WOODTURNING FUNDAMENTALS

American Association of Woodturners
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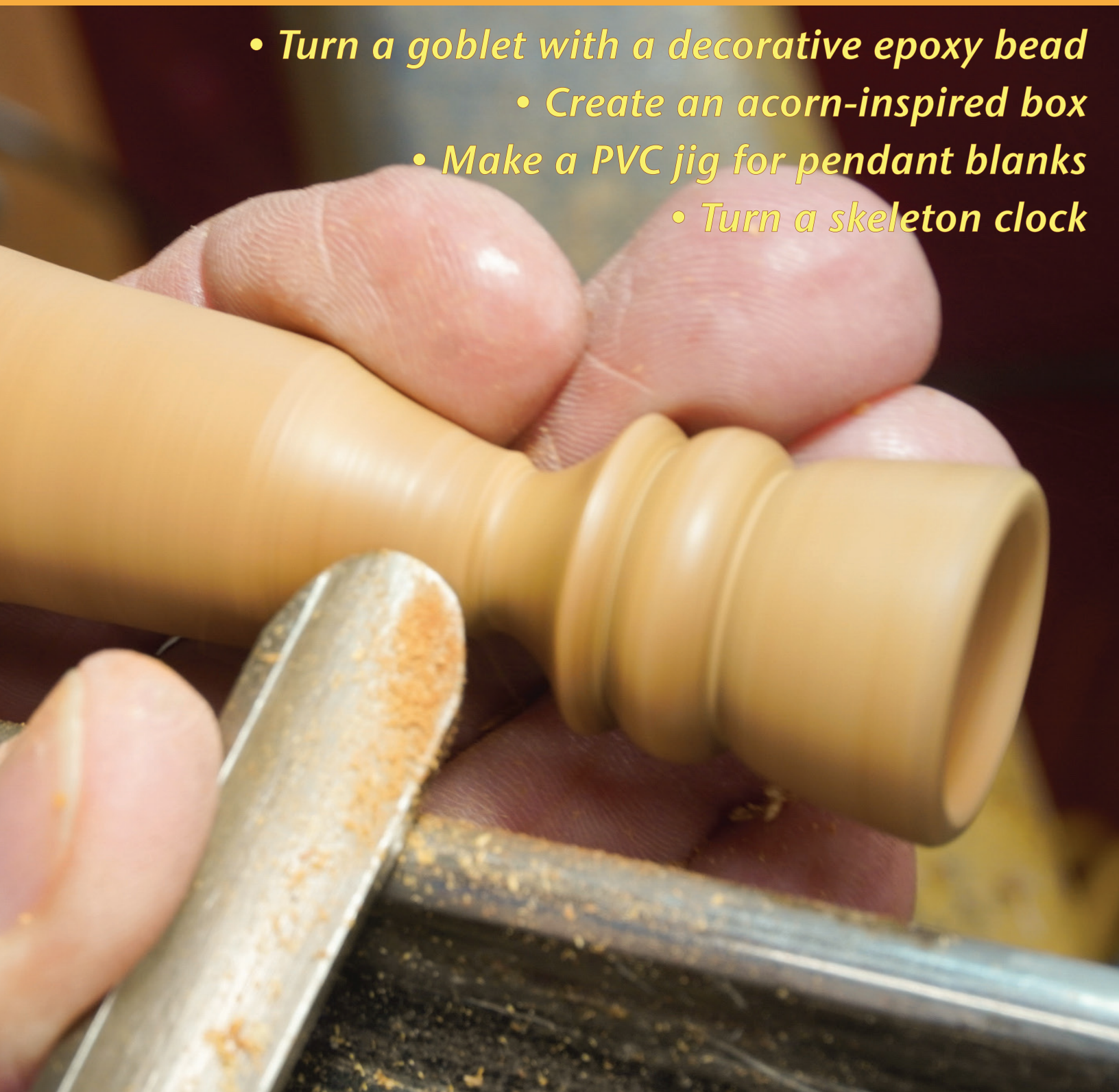

- *Turn a goblet with a decorative epoxy bead*
- *Create an acorn-inspired box*
- *Make a PVC jig for pendant blanks*
- *Turn a skeleton clock*

AAW AMERICAN ASSOCIATION OF WOODTURNERS
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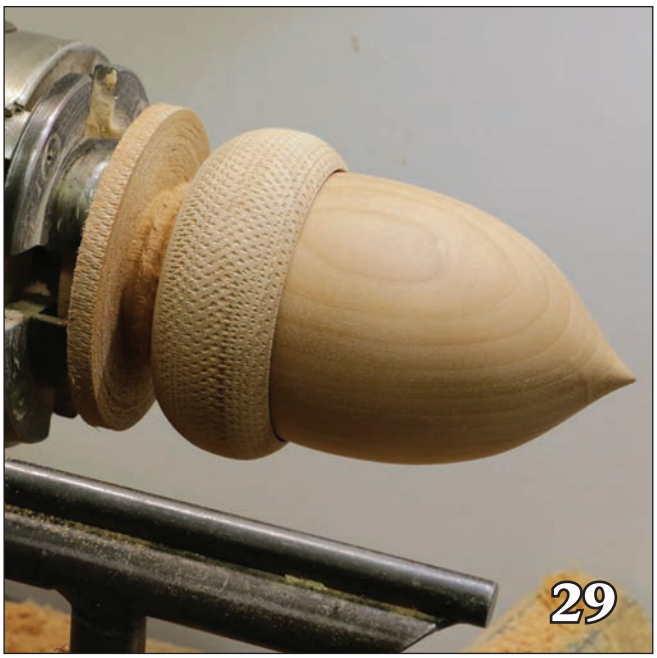

Walt Wager

Andrew Potocnik

A Note About Safety

An accident at the lathe can happen with blinding speed, while respiratory and other problems can build over years.

Take appropriate precautions when you turn. Safety guidelines are published online at tiny.cc/turnsafe. Following them will help you continue to enjoy woodturning.

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The AAW strives to cultivate an organization built on mentorship, encouragement, tolerance, and mutual respect, thereby engendering a welcoming environment for all. For more, tiny.cc/AAWDiversity.

***Cover**: Fingers support a spindle during shaping as the thumb helps control the gouge movement. (John Lucas, photo.)*
*See page **19** for the related article.*

Welcome

As we get ready to go to press, I am too aware that there are a lot of people in the American West who are not having a good summer. About six miles from my back door, a 52,000 acre wildfire is slowly side-stepping away from my property, but inevitably towards someone else's. Dense smoke from fires and record heat and drought mean many of us in the American West have had to pass this summer indoors.

Our hearts go out to those who have been driven out by fires this summer or may even have lost property. If like me you have been pinned indoors, I hope you have at least been able to dedicate some of your time and energy to the lathe. Creating something beautiful that has a good chance of outlasting us is cathartic.

Unlike an analog clock, the face of a digital clock implies that there is neither past or future; the time is always *now*. Maybe that is why a clock with face and hands has always appealed to me? Douglas Gillie presents a wonderful project creating an elegant stand and housing for a clock in his *Skeleton Clock* article (p. 5). Additional projects in this issue include pendants using Linda Ferber's button inlay technique (p. 10). John Lucas shows us how to cast and turn an epoxy bead on a glass goblet base (p. 19), a project ripe for adaptation to your own ideas and materials at hand. Walt Wager's *Acorn Box* (p. 29) is full of considered details that evoke the nuts and caps that inspired the form.

Two shopmade tool articles build on project and technique articles. John Lucas's spindle drawbar gives you a means to solidly anchor any spindle in the headstock (p. 26). Sally Ault shows us some simple but handy clamping chucks for grasping small objects on the lathe (p. 16).

Without a basic love of wood, likely we'd all be doing something else. David Schell introduces us to the challenges and rewards of locust (p. 37). And from a country rich in terrific turning timbers, Andrew Potocnik reveals his favorite Australian choices (p. 40).

Enjoy!

—Don McIvor, Editor

Skeleton Clock

by Douglas Gillie

We're surrounded by time-keeping devices—cell phone, tablet, computer, microwave, stove. But those digital faces seem cold and impersonal against the long history and character of a clock with hands and a face. This project uses a readily available skeleton clock (so named because you can see the internal workings) incorporated into a turned, sculptural stand. The resulting clock is visually interesting, dynamic, and easy for the novice woodturner to make. This is a fun and rewarding project that will take your skills in an interesting direction, and you will be proud to show it off to family and friends.

Materials

The clock comprises two turned rings, plus a base, a support column, a finial, and the mechanical skeleton clock movement (**Photo 1**). The skeleton clock movement can be ordered from Turners Retreat (www.turners-retreat.co.uk) in the UK or from Amazon.com. Be sure to purchase a movement with its works housed in a case (most are), not just a bare movement.

Any type of wood suitable for turning will work for this project. I headed off to my local wood supplier and returned home with a piece of goncalo alves (tigerwood), a dense tropical hardwood from Central and South America. The following measurements are for turning blanks that will give you adequate material for making a structure for a clock movement that

Project components

1. *All the elements of the clock project, after turning and before assembly; clock body (outer and inner rings with spacers), base, column, finial, clock works.*

measures 6" (15cm). Customize the wood blank sizes according to the size of clock you have purchased.

- **Inner ring**: 7"–diameter × 2-1/4" (18cm × 6cm) .
- **Outer clock ring**: 9-1/4"–diameter × 1" (23cm × 25mm).
- **Clock base**: 4-1/4"–diameter × 1" (11cm).
- **Support column**: 2"–square × 3-1/2" (5cm × 9cm).
- **Finial**: 1-1/2"–square × 3" (8cm × 4cm).
- **Two spacers**: 1/2"–diameter × 3/8" (13mm × 10mm) long. These separate the outer ring from the clock base and hide the screws that fasten the ring to the clock base. You can use plastic washers, or you can make them from 1/2" dowel rod by drilling a 1/8"– (3mm–) diameter hole through the center of the dowel. I paint them black.
- **Screws**: two, 1"– long.

Warm up the bandsaw

I use a bandsaw to extract my turning blanks from the raw material, cutting just outside the circles defining my final dimensions (**Photo 2**). The forms will be trued on the lathe, so there's no need to be too neat with the bandsaw cuts.

Most of the blanks for this project can be affixed either with a small faceplate, a screw chuck, or a four–jaw chuck. The finial and support column will be turned between centers.

In the case of the inner ring and the base, select the "show face" on your relevant blanks. Use a drill press to drill a hole in the center of each blank to accommodate either a screw chuck or chuck jaws in expansion mode.

Turn the inner ring

If you cannot find a 2-1/4"-thick blank, start the project by gluing and stacking enough 7"-square pieces of wood together to achieve the thickness you need.

Find the center of the blank and use a compass to draw a 6-1/2"– (17cm–) diameter circle.

Mount the blank for the inner ring and true the rim and face. Turn the outer diameter of the inner ring to 6-1/2". The inner diameter must be sized to fit the skeleton clock, in this case 6" (**Photo 3**). A precise fit is critical, so take your

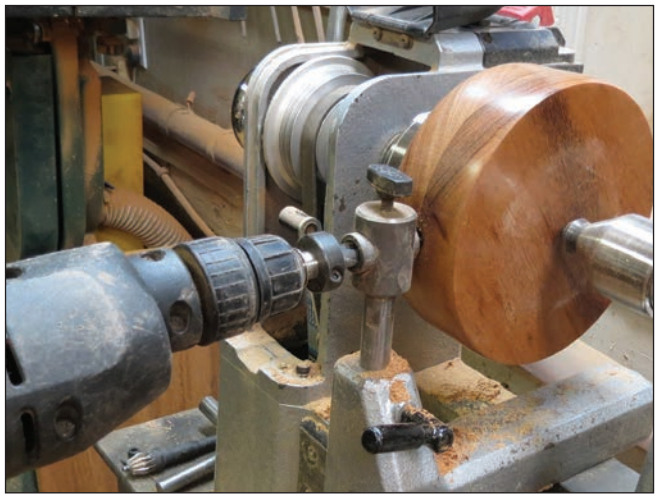
Size the blanks

2. *Use a bandsaw to extract your blanks from your stock. Note this clock body has been glued-up from two pieces to obtain the needed thickness. The central rebate is for expanded chuck jaws.*

Turn the inner ring

3. *Turn the inner ring to house the clock body, first by sizing the outer diameter, then using a parting tool to define the inner recess where the clock mechanism will fit.*

Drill opposing holes



4. *Drill two opposing, perpendicular holes into the ring at center height. A drill jig mounted in the lathe banjo ensures the holes are perpendicular to the rim.*

time and test fit the clock mechanism until you get an exact fit.

Drill two 1/2" holes through the rim of the inner ring for the finial and bottom support column. I use my lathe's indexing wheel, which has opposing numbered positions at 12 and 24. I use a Sorby precision drilling jig to ensure the holes are perpendicular (**Photo 4**).

Finish parting the ring from its blank using your parting tool (**Photo 5**). You will end up with a ring that is about 1" wide.

I mount the inner ring on jumbo jaws to provide access for sanding and finishing (**Photo 6**). You could also make a jam chuck from another facegrain blank or a piece of MDF.

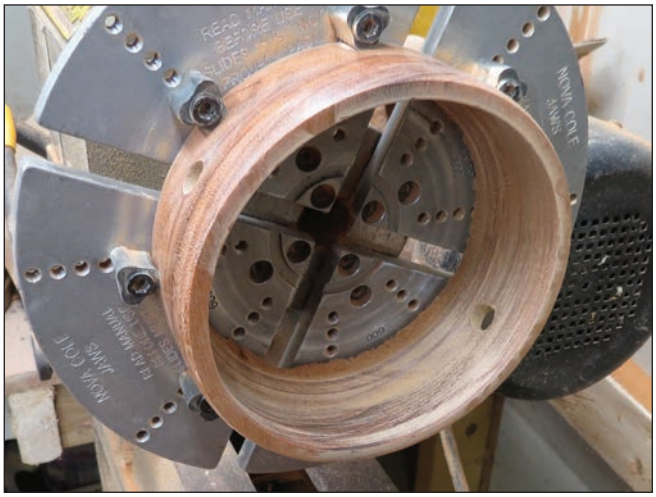
Turn the outer ring

On the blank for the outer clock ring, locate the center and draw three circles—an outer circle 9" (23cm) in diameter, a 7"– (13cm) diameter circle, and a 2"–diameter circle (**Photo 7**). Use the bandsaw to cut just outside the perimeter of your outermost circle.

Part the ring

5. *Create the outer ring by parting-off a segment from your blank. This parted ring will be about 1"-wide.*

Sand & finish the rings



6. *Jumbo jaws are handy for sanding and finishing both the outer and inner (shown) rings. A jam chuck would be an alternative holding method.*

Shopmade drill jig

*For a shopmade alternative to a commercial drill jig, see John Lucas' article (*A Drill Jig for the Lathe*) in* Woodturning FUNdamentals *v10n2 (May 2021).*

Mark the outer ring

7. *Lay out three circles on the outer ring blank. The two outermost circles mark the inner and outer edges of the ring. The inner circle will be a rebate for expanding chuck jaws.*

The inner-most circle locates the recess for chucking the blank in a four-jaw chuck. Drill a 2"-diameter hole about 1/4" deep for chucking and mount the blank.

True the blank and reduce its diameter to match the 9" diameter mark. As you did with the inner ring, part through the ring at the 7" mark. Mount the ring in jumbo jaws (or a jam chuck) to complete sanding and finishing.

Turn the base

Draw a 4-1/2" diameter circle on the blank for the base. This will be turned down to 4" for its finished dimension.

Mount the blank for the clock base on your faceplate or four-jaw chuck for facegrain turning. True the side of the blank, bringing it to round with a bowl or spindle gouge, or carbide tool.

Shape the base. I chose an ogee curve for the side, using a round-nose scraper to achieve the profile (**Photo 8**). Drill a 1/2" hole in the center for the support column; I use a drill chuck in the tailstock (**Photo 9**).

Shape the base

8, 9. *Shape the base to give it some visual interest; an ogee curve works well. Drill a hole in the center to receive the support column.*

Sand the blank to completion before applying a finish.

Finial and support column

Cut the spindle blanks for the finial and the support column. I chose walnut for contrast. Mount a blank between centers and turn the finial in a design of your choosing, leaving a 1/2" x 1/2" tenon at the base to fit in the top of the clock (**Photo 10**). I use a 1/2" spindle gouge, but a skew chisel or a carbide tool will also accomplish this task.

Turn the column & finial

10, 11. *Turn the two spindle elements—the finial and the support column—creating 1/2" tenons to connect the elements to the base and inner and outer rings.*

Mount the second spindle blank and turn the support column, leaving a 1/2" x 1/2" tenon on each end to fit the clock base and rings (**Photo 11**).

Sand and finish both spindle elements and set them aside until assembly time. I used Shellawax EEE Ultra Shine polish and Shellawax liquid wax, a system that is quick to apply and produces a high gloss finish.

Assembly

Connect the support column to the base and the inner ring using wood glue sparingly to minimize squeeze-out (**Photo 12**). Attach the finial in the opposing hole in the inner ring.

Drill 1/8" holes in the inner ring at 11 and 5 o'clock; this is to allow the outer ring to be attached to the inner ring with the screws and spacers. The two spacers maintain the gap between the outer ring and inner ring.

Fit the clock mechanism into the inner ring. Make sure you position the clock so that 12 o'clock is oriented at the top.
Set the time, and the project is complete!

Assemble the pieces

12. *The project goes together with wood glue and screws. Start by gluing the support column to the base.*

Douglas Gillie became interested in woodworking about 58 years ago when his father bought him a Rockwell Beaver cast iron top tablesaw, which he still uses daily. Gillie began to focus his attention on woodturning about 13 years ago. To keep his shop secure, he installed a four-legged security system named Callie.

More Fun With Button Inlay: Jewelry, Magnets, & More

By Linda Ferber

In the May 2021 issue of Woodturning FUNdamentals (v10n2), I presented basic techniques for inlaying buttons in hand mirrors. Buttons add a decorative touch and expand our pallet of textures and colors. They are easy to find in thrift stores, junk shops, and flea markets, and they are fun to collect with an eye towards incorporating them in future turned objects. In this follow-up article I will explain how I incorporate inlayed buttons into easy–to–make jewelry. The techniques here build on my previous article. To avoid repeating already published guidance, I encourage you to review the earlier article before deep–diving here.

I have explored jewelry making for a while, so it was natural to start investigating the addition of buttons to my work. This style of jewelry is easy to make with a minimal investment in time and materials. But keep in mind small does not necessarily mean fast, because attention to detail at this scale is critical. Small objects invite scrutiny from viewers—more so than the attention someone is likely to give to a salad bowl before deciding on a purchase. And, it has always struck me that when a person chooses to wear your art, they are making a significant statement.

The wood

I turn these small pendants from remnants of endgrain spindle projects (**Photo 1**). I keep a bin of useful–someday cutoffs, and the first task is to match some of my buttons with wood that will make for interesting color and texture pairings. The wood can be 2" to 3"– (5cm–8cm) diameter scraps and need not be long—the thickness of a pendant is typically 1/4" (6mm) or less. I prefer to start with a blank that is about 3–1/2" (9cm) long or less as this keeps vibration to a minimum. This size will yield plenty of material for three pendants.

Stock round-up

1. *Save your spindle cut-offs and you'll quickly acquire plenty of stock for pendant projects.*

The button

Choosing the size and color combination of a button to complement your wood brings whimsy and fun to the creative process. Buttons come in a vast array of shapes, sizes, colors, and materials (**Photo 2**). Flat buttons are great for a single button inlay or can be used as the bottom layer if you plan to stack multiple buttons. Shank buttons often have a rounded top making them better suited for either a single button feature, or for becoming the top layer in a multi-button arrangement.

Cording & findings

Cording—as the name hints—is the line that will drape around the wearer's neck and hold the pendant (**Photo 3**). I think cording provides an organic look that pairs with wood, more so than precious metal. I keep several styles, widths, and colors of cording on hand, but basic black is a good place to start until you determine your passion for this branch of the craft. You can also purchase a variety pack of cording sizes at your local hobby store or online. Finishing your cord requires a simple knot that makes the length adjustable. The most popular necklace length is 16" to 18" (41cm–46cm). On most women, this will place the pendant at mid-chest.

Findings are the clasps, eyelets, and various fittings that will attach your cording to the pendant. The simplest and most basic finding to use is an eye hook. I found a box of assorted black eye hooks online. They are also available in silver or gold. I suggest using the smallest size that will accept your cord.

Prepare the blank

True your blank between centers, then form a tenon on one end to remount the blank in a four-jaw chuck. When I make small items like these pendants, I will batch out cylinders by the half-dozen. This might sound like tedious production work, but the turning proceeds quickly and this routine reduces the number of times I need to rummage through my wood bin.

To calculate the total thickness of your pendant, decide how deep to inlay your button—flush, slightly proud, or slightly recessed? To this number, add 1/8" (3mm) (you can reduce this to 1/16" (2mm) after making a few pendants); this defines the total thickness of your pendant.

I measure from the tailstock end and mark the thickness of the pendant on the side of the blank (**Photo 4**). I then turn a bead on the side

Gather project components

2, 3. *Selecting a button for your project is at least half the creative fun of this project. Cord to hang the pendant can match or create contrast with the button.*

to define the transition between what will be the front and the back of the pendant (**Photo 5**).

I work next on the face with my button. I clean up the face with shearing cuts, keeping in mind this will be a small frame that should be as smooth and clean as possible (**Photo 6**).

Cut the recess

I use a parting tool or square carbide tool to cut the recess in the face to inlay the button, working slowly and carefully as I approach the final diameter of the button (**Photo 7**). Keep an eye on the depth of the recess to avoid over-shooting your mark. If you do exceed your planned depth, you can shave a little off the face of your blank, or just turn off the face and start over. A little chamfer on the edge of the recess adds a finished appearance and allows a little area for glue to seep if too much is applied.

After turning the face and side bead, sand the surfaces to completion.

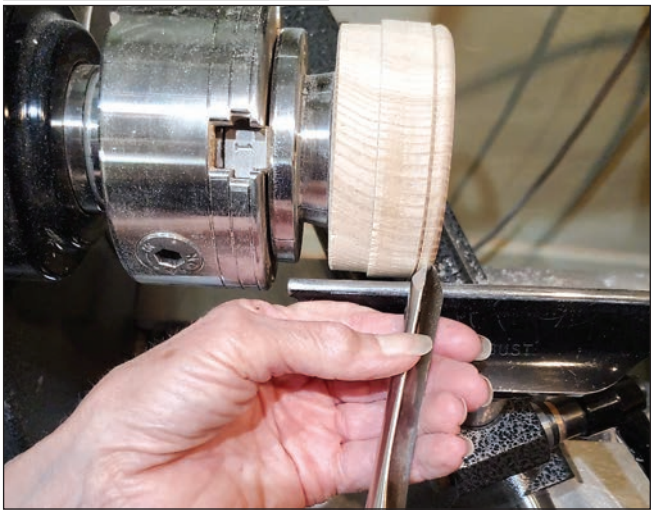
Use a parting tool to separate the pendant from the blank.

Clean the face

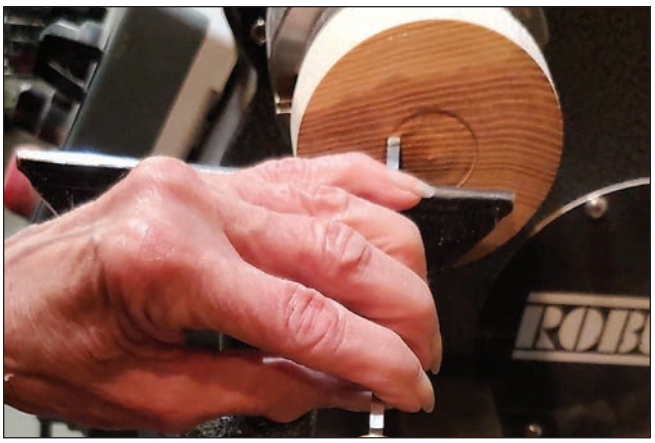
6. *Make a shearing cut across the face with a spindle gouge.*

Turn the side

4, 5. *Mark the total pendant depth on the side of the blank (left-most line) and round the side into a bead, as shown below.*

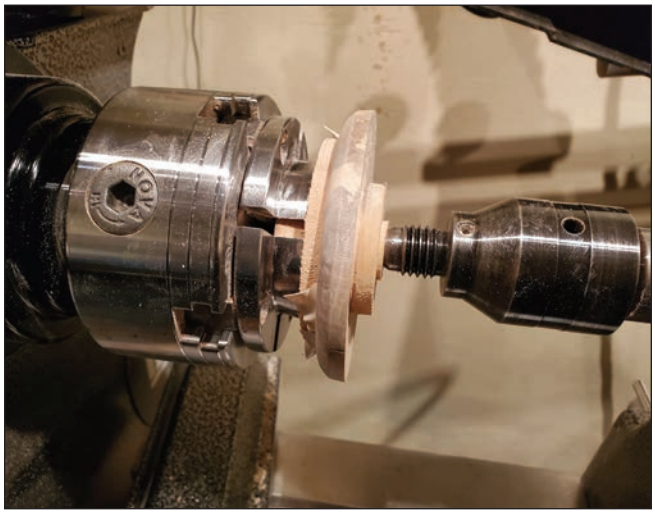


Cut the recess



7. *Cut the button recess with a parting tool or bedan. Frequently check the diameter and depth of the recess, sneaking up on a good fit.*

Reverse mount



8. *Re–chuck the blank to access the back. With small objects, double-sided tape between the two flat surfaces provides adequate fixing. But the tailstock offers added insurance!*

Turn the back

Both faces of the pendant will be visible at times, so both sides should be designed and created with care. Because the pendant is relatively small and light, reverse–chucking it on the lathe is easy. A chuck with small jaws that will expand into the recess cut for the button is one option. You could turn a short tenon on the end of your blank and make a jam chuck to fit in the button recess. You could also use double-sided tape (for woodworking, not the kind for paperwork) on the trued face of your remaining blank (**Photo 8**).

Decoration on the obverse side of the pendant can be simple—a small bead with colored chatter work or a little pyrography all add to the design and can be coordinated with the front button. Because of the small size and light weight, you might be tempted to try some off–axis turning, giving the piece a bit of intrigue.

Chucking options

If you've made it this far, it has probably occurred to you that you could execute this entire project using only double-sided tape to mount your blank. You'd need to start by slicing your pendant blanks from a billet using a chopsaw, tablesaw, or bandsaw (for safety reasons, work with longer billets than you'd use for chucking in the blank to keep those precious fingers away from sharp blades). I recommend bringing up your tailstock for additional support when truing your blank and turning the bead around the outer edge (as shown in Photo 5).

Another excellent option for chucking the pendant to turn the obverse side involves a simple jig from PVC pipe (see Sally Ault's article, *PVC Jig for Reverse Chucking* on page 15 of this issue).

Before I remove the pendant from the lathe, I evaluate the grain to determine how I would like the necklace to hang, and therefore where I will place the findings. I use a 1/32" (1mm) drill bit to bore a hole for a 00 eye hook. If my design calls for button or bead dangles below the pendant (see opening photo), I will drill a second hole opposite the first one, using a ruler to align and mark the opposing hole locations (**Photo 9**). Locking the headstock before

Mark eye hook locations

9. *A ruler referenced off the lathe ways assures eyelets will be placed 180 degrees from each other.*

drilling each hole helps steady the pendant for drilling.

Finish

The pendant will be worn and will be close at hand for the owner, so I like to consider a finish that will be pleasing to the touch. My preferred finish is Renaissance wax. An oil finish or friction polish are a couple of other options.

Gild the lily

I have experimented with adding buttons as dangles. Coordinating color, size, and style adds personality to your pendant. Using the buttonholes, string a couple of buttons on three cords, using a bead at the bottom of the cord to hold everything in place. The length of this cord is about 7" (18cm), leaving plenty to knot for an attachment. The three cords are looped through the bottom eye hook, giving them a final length between 4" and 5" (10cm–13cm). I use a jump ring to secure the cords, using needle

Tying a sliding knot

I turned to YouTube to learn the essential sliding knot; the linked video is particularly helpful.

- *Measure your desired necklace length and double it (or triple it if you want the knots to be close to one another when the piece is worn). After measuring cut this length on your cord.*
- *Create a sliding knot with these three steps*
  1. *Loop the cord into a circle.*
  2. *Loop the cord around, to the back, and underneath the other cords.*
  3. *Wrap the cord around the other cords again and pull tight.*

Repeat the process of tying a sliding knot on the other side.

tiny.cc/adjustknot

Findings

Jewelry findings are the parts used to join jewelry components together.

- Bail: *A metal component used to attach a pendant onto a chain or necklace.*
- Clasp*: The component that allows the two ends to close together. Functional and available in many different shapes and styles, they can also add the perfect finishing touch to your project.*
- Jump ring*: Open jump rings have a split in them so they can be pried open with jewelry pliers.*
- Connector (eye pin)*: simple loop at one end and screw threads at the other; easily create a place for your cord and dangles for your designs.*

Mirror Insets

EXPLORE!

Use the AAW's Explore! feature or use one of the links at right to read Linda Ferber's previous article on mirror inlays.

http://tiny.cc/HandMirror

nose pliers to open the jump ring, wrap the cords, and squeeze the ring closed. Secure the connections at the eye hooks, beads, and jump ring with a drop of cyanoacrylate (CA) glue. Trim off excess cord.

Consider adding one or more beads on the edge of the button recess. Or add a pair of buttons with shafts, one in front overlapping the flat button and a second for the back. Add carving, texturing, pyrography, off-axis turning...the options are surprisingly numerous for such a small object.

Poker chips, earrings, small commemorative pins, polished cabochons—anything of convenient size and shape is worth evaluating as inlay. And you can expand this technique to other production items such as magnets, jar lids, and boxes (**Photo 10**).

Linda Ferber retired from her position as AAW's Program Director. She is the founding editor of Woodturning FUNdamentals.

Experiment with design

10. *In addition to hand mirrors and pendants, the author has decorated the lids of these small containers with button inlays.*

PVC Jig for Reverse Chucking

By Sally Ault

I don't like a flat back on my jewelry, so I use this PVC chucking jig to allow me to reverse–chuck my jewelry and access the back for turning and finishing.

This jig allows me to shape and texture the back of the pendant so that the two sides have their own character. The jig centers the pendant, and the internal ledge, or step, prevents the blank from being pushed to the bottom of the jig. The cut on the side allows some range in the diameter of pendants each jig will hold.

Select a PVC coupler

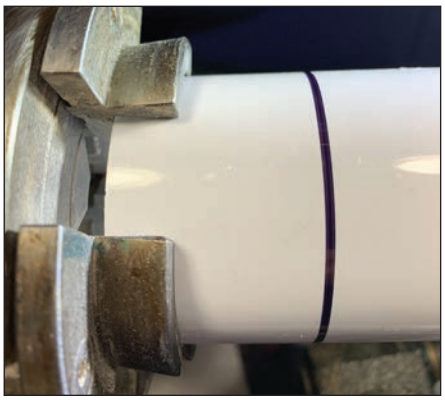
I selected couplers in a range of sizes—from 1-1/2"–3" (4cm–8cm)—to accommodate an equally wide range of pendant sizes. Look for Schedule 40 S×S couplers as these tend to be the least expensive, are readily available, and are durable.

Other types of PVC fittings will work—even threaded fittings—if they have a thick wall at the critical internal ledge.

Establish the ledge depth

Measure the interior depth to the ledge and transfer this distance to the outside of the coupler, using a marker to note the position.

Mount the coupler in a four–jaw chuck with the top of the ledge oriented towards the tailstock. This is the one time you want the piece to "bottom out" in the chuck jaws.

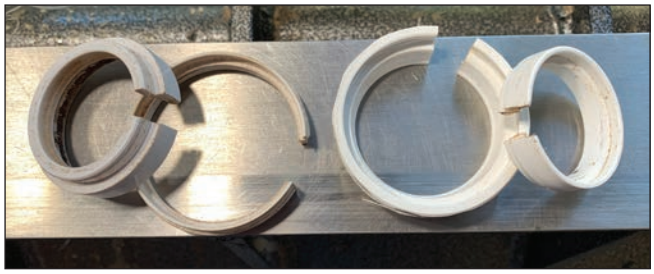


Shorten the top of the coupler

Use a parting tool to reduce the length of the coupler, leaving about 3/8" of material (the length is not critical—just eyeball it) extending beyond the ledge mark. With a scraper or parting tool, create a tenon to fit your chuck jaws (mine are dovetailed).

Shorten the bottom of the coupler

Reverse the coupler in the chuck using the tenon you just created. Reduce the length to about 1-1/2" and create an internal dovetail, stopping at the ledge. Also, flatten the top of the ledge as you cut the dovetail to prevent your work piece from being pushed to the bottom of the jig. The dovetail helps keep the pendant secure in the jig.



Notch the coupler

Use a bandsaw or handsaw to cut a notch in the side of the coupler. To give your jig some clamping range, make the opening about 1/4" (6mm) wide. Angle the cuts outward so that when the chuck is tightened, the coupler will come together securely.

If you try to make the opening wider, the jig will go out of round when it is compressed to hold a pendant.

Tip: finish front & sides

Before reverse chucking the pendant in the jig, finish the front and as much of the side and back (shown here) as you can reach.

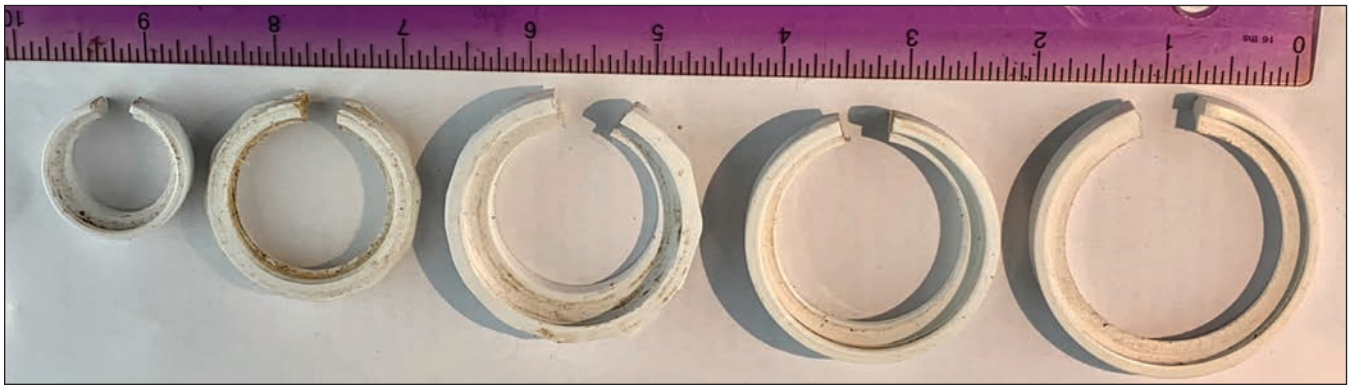
Tip: jig alignment

Orient the jig so that the opening on the side is aligned with the inside of one of the chuck jaws, not the gap between jaws.

Try the pendant in several sizes of jig to find the best fit. Place the jig in the chuck with the jaw shoulder against the tenon you created. Once you've tightened the jaws enough that the pendant won't spin as you cut it or sand it, it's time to refine that side.

I have made a lot of these jigs, accumulating a bucketful of various sizes. Starting out with one jig will work if you are making a batch of pendants all the same size.

Collect them all



Sally Ault discovered woodturning through a furniture class while earning her BA in Art with a Crafts emphasis from San Diego State. Her current focus is on lidded containers including her sea urchin series, open bowls, embellished pieces, and jewelry. Her work is represented in numerous galleries and she has demonstrated widely.

Glass Goblet With a Gold Bead

By John Lucas

Years ago, I experimented with floating objects in clear epoxy. The technique had its problems because epoxy's slow cure rate gave the embedded objects time to sink to the bottom of the casting, ruining the effect I was trying to achieve. While experimenting, I came upon the idea of using metal leaf. It's lightweight and stays in suspension when stirred into the epoxy. I had picked up some goblets at a yard sale that had a gold band around the top. I typically buy these old goblets and cut the stem off and use them to make my own wooden base goblets. The gold rim inspired me to try and make a raised bead on the base with gold leaf floating in it. It was quite successful and easy to do.

Prepare the blanks

I use two pieces of wood for my goblets—one for the base and another for the stem. The stem blank is 8" x 1"– (20cm × 25mm) square. Because the piece of wood I wanted to use was too thin to make the stem, I glued two pieces together.

I recommend starting with a 3/4"– (19mm) thick blank for the base (mine is thinner, which will create challenges later); I cut the blank to 3-1/4"– (8cm) square and marked the center with an X. Feel free to adjust the size to suit your goblet.

I drill a 3/8"– (10mm) diameter hole through the center of a waste block and glue it to the top of the goblet base. The hole makes it easy to align with the base. I do this often, so I made myself an alignment rod with a slightly rounded point, but a 3/8" drill bit works fine (**Photo 1**). I put the alignment rod or drill bit through the hole and place the point of the alignment tool on the X. I use cyanoacrylate (CA) adhesive and accelerator to bond the waste block and base. The CA becomes brittle when using accelerator, so the bond is easily broken with a sharp impact when I'm finished turning.

Alignment jig

1. *A shopmade alignment tool is handy for centering a waste block for mounting the work. These are easily made from a section of 3/8" metal rod. None handy? Grab a suitably sized drill bit instead.*

Cut a recess in the base

2. *Mount the base in the lathe by contracting the jaws of the chuck around the waste block. This provides access to the bottom of the goblet base; shape to fit the jaws in expansion mode and finish turn the base.*

I mount the base assembly in a chuck by gripping the waste block in contraction mode. I turn a 1/8"- (3mm) deep rebate in the exposed face (this will be the underside of the base) to accept my 2" (5cm) chuck jaws in expansion mode (**Photo 2**). I shape the rebate to fit the dovetail profile of my jaws. I then turn the bottom of the rebate to whatever design I want, which might include decorative lines or beads. I break the CA joint with a chisel and mallet and then mount the base on the chuck, gently expanding the jaws into the rebate.

Rough turn the base top

I rough out the shape of the base, which helps me decide where I want to place the epoxy ring. Once I've determined the ring location, I flatten the face to receive another waste block. I glue a 1/2"– (13mm) thick waste block onto the goblet base using CA and accelerator. When it's cured, I cut a groove through the waste block and into the top of the goblet for the epoxy. Then I cut an additional shallow groove, slightly narrower than the first, in the bottom center of the first groove—this will give the epoxy a channel to settle into and a physical grip on the wood (**Photo 3**).

Cut an epoxy mold

3. *Reverse chuck the base blank and begin to shape the top. Flatten the top surface, removing the first waste block, and glue on a new waste block. Cut a channel to receive the epoxy pour.*

Epoxy pour

4. *Pour the epoxy and metal leaf solution into the mold. This doesn't need to be neat, but avoid getting epoxy on your chuck.*

Epoxy casting

I use West System 205 epoxy with their special clear hardener (**Photo 4**). I always use slow cure epoxy or casting resin, which allows plenty of time for trapped bubbles to rise to the surface. I use artificial gold leaf for this ring. The epoxy will exclude air and protect it from tarnishing, so you don't need real gold leaf. Of course, you could use silver leaf, variegated gold leaf, copper leaf, or any of the myriad available options. I stir the gold leaf into the epoxy very gently,

trying not to create bubbles. I pour it into the groove in the base and let it sit for a minute or so. Then I take a butane torch and gently whisk it across the surface. You can see the bubbles pop. I wait about five minutes and do it again. I might do this torch step several times, if I have the patience. I let the epoxy cure thoroughly before turning it.

Prep the glass goblet

I cut the stem off the glass goblet using a Dremel and cutoff wheel (**Photo 5**). Leave just enough stem (about 1/2") on the bottom for a good glue joint. I don't actually cut through the glass—I score it with the cutoff wheel all the way around the stem. After scoring, it's easy to break the stem in your hands (**Photo 6**). If you're nervous about it, wrap a cloth around the stem just in case it shatters instead of breaking. I have never had that happen, but I suppose it's a possibility. Regardless, eye protection is a must when working around glass.

The stem

The goblet stem will be mounted directly into the lathe spindle, taking advantage of the Morse taper and its holding capacity (see the author's article, *Drawbar for Secure Spindles* on page 26 of this issue). This will allow you to work on the open end of the spindle without the tailstock in place. If you have a set of small chuck jaws, you could turn a tenon on the end of your spindle stock before mounting it in the chuck.

While the epoxy cures, I mount the stem blank between centers and bring it to round, and then turn a 2"–long #2 Morse taper, starting with the smaller end of the taper. The #2 taper is common in lathes, but verify your lathe's specifications before proceeding. You can establish the taper with dial calipers, outside calipers, or a shopmade jig (see following article "Drawbar for Secure Spindles") (**Photo 7**). Then I move up 2" and establish the larger diameter of the taper. Now it's just a matter of cutting away the waste between these points to create the taper (**Photo 8**). Another way of securing these spindles is to mount them in 1" extended chuck jaws; then you don't need the Morse taper. The Morse taper technique is good to learn because it will come in handy for another project.

Sneak up on the profile. I use the upper right wing of my spindle roughing gouge like a skew. A parting tool, bedan, or a flat carbide tool would work well, too. When you think you have the taper correct, cut away some of the middle; the taper only needs to be accurate at its ends.

I take the workpiece off and remove the drive center. Then I put my wooden taper in the headstock spindle and twist it. This burnishes

Prepare glass vessel

5, 6. *Use a Dremel and cutoff wheel to score the stem of a wine glass about 1/2" below the goblet bowl. This will allow you to snap the stem at the score.*

the high spots, making them easy to identify. I mount the spindle back on the lathe and gently remove these high spots (**Photo 9**). The taper doesn't have to be perfect, just close—the wood compresses enough to compensate for most inaccuracies. When I think it's right, I remove my drive center and seat the goblet stem into the Morse taper with a gentle tap from a mallet.

Drill angled holes

7, 8, 9. *Establish the two key diameters of the Morse taper, 2" apart. Connect the two diameters using a spindle roughing gouge or spindle gouge. Check the fit in your headstock and remove any high spots.*

Then I bring up the tailstock and apply pressure and true up the spindle.

Drill for the goblet base

Slide the tailstock back and mount a drill chuck in the tailstock. I use a drill gauge to measure the glass stem and choose a bit size (**Photo 10**). I drill just slightly deeper than the length of the stub on the bottom of the goblet (**Photo 11**). Then I use a 3/8" (10mm) spindle gouge to hollow the opening to fit the taper of the goblet stub (**Photo 12**). I do this by tilting the flute to about 10 o'clock and cutting from the opening toward the left, using the left wing of the gouge as a scraper. I support the work with my fingers pushing opposite the cut. Stop the lathe frequently and test fit the goblet. If you create too much vibration while hollowing you might loosen the piece in the Morse taper. Stop the lathe and tap it back in with a wooden mallet. While I'm shaping the hole for the glass stem, I also shape the top of the lip and sand it as necessary.

Size the stem

10. *Using a drill gauge is a quick and easy way to determine the size of the hole needed in the end of your goblet stem.*

Prepare the stem for the glass top

11, 12. *Drill a hole in the end of your stem blank to receive the glass goblet stem. Shape the opening to accommodate the shape of the stem and lower goblet using gentle pulling cuts with a spindle gouge.*

Shape the stem

13, 14. *Turn the stem with a 3/8" tenon at the bottom. To minimize vibration, support the spindle by placing your fingers behind the blank to counter the force of the gouge.*

Shape the stem

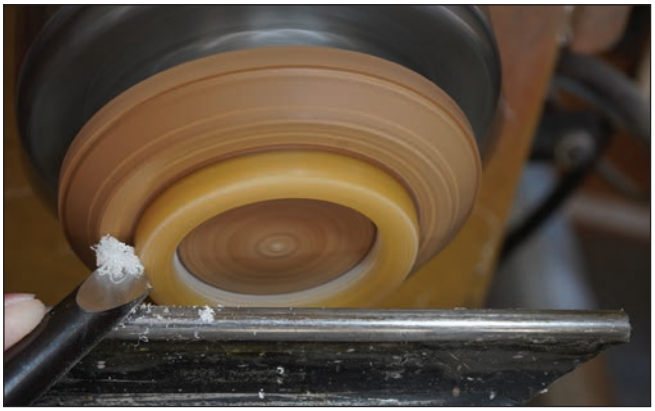
With careful tool control and a little support from your left hand, you should be able to shape the spindle without tailstock support, but bring it up if you feel the need (**Photo 13**). I use a 3/8" wrench as a go/no go guide to establish the tenon on the bottom (**Photo 14**).

I sand the stem and apply a coat or two of finish. I don't part it off at this stage; I knock the spindle out of the headstock.

Turn the base

With the epoxy cured, I can turn the base. I turn away the waste material using my parting tool or spindle gouge to reveal the epoxy ring. I use a 3/8" spindle gouge to shape the ring, but a skew presented on its side as a scraper is a safe alternative (**Photo 15**). Take really light cuts to avoid tearout. This is especially true on the inside of the ring because it is hard to sand this area. To turn the inner wooden portion of the goblet base I run the lathe in reverse and cut from the center away from me (**Photo 16**).

Turn the base



15, 16. *Turn away the waste block and shape the epoxy ring, taking light cuts. If your lathe is reversible and your chuck is locked to the spindle, reversing the lathe and cutting to the right of center will make it easier to watch your cut and address the inside of the ring.*

This keeps the gouge handle against my body where it receives support, and it allows me to see where the tip is cutting inside the ring.
It can be hard to get the skew into the inside bottom of the ring, so I switch to my detail gouge and scrape with the bottom wing. I use the skew on its side as a scraper to shape the outside and round over the top of the epoxy bead. Then I finish shaping the outside of the goblet base.

Finishing

I sand the wood through 600 grit. I sand the epoxy through 1500 grit. Sanding the inside bottom of the epoxy ring can be a real challenge. I have struggled with folding sandpaper up to try to feed the crease into this gap. A better solution is sanding sticks, which can be found at crafts supply stores. They have a point on one end and a taper on the other. You can use these sticks at slow speed and can also wrap sandpaper around them to reach into this area (**Photo 17**).

I use white automotive paste to polish the epoxy, followed with scratch and swirl remover. Mineral spirits will clean up the white residue that finds its way into tiny crevices. Once the mineral spirits evaporates, I apply my finish.

Now it is time to drill the hole for the spindle. If you used 3/4" stock, you should have plenty of material to accommodate a hole for the stem base. I started with thin stock, so had to proceed with a little caution. My turned base is 3/8"–thick (**Photo 18**). Instead of using a standard 3/8" drill or a brad point drill, both of which have tapered points, I use a 3/8" milling cutter.

Finish the base

17. *Sand the base—with many fine details, a shopmade sanding stick is handy for accessing small recesses. Once cured, epoxy is essentially plastic. It will need to sanded to a high grit, and polishing compounds will make it truly shine.*

I use milling cutters frequently on my box lids, which are often quite thin. The milling cutter does not have a center point to guide it through the wood, but using the drill chuck in the tailstock will prevent it from wandering and will leave a flat–bottomed hole. I drill the hole just shy of 1/4" (6mm) deep (**Photo 19**).

Assemble

Install the stem spindle in the Morse taper and use a parting tool to cut the tenon to length—in this case, a hair under 1/4". I use 5–minute epoxy to glue the stem to the base. I use E6000 adhesive to glue the glass to the wood.

I put the glue on the glass stem and then insert it into the wooden stem, wiping away any excess. I put a level on the glass and level it fore and aft and then let the glue cure (**Photo 20**). In some cases I've had to rig up a system to hold the glass square to the base using tape and whatever else is handy, though this project sat solidly so I just gave it time to cure.

I look forward to seeing what other ideas you all have for this technique. I have, for example, used colored epoxy on the lip of bowls, but have yet to try floating gold leaf.

Retired photographer John Lucas has been working in wood for more than 35 years and also dabbles in metalworking. 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 Craft.

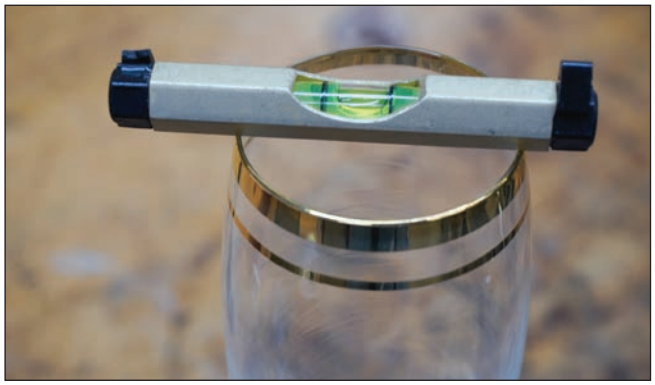
Good adhesive?

I just had to replace a goblet that was broken and found out how good E6000 adhesive is. I could not pull the broken glass out and had to drill through it with a glass drill. I was then able to chip the glass out of the mortise, but only with difficulty because the glue would not let go. When I got all the glass out I had to use the Dremel to grind away the E6000 adhesive. That is good stuff.

Bore the base

18, 19. *Verify that you have ample material to receive the stem tenon. The author's base was thin, so he used a milling cutter to establish the mortise hole for the stem.*

Attach the goblet bowl



20. *It's best to start the evening with a level glass. After inserting the vessel base into the adhesive, use a spirit level to check both left-right and front-back, ensuring your glass is plumb relative to the world around it while the glue cures.*

Drawbar for Secure Spindles

by John Lucas

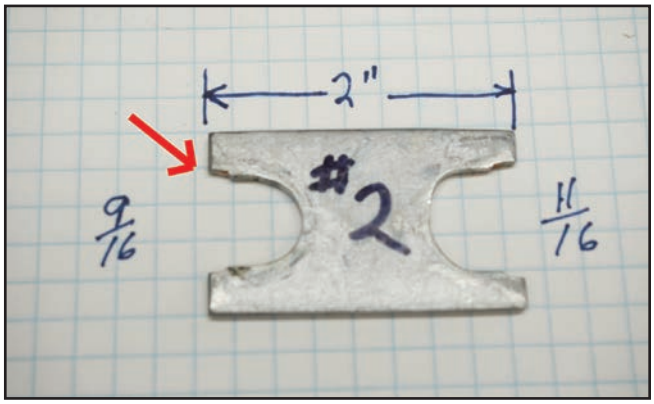
In my goblet article on the preceding pages, I turned the goblet stem by mounting the wood directly into the lathe spindle, with no chuck or drive center. A friend who turns impressively long and thin magic wands uses the Morse taper mounting technique to secure his spindles in the headstock, but he adds a drawbar. Using a drawbar through your Morse taper headstock or tailstock is arguably the strongest way to secure any workpiece to your lathe.

Some drill chucks have internal threads in the end of their tapers, and using a drawbar through your tailstock to hold the drill chuck will prevent the drill bit from binding in the workpiece as you attempt to withdraw the tailstock.

Using a drawbar through your headstock allows you to forcibly pull your blank tightly into the drive spindle. This makes it all but impossible for a catch to pull a workpiece from the lathe.

Go/no-go gauge

I start with a simple shopmade go/no-go gauge made from a piece of scrap metal. My shopmade Morse taper gauge is 2" (5cm) on the long side.



To make this tool, I transferred measurements from the Morse taper on one of my drive centers. I measured the large end with a caliper and put a reference mark on the taper at that location. Then I measured down 2" toward the small end and made another reference mark and measured the diameter at that location.

To make my tool I used a drill bit the size of the large taper and drilled a hole in a piece of soft metal stock. I repeated this step on the other end of the metal stock with a smaller drill bit sized to the small taper end. I cut across the top of the holes and opened each end with vee cuts (indicated by red arrow) to make a go/no go gauge. I simply hold this tool over my wood and start cutting with a parting tool until the gauge seats down on the blank.

Cut the Morse taper

Use your go/no-go gauge to mark and cut the Morse taper on the end of your spindle. With a parting tool, use the smaller end of the gauge to define the diameter of the end of the spindle.

Flip the gauge around and use the larger end to define the upper diameter, 2" from the end of the spindle.

Remove the waste material in between these two points with a spindle gouge, skew chisel, or parting tool.

The Morse taper needn't be perfect along its length, and I typically cut the center so that it is slightly concave and doesn't interfere with the fit in the headstock. The critical diameters are the two endpoints.

Test fit the Morse taper in your headstock, turning the drive spindle by hand to burnish the wood. Any high spots will come out a bit polished and can be refined with light cuts.

Drill the end

I secure the spindle in a bench vise and drill a 5/16" (8mm) hole in the end. The hole doesn't have to be perfectly centered, and I find a hand drill and a good eye is all that I need for the task.

Tap the end

Cut threads in the end with a 3/8" (10mm) x 16tpi tap.

All thread and a handle

To make the drawbar, simply get a length of 3/8" x 16 all thread rod. Cut it to length to extend through your headstock. Then drill and tap a handle to fit the rod and your headstock handwheel.

Insert the morse taper into the headstock. Seat it with a mallet. Then insert the drawbar and thread it into the hole you tapped in the morse taper. Finally, tighten the handle against the handwheel.

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Acorn Box

by Walt Wager

I make many kinds of boxes, and I can assign them into one of two categories: loose-fit lids and tight-fit lids. Loose-fit lids are for dresser top boxes that hold loose change or jewelry where you only need one hand to lift the lid from the box. Tight-fit lids screw onto the box or fit snugly enough that both hands are needed to remove the lid. This acorn box is the tight-fit variety.

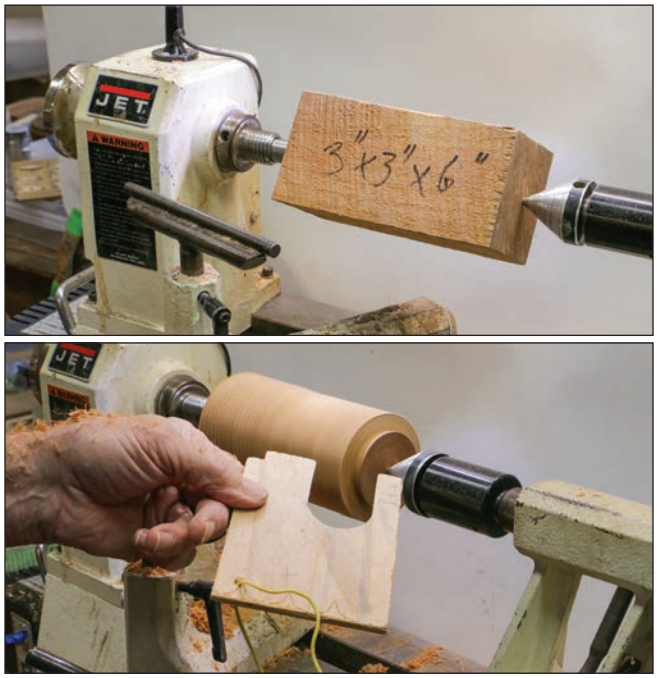
Choose a blank

The box described here starts with a 3"-square × 6" (8cm × 15cm) blank secured between centers (**Photo 1**). These boxes can be any size, and small ones make great holiday ornaments. In general, you are going to want a blank about twice as long as it is square, with the grain running parallel to the lathe bed.

Turn a cylinder

Rough the blank to round using a spindle roughing gouge. With a parting tool, cut a tenon to fit your chuck jaws on both ends of the blank. This step is facilitated by a homemade tenon gauge (**Photo 2**).

Shape the blank



1, 2. *Round your blank between centers and form a tenon on one end. A shopmade gauge guarantees the tenon will fit the chuck jaws.*

Part the blank

Part the blank into two pieces, about one third of the way in from the tailstock end (**Photo 3**). The longer piece will become the acorn nut (the box) and the shorter piece will become the acorn cap (the lid). In this case the shorter blank is parted 2" (5cm) from the end. Set the shorter piece aside for now.

Set the body diameter

Mount the longer piece in a scroll chuck. Use a bedan or parting tool to reduce the diameter at the tailstock end (**Photo 4**). Note that you're creating two diameters. The smallest diameter at the top of the blank will be the tenon, or lip that receives the cap. The slightly larger diameter will be the widest point of the acorn. The cap extends over the body, so for good proportions the body diameter should be only slightly larger than the diameter of the tenon; in this example, 2-1/4" (57mm) for the tenon, and 2-1/2" (64mm) for the body. Reduce the rest of the cylinder to approximately the same diameter you just established for the body (**Photo 5**).

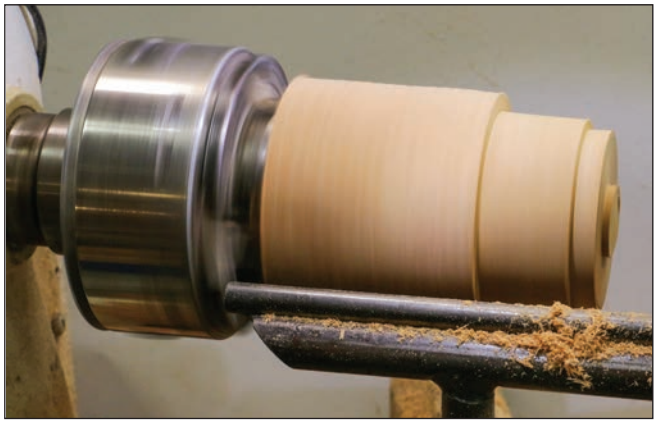
Shape the acorn

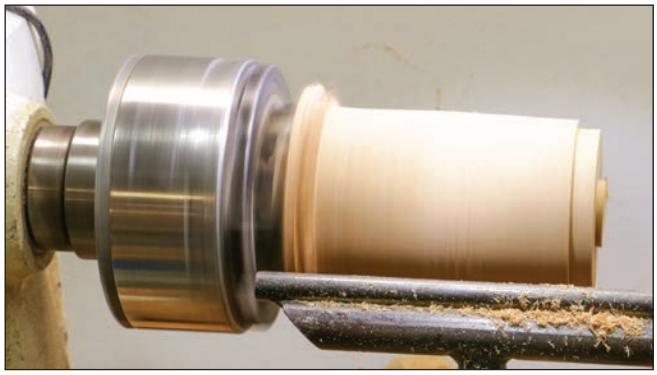
Start shaping the acorn with a spindle gouge, leaving at least 1-1/2" (4cm) of material at the bottom to support the acorn as you hollow it (**Photo 6**).

Hollow the interior

Using a 1/2" (13mm) or 3/4" (19mm) Forstner-style bit, drill a hole to establish the internal depth of the box. Drilling the hole makes hollowing the endgrain much easier. Determine the depth of the hole by laying the bit along

Establish box diameter





4, 5. *Use a parting tool to cut a tenon at the box top and establish the slightly-larger box diameter.*

Separate box from cap

3. *Use a parting tool to separate the top from the base, parting-off about 1/3 of the length to create the acorn cap.*

Shape the acorn

6. *With a spindle gouge, begin to shape the box into an acorn form.*

side the shaped acorn (**Photo 7**). Here the hole is 1-3/4" (45mm) deep. Mark a reference line on the outside of the form to indicate the interior depth.

Secure the bit in a tailstock-mounted drill chuck. Slow the lathe speed to about 300 rpm and hold onto the chuck as you advance the drill into the endgrain. Still holding onto the chuck, back the bit out after about each inch of progress to clear the flutes of wood chips (**Photo 8**).

Angle the flute of a spindle gouge (I use a 1/2" spindle gouge) so that the flute points to about 10 o'clock. Working from the bottom, pull the gouge along the cut towards the outer rim (**Photo 9**). Take shallow cuts. The lathe speed is approximately 1200 rpm.

Continue the cuts from the center to the left edge of the box. The final thickness of the box at the tenon is about 1/16" (**Photo 10**). The body thickness is about 1/8".

It helps to mark the outside of the acorn with a line that represents the inside bottom of the box as a guide to reduce the likelihood of cutting through the bottom.

Finish shaping the exterior

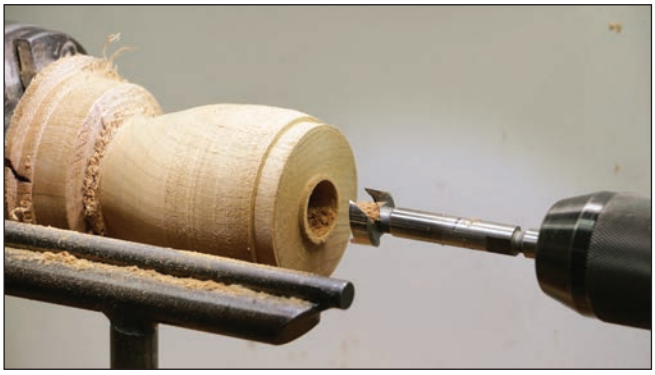
Use a spindle gouge to cut away some of the waste on the bottom so you can continue to shape the acorn (**Photo 11**).

Use your fingers or a caliper to judge the thickness of the box, and the shape at the bottom (**Photo 12**).

Before further reducing the bottom, I use a negative rake scraper to smooth the inside of the box (**Photo 13**).

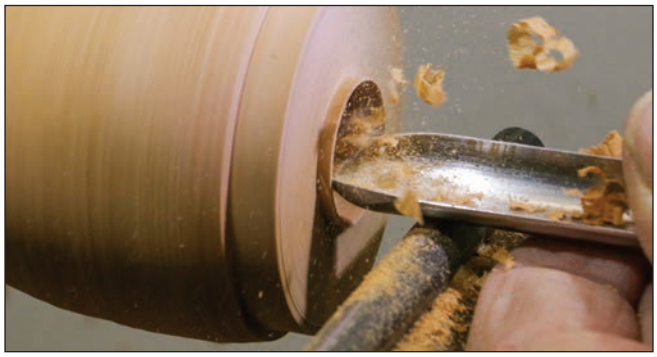
9, 10. *Use a spindle gouge to hollow the interior, cutting from the center towards the left edge. Aim for a body thickness of about 1/8".*

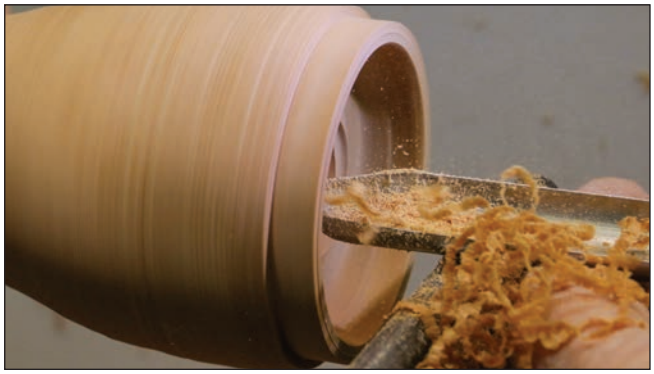
Hole for hollowing



7, 8. *Hold a drill bit against the box side to determine how deep to drill and make a reference mark (not shown). Use a drill chuck to establish the hole, frequently backing out to clear chips.*

Hollow the interior





Finish shaping the exterior

11, 12, 13. *Shape the box exterior, aiming for a classic acorn form. Check the wall thickness periodically, using your fingers as calipers (lathe off!). Refine the interior with a negative rake scraper.*

Sand the interior

Resist the temptation to sand the interior of small boxes with abrasives wrapped or pressed against your fingers—this creates a scenario for injury. Instead, a shopmade sanding stick will do the job and not risk your digits (**Photos 14, 15**). Make a sanding stick by gluing a strip of foam and then a strip of abrasive to a short length of wood. Slow the lathe to avoid overheating and possibly cracking the wood.

Sand the interior

14, 15. *Use a sanding tool to finish the interior. Sticking your fingers in a rotating box this small with a piece of abrasive is inviting injury.*

Complete the exterior

Sand the exterior of your acorn, focusing your efforts on the area from your bottom reference mark to the top. If you sand away your reference mark, add a new one after you are finished sanding.

Return to the 1/2" spindle gouge and shape the bottom of the acorn, from your bottom reference mark down to the tip (**Photos 16, 17**). Aim to shape the bottom tip of the acorn down to 1/2" diameter. Sand the bottom of the box, removing any tool marks and blending the upper and lower areas.

Shape the lower box

16, 17. *Shape the bottom of the box with a spindle gouge, leaving about a 1/2" connecting the waste material. Sand and blend the lower surfaces.*

Part, then shape the tip

Part-off

Rather than risking the piece ending up on the floor, I cut off the box with a sharp Japanese-style saw and the lathe off (**Photo 18**).

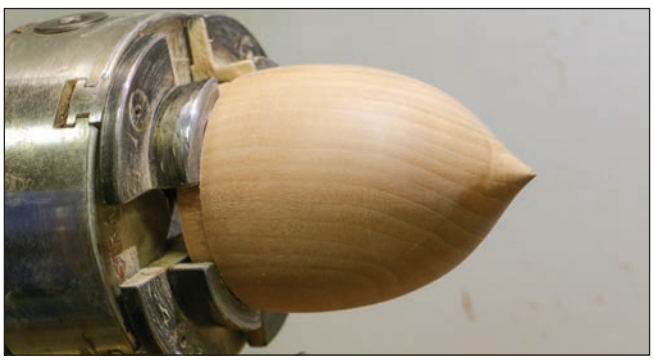
Shape the tip

Reverse the box, gently clamping the tenon in the scroll chuck, and finish the bottom in a gentle ogee curve to a point (**Photos 19, 20**).

Hollow the cap

Measure the outside diameter of the box tenon, or lip, using a caliper (**Photo 21**).

Secure the blank that will become the box cap in the scroll chuck and use a pencil to transfer the tenon diameter to the end of the blank. This marks the inside diameter of the cap. Use a spindle gouge to start hollowing the cap as you did with the acorn (**Photo 22**). Hollow to the inside diameter mark, creating a recess about 1/8" deep.



18, 19, 20. *Part-off the box with a fine-toothed saw. Gently clamp the top tenon in the scroll chuck and finish shaping the tip into a point.*

Hollow the top

21, 22. *Transfer the outer diameter of the box tenon to the underside of the cap. Hollow to the inside of your mark, creating a 1/8"-deep recess.*

Check the fit

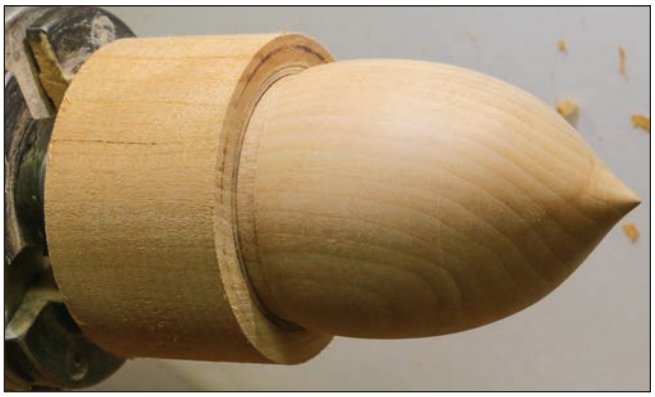
With the lathe off, check the fit of the box tenon in the cap. The top for this box is a friction-fit, so take the time to get it just right (**Photo 23**). If the recess is too narrow, cut it wider until the tenon on the acorn just fits. A skew presented flat on its side and cutting with the long point is a great way to sneak up on this fit.

If the fit is loose, make another cut from the center with the spindle gouge, stopping short of the too-wide previous opening. Use this new dimension to sneak up on a better fit. Make the recess about 1/8" deeper than the tenon is long.

Round the outside bottom of the cap to form a half-bead that appears to wrap over the top of the acorn form (**Photo 24**).

Make a second recess about 1/8"-deep in the inside lip of the cap so that the edge of the cap fits over the exterior of the acorn (**Photo 25**).

Shape the cap to overlay the box



23, 24. *Check the fit of the box to the lid; the goal is a good friction fit. Shape the outer edge of the cap so that it appears to wrap over the box.*

Cut a 2nd recess

25. *Cut another recess in the top to allow the tenon to seat deeper in the cap. This will enhance the appearance of the lid wrapping over the acorn box.*

This allows the curved exterior of the top of the acorn to fit within the cap, and allows the tenon on the top of the acorn to fully seat against the bottom of the mortise in the cap.

Shape the cap interior

Use a negative rake scraper to create a concave dome and smooth the inside of the cap (**Photo 26**).

Shape cap interior

26. *Use a scraper—negative rake if possible—to shape the interior into a satisfying concave curve.*

Form the outer cap

Measure and transfer the interior depth to the outside of the blank (**Photo 27**). Using a spindle gouge, begin shaping the top of the cap (**Photo 28**). Use a parting tool to create space to reach the top. You are essentially turning one large bead to form the acorn cap. When you are happy with the shape, sand the outer surface.

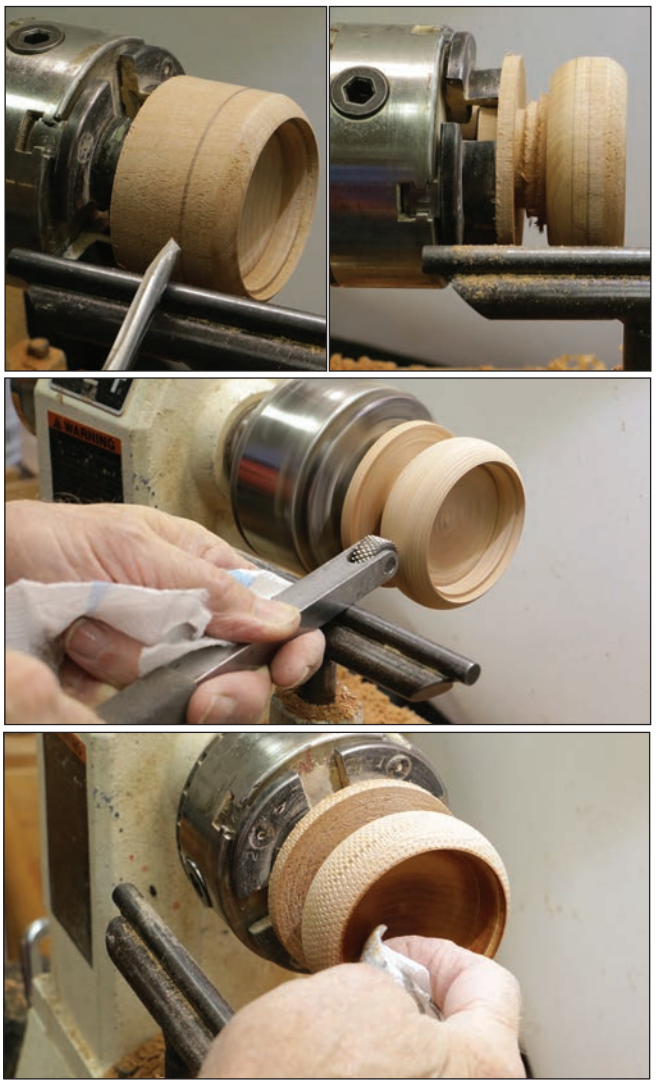
Texture the cap

To better evoke the appearance of an acorn, the cap needs some texturing. I find that a knurling tool is perfect for the task (**Photo 29**). In the past I've also used pyrography to add texture and color.

Finish inside the cap

Check the fit of the cap again and make any necessary final adjustments—I rarely need to change anything at this stage, but this is the last chance before finishing. Sand the inside of the cap, taking care to avoid sanding the recess where the tenon fits, as you can easily sand the opening out-of-round and spoil the fit (**Photo 30**).

Shape the exterior



27, 28, 29, 30. *Transfer the interior depth to the outside and shape the outside of the cap. This is essentially a large bead form. A knurling tool is great for adding acorn cap-like texture, but pyrography works too. Sand and finish the interior.*

Complete the cap top

Reverse the cap in the scroll chuck by expanding the jaws into the recess. Finish

shaping the top of the cap using the spindle gouge (**Photo 31**).

Complete the texturing and add a finish of your choice. Here the top was painted with a brown acrylic paint (see opening image). After the paint dried, I sprayed the box and cap with acrylic lacquer and then buffed the exterior to a semi–gloss finish.

Walt Wager is a 19–year member of the AAW and North Florida Woodturners. His work can be seen on his web site waltwager.com. He can be reached at waltwager@gmail.com.

An acorn box pair. Smaller boxes of this design make elegant Christmas tree ornaments.

Refine the finial

31. *Reverse-chuck the cap with the jaws in expansion mode and refine the top of the acorn before finishing.*

Have You Tried Locust?

By Dave Schell

There are two different species of locusts that I turn—honey locust (*Gleditsia triacanthos*) and black locust (*Robinia pseudoacacia*; **Photo 1**). If you live in the southeastern part of the US, you may also have access to water locust (*Gleditsia aquatica*), which grows in boggy areas. Although honey and black locust are different species, they are often lumped together as "locust trees." My preference of the two for turning is honey locust.

Locust can grow up to 100 feet (30m) and reach a diameter of 3 feet (90cm). The wood is moderately to highly rot resistant, with black locust being more resistant than honey locust. Because the trees are large and rot resistant, I can lay in a stash that will keep me busy for a few years.

Locust is among the densest of North American hardwoods; Janka hardness for locust ranges from 1,600–1,700lbf. The bark of black locust is thick with deep grooves and can peel or break away from the tree along large cracks. In contrast, honey locust bark features large, reddish-brown thorn clusters (**Photo 2**). Black locust has smaller thorns that are present until the heavier bark develops.

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1, 2. *While black locust relies on its armor-like furrowed grey bark for protection, honey locust resorts to bristling clusters of pikes.*

Both species of locust have conspicuous seed pods in season (**Photo 3**). Honey locust pods are up to 15" (38cm) long and contain a sweet edible pulp, but black locust pods are up to 4" (10cm) long and poisonous.

Honey locust leaves are compound with alternating long oval shaped leaflets on the stem. Black locust leaves are also compound and its leaflets can be alternate or opposite on the stem and are round or short ovals.

Locust has a variety of woodworking uses. Because of the rot-resistant properties, locust is often used to produce fencing, in garden applications, and for railroad ties. It is also used for hardwood flooring, furniture, and veneer. I select it for turning because of its durability and appearance.

Because of the hardness of locust, you will need to frequently sharpen your tools to get the best results.

I don't notice a big difference between turning dry vs. green locust. Turned green, small cracks quickly appear, but in many cases those cracks close during the drying process. The wood will warp some as it dries, but I don't find movement of the wood to be as noticeable as fruitwood or even maple. Overall, locust seems stable and people who purchase the bowls at shows remark how much they appreciate the weight of the forms.

(left) Annette Meyer, courtesy of Pixabay; (right) Hans Braxmeier, courtesy of Pixabay

3. *Honey locust leaves are similar to black locust, but the long, flattened seed pods are distinctive.*

Locust will challenge you in endgrain turning tasks. I have moderate success with drilling the center out with a Forstner-style bit and then using carbide tools to approach the work from a crossgrain angle. I've pried many pieces out of the chuck with a good catch when turning endgrain!

Locust is a great choice for spindle turning (**Photo 4**). The grain structure yields a very attractive product. I think it makes great magic wands or small turned trees.

Because of its density, locust can be sanded and polished to a smooth, high gloss finish—even without oil. The wood is not prone to tearout if you use sharp tools, and you can start to develop a high polish using 220-grit abrasive. I sometimes move right from 320-grit to a paste wax finish without applying oil.

On grain appearance alone, locust species can be challenging to distinguish. Black locust can have a green or light yellow tint, while honey locust can have an orange or red tint. As the wood dries, it is even more difficult to tell the species apart unless you cut a sample to expose

4. *Spindle forms, like this tree, show off locust's grain patterns. The strong contrast between sapwood and heartwood can also be used to advantage.*

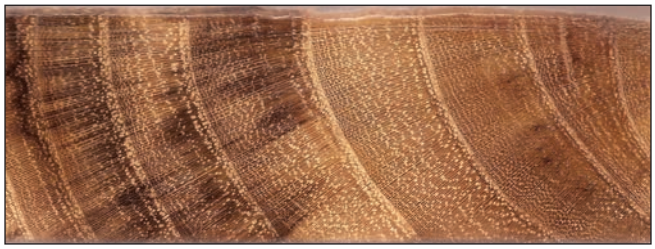
fresh wood (**Photo 5**). I always label the wood when I acquire it.

Locust burls occur, but the more typical grain rarely features intricate patterns (**Photos 6, 7**). I love turning figured wood, but sometimes you just want to make a simple bowl with a satisfying, simple grain pattern. While maple or cherry can give you that, the locust grain pattern is distinct and stands out among simpler grain woods.

Locust is one of my favorite woods to turn. I live in Central Pennsylvania and locust trees are plentiful, but I find it difficult to obtain turning stock. Most of the locust around my area is used for fence posts or firewood. I prefer to get my turning wood for free, so I rely on local arborists to let me know when they come across an available tree.

Get your hands on some locust and give it a try. It will challenge your notion of a sharp tool, but this wood is worth the necessary extra tool sharpening! Start by making small spindle pieces and plates. Work your way up to larger bowls when you get the hang of how often you'll need to resharpen.

Dave Schell lives in Mount Joy, PA and is a Main Street Executive Director by day, and bowl turner by night and weekends. Email Dave questions dave@imakebowls.com or view his work online at: imakebowls.com, facebook.com/imakebowls or instagram.com/imakebowls.



Greg Hume, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons

***5.** According to wood-database.com, distinguishing between black locust (above) and honey locust is similar to separating white and red oak—the pores of black locust are packed with tyloses, while they are absent in the pores of honey locust.*

Additional resources

Learn more about locust and find out what tyloses are by checking out Eric Meier's Wood Database through one of the links below.

Wood Database

D.E. McIvor

***6, 7.** Black locust in burl form and honey locust in a more typical, flatsawn form.*

Australia's Best Turning Timbers

by Andrew Potocnik

We have a rich variety of timbers available in Australia that, according to where they grow, vary in color and character. Keep in mind that we're about the same size as the USA and span climates from tropics through deserts. The flora has adapted to a vast range of environments resulting in timbers that can be as hard as the hardest in the world, to soft-but-dense timbers that cut like a hot knife through butter.

Looking at factors that appeal to turners, I've grouped timbers according to three features that catch our attention; color, figure, and scent. So here is a selection of Australian timbers, either available commercially or through specialist suppliers who unearth the most mouth–watering timbers imaginable. You may need to contact suppliers directly to source some of these woods, depending on where you live.

When it comes to color, one of my favorites is the rich red of river red gum (*Eucalyptus camaldulensis*), endemic to the southeast of the continent and protected in the suburb where I live. Its color will vary according to where it grows, but the best will be a deep red; it turns beautifully when worked with sharp tools (**Photo 1**). It can also produce spectacular grain in burl form.

1. *River red gum with a contrasting scorched rim. 12" x 6" (305mm–150mm).*

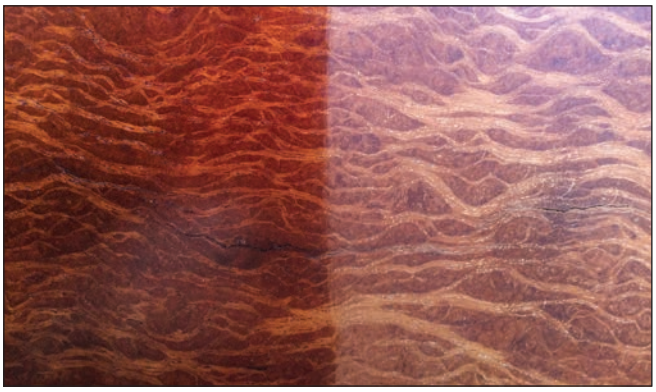
Blackheart sassafras (*Atherosperma moschatum*), from Tasmania, gives you not just one but three colors in the same piece of wood. The heartwood of sassafras typically has grey-to-golden brown tones. However, some trees are infected with a staining fungus, causing colorful streaks and veins of dark brown and black and giving rise to the common name. The dense and close-grained nature of this wood makes it a delight to turn (**Photo 2**).

2. *Blackheart sassafras is a versatile timber used for projects ranging from small boxes to lutherie. 5" x 3" (125mm–75mm).*

Sassafras grows in cool temperate rainforests alongside myrtle beech (*Nothofagus cunninghamii*), which is my next choice in color. Myrtle beech has a deep pink hue and turning it is a delight because of its dense grain—again the result of where it grows. It too can have dark black streaks, thus it is sometimes referred to as "tiger myrtle."

When it comes to figure, several of our timbers have been given the generic title of "oak," as their medullary rays resemble the European woods in the *Quercus* genus that early explorers of Australia were familiar with. Sheoak (*Allocasuarina spp.*) and silky oak (*Grevillea robusta*) feature large medullary ray flecks, best seen in quartersawn timber and also apparent when looking at endgrain. Sheoaks have color that ranges in hues of orange, but with

3. *The rays in sheoak are so large that they are best displayed in flatsawn timber, especially on smaller forms. 6-3/4" x 2-1/2" (170mm–65mm)*

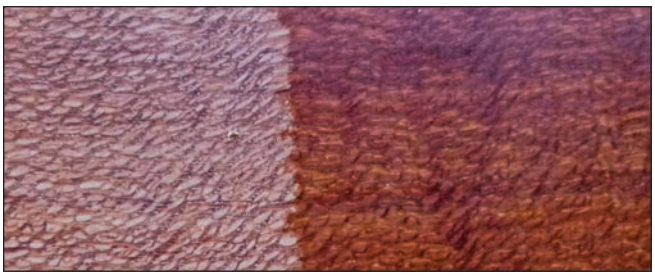


4. *Lace sheoak can have truly dramatic figure; it is a highly sought-after timber. Left side of the image shows the oiled timber.*

prominent darker medullary flecks (**Photo 3**). Harder to find is an even more appealing variation called lace sheoak (*A. fraseriana*) (**Photo 4**).

Beefwood (*Grevillia striata*) has not just the striking medullary rays but also a deep red-to-purple color (**Photo 5**). Beware; some people have allergic reactions to timbers in the *Grevillea* genus.

Ringed gidgee (*Acacia cambagei*) has an unusual variation to what we would otherwise call fiddleback grain. The intensely figured timber creates some of the most spectacular grain that



5. *Beefwood displays both dramatic grain and a deep reddish-purple hue. The right side of this example has been oiled.*

is treasured for turning as well as for knife scales. Scent is another wonder of turning wood that makes this craft a delight, but how to capture it in words or pictures? Ringed gidgee has a fantastic fragrance that adds more joy to the turning (**Photo 6**).

6. *Ringed gidgee smells almost as good as it looks. Right side is oiled.*

Huon pine (*Lagarostrobus franklinii*) and Queensland red cedar (*Toona australis*) not only release the most wonderful aroma as they are turned, but they also carve easily. Then there is sandalwood (*Santalum spicatum*), a parasitic native with a scent synonymous with Asia—it too is a delight to turn.

This is a smattering of my favorite Australian timbers. Let me know your choices so I can give them a go and see what makes them special to you.

Andrew Potocnik has been involved in woodturning since high school. His work is in many private and museum collections. Andrew's primary interest is sharing his passion for wood with students in any setting. For more, visit andrewpotocnik.com. ❐

Woodturning FUNdamentals

is an informative digital publication and online learning portal aimed at new turners. Whether you're starting a new hobby or plan to become a pro, the projects, techniques, tips, videos, and resources in Woodturning FUNdamentals *will help you build essential knowledge and skills. The AAW publishes* Woodturning FUNdamentals *digitally, four times each year and free to members.*

D.E. McIvor/Hinterlands

No, that's not wax. Controlling moisture loss in green wood is key to successfully getting a blank from green-to-dry, but this effort has gone awry. Wrapped in plastic as a short-term measure, the rounds have been left too long with no air circulation, creating the perfect conditions for mold and fungal growth. If encouraging spalting had been the goal, this effort might be reclassified from "failure" to "wild success."

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WE ARE TEACHING THE WORLD TO TURN