WOODTURNING FUNDAMENTALS

American Association of Woodturners
November 2020 • Vol 9 No 4

Gifts for the kitchen and garden

- *Turn a hollow form utensil holder—without hollowing*
- *Pasta cutter for homemade noodles*
- *Garden dibble makes bulb planting a cinch*
- *A logical approach to elegant goblets*

AAW | AMERICAN ASSOCIATION OF WOODTURNERS
WE ARE TEACHING THE WORLD TO TURN

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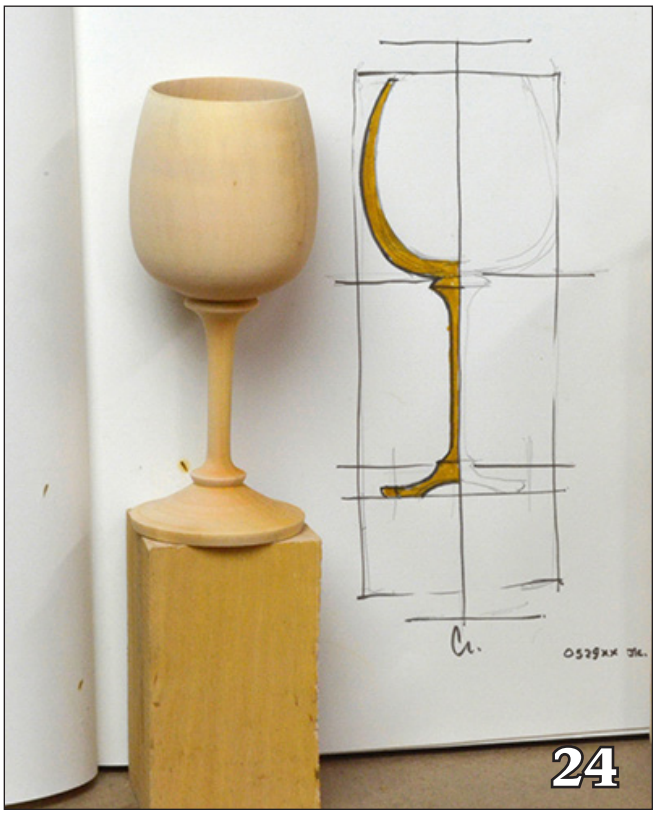
Scott Finlayson



John Kelsey

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: Adding beads to a kitchen utensil holder. Walt Wager, photo.
Turn to page **39** *for more on this topic.*

Welcome

The woodturning community lost one of its leaders in October with the passing of Mark Baker.

Perhaps Mark's most sustained contribution to the craft was his role as editor of the British magazine *Woodturning*. In that position he continually informed a wide readership, celebrated good work, nurtured many writers, and promoted woodturning events.

Mark demonstrated wherever the craft would take him, including the AAW's recent Symposium in Portland, OR. In addition to his editorial duties, Mark was a prolific writer of articles and books. He knew how to effectively convey information in writing and photographs, and his books are a wellspring of useful guidance and ideas.

In developing this issue of *Woodturning FUNdamentals*, it would have been easy to compile another volume of holiday ornament projects. A lot has been published on the topic (check out *WF* v8n4—it's still a productive gold mine of holiday projects), and we will work our way back to the theme in the future.

This issue takes a slightly different tack on the end-of-year publication. In the following pages you will find seven projects for the kitchen and garden. Any of these projects would make a thoughtful gift for a family member or friend. Michael Hamilton-Clark's garden dibble and Rick Rich's potato masher should take no more than an hour or two of shop time.

Peg Schmid's simple stool and Walt Wager's utensil holder will take a little more time and tooling, but are still approachable, satisfying projects.

If you're willing to get sucked into a vortex, dive into John Kelsey's goblet article. Goblets are the woodturner's bar trick—they look mind boggling and difficult, but with a systematic approach and a couple of insights, they are within anyone's grasp. Part your first one off the lathe and you will feel a milestone passing.

—Don McIvor, Editor

Garden Dibble

By Michael Hamilton-Clark

Last fall my wife decided we should plant bulbs so there would be some color around the garden come spring. To make the job a bit easier than using a trowel, I turned a dibble (also called a dibbler or dibber), a tool I remembered from my childhood helping my mother plant bulbs.

For those who raise vegetables, dibbles have another application. A pair of dibbles and a length of string make an elegant system for marking out rows for planting.

A handmade dibble makes a thoughtful gift for gardening family members and friends. This is a straightforward spindle turning exercise that builds skills through creating simple profiles using a skew chisel and spindle gouge.

Design the tool

A search online turned up several shapes and sizes, but rather than simply copy something, I decided to make my own design (**Figure 1**).

The planting instructions for the various bulbs showed that the smaller ones (like Crocus) should be buried about 3" (8cm) deep, and larger bulbs (like tulips) about 6" (16cm) down. To accommodate this range of depths, I decided my dibble would have a 7" (18cm) tapered shaft with reference grooves in 1" (25mm) increments.

The top of the dibble—the handle end—would need a collar and a ball top to comfortably push and wiggle the shaft into the soil, and encourage a firm grip to extract the dibble from the earth. The bottom end of the shaft would be 3/4" (19mm) diameter, the top end 1-1/2" (4cm) in diameter, the collar 2" (5cm) and the ball handle at the top 1-1/4" (3cm).

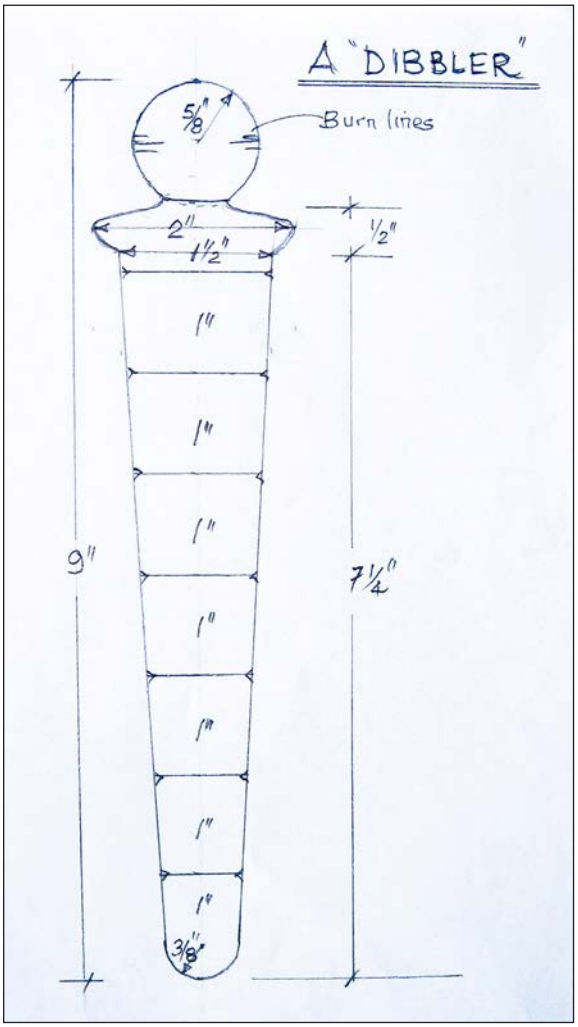


Figure 1. *If you don't know where you're going, you probably won't get there, so start with a plan. Notes and a simple sketch are usually adequate.*

Prepare the stock

Start with turning stock that is about 10" (25cm) long and about 2-1/4" (8cm) square. The dibble can be turned from hard- or softwood, though hardwood will outlive its softwood counterpart. Look for clear timber without defects, and because this tool will spend its life diving in dirt, save your fancy burl for another project. I used a section of a reclaimed oak handrail.

Rough the blank

Locate the center of each end and mark with a center punch. Mount the blank between centers using a spur drive in the headstock and a live center in the tailstock to engage the punch-

marked centers (**Photo 1**). Round the blank using a spindle roughing gouge (**Photo 2**).

Use a pencil to transfer the defining design elements to the blank. Mark out the total length of the dibble and the location of the top, center, and bottom of the collar. Locating the center of the ball handle is also helpful.

With these locations defined, use a parting tool and caliper to reduce the diameter of the blank down to its design dimensions at each of the pencil marks. A narrow parting tool is helpful for marking the top and bottom of the collar because the collar itself is narrow, and the connection to the ball handle is a tight cove. A narrow parting tool lets you define these locations without removing material required to define the ball and the collar. Because pencil marks are quickly turned away, the diameters established with the parting tool guide your cuts, helping you define the tapered shaft.

Form the shaft

Forming the shaft provides a good opportunity to practice skew chisel skills. Cut the taper with the heel (the shorter point) of the skew, maintaining bevel contact along the lower part of the edge while progressing away from the headstock (**Photo 3**). With these two actions the heel of the chisel does the cutting and the grain is supported, so a catch is less likely, and a cleanly cut surface is possible.

To establish the taper of the shaft, start by removing material from the collar (headstock) end. Work your way down towards the tailstock with each successive cut.

Checking progress with calipers shows how the taper is advancing. Use a thin parting tool to pare material from the bottom end of the taper. This defines the end of the dibble and the shoulder will be rounded away later with a spindle gouge.

Mark planting depths

Mark out the location of the depth rings at 1" intervals on the shaft (**Photo 4**), measuring from the bottom. Use the toe (long point) of the

1. *Securely mount the blank between centers using center-punched holes for alignment.*

2. *Round the blank using a spindle roughing gouge.*

3. *The long gentle slope of the dibble shaft provides a good opportunity to practice skew skills.*

4. *Use the long point of the skew to define the planting depth marks on the shaft.*

5. *Use a spindle gouge to create the simple bead between the shaft and handle.*

7. *Round the corners created by the coves to create the large bead form comprising the handle.*

skew to cut a groove at each location. Widen each groove by cutting in from each side at a slight angle.

Define the collar

Use a 1/2" (13mm) spindle gouge to turn the simple bead that defines the collar separating the shaft from the handle (**Photo 5**). Start at the center of the bead with the flute facing up and rotate the cutting tip through an arc. End each cut with the flute facing 90 degrees from where you started—pointing towards the headstock on the left side of the bead, and towards the tailstock on the right side of the bead.

Turn the handle

Like the collar, the ball-like handle is simply a large bead at the top of the form. Continue with the 1/2" spindle gouge to form this bead, cutting from the large center diameter towards

6. *Cutting a cove on either side of the handle quickly removes waste and creates space for subsequent tool movement.*

the top and bottom of the form. You may need to cut away some of the material at the headstock to give you access to the top of the ball. I usually leave about a 1/2" of material to support the blank; take care not to contact the spur drive with your gouge.

I like to begin turning the ball by cutting a cove at either side (**Photo 6**). These cuts are initiated with the gouge on its side (flute facing perpendicular to the lathe axis). Twist your wrist as you move through the cut, finishing with the gouge facing up at the bottom of the cut. From here I round off the edges of the cylinder to create the spherical profile (**Photo 7**). Always make these cuts from largest-to-smallest diameter.

Decorate

The decorative burn lines come next. Using the toe of the skew, lower the point gently into the rotating blank to make just-visible cuts in the handle. I use a wire pressed into the grooves to burn in the lines, using the friction generated by the rotating lathe. My wire burner is made with a metal guitar string and dowel handles at each end (**Photo 8**). Don't hold a wire with your fingers—it can get dangerously hot, and wrapping it around your fingers to hold it securely could lead to a gruesome accident. Use handles.

Sand and finish

Sanding and finishing your dibble requires you to balance your pride of workmanship against

8. *Use a length of wire to add decorative burn lines. The author uses a guitar's G string with handles added to each end.*

9. *Round-over the bottom of the dibble, leaving about 1/4" of material attached to the waste end.*

10. *With the lathe off, part the dibble from the waste material. A nokogiri (Japanese saw) is ideal for this task.*

the fact that this tool is in for a hard life. If your tool skills have produced a decent surface, you might consider not sanding at all.

Likewise, you could choose to apply no finish at all, but I opt for two applications of mineral oil to provide some protection from damp soil. Any oil finish would be suitable and can be easily renewed with another application at a future date.

Part-off

Make any final adjustments to the ends of the dibble with your 1/2" gouge. Continue to cut the arc of the ball handle towards to center of rotation, and round-over the tip at the bottom (**Photo 9**). Take light cuts, preserving about 1/4" of material at either end.

With the lathe off, use a saw to part the dibble from its waste material. I hold the dibble with one hand and the saw with the other (**Photo 10**). Sand off the saw marks by hand and fair the curves. Apply finish (or not!), and the project is complete (**Photo 11**).

Enjoy the process and the practice, and Happy Dibbling when bulb planting time arrives.

Michael Hamilton-Clark lives in the Fraser Valley, BC and has been turning for 15 years after retiring. His work is sold through craft shops and at shows; see more at alberystudiowoodturnings.com.

11. *The completed dibble.*

A Potato Masher For Any Kitchen

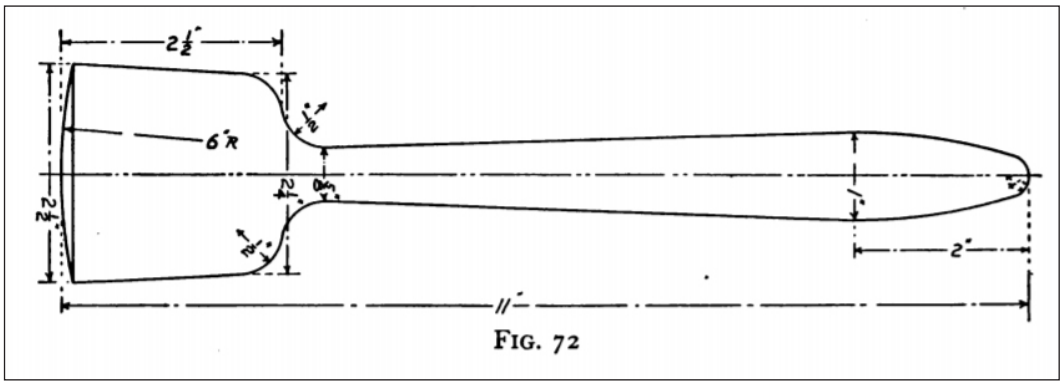


FIG. 72

"This little work is sent out with the hope that it may prove of practical benefit to those into whose hands it may come."

—George Alexander Ross, *Wood Turning*, Ginn and Co., 1909.

by Rick Rich

When *Woodturning FUNdamentals* sent out a call for holiday issue submissions, I had just been reading through George Ross's *Wood Turning*, published in 1909. Serendipity! Here was an invitation to write about turning practical objects while I was reading a book written in a time when most kitchen and garden gadgets were of wood and many were turned. Exercise XIII in *Wood Turning* is a potato masher. Anyone wanting mashed potatoes for dinner needs one in their kitchen.

A potato masher is simple to make and offers plenty of room for design variation. But I challenged myself to make one to the strict dimensions and radiuses depicted in the exercise drawing.

Choose a blank

Ross recommended maple for the potato masher. In truth, any tight–grained hardwood would do, but I am determined not to get off track at the start. The blank needs to be about 2-5/8" (7cm) square and at least 12" (30cm) long. With these parameters, I went to my firewood pile. My first blank had so many cracks from uncontrolled drying that the masher head ended up a quarter inch too small. I completed that one as practice and went scrounging for more firewood.

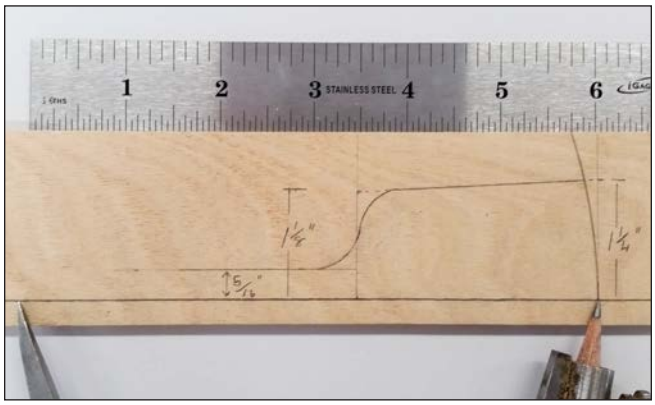
The second piece was a little thicker and after cutting it to 12" and hewing the edges with a hatchet to slightly round the corners, I was able to turn a properly sized blank.

Make a story stick

A thin, 12" piece of wood makes a useful story

Mining the Public Domain

Starting with widespread industrialization in the late 1800s, the need for a skilled labor force fostered "manual training" programs. Numerous texts were published to help develop that skilled labor pool, including formal instruction in the use of wood lathes. Many of these books now reside in the public domain and have been digitized for access. A quick search on "wood turning" in Google Books will turn up Ross's book and many more full of turning projects.



1. *Use calipers to set a pivot point 6" from the bottom of your story stick and draw an arc to establish the bottom of your masher.*

2. *Mount the blank between centers and bring it to round with a spindle roughing gouge. The right-most 4" of the blank should be 2-1/2" in diameter.*

3. *Use your story stick to transfer key features to the blank.*

stick for laying out and transferring dimensions. Because I am right-handed, it's easier for me to place the head of the masher on the tailstock end, so that is how I orient my story stick.

To calculate the 6" (15cm) radius circle over 2-1/2" (6cm) of the bottom of the masher, set caliper points to 6" (76mm), put the pivot point on the story stick centerline 6" from the end and draw the radius on the story stick (**Photo 1**). This will determine the arc of the bottom of the masher, and the transition point between the tapered sides and bottom of the masher.

Transfer the remaining measurements from the plan to the story stick and draw in the connecting lines. I like to file a slot at each cut line to capture my pencil, so the lines and subsequent cuts are consistent with each piece I make using the story stick. That's the purpose of a story stick; ease and repeatability.

Rough the blank

Locate the end centers and use an awl or center punch to mark the locations. Mount the blank for spindle turning between lathe centers. Use a spindle roughing gouge to round the blank (**Photo 2**). Maintain just over 2-1/2" diameter on the right 4" (10cm). The left side will be turned much smaller for the handle, so maintaining the 2-1/2" diameter on the left end is not critical.

Size the blank

Using the story stick, transfer the cut lines to the blank (**Photo 3**). With outside calipers carefully set to just larger than the design dimensions (by about 1/32" (1mm)), make the sizing cuts with a parting tool, letting the rounded caliper ends slide over the work to identify the end of each cut (**Photo 4**). The extra material, though minimal, will give you the latitude to achieve the design's exact dimensions after completing the final smoothing cuts and sanding.

4. *With a parting tool and calipers, cut down the blank to a hair shy of the final design diameter at each feature location. Use a skew with a peeling cut to quickly remove waste from the handle.*

6. *Continuing with the spindle gouge, cut the 1/2" arc at the transition from the head to the handle.*

Shape the head

Cut the curved face of the masher with a spindle gouge, leaving a 1/2" (12mm) of material to support the blank at the tailstock (**Photo 5**). This is a steep cut across endgrain, so present the gouge with the flute almost perpendicular to the axis of rotation.

Cut the 1/2" radius that defines the head–to–handle transition, cutting from larger-to-smaller diameter (**Photo 6**). Again, the spindle gouge is the tool of choice for these cuts.

Using a skew chisel, define the gentle slope of the head (**Photo 7**). Cut downhill towards the headstock.

5. *Use a shearing cut across the endgrain to establish the curve of the bottom.*

7. *Use a skew chisel to create the gently sloping side of the head.*

Turn the handle

After the sizing cuts on the handle with the parting tool, use the skew presented flat on its side to make a series of peeling cuts to quickly remove waste material. Keep the rough handle dimension at least an 1/8" (3mm) oversize as the peeling cut can tear the wood.

Using the skew to make shearing cuts, refine the handle shape, working from larger–to–smaller diameter. From the 1" (25mm) diameter mark near the top of the handle, make a long smooth cut to the 5/8" (19mm) diameter near the head. Now flip the skew over to cut from the 1" radius down to the 1/4"(6mm) radius at the handle top. Use the parting tool to create some space in the waste areas at the head and handle top.

8. *Use the skew chisel to form the top of the handle, which is similar in form to a half bead.*

The handle tip is in the form of a half bead, a shape that is best achieved with a skew (**Photo 8**). Leave a small amount of waste material connecting the blank to the drive here for removal after parting off. If the waste at the tailstock side is a bit large, it too can be reduced in diameter at this point. The long point of the skew or a spindle gouge works equally well.

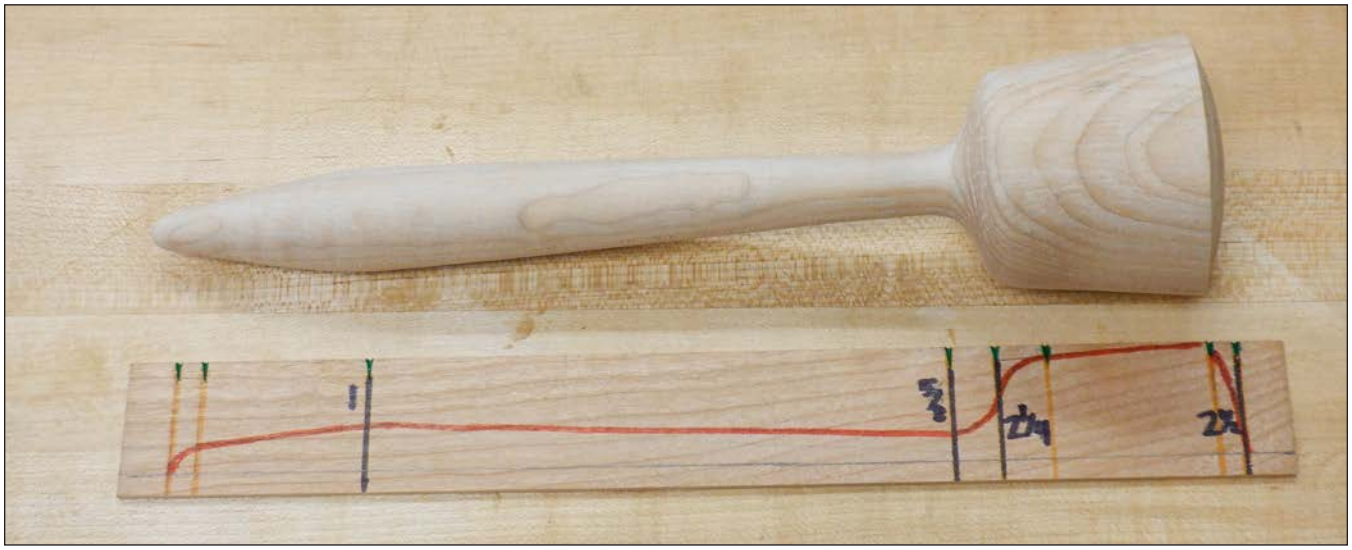
The smaller these connecting points, which I call "nubs," the easier it will be to separate the masher from the waste ends. With only a little hand sanding, it will be difficult to see how the piece was held on the lathe.

Sand and finish

Sand to 180-grit or so, remembering the utilitarian purpose of the potato masher. No finish is called for, so I applied none. You may do as you like of course, using an oil finish and giving it ample time to cure before food contact.

Remove the blank from the lathe and cut off the nubs with a sharp chisel. Sand the ends to remove the remnants of the nubs, and your potato masher is ready for kitchen service!

Rick Rich is a part-time woodturner from Washington State. He is a member of the AAW, the Cascade Woodturners in Portland, OR and a founding member of the Southwest Washington Woodturners in Vancouver.

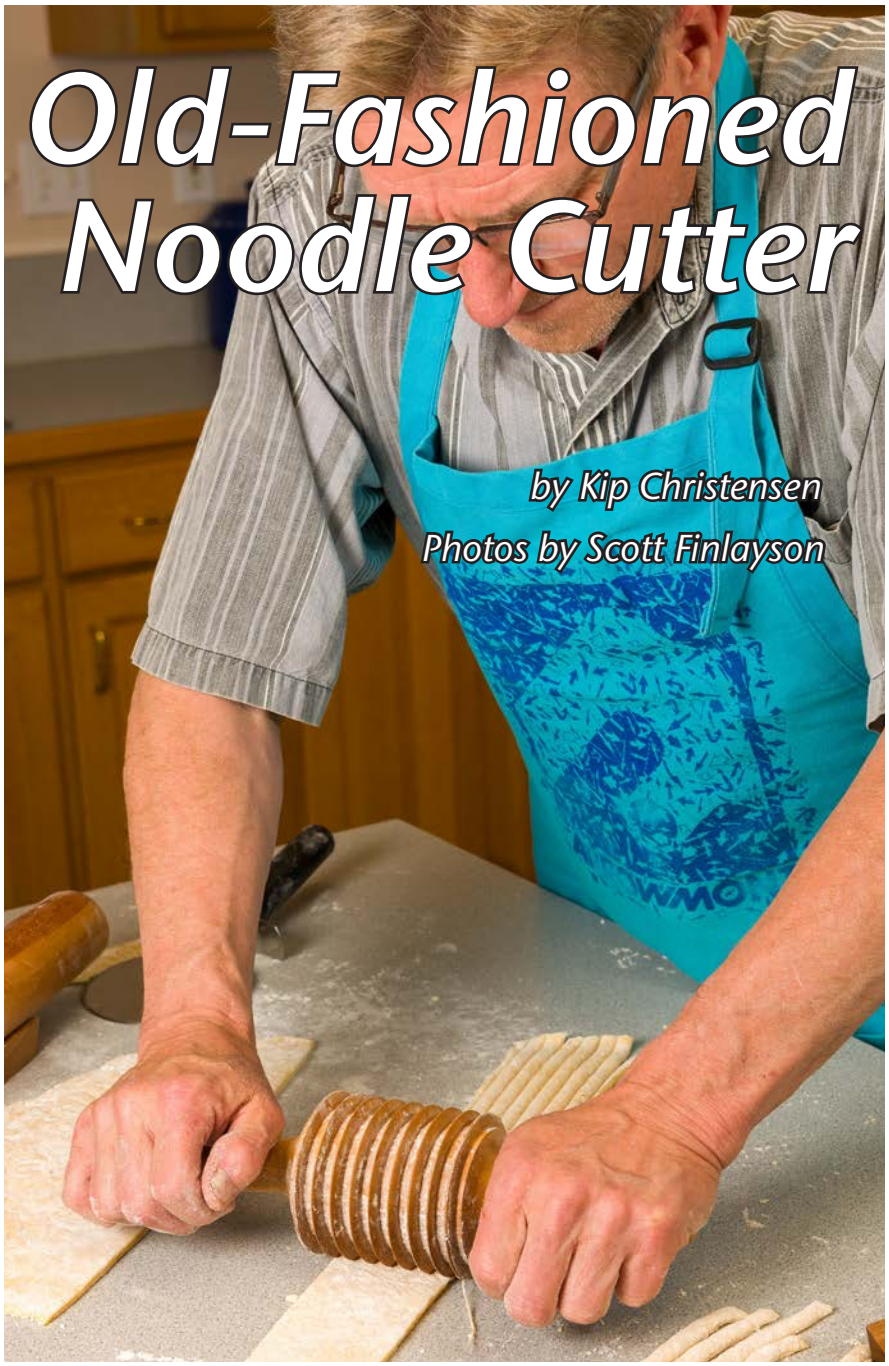


❐

Old-Fashioned Noodle Cutter

by Kip Christensen

Photos by Scott Finlayson



We all have fond memories of eating favorite foods with favorite people. For me, one of those memories is time spent around the kitchen table with my family eating my mother's home-made chicken-noodle soup. She always made her noodles from scratch. They were thick, hearty, and delicious. My wife and I have carried on the tradition in our own home.

This article shows how to turn a simple noodle cutter, much like the one my mother had. I have included the family noodle recipe from my mother's cookbook. The dimensions of the noodle cutter I give here can be easily changed to fit the width of noodles and the handle shape you prefer.

I start with a piece of wood that is approximately 3" × 3" × 12" (8cm x 30cm). Use dry wood that is dense with straight, close-grain, and is free of defects and knots. I like to use fruitwoods (apricot, pear, cherry, apple, plum) and their ornamental cousins. Hard maple also works well. The wood used here is Bradford pear.

Prepare the blank

Mount the wood between centers and bring the toolrest into position. Use a spindle roughing gouge to turn away the square corners (**Photo 1**).

To aid in making a straight cylinder, adjust the toolrest,

1. *Round the blank using a spindle roughing gouge. Orient the toolrest parallel to the bed to guide your cuts and create a uniform cylinder.*

so it is parallel to the lathe bed, then make cuts parallel with the toolrest. In the center 6" (15cm), take light cuts to smooth the surface and eliminate torn grain. Check with calipers to ensure that this section is uniform in diameter, then use a wide strip of 150– or 220–grit abrasive to sand the center section flat and clean (**Photo 2**).

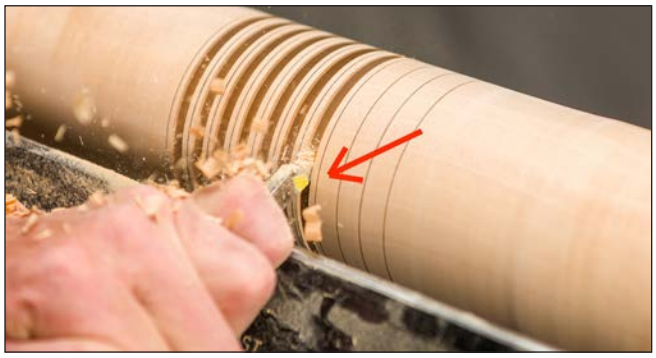
Determine the desired width of the noodles you will be cutting. This can range from around 3/8" – 3/4" (9 –19mm). You can also design your noodle cutter to cut several different widths of noodles if desired. The noodle cutter shown here will cut eight 3/8"–wide noodles.

To layout the cutters, mark a line in the center of the length of the spindle. Make five marks on each side of the centerline, each spaced 3/8" apart (for a total of eleven lines). When making the layout lines, first measure carefully and mark a short, fine line (**Photo 3**).

Next, lengthen the lines to about 1"– (25mm) long while rotating the spindle by hand (**Photo 4**).

Turn on the lathe and extend the lines around the cylinder.

These layout lines show where the peaks of the cutters will be—the two outside lines will be removed when laying out and turning the handle.



5. *Establish the cutter depth using a parting tool with the cuts centered between pencil marks. The arrow points to yellow tape applied near the tool tip to act as a depth gauge.*

2. *A wide strip of abrasive makes for efficient sanding—it's easy to grip, easy to move about to keep the wood from over–heating, and helps maintain a uniform profile on the cylinder.*

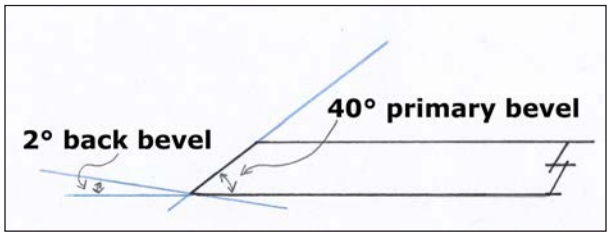
3, 4. *Mark the locations of the cutters, 3/8" apart, and extend the lines around the cylinder.*

Cutters

Use a 3/16" (5mm) parting tool to make a cut centered between every set of layout lines. To help make cuts to a consistent depth, I put a piece of tape on the parting tool to show the depth of cut (**Photo 5**). I usually make these parting cuts 5/16"– (10mm–) 3/8" deep.

6, 7, 8. *Shape each side of the cutters by presenting the parting tool at an angle to the cylinder. The left image shows cutting the left side of a tooth; center image, right side. In the right image, the five left cutters are fully formed.*

Modified parting tool



To shape the cutters, I use a parting tool that is rectangular in cross-section and profiled for peeling cuts. The primary top bevel is ground at 40° and continues the length of the tool face. I grind an 1/8"- (3mm-) long (or less), 2° back bevel on the bottom to form the cutting edge on the tip of the tool. When peeling with a parting tool the tool handle is held at a low angle relative to the wood.

I use a 1/8"-wide parting tool to shape the cutters (see sidebar). The cut is made by scraping the endgrain on the sides of the cutters. The top edges along the long bevel of the parting tool do the cutting (rather than the end of the parting tool, as is typically the case) (**Photos 6, 7**).

Be careful to shape both sides of the cutters so they meet at the center of the layout lines without completely cutting the lines away (**Photo 8**).

Handles

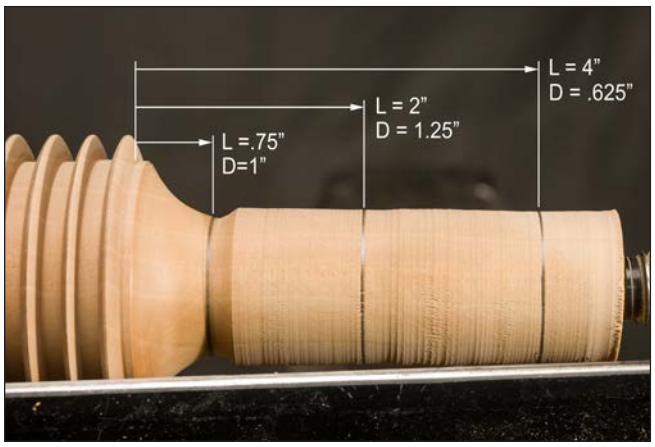
After all of the cutters have been formed, use a parting tool to remove some of the excess wood where the transitions to the handles begin (**Photo 9**). This reduces the possibility of accidentally gouging into a cutter near the handle area.

I like to use a 5/8" (16mm) shallow spindle gouge to remove most of the excess wood in the handle area, leaving the handle about 1-1/2" (4cm) in diameter (**Photo 10**).

I use a 3/8" spindle gouge or detail gouge to make the final cuts on the cove that transitions to the handle (**Photo 11**).

Now lay out the handles. Make all length measurements beginning from the bottom of

9, 10, 11. *To form handles, remove waste material adjacent to the cutters to provide working space. Move to a large spindle gouge to reduce the diameter of the blank before switching to a 3/8" spindle gouge to begin refining the handle shape.*



12. *Lay out the dimensions for each handle.*

14. *Shape the handle using a spindle gouge and the guiding depth cuts highlighted with pencil. Cut from high-to-low to support the grain.*

the outside cutters (**Photo 12**). First, measure over about 3/4", then mark a line to show where the bottom of the cove will be. Second, measure over about 2" (5cm) and mark the position of the bulge in the handle. Finally, measure over about 4" (10cm) to indicate the end of the handle.

Set the diameter measurements on outside calipers and use the parting tool and calipers

13. *Use calipers and a parting tool to establish the diameter of each handle's elements.*

to cut the position and depth of each layout setting (**Photo 13**).

After these layout cuts have been made, mark the bottom of each cut with a bold pencil line.

Working between the layout lines, shape the handle using the layout cuts as a guide (**Photo 14**). I like to think of this as drawing a dot–to–dot picture, but on the lathe. The end of each handle should have at least 1/2" (13mm) of excess length. For support, leave the wood at the ends of the handles about 5/8" diameter until after most of the noodle cutter has been sanded.

Sand

The cutters should need very little sanding. I usually start with 220- or 320-grit abrasive and progress to 400 or 600 grit. I like to cut narrow strips of sandpaper to sand the valleys between the cutters (**Photo 15**).

To sand the sides of the cutters, cut sandpaper strips about 3/4" width and fold them to create a crisp corner to reach into the bottom of the valleys (**Photo 16**). Take care to not remove the sharp edge or reduce the diameter at the peaks of the cutters. Also, sand the handles up to the bulge. To sand the large cove, roll the

15, 16, 17. *Sand the valleys of the cutters using a narrow strip of abrasive. A small, tightly folded piece of abrasive will address the cutter sides and keep details crisp. A rolled sheet of abrasive preserves the flowing curves of the handles.*

sandpaper into a cylinder slightly smaller than the radius of the cove (**Photo 17**).

After this sanding stage is complete, I like to apply a coat of finish to the cutters and up to the center of the bulge on the handles (**Photo 18**). For the initial coats I use Waterlox or Watco oil to seal and strengthen the wood fibers. For

18. *A narrow applicator distributes oil between cutters. Never wrap the applicator around your hand or fingers, or you risk entanglement and injury.*

19. *Reduce the waste material at the attachment point for each handle. A 1/4" diameter of material will support the cuts.*

maintenance coats I use a kitchen oil such as Mahoney Utility Finish or mineral oil.

Complete handles

Before shaping the ends of the handles, turn away the waste wood by making careful parting cuts to about 1/4" (6mm) diameter (**Photo 19**). Finish turning the handles to shape.

After turning and sanding the final shape of the handles, reduce the diameter of the waste wood to about 1/8", or slightly larger if you are averse to working on the edge (**Photo 20**) This should prevent the wood from tearing into the end of the handle when the excess wood is broken off.

20. *With gentle shearing cuts, round the tip of the handle using a spindle gouge.*

21. *Break, saw, or carve the waste block away from the handles. Use a sharpened skew chisel, bench chisel, or knife and abrasives to finish each handle tip.*

Remove the noodle cutter from the lathe, and break away the waste wood (**Photo 21**) or cut it away with a hand saw.

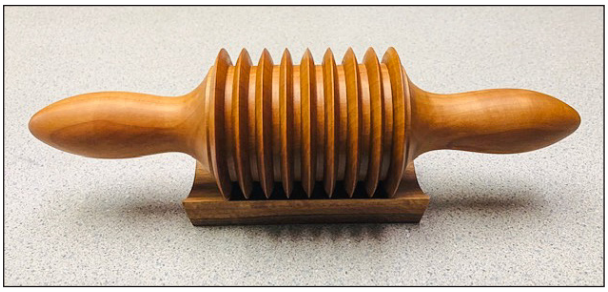
Using a sharp carving chisel or skew, carefully pare away the excess wood at the ends of the handles. Finally, hand-sand the ends of the handles, and apply finish; then apply additional coats of finish to the noodle cutter (and allow the finish to cure) before using it to cut noodles.

Care

I do not recommend washing the noodle cutter with water. Usually, the flour can simply be wiped off using a rag. If water is necessary to clean the noodle cutter, be sure to dry the wood immediately afterward. After each use, I usually re-coat the noodle cutter with Mahoney Utility Finish or mineral oil, then wipe away the excess oil.

Kip Christensen recently retired after 32 years of teaching wood prototyping, furniture design, and manufacturing at Brigham Young University. He has a particular interest in woodturning education and has authored several articles and DVDs.

Rock the cradle



I use a cradle to corral and display my noodle cutter. I start with a board about 1" x 1.75" x 48" (2.5cm x 4cm x 122cm). I use a table saw to cut a cove the full length of the board, then I cut the board to shorter lengths as needed. For aesthetics, I make angled cuts on both the edges and the ends of the cradles.

Making noodles

Beat 3 or 4 eggs
Add 1/2 teaspoon of salt per egg
Add 1/2 teaspoon of baking powder per egg
Add flour to make stiff
Mix, roll, and cut
(Condensed from The Family Food, Zoe Christensen, 1989.)

Use a rolling pin to roll out the dough, 1/8" – 3/16" thick. Use a pizza cutter to cut strips of dough slightly narrower than the width of the noodle cutter. Before cutting the noodles, generously coat the dough and cutter with flour. Use consistent, moderate pressure to roll the cutter through the dough (see opening image).

❐

A Drying Stand for Plastic Bags

by Phil Cottell

Re-using plastic storage bags requires each bag to be cleaned and dried. Until recently in our kitchen, that meant finding bags air drying over pot handles, kettles, coffee pots, faucets, drink bottles, and any other kitchen item over which they could fit. This is a little unsightly, so I looked for a better way to dry the bags. The idea for a stand of drying trees for the kitchen was born the day I draped a newspaper delivery bag over one of my turned outdoor garden decor trees.

Materials

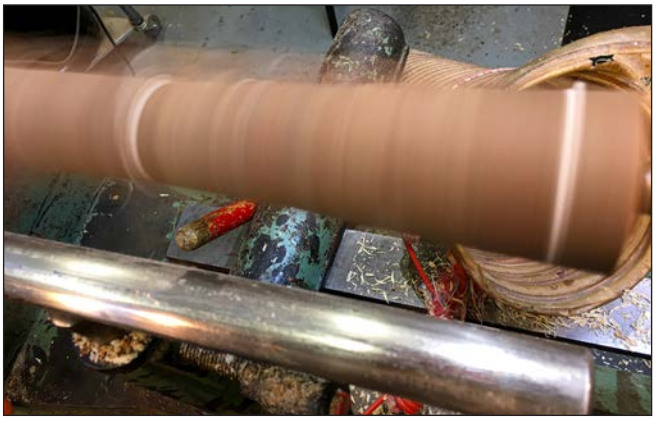
You will need a dry tree branch for each bag, a base board of sufficient length for spacing out the turned trees and with adequate width for stability, and three dowels. I started with about 3" (8cm) diameter—dry and reasonably straight—Pacific yew branches, a 16" x 4-1/2" x 1-3/4" (41cm x 11cm x 4cm) board, and three 3/8" x 1-1/2" (9mm x 4cm) dowels (**Photo 1**).

1. *Wood needs are modest for this project. These Pacific yew branches will have good color contrast and the knots will add character. Note the V–notch sled, an essential jig for safety when cutting round objects on a bandsaw.*

2. *Crosscut a branch to length on the bandsaw. Cradle the branch in the V block to prevent rotation into the blade.*

3. *A center finder is handy for irregular cross sections.*

4. *The blank mounted between centers and checked for clearance from the toolrest. The 15" rest was custom made for the author.*



5. *Define the base of the tree crown, aiming to keep a ring of tight tree bark.*

Making the Trees

I cut the branches to 15" (38cm) with the bandsaw (**Photo 2**). I do my best to cut the ends perpendicular to the axis of the stem, using a V block to prevent the rounds from rolling into and jamming the saw blade. I find the center of each end and mark the location with an awl (**Photo 3**). I decide to arrange the knotty sections and swirly grain at the top of the tree.

I mount a branch between centers on the lathe (**Photo 4**). Rotating the blank by hand reveals that the bottom of the tree's crown would be unevenly cut, with too much bark on one side and little or none on the other. Moving the tailstock point resolves the problem but creates a lot of air to be cautiously turned at the crown.

After donning safety gear and ensuring the tailstock, banjo, and toolrest are all secure, I rotate the wood by hand to check clearance, then start the lathe at slow speed. I increase the rpm until some vibration becomes noticeable, then back off the speed until the lathe runs smoothly. I cut a 2-1/2" diameter tenon about 3/8" long at the base of the stem with an 1/8" parting tool, re-mount the blank in a four-jaw chuck and re-establish the live center position, tightening the chuck and quill snugly.

I proportion out the stem and crown (**Photo 5**), more-or-less following the golden mean by

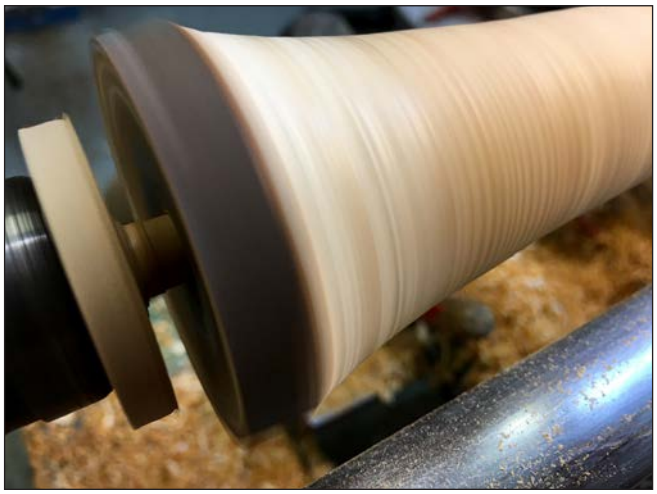
6, 7. *Define the bottom of the crown and shape the tree top.*

8. *The crown and trunk are shaped using the same tools and techniques.*

assigning 1/3 of the length to the crown, 2/3 to the stem. With a 5/8" (16mm) bowl gouge slightly open and facing toward the tree base, I define the bottom of the crown, being careful to preserve the ring of bark at the transition point (**Photo 6**). I shape the crown, allowing about 1/2" (13mm) of waste at the top, working from the base of the crown toward the top. You can initiate this process with the bowl gouge, then move to a 1/2" spindle gouge, 1" (25mm) spindle roughing gouge, or 1" skew (**Photo 7**).

The trunk is next, again working from the base of the stem toward the bottom of the crown, using the same gouge or skew sequence as for the crown (**Photo 8**). A slight flare at the base, retaining some bark, is an attractive design feature, followed by a gradually curving taper of the stem toward the crown. Looking at the work sideways gives a better sense of the stem thickness and proportions.

I don't sand the trees, except at the tip where they are parted off, preferring the texture created by the tools. In this case, dust from yew and laburnum is toxic, so I create as little as possible. The top is parted off with the parting tool or skew, but it could alternatively be sawn off and the remaining waste carved away and the tip hand–sanded. With the live center disengaged, the bottom of the tree is parted with the parting tool while lightly holding the rotating stem, creating a slightly concave



9. *Undercut the base with a parting tool, leaving about 1/4 " waste material between the base and the drive center.*

underside so that it sits flat on the mounting board. Leaving 1/4" (6mm) of waste wood adjacent to the chuck jaws reduces the risk of contacting the rotating chuck (**Photo 9**).

Repeat the process for each of the trees, allowing dimensions to vary for interest.

To drill the mounting holes in the bottom of the trees, hold the trees in a wood-jawed vise (**Photo 10**). Use a succession of bits from 1/8" – 3/8" (3mm - 10mm) in a hand-held drill, also held as level as possible, to drill 3/4"– (19mm–) deep holes in each form.

10. *Aligning the bit with the tree trunk, drill a 3/4"–deep, 3/8" hole in each base. Working up to the final diameter will mitigate the challenge of drilling into endgrain.*

The mounting base

You can use any available board for the base, keeping in mind the need to provide stability for the trees. My first base was 16" x 3" x 3/4" maple. It is sufficiently stable on the counter, but too light and narrow for a windowsill, as quickly pulling off a bag might tip it over. The project demonstrated for this article probably over–corrects with the much larger block of yellow cedar that I chose.

After squaring and trimming the board, arrange the trees to determine their spacing. Mark and drill the dowel holes about 3/4" deep with a drill press or handheld drill with a guide. Before attaching the trees, rout, plane, or sand the edges of the board. I sand the entire board with a random orbit sander up to 180 grit.

Finishing

Test fit the assembly, check for any rough spots that may need attention, remove dust, then disassemble everything and apply two coats of a water resistant, hard drying finish. My preference is either tung oil, wipe–on polyurethane, or in this case, Osmo oil/wax. Once cured, reassemble (the trees are not glued to the base for convenient storage) and you're job is done (**Photo 11**).

The stand becomes a kitchen sculpture when it isn't in active use as a bag dryer. The stand can be washed and refinished on occasion if it starts to look dowdy.

Final thoughts

This stand is true to its inspiration and follows the conifer tree form. Other possible forms include tall cones, long stemmed mushrooms, flowers, tubes, or broad–leaved trees. And your forest could have fewer or more trees as kitchen

11. *All elements have been sanded and finished, the board and tree bases drilled. Next step, assembly.*

space allows. The base could be any shape, as long as the bags hang free of one another while drying. The forms need to be tall enough that open space at the bottom allows air flow for your largest bags. The dowels holding the trees securely upright can be removed for storage, cleaning, and shipping. Almost any wood species could be used. Those with interesting color contrast of bark, sapwood, and heartwood are the most dramatic, and add a sculptural aspect to their utilitarian function. Alternatively, the components could be carved, painted, textured, or pyrographed.

This round base design is a more organic alternative to the dimensioned lumber. Make sure the base is sufficiently large and has enough mass to counter–balance a plastic bag draping the tree top. Each tree could have its own base and be arranged in the kitchen according to available space and the number of dryers needed.

Enjoy the satisfaction that comes from making something useful from materials readily at hand, and in reducing the amount of plastic going to landfills.

Philip Cottell is a founding member of Island Woodturners Guild, Vancouver Island, a Chapter of the AAW, and has served on the executive. He and his wife, Donna, enjoy retirement in Brentwood Bay, BC, with their re-homed smooth collie, Raven.

Accommodating a design change

If your tree needs to go on a diet, it is easy to return the form to the lathe. The photo shows a tree remounted for turning. The drive is a waste block in a four-jaw chuck with a 3/8" dowel in the center; the top is held in a cone in the live center. Even a small cup drive would be adequate, and a piece of shop towel between the tip of the tree and the cone will reduce the chance of marring the top.

Goblets

by John Kelsey

Goblets are often recommended as a beginner exercise, in part because there is so much to be learned by turning this form. But I'd never turned one until this past spring when my friend Roy called to offer storm-felled Bradford pear. My favorite turning wood! We each wrangled a carload and, since I know Roy likes goblets, I wanted to make one for him. Three dozen goblets later, I'm beginning to understand them.

A goblet combines spindle turning with endgrain hollowing. The basic form consists of five elements: foot, base, stem, bowl interior, and bowl exterior (**Photo 1**). Each curvaceous element transitions to the next; these are the details where the devil resides.

One-piece goblets are always turned from the tailstock toward headstock, that is, rim toward base, using the mass of the wood for stability. Because the workpiece hangs off the scroll chuck without tailstock support, aggressive cuts and catches will yank it loose. You have to get on top of your techniques; fortunately there's a lot of wood to remove while practicing.

1. *A goblet consists of five curvy elements, separated by crisp transitional details.*

Wood

The demonstration project was made from a pear turning blank, 2-1/4" square and 6" (6cm × 15cm) long, that was put up to dry in 2018. You can use almost any hardwood; colorful fruitwoods like pear, cherry, and apple turn cleanly and crisply and finish beautifully. This size blank yields a goblet about 4-1/2" (11cm) tall and 2"–plus (5cm) in diameter. For a challenge, make a matched set of two, maybe four, and go bigger. I soon learned that a 3" (8cm) square takes considerably more skill and finesse—that's how I got to three dozen. Hey, they'll make great gifts.

Tools

Much of the job can be accomplished with a single 3/8" or 1/2" (10mm or 13mm) gouge, but it helps to have two—one with a longer bevel and sharpish nose for inside work and one with a shorter bevel and rounded nose for the outside and stem. These grinds represent the basic

2. *Gouges. Bowl gouge (bottom) has a round nose and steep bevel, spindle gouge has a pointy nose and long bevel. Both bevel heels have been rounded over to avoid scuffing.*

3. *Negative rake scrapers. Nearly straight for bowl outside, heavy roundnose for bowl inside, small roundnose for detailing the stem and foot.*

difference between a bowl gouge and a spindle gouge; it's subtle, and making a few goblets helps clarify their strengths and weaknesses (**Photo 2**).

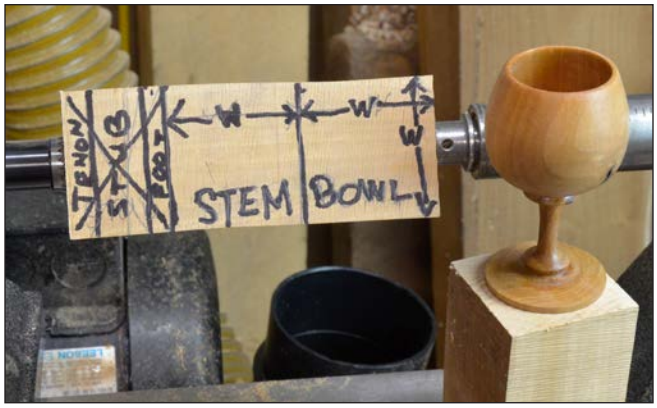
Cleanup scrapers are helpful. Mine are all negative rake because I'm using them only for finish cuts (**Photo 3**). To complete the kit I add a spindle–roughing gouge, and a parting tool or a small skew for the chucking tenon and detail clean–up.

Roughing to round

Mark the center on both ends of the blank to mount between a drive center and a tail center, and turn to round using the spindle–roughing gouge. With a bit of practice you can orient the flute to throw chips away from you. To clean up the cut with the gouge side wing, roll the flute toward the direction of travel and push it along the toolrest.

Now study the wood. Reject the blank if it has any long deep cracks, and decide which end will be the bowl and which the foot. Orient gnarly and flashy figure to become the bowl or the base, but avoid it in the stem.

Mark the bowl depth, typically the diameter of the workpiece (**Photo 4**). Mark the same distance for the stem, add a bit more for the base, and be sure there's a stub of at least 1"



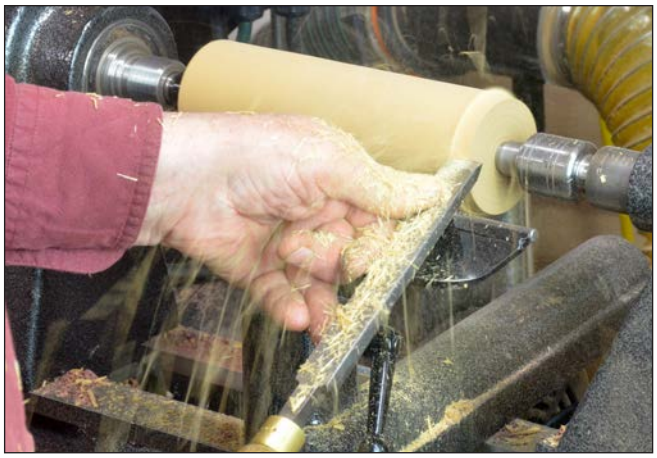
4. *Square billet 2" x 6" is marked out for a small goblet.*

(25mm) between base and chuck—you'll need it to complete the foot and part off. Also eyeball or mark the bowl's belly or widest diameter: would that be toward the rim, midway, or toward the stem? Check out glassware for design ideas.

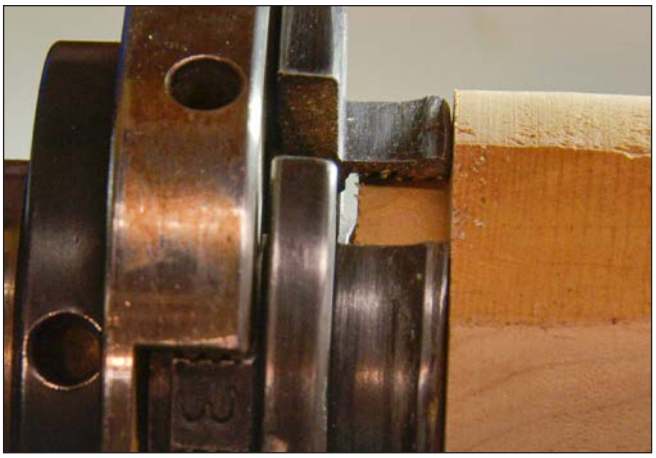
Use the parting tool or skew to cut a chucking tenon on the foot end (**Photo 5**). Dimension and shape the tenon for the chuck's best gripping diameter, which should be small enough so the jaws do not extend beyond the chuck body (**Photo 6**). You'll be working in close, and extended jaws are knuckle-busters.

Shaping the bowl

Make the bowl in three stages: shape the outside, hollow the inside, then pare the



5. *Chucking tenon. Skew chisel cuts the tenon and makes a square shoulder.*



6. *Chucked. Tenon's shoulder bears on chuck jaws, it does not bottom out in the chuck.*

outside bottom to match how the inside ended up. To begin, mount the foot tenon in the scroll chuck and bring up the tailstock for support. If the remounted cylinder does not run true, return it to true using the spindle gouge, roughing gouge, or skew chisel, and pare off the tail end close to the live center.

With the tailstock still engaged, begin to cut in with the spindle gouge where the bowl bottom will transition into the stem, and shape the outside curve from the belly toward the rim (**Photos 7, 8**). These initial cuts reveal how the wood behaves under the gouge. It's also the best moment for completing the outside of the bowl from belly to rim: cut and scrape it smooth and fair, and sand to 120 grit (**Photo 9**).

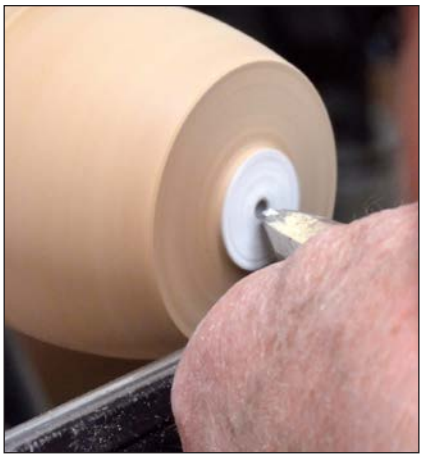
Boring with a gouge

Tighten the chuck, withdraw the tailstock, and be sure to remove the pointy tail center before it jabs your elbow. To bore a starting hole, position the toolrest square to the lathe axis, close to the workpiece and about 1/2" below center. Cut a small starter dimple, then raise the gouge handle and plunge straight into the endgrain to bore (**Photos 10, 11**). The gouge works the same as a traditional spoon bit. Roll and wiggle to help it cut, and withdraw frequently to clear chips (**Photo 12**). If this maneuver scares

7. *First cuts. Spindle gouge locates the neck between bowl and stem.*

8. *Belly to rim. Spindle gouge shapes a fair curve toward the rim-to-be.*

9. *Smooth. Flat sanding block eliminates the last lumps and bumps.*



10. *Center. With tailstock support removed, bowl gouge's sharp nose makes a starter dimple.*

11. *Plunge. Push the gouge straight into the workpiece, rotate and wiggle sideways to cut.*

12. *Chips. Withdraw the gouge frequently to clear the swarf. Tape marks depth.*

13. *Hollowing. The gouge is level and rotated to cut as the handle swings to the right.*

you, make the starter hole with a drill chuck and 1/2" bit instead. Bore the hole to 1/8" less than the final depth.

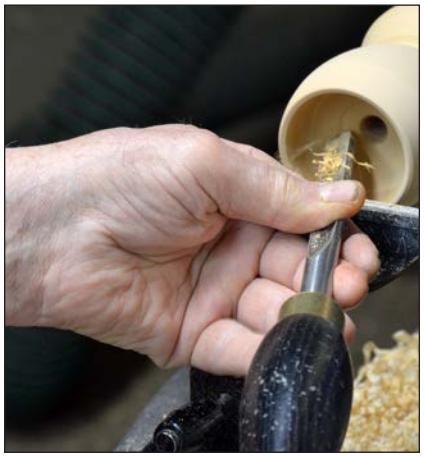
Hollowing

Gently stroke the edge of the gouge on the left wall of the hole to enlarge it (**Photo 13**). This requires pivoting the gouge on the toolrest, swinging the handle toward the far side of the lathe so its bevel rides the wood while its

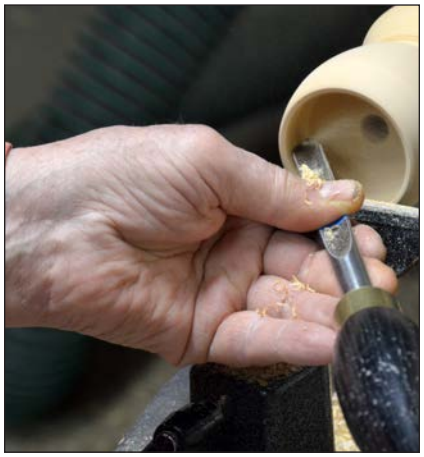
14. *Shavings. The gouge slices sidegrain inside the goblet, making shavings not dust.*

wing pares beautiful shavings, not dust or chips (**Photo 14**). Each stroke goes a little deeper to develop the bowl's inside shape. When you approach it as sidegrain, and this is the key to endgrain hollowing, the wood inside the bowl cuts as easily and cleanly as the wood outside.

Check the depth and wall thickness with fingers as you go, and try to complete the top inside, from belly to rim, before digging to full depth (**Photos 15, 16**). If the wood begins to vibrate, you'll feel chattering and hear it squeal. Back off and look at exactly how the tool edge and bevel



15. *Top half. To avoid chatter, complete the top half of the bowl before digging deeper.*



16. *The gouge handle goes far to the right as the cut approaches the rim.*

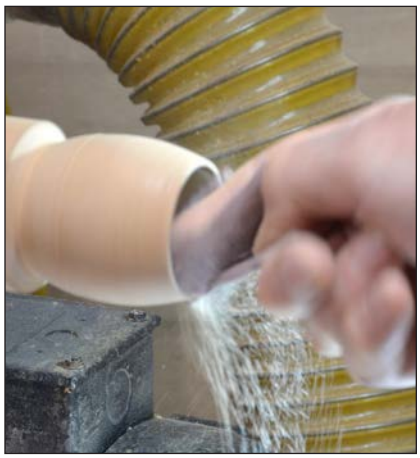
engage the wood. Control chattering with tiny adjustments in the angle and rotation of the tool, by taking short, light passes, and by supporting the workpiece with your fingers. Chatter is difficult to scrape and sand away—best to get on it as soon as you hear the tell–tale squeal.

Cleaning up

The inside cut gets difficult toward the bottom of the bowl, and a catch probably will yank the workpiece out of the chuck. Go as far as you can with gentle, chatter-free gouge cuts, making the bottom round and smooth. Clean up with a heavy, negative-rake round-nose scraper with a freshly ground burr, starting at bottom center and swinging the handle to steer the cut across and up the wall. Use the tailstock to support your shoulder and upper arm, while your forearm aligns over the top of the scraper handle and the cutting tip reaches into the bottom of the goblet. A regular scraper would be way too aggressive here. Stroke any center nub gently with the tool tip and experiment to find a movement that whittles it away. Sand the inside of the goblet before cutting the stem (**Photo 17**).

Rim and bottom

The rim of the bowl transitions from the inside to the outside. A flat or gently rounded rim displays the actual wall thickness; some turners make the rim quite sharp so the goblet looks thinner than it actually is. If you approach the rim head-on from the tailstock side, the wood is liable to vibrate and shatter. Instead, nibble it with small cuts that move toward the tailstock, inside and out.



17. *Sanding. Make the inside smooth before turning to the goblet stem.*

Gauge the bowl bottom thickness with your fingers (see back cover). It's probably too thick but that's okay— now you can recut the outside bottom to match the completed interior. Go gently with the spindle gouge down toward a neck that is less than 1" in diameter (**Photos 18, 19**). Clean up lumps, bumps, and torn grain with a small scraper, and sand the bowl from 80– or 120–grit up to 320, inside and out. Before going any farther, complete the bowl. Once the stem has been formed, you won't be able to do anything to it except sand gently.

18, 19. *The bowl gouge shapes the outside bottom of the bowl to follow its inside shape, and begins to waste the stem. Brace your right hand against your body for stability, left hand firmly on the toolrest, and pull the tool by clenching the fingers of your left hand.*


20, 21. *Fillet, stem, and base. The tip of the bowl gouge cuts a clean transition fillet between the goblet and its stem. The sharp spindle gouge pares away unwanted wood from large diameter to small.*

22. *Support. An overhand grip steadies and supports the slender stem, while the thumb helps control and propel the finishing scraper. Mandrel on live center, right, supports the turning.*

Stem

It's best to start this next series of steps with a fresh edge on all your tools. A short stem is easy to cut in stages from the bowl toward the base (**Photos 20, 21**). With the bowl or spindle gouge, reduce the whole of the stem down to half of its diameter. Then bring the toolrest in close and work your way toward the headstock an inch or half-inch at a time, paring each section to final dimension before moving on. Support and stabilize the slender stem with an overhand grip, left fingers wrapped over the workpiece while the left thumb pushes and controls the tool (**Photo 22**). To support a long stem, make a tapered wooden mandrel to fit onto a revolving tail center, and bring it up to the bowl rim. With the lathe shut off, make sure there is good contact without pressure. The mandrel can stay in position until parting off.

The first portion of stem includes a transition to the bowl, which can be smooth, or interrupted by a fillet or shoulder; for visual harmony, the detail here should be duplicated at the base. Cut a small fillet with the bowl gouge, aiming to continue the curve of the bowl into the stem on either side of the offset.

Base, foot, and parting off

The base and transition to the stem look best when they're about the same shape as the corresponding transition at the bowl. It's cut the same way too, with a newly sharpened gouge and close toolrest. The base will look best when its thickness about matches the bowl walls, at a diameter visibly smaller than the bowl's. How thin and small depends not only on your eye but also on completing the foot without a catch. Make room to work by reducing the 1" (25mm) stub; the bowl gouge leaves a cleaner surface than the parting tool (**Photo 23**).

When the stub has been reduced to a 1/2" dowel or less, and the foot has been nicely undercut, shape and clean up the edge of the base to match the rim of the bowl. It's too late to adjust details now, but if you really must, try a sharp little scraper with finger support for the workpiece. Finish-sand the entire goblet inside and out to your final grit.

23. *Stub. The gouge reduces the stub between goblet and chuck, making room to work.*

24. *Parting off. Be sure to catch the goblet with one hand while you part off with the other.*

25. *Cleanup. Carving gouge tidies the base. Hold the goblet so your fingers are not in the tool's path!*

To part off, reach over the lathe with your left hand to hold the stem of the goblet while you steer the gouge one-handed into that last little bit of stub (**Photo 24**). Finally, pare away the nub with a sharp carving gouge (**Photo 25**).

Finishing

Some woods look best unfinished, lacquer yellows the wood least, varnish offers the most durable protection, buff-and-wax the highest shine. Right now I'm off to conduct careful research on whether or not varnish on light-colored wood can resist the ravages of red wine. I'll report back.

John Kelsey is editor emeritus of Woodturning FUNdamentals and a member of the Lancaster Area Woodturners, an AAW chapter.

❐

Deep checks. Lovely cocobolo was too flawed to make a good goblet.

Crotch wood. Twisty grain might make a pretty bowl, but it's too unstable for a stem.

Matched pair? Transition details don't agree. Left bowl is fair, right has flats and bumps.

Smooth uninterrupted transition.

Wide flare with fillet.

Medium fillet, undercut edge.

Low base with bold fillet.

Wide fillet on low base.

Knock yourself out.

Rim thickness. Pearwood on left and holly on right are the same thickness at the belly, what's different is the rim detail.

Matched pear. Uniform color, stem, and transition details harmonize, fair curves, does the size difference matter? Not to me.

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Four-Legged Stool

by Peg Schmid

Teaching a class at the Florida School of Woodworking in Tampa, I looked for a project that students who had never used a lathe could complete. This little stool offers the perfect solution and challenges the students to make multiple turnings of the same shape and dimensions. The project requires only a few tools, little material, and in short order produces a functional stool that makes a handy gift for the home. This simple design can serve equally well as a plant stand or low table.

The legs are turned from four 2" × 2" × 10" (5cm × 25cm) blanks, preferably kiln dried hardwood. Carefully milling each blank to the same length and diameter should eliminate any need for adjustment after the stool is constructed. A 1"– (25mm–) thick, 8"– (20cm–) square board forms the seat. Finally, you'll need four hardwood wedges, preferably in a contrasting species, and these can be made from 1"–cubed stock.

Prepare the leg blanks

Locate and mark the centers on both ends of each leg blank. Mount one of the blanks between centers using a drive spur in the headstock and a live center in the tailstock (**Photo 1**).

1. *Mount a leg blank between centers.*

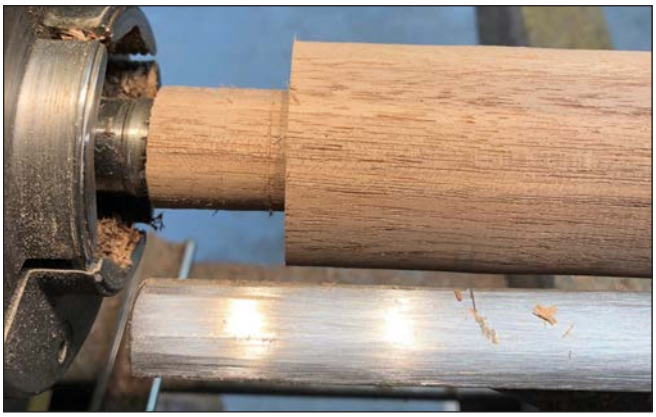
2. *Use a spindle roughing gouge to bring the blank to round.*

The drive spur spins the wood while the tailstock live center provides inward pressure that keeps the workpiece securely mounted on the lathe. The drive spur must press into the wood to be able to engage and drive it. Use the tailstock hand wheel to apply pressure to the blank until the blades sink into the wood. Too much pressure can split the blank or damage the lathe bearings. The blank should be snug enough to be secure. The drive spur can also be hammered into the blank using a block of wood struck with a mallet—never use metal-on-metal to avoid damaging the end of the spur.

Rough out the legs

Round the blank using a spindle roughing gouge (**Photo 2**). But before applying metal tool to spinning wood, recall the ABC's of turning: Anchor, Bevel, Cut. Anchor the tool on the toolrest, ride the bevel gently on the wood, and gradually lift the handle of the tool to engage the cutting edge with the wood and produce shavings.

Keep the tool handle firmly against your body. Use your body movement, powered by your legs, to move the tool relative to the spinning blank. Face the lathe with legs shoulder width apart and move your body from side-to-side as if you are dancing while moving the tool across the cutting surface. Your legs will help you make a straight cut; your arms will not.



3. *Use a parting tool to create a 1" diameter tenon on the top of the leg. The tenon should be slightly longer than the thickness of the seat—1/4" should do.*

Take small even cuts across the surface until the blank is completely round. If your toolrest is shorter than your blank, move your rest to cut adjacent sections. Turn off the machine before moving the toolrest.

As you turn, be aware of the distance between the toolrest and the surface of the blank. The wood must clear the rest, but too much of a gap will lead to a loss of tool control and conditions for a catch. Always spin the blank by hand to ensure it clears the toolrest before turning the lathe on.

Turn the tenon

With the blank round, turn a tenon to attach the leg to the seat (**Photo 3**). Use a 1/4" (6mm) parting tool and a caliper to establish a 1" diameter. Most turners achieve consistent results by cutting to the 1" diameter with a single peeling cut, though you may also need to clear material adjacent to the cut to prevent the tool from binding. The resulting tenon should be 1/4" longer than the thickness of the seat. This additional length will allow you to trim and then sand the protruding tenon flush with the seat top after assembly.

Shape the legs

Once the tenon is complete, shape the leg (**Photo 4**). Remember that whatever elements you decide to use will need to be repeated on the next three legs. I recommend a simple design for a first attempt.

With one leg completed, turn three more to match (**Photo 5**). Start by replicating the tenon, taking reference measurements from the first leg. Transfer the largest diameter where the tenon meets the top of the leg, then measure the location and diameter of the taper. Finally, transfer the smallest diameter from the foot. Now match the curve from the largest diameter to the tapered bottom. Use the first leg as the guide and hold it up to each subsequent leg to verify that you are indeed following the same curve to the tapered end. Sand each leg before you remove it from the lathe. Sanding to 240-grit is standard for furniture that will not be painted.

4. *Shape the legs with a pleasing taper. A spindle roughing gouge will work, but a 1/2" (13mm) spindle gouge or 1" skew chisel will produce a more refined surface.*

5. *Duplicate your first leg design in the other three legs. Aligning the legs side-by-side helps reveal subtle differences, and the legs are easily remounted to remove more material.*

Wedge slots

Along with some glue, the wedge driven into the top of the tenon secures the leg to the seat. You will need to cut a slot into each tenon for its hardwood wedge.

Cut the slot perpendicular to the grain in the center of each tenon. Use a handsaw with teeth set for rip-cutting, such as a dovetail or tenon saw. You will need to secure the work in a leg vise, or use a little creativity and a couple of bar clamps and a workbench. Make this cut about 3/4" deep.

Prepare the seat

Drill four corner mortise holes into your seat using a drill press with a 1" Forstner bit (**Photos 6, 7**). Use a ruler to mark the location of each mortise. Measuring 1-1/4" (3cm) from each side at the corner will give enough room and strength to hold the tenon

6, 7. *Drill 1" holes through the seat. Drill from the top so that any splintered grain will be hidden under the leg shoulder. Scrap wood clamped beneath the seat can help minimize tearout.*

without breaking out of the wood. The legs have no rake or splay and fit at 90 degrees to the base, greatly simplifying the drilling task.

Once you have drilled the tenon holes, sand and clean up any rough edges on the seat. You may choose to round the edges and corners for a softer look, a task you could accomplish with sandpaper, router, block plane, or a combination of all three.

Make wedges

The wedges look best if they are cut from a contrasting wood so that they are a feature of the final design. The wedges must be thin and cut to a taper, and narrower than the tenons so they can be inserted without jamming on the edges of the mortise hole.

Cut wedges from the 1" stock with the bandsaw. The grain needs to flow from top-to-bottom. I aim for about 3/16" at the top of the wedge, tapering to about 1/8" at the bottom. Securing the stock in a handscrew clamp will keep your fingers away from the bandsaw blade.

Assemble the stool

Always complete a dry assembly to ensure that all parts come together correctly. The time to find and correct any mistakes is before glue is applied. Fit the leg tenons into their mortises and ensure that all the wedge slots align across the grain in the stool top as well. Keep in mind that if the slot is oriented parallel to the grain, the wedges will attempt to split the seat. Align the grain in the tenon with the grain in the seat, which will orient the wedge at ninety degrees to the grain (**Photo 8**).

With the legs in place and tenons seated, the shoulders should rest against the seat bottom. Ideally, the tenon will seat with light resistance that can be overcome with hand pressure. If a tenon won't enter the mortise, or seats only part-way, return the leg to the lathe and ease a little material off the tenon. Or you might need to touch up a tenon to extend its length, which

8. *Align the wedges so that they are all on the same axis and are parallel to each other. During final assembly, seat the wedges firmly with a wood mallet, but don't use so much force that you shatter the wedge.*

should be easy with the centering pin marks still on the legs. Remember it is always best to measure twice and make small cuts.

If the tenon is slightly loose, you can correct this with a wider wedge, but if you have play in the leg that will allow movement once the leg is in place and the tenon is secured, you will need to turn a new leg. Trying to fill a gap of this size with glue will compromise the strength of the leg and the lifespan of the stool. It is better to turn another leg than to waste time trying to fix a bad one. Some of the tenons produced in my class were a bit loose and we cut thicker wedges which allowed us to secure the loose tenons. This fix can lead to tenons of noticeably different thicknesses showing in the top of the stool, which always looks a bit haphazard and unplanned.

Historically, a stool like this would have relied on the mechanics of the wedged tenon to hold the legs and seat together, but adding an adhesive will increase the stool's life span and usefulness. If the tenons fit snugly in their mortises, consider hide glue, which won't swell wood fibers and eases assembly by lubricating

the joint. If the tenons are a bit loose, reach for a PVA glue or epoxy to help fill small gaps. Glue can be used on both the leg tenon surface and in the wedge slot. Use a wood block on top of the wedge and hammer it into place. Be sure that the leg is flush and secure. Wipe away any excess adhesive that squeezes out during assembly.

Sand and finish

Your stool should sit sturdily without wobbling if you have cut all the tenons and legs to the exact length. If you find it does otherwise, you can use a belt sander or hand rasp to even out the legs. Place the stool on a flat surface and decide which leg or legs are too long. Mark them for adjustment with a pencil or blue tape so that you adjust the right legs. Sand the leg until the stool sits evenly on the flat surface, stopping frequently to avoid over-shooting your goal.

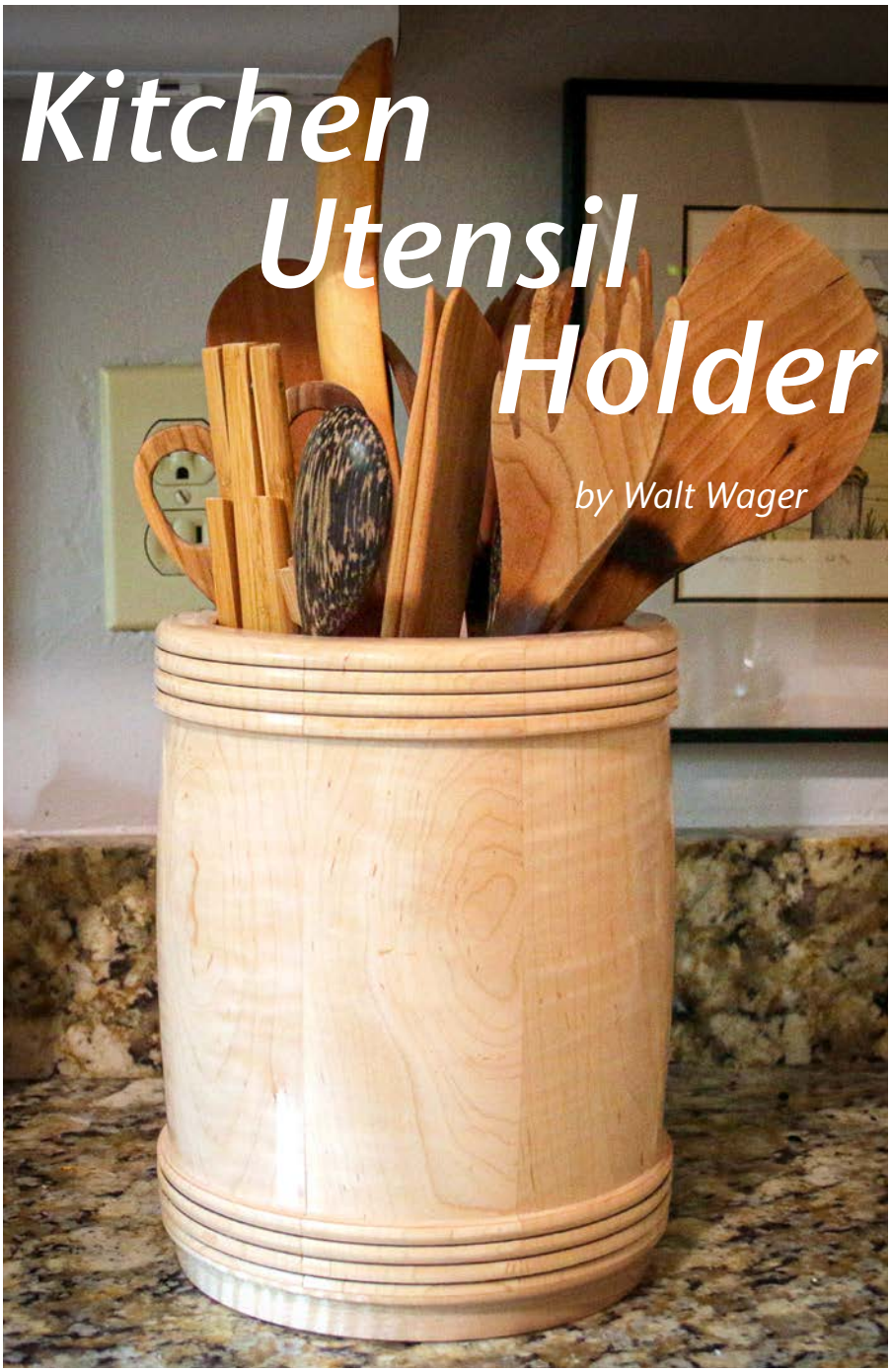
Cut the wedge level with the top surface with a flush-cut handsaw (**Photo 9**). Sand the top and sides of the seat smooth. Be sure to clean the surfaces and remove any dust from the stool.

The finish will reflect the care you put into sanding. Glossy finishes will show every tiny flaw in the wood as light reflects off of scratches. A satin finish still shows the beauty of the wood without highlighting tiny sanding marks. A satin surface is also far easier to photograph than a glossy one.

This little stool is a foundational project that helps you develop duplicating skills. Making turned pieces that match is a big challenge for a beginner. It's a skill that requires a keen eye to monitor the evolving shape and size of each piece, the ability to transfer measurements consistently, and tool control to repeat an established shape. As you progress in your abilities, you might want to explore angled legs (i.e., adding rake and splay), or perhaps some multiaxis turning for a dynamic design.

9. *Trim the leg tenons and wedges flush to the top of the seat. Mask the seat around the tenon with blue tape (not shown) to reduce scarring from the saw teeth.*

Peg Schmid is a professional sculptor and woodturner with a BFA in Fine Art in Sculpture from the Atlanta College of Art (Savannah College of Art and Design) in Atlanta, Georgia. Peg studied Art Education at Georgia State University and teaches woodturning, demonstrates at clubs and events throughout the South.



Kitchen Utensil Holder

by Walt Wager

Our utensil holder is one of the most used items in our kitchen. It is a place to store those oversize wood spoons, carving forks, and other things that do not fit easily in a drawer. The holder is an open hollow form about 8" (20cm) tall with a 5" (13cm) internal diameter.

It is difficult to turn a hollow form this large without hollowing tools. Instead, this article describes making the utensil holder using segmented stave construction. No turning or hollowing is needed on the inside of the form.

When you think of a stave, think of a whiskey barrel. The sides are made of slabs of wood called staves. The staves are shaped to form a cylinder when they are assembled. For this project, the cylinder is constructed from eight staves. The inside of the holder remains octagonal.

Stock

You will need eight 3" × 8" (8cm × 20cm) staves and two 7–1/2" (19cm) disks cut from a 3/4" – 1"– (19mm – 25mm) thick board. One disk will become the bottom of the container and the other will support the tailstock end during shaping. All of the stock can be cut from a 10" × 32" × 1" (25cm × 81cm) hardwood board available from a lumber store (**Figure 1**). The staves should be cut as 3" × 8" blocks before beveling the sides, and the grain should run in the long direction. The wood in the accompanying pictures is 1" maple.

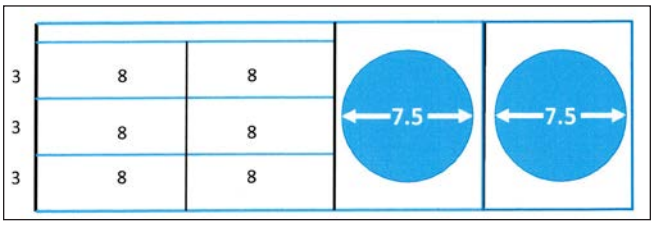


Figure 1. *One possible layout for stock. Don't forget to allow for the thickness of the saw kerf when measuring width and length.*

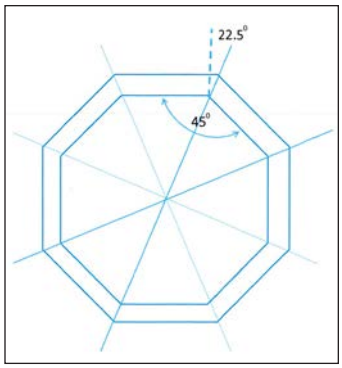


Figure 2. *The eight staves of the holder are beveled on the table saw at 22.5°.*

Mill the staves

Getting the correct bevel on the staves is critical. The sides of the staves must be cut to an angle that allows them to come together as a cylinder. This is determined by dividing 360° by the number of staves (eight). This gives us an angle of 45° between the segments. Each stave contributes half of the angle, so the cut angle is 22.5° (**Figure 2**). The more accurate the angle, the easier the construction will be.

Set the fence so that the blade cuts completely through from bottom to top. My saw tilts to the right and I set my fence so the bottom edge of the wood contacts the blade edge. I measure this by moving the fence in until the tooth closest to the fence touches the edge of the bottom of the stave (**Photo 1**).

I recommend cutting one side of all the staves before cutting the second side. I use the miter gauge with a waste block to push the staves through the saw while applying downward pressure with a push stick (**Photo 2**).

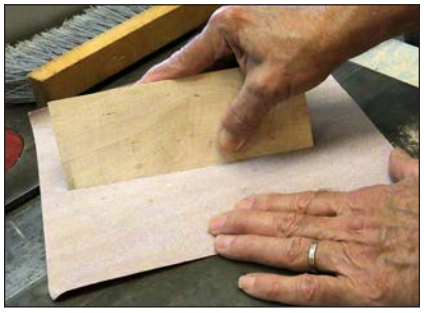
Dial in the perfect angle

D.E. McIvor

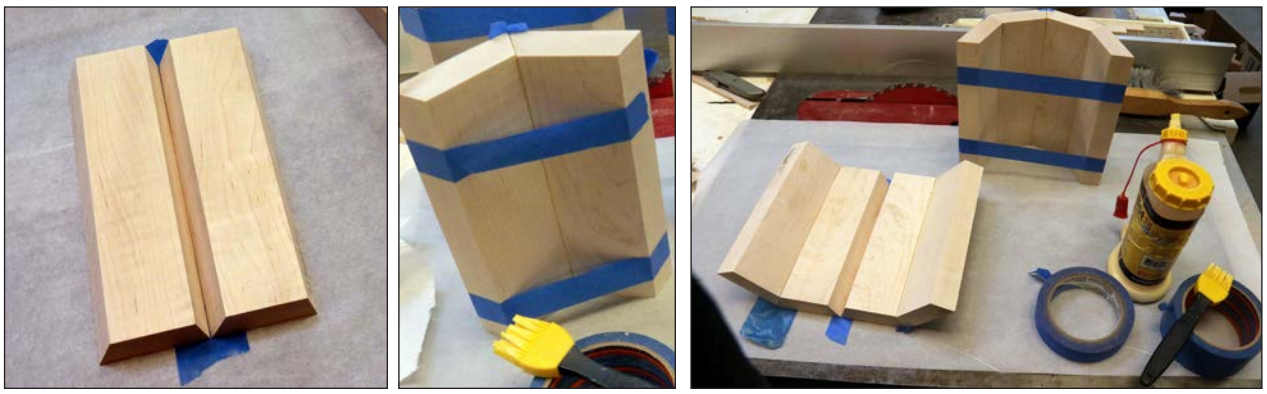
Relying on the built-in guide on a table saw to dial in a precise bevel angle can be frustrating. A protractor can help you hone in on your objective, but will likely take several test cuts to land on the correct setting. An alternative is a digital angle gauge. By referencing off the table surface and then attaching the gauge to the blade using its built-in magnets, setting the blade angle becomes a simple, repeatable, and precise task.

Before glue-up, smooth the bevel faces to remove any roughness left by the saw. Place a piece of 180-grit abrasive on the saw tabletop, lay the cut face flat on the surface, and sand by moving the stave (**Photo 3**). Sand as little as necessary, using even pressure, to avoid changing the flatness of the edges. Two or three strokes should be all that is needed. This is also

1, 2. *Establish your bevel cut so the blade passes completely through the lumber, leaving crisp corners. Use your miter gauge with a sacrificial fence and a push stick to safely pass the staves through the saw.*



3. *Sand the beveled sides and the interior faces, taking care to maintain flat surfaces.*



4, 5, 6. *Assemble the staves; start by gluing them together in pairs. After the adhesive dries, assemble two sets to create the two halves of the utensil holder. Blue tape makes both hinges and clamps for these forms.*

the time to sand the inside surfaces of the staves because it will be difficult to do so after they are glued together. Thoroughly clean the staves to remove any dust before applying glue.

Glue the staves

Place two staves side–by–side on a piece of masking tape to create a hinge (**Photo 4**). Coat both inside edges of the staves with a thin coat of adhesive, fold the sides together and clamp them with another piece of tape on the top and bottom (**Photo 5**).

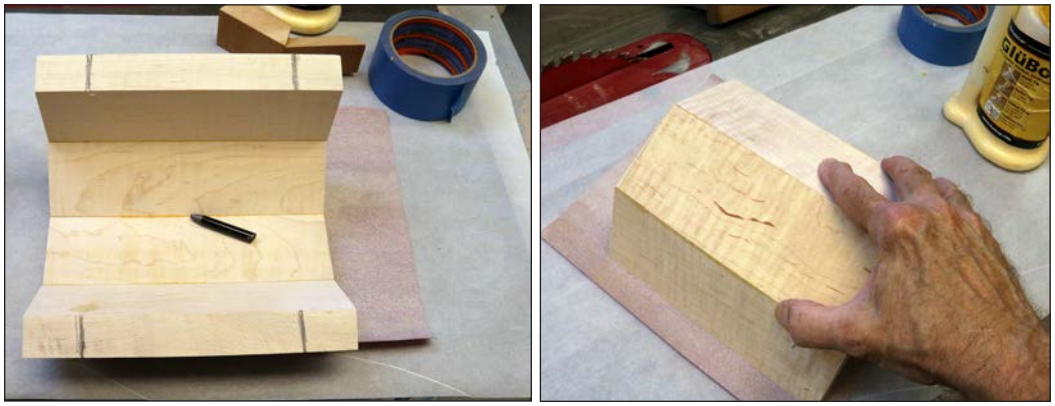
Keep the ends and the edges together and as tight and straight as possible. Doing two at a time is easier than trying to glue up more and having them slip out of place. Let the glue set for at least three hours.

Repeat the process by gluing the new assemblages together using the same masking tape hinge technique, taping across the open end to hold the sections together (**Photo 6**).

When the glue is dry, you will have two halves of the cylinder that, with luck, will align perfectly. If not, you will need to adjust the edges of the two half-sections to make them flat and parallel. Mark across the edges with a pencil or graphite stick and then sand the edges on a sheet of sandpaper placed on your tablesaw (**Photos 7, 8**). When the marks have uniformly disappeared, the sides will be flat and will fit tightly together.

Sand any glue squeeze-out from the joints on the inside before gluing the two halves together. Apply glue, align the inside edges as best you can, and wrap the cylinder with tape (**Photo 9**). Allow at least eight hours for the glue to dry.

After the glue dries, you will have a cylinder that you will glue to a disk to create the bottom of the vessel. If you were careful when gluing the stave pairs together, the bottom



7, 8. *Mark the glue faces with pencil or graphite and then sand away the marks on a sheet of abrasive placed on a true flat surface.*

9. *The two halves of the form are glued together to complete the cylinder.*

11. *Use a faceplate to mount the base. Don't go crazy with the screws—four of appropriate length will do the job.*

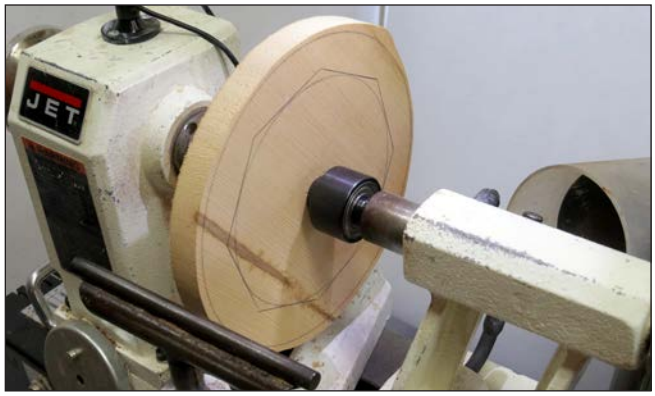
will be even. More often there will be some minor variation, but the bottom must be flat and even. The same techniques for squaring the sides can be used to address the bottom. Make a sanding block by gluing sandpaper to a flat surface (**Photo 10**).

Prepare the disks

Using a band- or jigsaw, cut the two disks that will become the bottom and tailstock support of the utensil holder.

Attach a faceplate to the center of the support disk for the container (**Photo 11**). I use a 3" faceplate and four wood screws that penetrate

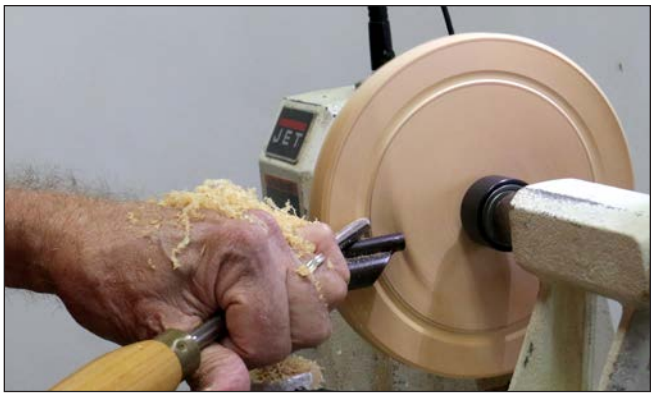
10. *To level the cylinder bottom, the author uses a shopmade sanding block with a sheet of 120-grit abrasive, a piece of plywood, and a handle shaped on the bandsaw.*



12. *Transfer the inside diameter of the utensil holder to the base and mount the base on the lathe. Bring the tailstock up for stability.*

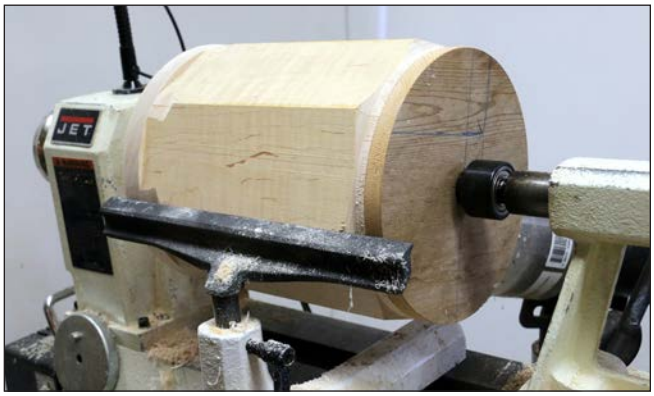
halfway into the wood disk. Drill pilot holes for the screws, marking the depth of the holes on the bit with a piece of tape.

Trace the inside bottom of the cylinder onto the support disk and use a compass to draw a circle that fits inside the resulting octagon (**Photo 12**). Mount the disk between centers and turn it down to the diameter of the circle you just marked. I use a 3/8" (10mm) spindle gouge with the flute facing the disk and make a pulling cut from the center towards the edge (**Photo 13**). This blank will fit into the top of the cylinder to support it when it is placed on the lathe.



13. *Remove about 1/4" of material from the rim, leaving a wide tenon to fit inside the cylinder.*

14. *The shelf on which the cylinder will rest should be flat to create a snug joint. A scraper is a good alternative if you have trouble achieving this profile with a gouge.*



15. *Use the tailstock to apply pressure against the support disk as you glue the base to the cylinder. The author has already begun rounding the bottom and the top in this image.*

Mount the bottom for the utensil holder using a faceplate and draw a circle that will just fit into the center of the cylinder, as you just did with the support disk. You will turn the interior of the circle into a tenon that will fit into the base of the utensil holder by removing about 1/4" of material from outside the circle (**Photo 14**). I use the 3/8" spindle gouge, but a scraper will also work.

Apply a layer of glue to both surfaces and glue the cylinder to its base. Use the support disk and the tailstock to clamp the assemblage, but DO NOT glue the support disk to the cylinder (**Photo 15**).

Turn the outside

Let the glue dry overnight before shaping the outside. With the support disk in place, start the lathe at low speed, gradually ramping up to 750 – 1,000 rpm if the blank is balanced. Except for the bottom disk which is crossgrain, you will be cutting sidegrain. I recommend a 3/8" or 1/2" (13mm) spindle gouge to bring the outside to round. Come in from the end, bevel on the surface of the wood, pushing the gouge from one end to the other (**Photo 16**).

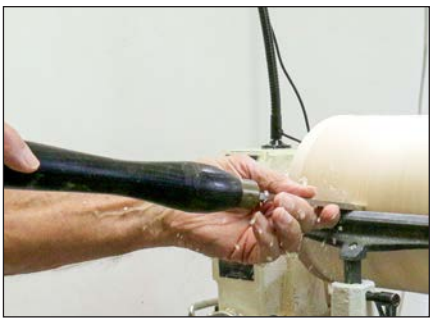
An alternative is to use a bowl gouge to shear–cut along the outside surface. Or, with the handle down, flute closed, make a pulling cut across the surface (**Photo 17**). A third technique is to use a carbide tool or a scraper to round off the surface; handle level or up, take shallow cuts from end to end (**Photo 18**).

Sand the outer surface when you have completed shaping.

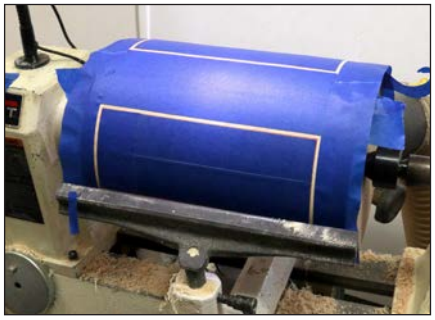
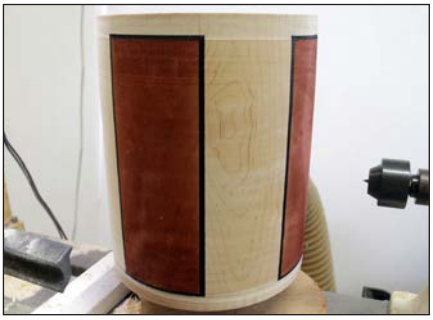
Embellish

Note the wall thickness after the cylinder is rounded; it will be thinner at the joints of the stave. However, there will be enough wood to do some embellishment.

When constructing the cylinder, you could alternate between different species of wood,



16, 17, 18. *Three options for cutting the exterior include a spindle gouge (left), bowl gouge (center), and carbide tool with a square cutter (right). Both gouges are presented for shearing cuts, while the carbide tool works as a scraper.*

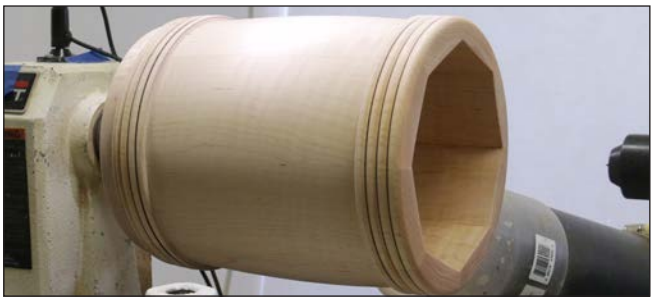
19, 20, 21. *Paint alternate staves to create visual interest in wood lacking figure. Creative masking allowed the author to neatly frame the painted staves with a black border.*

creating a striped effect. However, you can get the same effect by painting alternate staves (**Photo 19**). By masking off areas to form a pattern you can frame your staves (**Photos 20, 21**).

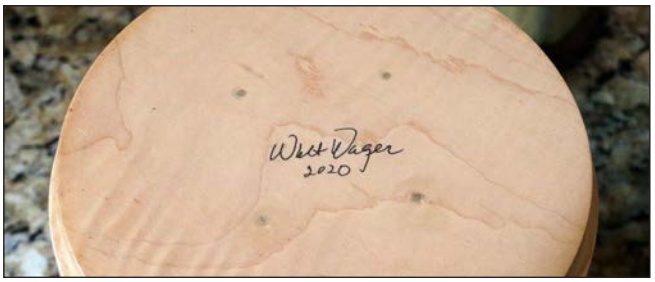
You could also add beads at the top and bottom (**Photo 22**). Painting, pyrography, and carving are a few of many options. If you have pretty wood, like the figured maple here, sanding and applying a finish to show off the grain might be the best option. I like polyurethane or tung oil for a project like this as both wear well and enhance the appearance of the wood.

Remove the faceplate, fill the screw holes with wood filler, apply finish to the bottom, sign your name, and your project is complete (**Photo 23**).

Walt Wager joined the AAW in 2002 and has been turning, teaching, and demonstrating ever since. His work may be viewed at http://waltwager.com.



22. *Beads are another alternative for exterior embellishment.*



23. *Fill the screw holes, finish, and sign the bottom.*

Box Turning Hints

by Cindy Drozda

Start with dry wood

Use kiln dried material, or rough out the box and let it dry long enough to be sure. A simple drying kiln can be made from an insulated box with a light bulb inside and holes around the top and bottom to allow airflow.

Minimize asymmetrical distortion by using endgrain material or burls

With the grain of the wood parallel to the bed of the lathe, and the growth rings of even radius, distortion due to moisture exchange will at least be even. Burls usually distort less and distort more evenly than straight-grained material.

Think in the scale of the project when choosing your material...

Small projects will show wood figure details differently than larger projects. Black Ash burl with its small eyes will display better on a small box than curly American cherry which needs a larger piece to show its figure well.

...and when choosing design details

Draw the design to scale or turn a test shape from scrap to identify the proportions that will look good. The most pleasing proportions tend to follow the golden mean, a ratio of 1:1.618.

Form is everything!

This is true no matter what you are turning, no matter the size! Take the time to make the shape as good as you can get it, inside and out.

Choose designs that your fingers (or other devices) can access for sanding

Keep it relatively small for a well–fitting lid over time

In most cases, a lid smaller than 4" (10cm) will not distort too much during seasonal moisture changes.

Choose a relatively soft wood with even grain for jam chucks

Soft maple, alder, cherry, mahogany, and poplar are good choices. Material with grain parallel to the lathe bed makes the best jam chuck.

Higher lathe speeds can yield a cleaner cut

A lot of light cuts at higher speed leave you with a smoother surface that needs less sanding. Oh, and sharp tools help, too.

Be sure you are comfortable with your turning speed

If the lathe is vibrating, it's too fast. If you're nervous, it's too fast.

Use the tailstock for support as long as possible, whenever possible

Even if it means some redundancy in the steps of sanding. This way only the lightest of cuts, close to the center of the piece, will be made with no support.

Use tape for insurance when finishing the bottom without the tailstock

Let the box top and bottom sit around for a couple of days before the final fitting of the lid

This will give you the best chance of a stable shape due to the humidity in your environment. Even dry wood can move after it's cut.

Consider where the owner of the box lives relative to where the box is made

If you live in a dry climate and you make your lids fit a bit loose, the owner who lives in a wet climate is more likely to have a well–fitting lid.

Tune the lid fit to the box's purpose

A woodturner might appreciate a tight fit, but a lot of non-woodturners are intimidated by it. They usually expect to lift the lid and have it come off the box without force. Also, if the box is intended to hold something (like a piece of jewelry, for instance), the lid might need to be opened with one hand since the other hand is holding the object that is going to be put into the box. On the other hand, a pill box that is intended to be carried in a pocket would benefit from a tight fitting (or threaded) lid so it won't come off unless the owner wants it to.

The secret to a smooth finish: sanding!

Especially on a small project, visible sanding scratches detract from your beautiful form. There is no finishing product that will make a poorly sanded piece look great.

Slow down the lathe for sanding

My rule of thumb is if my fingers are too hot to be comfortable, I slow the lathe down. Your fingers should not get hot while sanding.

Finish the inside bottom well

This is the first thing the viewers see when they open your box. A smooth inside bottom is more important than thin walls.

Outside bottom matters, too

Everyone likes to look at a nice bottom! Watch people look at your work, and you'll see almost everyone turn it over to look at the bottom. Give them a surprise bit of detail work that makes your piece stand out from the others.

Sign your work

The person who owns your box wants to know who made it, and that the maker is proud enough of the creation to sign it. And most people like to know what kind of material the piece is made of. Even if you are keeping the piece for yourself, you will want to know.

Take as much time as you need to make the project as good as you can make it, but don't get carried away

Repetition makes a person proficient. Make another and another. Your technique and speed will improve rapidly!

Look everywhere for inspiration!

Other turners' work, books, pottery, museums, architecture, etc. Absorb it all, and don't worry about copying. By the time you have made enough of a design to be proficient, it will have evolved into your own style; you won't be able to help it!

Cindy Drozda has been turning wood since 1984 and is now self-employed fulltime as an international demonstrator and teacher. Her website is cindydrozda.com.

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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.*

John Kelsey

For small objects like John Kelsey's goblets (see p. 24), fingers make a surprisingly accurate thickness gauge. In fact, on almost any object your sense of touch will tell you more about whether you have turned a successful form than will your eyes or mechanical calipers.

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