID	Open OD
Super Nova	50 mm Dovetail	52 mm min recess ID	43 mm min. tenon OD	62mm max. tenon OD	71 mm max recess ID
Super Nova	Deep (18 mm) Dovetail	80 mm min. recess ID	48 mm best contact w/reserve closure	62 mm to corners: 50 mm best contact for tenon	86 mm best contact: 100 mm max.
Super Nova	Step Jaws	85 mm min. recess	63mm outer jaw: 50 mm mid jaw: 41 mm deepest	75 mm to outer jaw: 63 mm mid jaw: 54 mm deepest	98 mm best ID for recess
Nova G3	Step Jaws	85 mm min. recess ID	Same as Super Nova	80 mm max tenon OD	105 mm max recess ID
Nova G3	50 mm Dovetail	52 mm min. recess ID	44 mm min. tenon OD	50 mm best max tenon OD	60 mm best max. recess ID
Nova G3	25 mm & Pin Jaws	25 mm min. recess ID	10 mm min. ID for tenon	20 mm best max.	35 mm best max.
OneWay Talon	#2 Top Jaws	50 mm min. recess ID	38 mm min. tenon OD	75 mm max. tenon OD	89 mm max. recess ID

Notes:

- Minimum tenon OD's allow for closure and compression of the wood.
- Maximum dimensions allow for best grasping of the tenon or expansion into a recess.
- All dimension are +/- 1mm.

FINISHING GREEN WOOD

Luke Mann

I've had great success with a finishing process for green or unseasoned wood that I'd like to share with you.

Preparation

I generally turn, sand, and begin finishing all on the same day. I sand to 320-grit for my functional open forms and maybe 600- to 800-grit for my sculptural work. If the wood's moisture level is fairly high, you may find that the sandpaper will become clogged. Clear the abrasive frequently with a brass brush; if you don't, you risk glazing the sandpaper.

Materials

I finish with Bioshield products manufactured by a German company (The Natural Choice) Bioshield's Natural Resin Floor Finish #4. Because #4 product is thick, I recommend thinning with Bioshield's #24 thinner. You could substitute Watco, General Finishes, or a similar product and follow these same guidelines to achieve the same results.

I only need a small amount of finish at a time, so I pour a little into a small dish or jar cap, then tear a small patch of cloth for applying the oil. A small collapsible dispensing bottle is helpful, as contact with air causes the finish to harden.

After filling the bottle from the manufacturer's can, I crush the can to eliminate air. Another option to retard skinning is Bloxygen, an inert gas sprayed into the can.

The First Coat

Immediately after removing a piece from the lathe, I begin applying finish. This helps drying to occur more uniformly and helps avoid staining. Each coat should just wet the surface. Don't be stingy, but don't drown the piece either. Just wet it, being careful to contact all surfaces. I rub the bowl with a couple of rags to remove any excess, ensuring that there will not be any shiny spots when I check it the following day.

With hollow forms, I customarily do not finish the interior. If there are many or large voids, I often ebonize the inside, then seal with a single coat. This accentuates the void rather than leaving the interior distractingly lighter than the outside surface.

Successive coats

When tomorrow arrives, the piece will look "thirsty" and I apply a second coat. From here I give it a couple of days or even 4 to 6 days, as the wood needs time to dry.

You may satisfy a thin turning with two applications; a thicker turning from an absorbent wood may "ask for" 5 or 6 applications. Avoid drafts in the drying area, and attempt to keep your shop between 30 and 50 percent humidity throughout the year.

If cracks appear during this drying/finishing time, I place the bowl in a paper grocery bag with a clothespin seal to slow drying. Experience will be your best guide, as each shop and region is different from the next. With this finishing system, I rarely get surprised.

Bear in mind that as the number of these light applications increases, the hardened finish within the wood acts as a catalyst to accelerate the curing of the next coat. Thus, you'll need to quickly wipe off the excess finish as the oil gets tacky.

Thirsty? More finish!

A thirsty appearance to the wood indicates the need for another coat. My aim is to offer applications until the finish seems to just reach the wood surface. The finishing/seasoning time will vary depending upon wood density, thickness, and humidity levels. I generally allow 4 weeks. When I am confident that the piece is through moving, if required, I flatten the base against an abrasive disk mounted on the lathe.

The grain always raises somewhat during this finishing and drying process. I wet sand with the final application of oil using a 2" square of 600- or 800-grit wet or dry sandpaper, then carefully rub off any remaining oil to produce a silky smooth surface. A wax mixture is a good final step for a piece intended to be used with food. I recommend this wax for on-going surface maintenance, too. Although this finishing process is not quick and easy, the result is a durable, sub-surface, wood-supporting finish that will take years of abuse and come back beautifully with some simple maintenance. ■

Author

Luke Mann (mann@madriver.com) is a full-time turner living in Waitsfield, VT.

This article has been adapted from an article, which appeared in the Summer 2003 issue of *American Woodturner*.

Tip: Play-Doh to Plug Pen Tubes

I am a pen turner and enjoyed a previous tip on using a potato to plug up the ends of the brass tubes so as not to get glue inside of them. I use the same type of technique but with a different product—Play-Doh!

I switched from using CA glue some time ago and began using epoxy for gluing the brass tubes into position. The two-part epoxy gives me a little more working time. The one problem that I was having with using epoxy is that it often gets inside the brass tube and it can sometimes be difficult to clean out. I solved the problem by making a trip to the dollar store and purchasing a little tub of Play-Doh. I make a little patty from the dough about ¼" thick and then I push each end of the tube into the dough, just like a cookie cutter. I can then apply the epoxy onto the tubes and insert them into my blanks. To remove the plugs, I have a dowel rod that I turned to just fit inside the tube and push out the dough. I can then clean up any glue residue that is on the outside ends of the tubes with my barrel trimmer. This simple and inexpensive fix has saved me time trying to clean the epoxy out of my pen tubes.

~ Peter Huckstep, Albion, NY

Tip: Tool Handle Extension

I have a Vicmarc lathe, which I really enjoy using, however from time to time when I have to reach over the tailstock to quickly move it out of the way or into position against a turning, I find that the lever handle for the tailstock is a bit short to be convenient. I've noticed this to be true on most large lathes, as well.

By accident, I discovered that my Stuart Batty tool handle (3/4" interior dimension) fits very nicely over the tailstock handle of my Vicmarc lathe. By using either a 6" or 9" handle, I can easily reach over the tailstock and have increased leverage in moving it. Of course, I could have easily turned a handle for the additional leverage, but since I have the Stuart Batty tool handle handy, and because I still have a day job that requires so much of my time, I'm quite happy with my solution.

~ Christian Brisepierre, Woodworker's Emporium, Las Vegas, NV

Safety Tip: Too Loud?

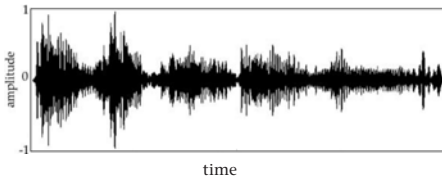
A problem that has been nagging at me for years: how to have a great shop experience without damaging my hearing.

Woodturners, like other people who work around machinery, can get "noise-induced hearing loss," or permanent hearing damage.

Unfortunately, it's hard for us to know when turning is likely to damage our hearing. Hearing damage occurs when we are around noises that are too loud for too long a time.

"Too loud" can be hard to understand, and "too long" is complex and depends on how loud the sound is.

"Too loud" can be hard to understand because sound itself is complex. You can see that by looking at a visual representation of sound (a "waveform").



This waveform could easily have been recorded in my shop. It shows some brief, louder sounds on the left, and some longer, not-so-loud sounds on the right. How could I tell if my shop, which has this kind of noise, is potentially damaging my hearing?

I tried looking at industrial standards. Safety folks have spent a lot of time studying noise to determine what will hurt workers in commercial and industrial settings. Those folks measure noise levels (actually, sound pressure levels) using decibels or "dB."

Their research indicates you are likely to damage your hearing if you are exposed to:

1. An average sound level of more than 85 dB for a period of more than eight hours; or,
2. A peak noise of more than 140 dB.

Just looking at dB levels can be misleading because the dB scale is "logarithmic." Most scales we deal with are linear; if a measurement doubles, the force or size doubles, too. For example, a hollow form that is six inches tall is twice as tall as a hollow form that is three inches tall. But logarithmic scales don't work that way. For the dB scale, if the amount of dBs doubles, the sound pressure level will have increased ten times. That means a relatively small increase in dB can be a big increase in noise.

The average woodturner's shop is likely to have sounds of more than 85 dB, but is not likely to have sounds of more than 140 dB (like gunfire). A table saw or a band saw can emit noise of more than 90 dB, and that is too loud if you will be exposed to it more than two hours a day. Higher dB levels dramatically reduce the amount of time you can safely spend around the noise without hearing protection. A gas chainsaw can emit noise of more than 110 dB, and that is too loud if you will be exposed it more than two minutes a day without hearing protection. This means we woodturners could damage our hearing if we spend much time in our shops and don't wear hearing protection.

I will now confess: I, your safety officer, have been bad about this.

It's not that I don't have the gear. I have hearing protection earmuffs that are so effective I feel like I am in outer space; no sound gets through them. I tell myself I don't wear them because I can't use them with my face shield. I have these grey plugs on a hard circular band that I can wear around my neck and put into my ears and over my head when I am using loud equipment; they have an annoying habit of falling out of my ears just when they shouldn't. I tell myself I don't wear them because they don't work with my face shield. And I have little yellow fellows on a cable that work well if I shove them deep into my ear canals. I tell myself that I don't wear them because they hurt my ears.

But the real reason I don't wear this gear is that I LOVE to listen to music when I am working in my shop. I stream the music through my smartphone, which I connect to two speakers near my lathe. With Apple Music, Spotify, or Google Play, I can listen to virtually anything I want; lately I have been listening to ukulele music, and I highly recommend Hot Guava by The Sunday Manoa. I figure if you can get great ukulele music on your phone, you can get anything.

So this Father's Day I got a set of ISOtunes noise isolating headphones with Bluetooth. So far they are great. The foam parts that go in my ears are an odd, soft, moldable plastic that gently expands in my ear after I insert the headphones. They have an ANSI certified noise reduction rating of 27 dB, and provide sound isolation that is so good I left my dust collector on overnight because I didn't hear it when I left the shop. They stay on and so far do not hurt my ears. They are very small (mostly just the plugs and wires) so I can easily take my face shield on and off. I can hear loud sounds with them on (I can tell if the table saw or band saw are running), but the sounds are not too loud.

I haven't done a thorough review of similar equipment, and there may be better things out there, but so far these things are working for me. I put my smartphone in my pocket and these headphones in my ears and happily wander about my shop listening to music. Because I get good sound protection AND good music, I think I'm likely to keep wearing them. I urge you to be aware of the importance of protecting your hearing, taking time to experiment, and find a solution that will work for you. During my experimenting, I found products that provided solutions but I also found reasons not to use, however, they might be perfect for you. I do realize not all of us will be content with ukulele music.

~ Harvey Rogers, Portland, OR
HarveyRogers@gmail.com
Cascade Woodturners Safety Officer,
AAW Safety Committee

Ask the Expert: Warped Goblet

I rough turned a goblet (cocobolo) about three months ago and left it alone. Now, I want to finish turning it, but I fear the rim is slightly warped due to whatever moisture was still within it. What would be the best way to remount it to make the rim concentric enough to finish turning it without losing most of its thickness?

Stephen Ellis
Louisville, KY

Q

Stephen, I can understand you wanting to save the cocobolo goblet. The warping may have been moisture or it could simply be stress in the wood. When you remove a lot of wood, the stresses inside may cause it to move. Ideally, you turn a goblet in one setting, starting with the inside of the bowl, continuing with shaping the outside. The rim at this point is thin and work proceeds in small increments sanding these small areas as you go. So much stress is released that it's difficult to go back and clean it up later. To offer a possible solution, jam chuck to fit in the goblet bowl. This will center the majority of the bowl. Hopefully, it warped so that two sides are narrow and the other two are wider. This should center the opening as much as possible. Rotate the piece by hand, checking to see how much the walls differ in alignment (Photo 1). To check exactly how much, start by measuring the thickness of the bowl walls. Place the piece on the jam chuck, move your tool rest up so that it almost touches the wall that moves out the furthest. Use playing cards as a thickness gauge. Place them between the tool rest and the bowl until they just barely fit. Now rotate the bowl until the lowest point is next to the tool rest (Photo 2). Insert more cards until it's a snug fit. Then just measure how many more cards it took. This will tell you exactly how much offset you have; you already know the wall thickness. With this information you can decide if there is enough thickness to do any more turning.

Depending on the length and thinness of your goblet stem, turning may be risky. Your cuts will need to gentle and directed towards the headstock, the point of greatest strength and stability.

John Lucas
Sparta, TN

John Lucas, a retired photographer, has been working in wood for about 35 years and also dabbles in metalworking. He also enjoys modifying machines, making tools, and sharing his knowledge through written articles and videos. He has taught classes at John C. Campbell Folk School, Arrowmont, and The Appalachian Center for Crafts.

Photo 1 - Rotate the piece by hand, checking to see how much the walls differ in alignment.

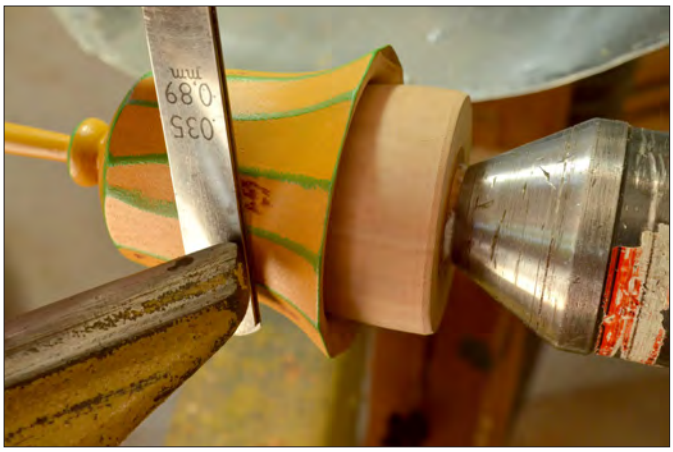


Photo 2 - Rotate the bowl until the lowest point is next to the tool rest.

Ask the Expert: Reeves Drives

Q **I have a Jet 1442 lathe. When turning, if I try to take off a little extra, the lathe bogs down.** The motor pulleys spread and the belt gets floppy. Really makes it difficult to turn.

Bill Braatz
Sheboygan, WI

A **Your lathe has what we refer to as a Reeves drive.** This is a set of adjustable pulleys. The lever that changes speeds moves one side of one pulley so the gap between the two sides gets larger or smaller. This makes the drive belt move up or down the pulley. This effectively changes the size of the pulley. On the spindle shaft will be another set of these moveable pulleys. One is fixed and one moves with a spring. As the drive shaft pulley changes size, the belt moves and the spring on the spindle pulley helps that pulley change size. This is how it changes speed. Typically, one problem that we see on Reeves drives is the shaft gets dirty or sticky and the moveable pulleys won't move correctly. Cleaning and lubricating the shaft usually solves this problem. The other problems that occurs are weak springs on the moveable pulley, or the fixed pulley may have loose or missing set screws which can throw things out of alignment.

After talking with Bill and seeing a short video he sent me, I was able to see that the fixed pulley on the drive shaft was out of adjustment. The belt would slip every time he took a cut, which suggested that the spring might be weak. When he tried to adjust the pulley, he discovered that the set screw was missing and the gear was damaged. He replaced the gear and positioned it on the shaft correctly. Because the gear was originally out of position, the spring appeared to be weak. When he positioned the gear correctly, the spring now had enough tension to work properly.

John Lucas
Sparta, TN

John Lucas, a retired photographer, has been working in wood for about 35 years and also dabbles in metalworking. He also enjoys modifying machines, making tools, and sharing his knowledge through written articles and videos. He has taught classes at John C. Campbell Folk School, Arrowmont, and The Appalachian Center for Crafts.

More on Reeves Drives

You can follow discussions about Reeves Drives on the AAW Forum at http://www.aawforum.org/community/index.php?threads/serious-reeves-drive-knowledge-needed.12078/

Shear-Scraping with Mike Mahoney (TRT 5:35)

This video complements the article entitled, "A Closer Look at Shear-Scraping," by Mike Mahoney, featured in the June 2017 issue of *American Woodturner*.

If you have difficulty using the embedded hyperlink, paste the following link into your browser http://www.woodturner.org/?page=TEVideoShearScrapMah

A Note About Safety

An accident at the lathe can happen with blinding suddenness. Respiratory and other problems can build over years. Take the appropriate precautions when you turn. Among the most important of these is the use of face shields, safety glasses, and dust masks. It is important to observe all manufacturers' safety guidelines. Following manufacturer's safety guidelines and information will help you continue to enjoy woodturning years into the future. Chainsaws can be very dangerous. If you are not experienced with a chainsaw find someone who can instruct you. Be very careful. Safety is YOUR responsibility.

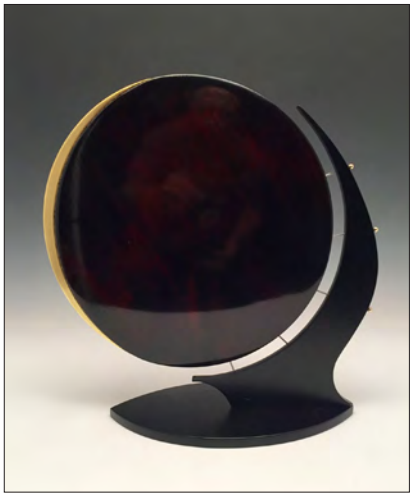
Burnt Ash with Turquoise
Jim McLain
Socorro, NM

Wheel of Delicacy #3 Butterfly Effect
Michael Alguire
Datel, NM

Red Alder Epicormic Growth Bowl
Zach LaPerriere
Sitka, AK

Simplicity
Pete Marken
Calera, AL

Meditation Cups
Marilyn French-St. George
Green Valley, AZ



94.8%
Pat Miller
Yakima, WA

Engage with the AAW Forum Community!

The AAW Forum is a volunteer member-moderated community ideal for sharing work and ideas, obtaining feedback, and connecting with other woodturning enthusiasts.

We encourage you to register for the AAW Forum, ask questions, seek advice, and submit photos of your work. Your work could be the next "Turning of the Week!" Click here to visit the AAW Forum.

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- Kip Christensen
- Eric Lofstrom
- Ed Pretty
- Rick Rich

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- Tom Lohman
- Wayne Miller

ORNAMENTAL TURNING
- Jon Magill

PENTURNING TIPS AND TECHNIQUES
- Mark Dreyer
- Ray Wright

VESSELS AND HOLLOW FORMS
- Dan Tilden
- Kai Muenzer
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- Cindy Drozda
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- Lauren Zenreich
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