

# WOODTURNING FUNDAMENTALS

August 2018 • Vol 7 Issue 3

***Grain Direction***  
*... it determines everything!*



Softwood bowl  
Sharpen bowl gouge  
Parting tools  
Honey dipper  
Parts of a lathe

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222 Landmark Center  
75 5th Street W.  
St. Paul, MN 55102-7704  
651-484-9094  
Toll free: 877-595-9094  
[inquiries@woodturner.org](mailto:inquiries@woodturner.org)  
[woodturner.org](http://woodturner.org)

**Executive Director**  
Phil McDonald  
[phil@woodturner.org](mailto:phil@woodturner.org)

**Program Director**  
Linda Ferber  
[linda@woodturner.org](mailto:linda@woodturner.org)

**Gallery Curator**  
Tib Shaw  
Gallery Website  
[galleryofwoodart.org](http://galleryofwoodart.org)

**Marketing & Communications**  
Kim Rymer  
[kim@woodturner.org](mailto:kim@woodturner.org)

**Board of Directors**  
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•  
**Editor, FUNdamentals**  
John Kelsey  
[editorkelsey@woodturner.org](mailto:editorkelsey@woodturner.org)

**Associate Editor**  
Linda Ferber

**Editor, American Woodturner**  
Joshua Friend

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Cover: Walt Wager glued up a bundle of chopsticks to illustrate how to work with the grain of the workpiece.



# A little help from our friends



## To the editor:

I came away [from WF V7#2, featuring Eric Lofstrom on stance at the lathe] with the firm impression that if you are not fully endowed physically to do the turner's dance, you cannot be a turner.

As someone who is stuck with being able to park in blue spaces, I know I cannot turn with the efficiency of movements that I had before arthritis ruined my feet and ankles, but would have liked to think I could still make turnings without the dance.

I certainly felt shut down when there was not an acknowledgment that workarounds were possible.

—Ken Vaughan  
Tongass Turners, Juneau, Alaska

**Sharp point, Ken. We'll do better.**

I'll cop to arthritic fingers, bad knees and back. I'm still standing though some days just barely; for tasks like layout, sanding and finishing, I have to lean my old bones on a utility work stool and I too don't know what comes next.

In our club I've seen gimpy turners seated at a bench-

mounted minilathe. And at least two prominent manufacturers, Robust and Oneway, offer lathe stands for seated turners.

**Let's put it to our best resource,** our members, both here in this online PDF journal and via forums on the AAW website, woodturner.org. So folks, what ya got? What good workarounds have you seen and devised, to help all the turners who are not fully abled, in whatever way?



## Explore!

Click the blue box to follow the link and learn more.... *but it only works when you are also logged into the AAW website, [woodturner.org](http://woodturner.org)*

**Turners who frequent the AAW online forums** might have noted discussions I've had with members about projects for beginners and advice for new turners. Though not always directly, those chats have led to many of the projects, tool talk, and technical notes in this PDF.

The other resource I use all the time is the turners in our local AAW club, Lancaster Area Woodturners, like Angelo Iafrate on page 19. This club has also taken the lead in organizing the annual Midatlantic Woodturning Symposium, upcoming Sept. 27-29 here in Lancaster, PA. It's just one of many AAW-affiliated regional weekend events where you can see great demos, products, and finished work, and meet great woodturners.

—John Kelsey  
[editorkelsey@woodturner.org](mailto:editorkelsey@woodturner.org)

Adjustable stool in my basement shop has a sloping seat and doesn't roll around. Many old-time treadle lathes had a support bar or "manrest" to lean against.

Shop-built stands can be made low for a seated turner. Please share photos of what works for you: [editorkelsey@woodturner.org](mailto:editorkelsey@woodturner.org). □

Learn to Turn, Turn to Learn

# 2x4 Softwood Bowl Puts You on Top of Grain Direction

by Walt Wager

In this project you will turn a small bowl out of a piece of softwood 2x4, photo **1**. The purpose is to improve tool skills and get a better cut, by learning to understand and work with the grain direction of the wood.

Crosscut a piece of 2x4 (50x100mm) lumber so that it is square across the face — the actual dimensions will be 3.5" x 3.5" x 1.5" (9x9x4cm) if you are cutting a standard softwood 2x4.

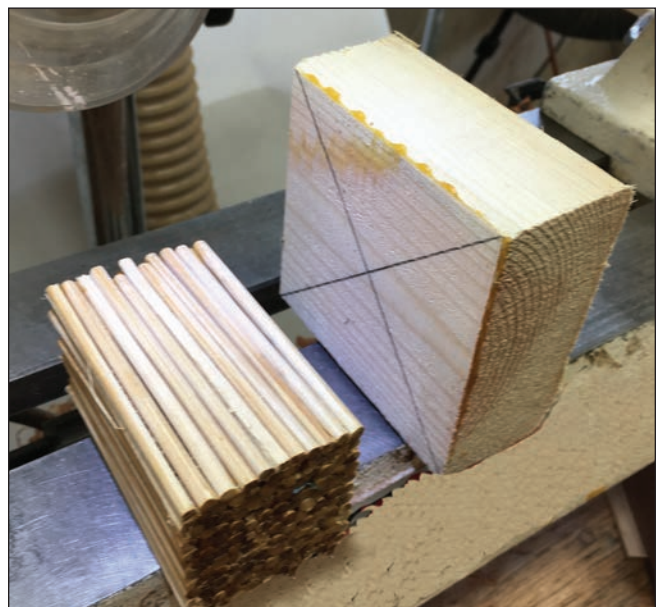
Most bowls are turned crossgrain. That means the grain of the wood is running perpendicular to the lathe bed, as shown in **2**. I have made a mock-up of the grain structure using bamboo skewers to illustrate the rules for grain direction. The basic principle is to cut so that the wood fibers you are cutting are supported by wood under or behind.

So, if I mount my mock-up on the lathe, you can see that in photo **3** the gouge will be cutting from the sidegrain towards the endgrain - sometimes referred to as cutting with the grain. In this case the fibers will be cut off smoothly because they are supported by the fibers underneath them. However as the block continues to rotate the situation changes. Photo **4** shows that as the block of wood comes around the gouge will now be cutting from the end-grain towards the sidegrain - referred to as

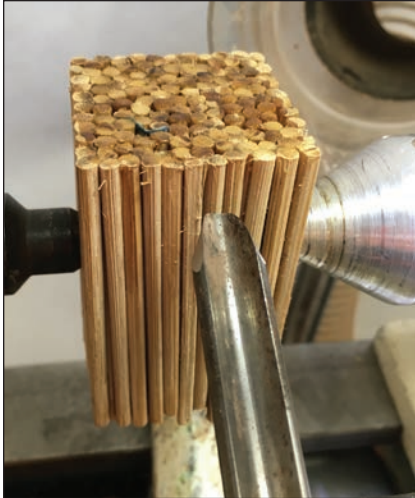
**2 Grain Direction.** Mock-up made from bamboo skewers illustrates the grain direction in most turned bowls.



**1 Bowl from 2x4.** The grain, or long fibers of the wood, runs across the bowl. That's the endgrain in the foreground.







**4 With the grain.** As the blank comes around from sidegrain to endgrain, the gouge will cut the supported fibers, leaving a clean surface.



**4 Against the grain.** As the blank continues turning, the gouge now cuts endgrain, lifting or tearing the unsupported fibers; the surface is rough.



**5 Across the grain.** Cutting across the grain from left to right, the fibers are supported by those next to them; the cut surface is smooth.

cutting against the grain. In this case the fibers being cut are not supported by other fibers and the cutting edge will tend to lift the fibers apart as it cuts them. This gives a rough cut with torn grain that will be nasty to sand.

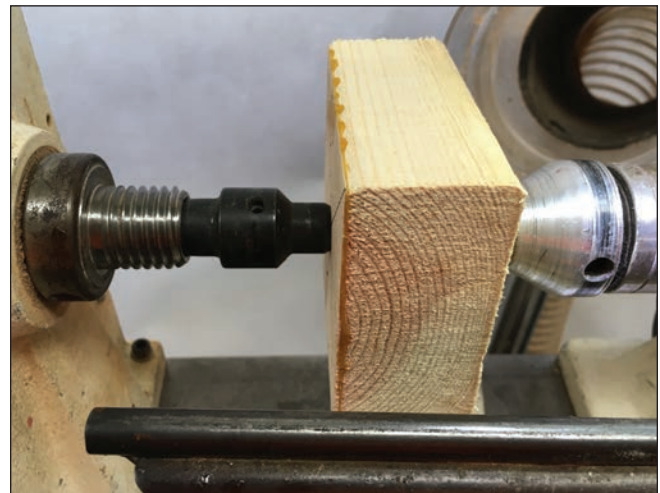
So, to summarize, as the block of wood spins around you are cutting with the grain half the time and against the grain half the time.

However, you can minimize the tearing of the grain by cutting across it, as shown in photo **5**, rather than straight into it. As you move the gouge from left to right across the grain, the fibers it is cutting will be supported by the fibers on the right. However, when you get to the right-hand side, the fibers on the surface will not be supported and they will be torn.

## Mounting between centers

Let's see how this works with a real piece of wood. Mount your 2x4 block between centers on the lathe, as shown in photo **6**. I'm using a dead center in the headstock, which encourages me to take light cuts that don't overpower the drive. If I make a cut that is too heavy, the wood just spins on the dead center. In this situation the tailstock is essential.

A dead center (also called a cup drive or safety drive) works by friction created by pressure from the tailstock. This is a great drive for beginners because if you get a catch, the wood will simply slip on the drive, so it encourages a light touch.



**6 Mount the 2x4.** The grain, or long fibers of the wood, runs across the blank, at right angles to the lathe axis. That's the endgrain in the foreground, with sidegrain on top, pith-side facegrain toward the headstock and bark side toward the tailstock.

# Cut from the face to round the blank



**7 With the grain.** The bowl gouge is poised to cut across the grain from left to right, with its flute at 90° to the wood.



**8 Aim the bevel.** Aim the bevel of the bowl gouge in the direction you want to cut. The toolrest supports the portion of the edge that's doing the cutting.



**9 A clean cut.** The wood fibers are supported as the gouge slices the corners off the block. The gouge bevel skims over the just-cut surface.

If I want to cut off the corners and make this block round, I use the bowl gouge to cut from the left to the right (or from the right to the left), with the flute at 90° to the wood (straight out towards me), keeping the bevel in the direction that I am cutting. You can see this in the photo sequence **7, 8** and **9**.

I am holding the handle of the gouge down at an angle between 35° and 45° as I come across the face of the blank. The lower wing of the tool leads the way.

By making small successive cuts into the face of the wood, the corners will be whittled away, leaving a fairly smooth round surface on the bowl blank (**10**).



**10 It's round now.** The bowl gouge removes the corners and leaves a smooth surface on the wood. ➞



## Chucking tenon secures the work

To secure this bowl blank in a chuck, I will have to cut a tenon. I usually like to work from the tailstock side. I make tenons about 2" (5cm) diameter and 1/4" (6mm) deep, as shown in **11**. The tenon is on what will become the base or foot of the bowl.

To form the tenon I use a spindle gouge, making shallow cuts from edge to center on the tailstock face. Then I cut into the tailstock face toward the headstock to establish the depth and diameter needed for my scroll chuck.

Photo **12** shows a simple plywood gauge to make sure the tenon fits my scroll chuck.



**11 Form tenon.** Take shallow cuts from edge to center, using a spindle gouge.



**12 Tenon gauge.** Shop-made plywood template gauges the tenon diameter to be sure it fits the scroll chuck.

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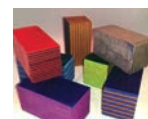


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# *Pull cuts shape outside of bowl*



**13 Pull cut.** The wing of the bowl gouge is poised to shape the bowl by cutting from right to left, with the tool handle held low.



**14 Slice the wood.** Pull the gouge around the corner to slice the wood. Make shallow cuts to develop the shape you want.



**15 Fibers supported.** The wood fibers are supported and cleanly cut as the bowl gouge begins to shape the bowl.

Next I shape the outside of the bowl. Using the principle of cutting toward supported grain, I will make pull cuts from the tenon towards the headstock, photos **13**, **14** and **15**.

The bowl gouge is anchored on the rest with its handle way down, and the cut is made with the wing of the gouge as you pull it around the corner to slice into the wood.

This cut will leave a nice clean edge as the fibers you are cutting are supported by the fibers underneath.

Another type of cut is the bevel supported “push” cut, as shown in **16** and **17**. Keeping the bevel on the wood as it cuts gives you the best control over the depth of the cut. A shallow cut will tear the grain less than a deep cut.



**16 Push cut.** The bowl gouge is held level to make a push cut toward the headstock. The gouge bevel glides on the wood as the cut progresses.



**17 Aim the bevel.** A shallow push cut gives you control without tearing up the wood.



# Remount to hollow the inside

After the outside of the bowl has been shaped it can be removed from between centers and mounted in a scroll chuck so that it can be hollowed, photos **18** and **19**.

I begin hollowing from the center out, placing the bowl gouge just left of center and cutting in towards the center, **20** and **21**. The bevel of the gouge is kept in contact with the wood throughout the cut. By cutting in this direction, the fibers are supported by the fibers underneath them. I have colored the flute of the gouge red so you can see the position for cutting.

As I get toward the outside rim of the bowl, I have to swing the handle of the bowl gouge over to the right so that the



**18 Outside is done.** The bowl gouge leaves a very clean outside surface on the 2x4 bowl. Sharpen often!



**19 Reverse mount.** The scroll chuck grips the tenon turned on the base of the bowl. It's set up for turning the inside.

bevel is perpendicular to the inside edge of the bowl, **22**. In order to keep the bevel on the wood as I cut down the side towards the bottom, I have

to swing the handle towards me, to the left. It is a motion similar to scooping ice cream from a carton.



**20 Begin at the center.** The red-fluted bowl gouge starts just left of center and cuts toward center.

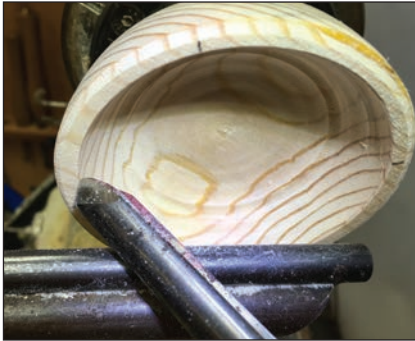


**21 Swing handle.** To begin excavating, the gouge handle swings to the right to keep its bevel gliding on the wood.

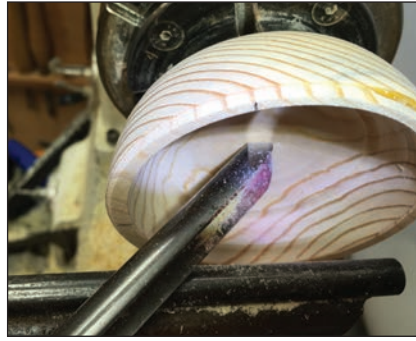


**22 Straight in.** The gouge bevel begins to aim in the almost-vertical direction of the bowl wall. ➡

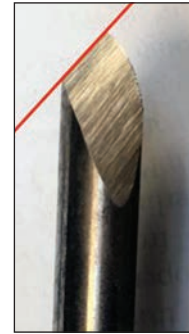
# Make the sides uniform in thickness



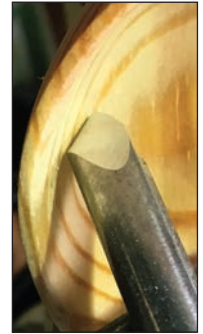
**23 Uniform walls.** The handle of the bowl gouge swings way over to the right, allowing the bevel to slice down the wall.



**24 Smooth transition.** A thin slicing cut from rim to center completes the inside of the bowl. A double bevel helps make this cut.



**25 Single bevel.** The 40° bevel on this bowl gouge has a sharp heel. On inside curves, the heel lever the cutting edge off the wood, and may scuff the surface.



With successive cuts you can make the sides evenly thin all the way to the bottom, **23** and **24**. With a small bowl like this you can slide your fingers from the top edge to the bottom to judge whether the thickness is even all the way down. It's not important to make the sides so thin you can see through them; it's more important that they are uniform in thickness. On larger bowls, you would use a caliper to gauge the thickness.

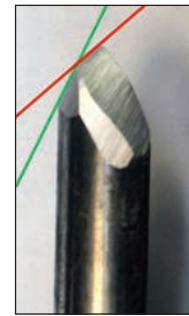
When you hollow a cross-grain bowl you are cutting across the hard and soft growth rings. In wet or green wood, the wood will begin to shrink as it dries out and this will change the shape of the bowl. When you are turning green wood to thin and final wall thickness, it can move quickly, even while you are turning. Therefore, take shallow cuts moving from the rim toward the center, establishing the wall thickness early as you hollow.

In these photos I am working with a relatively dry softwood, but even so, hollowing relieves stresses, and the bowl wall may change shape slightly. When you reach the wall thickness you want, finish by making a clean light pass from rim to base. If you detect the cuts beginning to be uneven, and you feel and hear some vibration, back off on cutting any thinner.

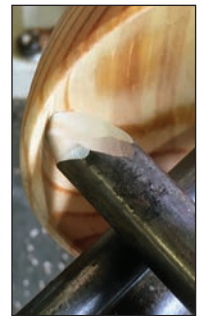
### Excavate in stages

1. Start at the center and make a small divot as a starting point. Some instructors recommend drilling a 3/8" (9mm) diameter hole to the inside depth of the bowl. This provides a way to know when you have reached the bottom, so you don't stop short or turn through it.

2. Make successive cuts toward the center, keeping the bevel on the wood, and cutting parallel to the outside wall of



**26 Double bevel.** A second bevel rounds off the heel. This helps keep the cutting edge in the wood as it rounds the inside curve.



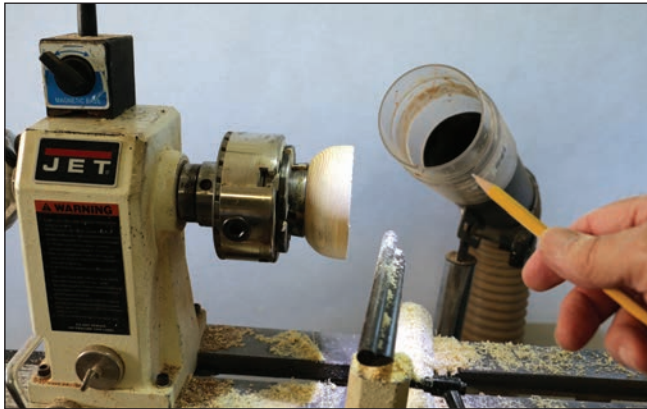
the bowl. Cuts made parallel to the outside of the bowl help maintain uniform wall thickness.

3. When you reach the wall thickness you want, make the final, shallow cuts all the way from the rim to the bottom in one continuous pass. This is easier if the heel of the bowl gouge is ground away as shown in **25** and **26**. This is sometimes referred to as a double bevel grind.





# Gauge depth with pencil and thumb



**27 Pencil gauge.** A pencil is all you need to gauge the depth of the bowl, and the thickness of its bottom.

To gauge the thickness of the bowl bottom, I simply use a pencil, **27**. Put the tip of the pencil in the middle of the bottom, **28**, slide your thumb down to the rim of the bowl while sighting across the rim, **29**, and then move the pencil to the outside of the bowl, keeping your thumb where it met the rim. Now you can sight across the tip of the pencil, **30**. I leave a little extra thickness so that I can make the bowl bottom a bit concave after removing the tenon.

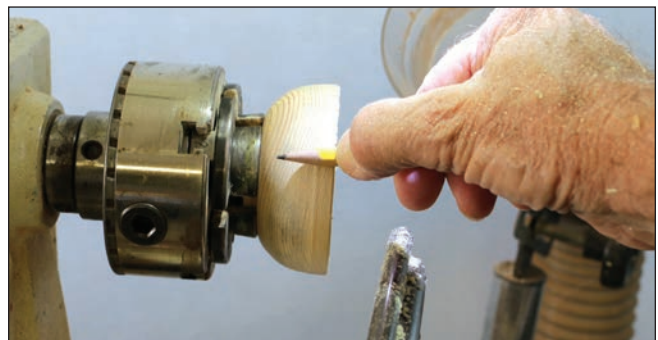
After hollowing (**31**) you are ready to remove the bowl from the chuck and finish-turn the bottom.



**28 Center the point.** Sight across the bowl so its rim appears as a vertical line.



**29 Place the thumb.** The thumb on the pencil indicates the rim of the bowl.



**30 Eyeball the depth.** Move the pencil to the outside, with thumb at rim. You can see the thickness of the bowl bottom.

**31 Hollowing all done.** The bowl is ready to be reversed on the lathe so its base can be completed. ➞

# Jam chuck holds bowl to finish foot



**32 Groove.** Tenon and mount a square of 2x4 to make a jam chuck. Cut the groove with a parting tool.



**33 Fits.** Pare the jam chuck until the bowl rim fits neatly inside.



**34 Shape foot.** Bring up the tailstock for support and use the spindle gouge to shape the foot.

To finish the bottom, make a jam chuck out of a different piece of wood — **32** shows another piece of the softwood 2x4. I rounded it the same way as the bowl, and here I am using a parting tool to cut a groove to fit the rim of the bowl. Photo **33** shows the bowl in the jam chuck, before bringing up the tailstock to secure it.

Use the spindle gouge to remove as much tenon as possible around the live center, **34**. The nub can be snapped off and the bottom sanded, as shown in **35**. Here the pressure on the bottom ensures it won't come out of the jam chuck.

So you made a small crossgrain softwood bowl, cutting toward supported fibers to leave the best surface possible. With sharp tools your bowl should need very little sanding, and you got good practice that will transfer to making larger bowls in harder woods.

*Walter Wager is a 16 year member of AAW whose home club is North Florida Woodturners. He teaches woodturning at Camelot's Woodworking Studio at King Arthur's Tools in Tallahassee, FL. His website is [waltwager.com](http://waltwager.com) and his e-mail is [waltwager@gmail.com](mailto:waltwager@gmail.com)*



**35 Sand.** Break off the nub and sand the bowl foot with the lathe running. Hand pressure keeps it seated on the jam chuck; if there's any doubt, add a wrap of masking tape or a few spots of hot-melt glue. □



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# Bowl Gouge: Sharpening

By John Lucas

Ask ten turners how to sharpen a bowl gouge and you will get ten answers that all work and maybe even more, so it can be a complicated question. What's important is to consistently achieve the shape you want and to get that edge sharp.

There are three basic edge shapes for bowl gouges: the **traditional grind**, the **fingernail grind**, and the **swept-back wing** (photo 1). The traditional grind looks somewhat like a spindle roughing gouge with the U-shaped wings almost straight up. The fingernail grind has the wings ground back a little; the Stewart Batty 40/40 grind is a good example. The swept-back wing shape is often called the Irish grind or the Ellsworth grind.

The flute cross-section helps determine the edge shape and how you use the gouge. Some gouge flutes are U-shaped, some are V-shaped, and some are elliptical. The sharpness of the nose angle is usually somewhere between 40° and 70° depending on what you turn; 55° degrees is a good starting point.

Many turners learn and use a freehand method of sharpening, using a standard 8" (20cm) grinder and a platform toolrest. Set the grinder so it's roughly the height of your lathe spindle. This enables sharpening motions similar to how you use the tool. The correct height helps you achieve a consistent shape.

Setting the toolrest angle is somewhat trial and error. I use a homemade three-point jig to reliably reset the toolrest after the initial testing, 2. Shown in this photo is the Robo Rest, a style of platform that is very easy to set.



**1 Three basic grinds.** Top, traditional grind. Center, fingernail grind. Bottom, swept-back wings, or Ellsworth grind



**2 Set the angle.** Shop-made three-point jig reliably returns the platform toolrest to the 40° angle many prefer for bowl gouges. See WF Vol. 7 No. 2 (May 2018) for how to make this angle-setting jig.

You can sharpen using a belt sander, disc sander, aluminum oxide wheels, or cubic boron nitride (CBN) wheels. I find each method works but the CBN wheels work better when sharpening the newer particle metal steels.

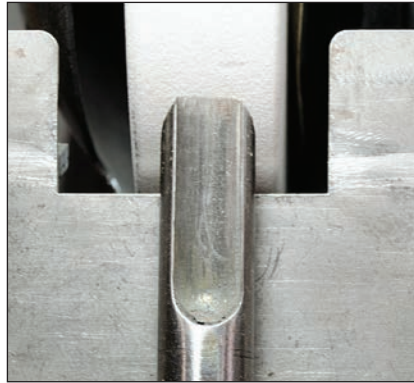




### *Traditional grind*

The traditional grind works best for U-shaped flutes. It is sharpened simply by rotating the tool. Set it on the toolrest that you have adjusted to the angle you want; in these photos it's 40°. Gently touch the nose to the stone, **3**. Grind gently and then rotate the tool clockwise to grind the upper wing. To bring the wing angle back just a little, when you rotate the tool swing the handle very slightly, **4**.

After sharpening one side, rotate the other way and do the other. Then gently blend or round over the nose, to get the wings sharp.



**3 Nose to wheel.** Gently grind the nose of the bowl gouge, then rotate the tool to grind the wings.



**4 Wing angle.** Bring the wing angle back a bit by swinging the tool handle to the side while you rotate the tool.

The grind should flow evenly from the tip out on to the wings as a straight line. If you stay in one place too long you will grind a concave dip. A tiny bit convex is OK, but concave

is never good. If you didn't get the grind you want, go back and very gently touch the high areas and avoid the low areas. With a little practice you can get the shape correct.



**5 Start at 45°.** Align the shaft of the gouge with the 45° mark on the toolrest, with its flute rotated to 3 o'clock.



**6 Swing and rotate.** Move the gouge handle from 45° to 90° while rotating the flute from 3 o'clock to 12 o'clock.



**7 Finish.** The bowl gouge finishes at the 90° position with the flute fully open, at 12 o'clock.

### *Fingernail grind*

The fingernail grind is similar to the traditional grind but the wings go back at a sharper angle, usually around 40° or 45°. Stewart Batty teaches an easy way to achieve this. Mark 45° angles on the toolrest. Align the shaft of the tool with the rightward 45° mark and rotate the flute to the 3 o'clock position, **5**. Touch the stone. The next step requires you to move the handle from the 45° to 90° position and at the same time rotate the flute from 3 to 12 o'clock, **6**.

So in this example the flute is pointing toward the right at the start of the grind and straight up at the finish, **7**. Then go to the left 45° mark on the toolrest and point the flute to the left. Swing the handle from 45° to 90° and rotate the flute upward just like before. This grind takes practice but is easy to duplicate once you've done it a number of times. This is also a good grind for U-shaped flutes.





**8 Start with the wings.** With the toolrest at 40° and the flute facing up, grind the swept-back wing by sliding the gouge back and forth against the wheel.



**9 Grind the nose.** With the wings shaped, gently grind the nose and rotate the handle to blend the nose into the sides.

### *Ellsworth grind*

The wings of the Ellsworth grind are the most swept-back. This is very useful for pull cuts, shear scraping, and push cuts for roughing with the wing removing a lot of wood. The wing length and shape varies a lot, depending on the flute shape and your preferences. This grind works well with any shaped flute but the sharpness and shape of the wings will vary.

I learned to sharpen by hand using a technique similar to the fingernail method but with the flute facing up at the start, with very little handle movement. I grind the wing by sliding back and forth to get the angle I want and to make the edge straight or slightly convex, **8**. Grind both wings this way. Then grind the nose and rotate the handle to blend the nose into the sides, **9**.

## Sharpening jigs

A sharpening jig makes it much easier to grind the swept-back wings of a bowl gouge. Photo **10** shows two popular jigs along with two homemade jigs. The bracket or block at the top holds the tool, while the diagonal leg pivots in a socket at some consistent distance from the wheel. The angle of the leg depends on how you want to shape the wing, but roughly 45° is a good starting point.

Put the gouge into the jig and extend the tip 1- $\frac{3}{4}$  to 2" (44 to 50mm). This distance isn't critical but must be duplicated every time you grind. I put a stop on my grinder and push the tool through the jig to this stop before locking it down, **11**.

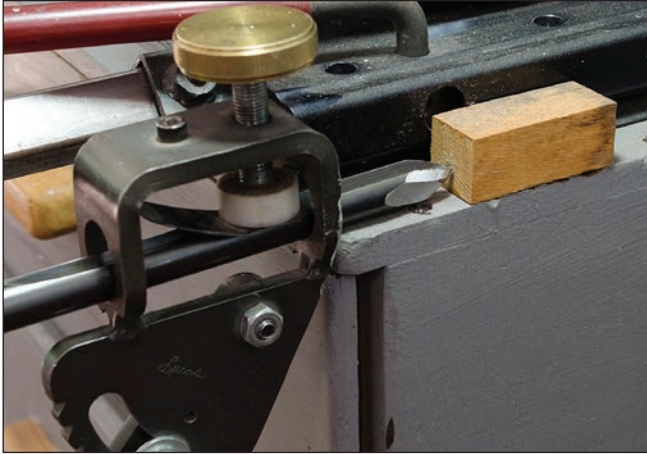
If you already have a good grind on your tool just put it in the jig and set it in the V-arm.



**10 Sharpening jigs.** The popular Oneway Wolverine jig, left, offers more adjustment than the simpler aluminum jig and the two homemade jigs.







**11 Set the jig.** A small block of wood, right, glued to grinder base acts as a stop for setting how far the bowl gouge extends from the jig. The exact measure doesn't matter, but consistency does.



**12 Set the angle.** A shopmade plywood jig sets the V-arm relative to the grinding wheel, in effect setting the grinding angle.

Move the V-arm until the nose of the tool touches the stone at the bevel angle. This may take some trial and error if your tool isn't ground properly; 55° is a good starting point for the nose angle. Now grind lightly and measure to see if it's the angle you want.

I use the Oneway V-arm system to support the jig. To set the V-arm at a consistent distance from the wheel, I use a three-point homemade jig that duplicates the distance accurately every time, **12**. Once you have the angle where you

want it, lock the V-arm in position and put the arm of the jig into the V. Now it's just a matter of rotating the tool across the stone to get the grind (**13**, **14**, **15**).

### *The right shape*

Beginners may think that's all there is to sharpening but they are wrong. You can't just grind from one side to the other and be done. You have to pay close attention to the shape. The swept-back wing design requires that the



**13 Grind wing.** With the gouge in the jig, rotate the cutting edge on the grinding wheel to shape the wing and nose.



**14 Shape nose.** Gently shape the nose of the bowl gouge and blend it into the swept-back wings.

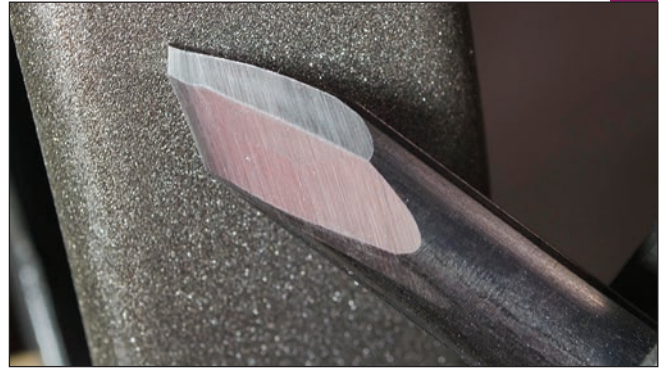


**15 Other wing.** Continue to rotate the jig and bowl gouge to shape the opposite wing and blend it into the nose.





**16 Concave is bad.** This bad grind has a concave dip approaching the nose. It won't work very well on the lathe.



**17 Convex is good.** The reshaped edge curves smoothly from nose to wing. It will cut very well, and will be capable of removing a lot of wood.

wing be straight or slightly convex from the nose back. Never leave any concave areas. Photo **16** is an example of a bad grind. To correct this grind you simply have to grind longer in the high points and either not at all or extremely lightly at the low points, **17**. Now it's just a matter of practice.

### *Honing the edge*

I like to improve the edge by honing. I use a 600 grit diamond hone and just gently move it across the edge, **18**. This not only improves the cut but also makes the edge last longer. I often go one step further and hone the inside of the flute using a diamond fishhook sharpening tool. Quite often the inside of the flute is not polished and honing really improves sharpness, **19**.

### *Heel bevel*

You may notice in the photos that I actually grind the heel of the gouge to form two or three separate bevels. I do this

by simply moving the tool up the stone after the initial grind and doing the same movements.

I do this because the sharp corner at the bottom of the bevel will burnish the wood. It will cause marks that show up as light colored rings on the wood. You can't see this when sanding; it only shows up when you apply finish.

I have also learned over the years that a short main bevel gives me a better feel for the cut so I can tell when I'm pushing too much.

Well that's it in a nutshell. Most other sharpening recommendations are modifications of the above.

The AAW has a fantastic video on sharpening bowl gouges taught by three different turners using three different methods. This video is excellent and will help you choose what method is good for you.



**18 Hone bevel.** Stroke the bevel on a fine diamond hone to polish the edge so it cuts better and stays sharp longer.



**19 Hone flute.** Use a fishhook sharpening rod to hone and polish the inside of the flute at the cutting edge.





# Beaten by the bowl gouge? Try these new carbide cup tools

by John Kelsey and Angelo lafrate



## 1 Cup-shaped cutters.

Top, Jimmy Clewes Mate #1 with 8mm (5/16") cutter. Bottom, Hunter Tool Systems #1 Viceroy, 6mm (1/4") cutter.



**2 Square shank.** Holding the tool level on the rest, Angelo lafrate excavates a green cherry bowl blank with no hint of a catch.



**3 Hogging cut.** Held flat on the toolrest, the carbide cup cutter peels a substantial shaving off the hard, dry wood.

The bowl gouge is a tricky tool to learn, especially frustrating when it catches in the wood and digs a deeply ragged divot. Now a new type of turning tool offers relief.

Like other carbide tools, these new tools have a square steel bar as a shank. What sets them apart is the little round sharp-edged cup of microcrystalline carbide at the tip, **1**. A Torx screw retains the replaceable cutter; instead of sharpening, you loosen the screw and rotate the cutter to a new portion of its edge.

Held flat on the toolrest, the sharp little cup meets the wood at a cutting angle. This makes them different from carbide tools on the market which primarily scrape. The new tools are the same as the others in their general structure: the steel shoulder that supports the carbide bit also limits the depth of cut, discouraging catches. The result is a friendly tool — just push it into the wood — that can leave a smoothly cut surface behind.

It's not clear what to call these tools. One manufacturer, Jimmy Clewes, calls them "Mate undercut tools." The other maker, Hunter Tool Systems, goes by its own brand name, "Viceroy carbide." Neither maker, former business partners, will disclose exactly what the replaceable carbide cutter is made of. Both brands are sold through online turning vendors.

*Woodturning FUNDamentals* isn't in the business of reviewing new products, but I had to take a look when an AAW member wrote to tell how these tools had saved a frustrated student from quitting the lathe altogether. The manufacturers sent samples, which I trotted over to the shop of my neighbor and fellow AAW club member, master turner Angelo lafrate (**2**).

Angelo doesn't fool around. He fit a standard handle on the tool and went right at a block of wet, green cherry mounted on his lathe, **3**. Whether inside the bowl or on the outside, wet wood or dry, the shavings peeled off, and



although he tried, Angelo didn't generate a catch.

We went next to a roughed-out cherry bowl that had been drying for a year, where Angelo could compare the surface cut by a regular bowl gouge, and then to a gnarly lump of rock-hard mesquite. The manufacturers advise lowering the handle for finishing cuts, so the carbide bevel rubs on the wood. Angelo tried that with good results, but then he also tilted the tool up on one corner of its square shank, **4**. The resulting cut was finer and smoother than his expert cut and shear-scrape with the regular bowl gouge, **5**. We were both impressed.



**4 Finish cut.** Rotated onto the corner of its square shank with the handle lowered, the tool slices a whisper-thin shaving.

Although these two tools differ in small details, they work the same. Though versatile, they don't do everything. Beginners frustrated by the bowl gouge



**5 Very clean.** The regular bowl gouge left the rough surface at left; the carbide cup made the cleanly cut band next to it.

(not to mention the nuances of sharpening) might find they can do enough to sidestep the bowl-gouge hurdles. □

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What's that called?

# Lathe Parts and Accessories

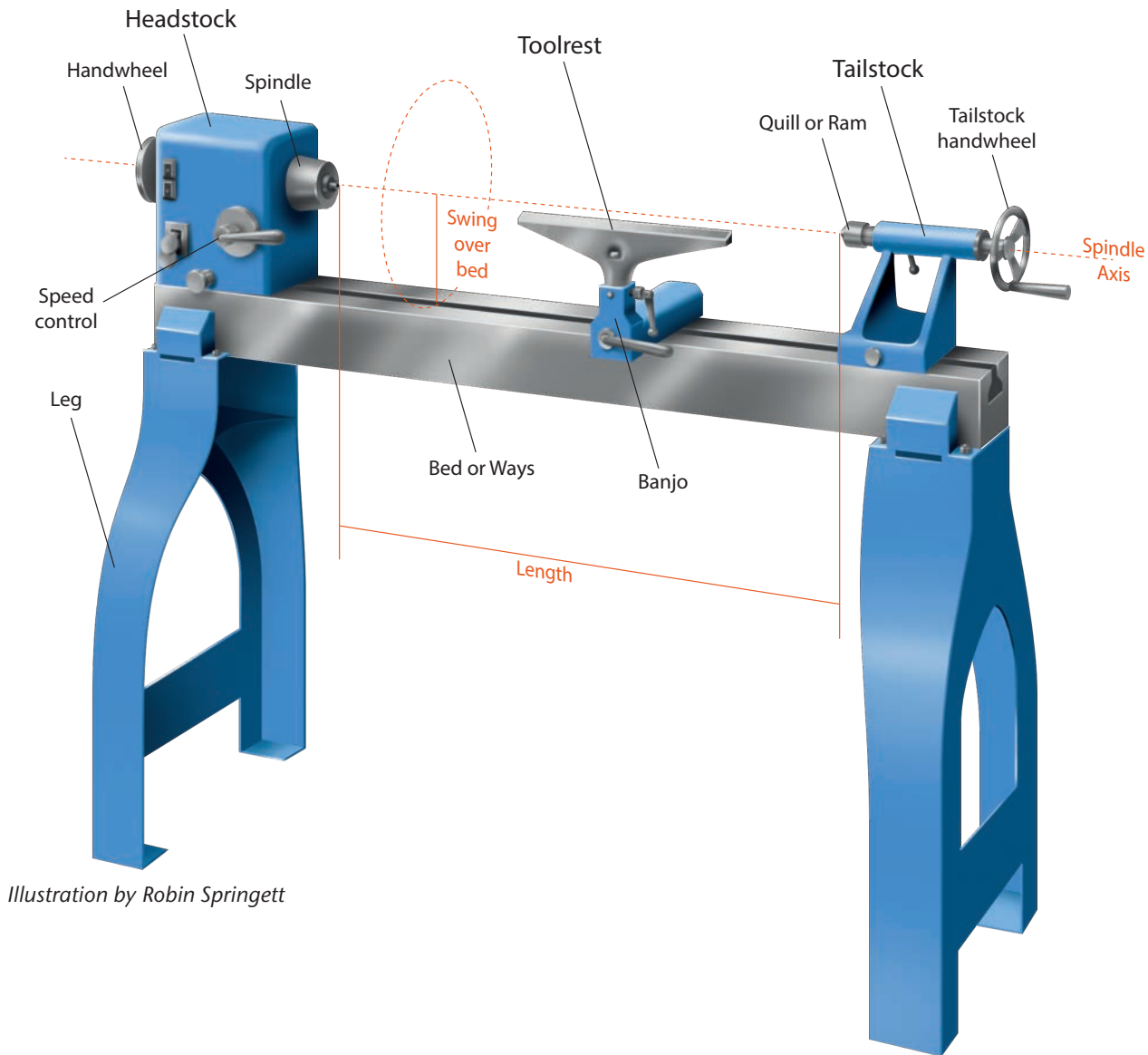


Illustration by Robin Springett

If you are new to woodturning, these illustrations can help you learn the common parts of a lathe, as well as important accessories specific to **spindle** and **faceplate** turning.

The terms spindle turning and faceplate turning refer to the orientation of the wood grain relative to the **axis** of the lathe. Spindle orientation means the wood grain runs parallel to the lathe's **bed**, or **ways**, and spindle axis. Faceplate orientation means the wood grain

runs perpendicular to the lathe's bed and spindle axis. As the name implies, spindle turning is how stair balusters, chair parts, and other furniture parts are made. Bowls and platters are generally turned in faceplate orientation.

Wood can be mounted in both grain orientations using the same methods and accessories.



## Lathe parts

Lathes from various manufacturers differ in some ways, such as motor systems, speed adjustments, size, and other features. But the basic premise and major components are common to all of them.

The **headstock** is the drive end of the lathe, and the **tailstock** supports the workpiece at the other end. The **banjo**, which holds the **toolrest**, slides along the ways and locks into position. The position of the toolrest can be adjusted up and down or rotated at any angle to the workpiece.

You can determine the size (or capacity) of a lathe by knowing some key dimensions. The **swing** (or swing over bed) refers to the maximum diameter workpiece that can be turned on that machine. Doubling the measurement from bed to spindle will give you the swing. **Length** refers to the maximum distance between points in the headstock and tailstock, the longest piece you can turn between centers.

Some lathes allow for outboard turning, with the workpiece mounted on the outside (**handwheel** end) of the headstock. This allows larger diameter pieces to be turned, since the limitation of swing over bed does not apply; lathes that don't allow the toolrest to swing outboard will need a floor stand for the tool rest. While workpiece diameter can be larger with outboard mounting, it should not exceed the lathe's ability to handle the extra mass.

## Spindle and accessories

The **spindle** is located in the headstock and varies in size, depending on the model. The lathe **motor** drives (or turns) the spindle, typically via belts on pulleys. Spindle speed (rpm) may be controlled by mechanical pulley changes or by electronic controls. Most lathes have a spindle lock to prevent rotation while you mount wood or accessories. "Forward" means the top of the spinning wood comes toward the operator (counter-clockwise when

viewed from the tailstock). Most modern lathes (but few older designs) can switch to "Reverse" for sanding and finishing.

The spindle has a female Morse taper on the inside and male threads on the outside. These two features, which vary in size by make and model, allow you to mount accessories and turn wood. If a lathe spindle is noted as 1" x 8 tpi (or 1x8), that means its diameter is 1" and it has eight threads per inch. Any screw-on or Morse taper accessories will have to be compatible with this sizing.

## Drive centers

Drive centers commonly have a male **Morse taper** that fits the opening in the headstock spindle, but some varieties are made to be mounted in a **four-jaw scroll chuck**. The Morse taper or chuck keeps the drive center firmly in place, along with workpiece pressure applied from the tailstock. The motor drives the spindle, which rotates the drive center, which turns the wood.

### Four-prong drive center (spur drive)

Versatile drive providing positive grip in the wood; use with dry or wet wood, for turning spindles and roughing bowls and vessels.



### Steb center

Characterized by its teeth, which bite into the wood; use with dry wood, turning spindles.



### Safety center/dead center

Also called a cup (or ring) center; use with dry wood, turning spindles. Bite in wood is determined by tailstock pressure—lighter pressure between centers allows the wood to stop turning in the event of a catch.





## Faceplate



Faceplates have female threads so they can be screwed onto the male threads of the spindle. Holes in the surface of the faceplate allow you to screw the wood to the faceplate from the back. Faceplates come in a variety of sizes to accommodate larger or

smaller workpieces; they are mostly used to mount bowls and platters in transverse, or “faceplate,” orientation, and also for purpose-made chucks and jigs.

## Scroll chuck



Four-jaw chucks have female threads so they can be screwed onto the threads on the spindle. When you tighten a four-jaw chuck using its key, its jaws close

concentrically, so you can grip a round tenon (or spigot) as a way of mounting wood. When you loosen a four-jaw chuck, the jaws expand concentrically, so you can open the jaws into a recess in the wood as an alternate way of mounting wood. Most scroll chucks have interchangeable jaw sets for increasing their size range. Some chucks have interchangeable inserts to fit different lathes.



### Scroll chuck with woodworm screw

Most scroll chucks are designed to grip a woodworm

screw. A hole drilled in the turning blank can be threaded onto the screw to mount the wood on the lathe. Especially useful for roughing bowls in green or dry wood.

## Tailstock and accessories

The **tailstock** slides and locks along the bed to suit the workpiece; for safety, it should be engaged whenever possible. The **handwheel** moves the **quill** (or ram) over a range of several inches and also locks in place, to adjust the holding pressure on the workpiece. The quill has a female Morse taper into which tailstock accessories, notably chucks for drill bits, can be inserted and held.

### Revolving live center

In the early days of modern turning, a dead center (or cup or ring center) was used in the tailstock. Since it does not rotate, wax had to be applied to lubricate the spinning wood. This tailstock accessory has been supplanted by the revolving live center, which spins freely on steel bearings; some models have interchangeable points in various styles and sizes. Today the tailstock dead center is obsolete, but it is still used in the headstock as a safety drive.

### Revolving live center with ring and point



### Revolving live center with cone (or cone center)



### Drill chuck

A drill chuck (sometimes referred to by the brand name Jacobs chuck) is the same type of chuck you’ll find on any drill press.

Mounted in the tailstock of a lathe, it holds drill bits horizontally for boring into wood that is mounted on the headstock. The wood rotates while the drill bit, which does not rotate, is advanced by the tailstock handwheel. Some chucks tighten with a key, while others tighten by twisting a ring.



Learn to Turn, Turn to Learn

# Honey Dippers

by Nick Cook



**1 Honey dippers.** Maple dippers make a great quick project that offers basic tool lessons along with creative handle design.

Because so many beginning woodturners like to see quick results, the honey dipper is a favorite first-time spindle-turning project. Novice woodturners will learn how to mount the material, basic tool use, and a little about sanding and finishing. It also allows the turner a fair amount of design creativity, as you can see in photo 1. Success is practically guaranteed, and you'll be ready for your next project.

## Get started

For lathe tools, you'll need a 3/4" or 1-1/4" (2 or 3cm) spindle roughing gouge, a thin (1/16") (2mm) parting tool, and a 3/8" (9mm) spindle gouge. A centerfinder, mini-drive center, and cup center are all helpful.

For turning stock, choose a close-grain hardwood that takes detail well with little or no tear-out. The honey dippers shown on these pages were turned from 8"-long (20cm) squares of 5/4 (1-1/16" thick) (27mm) hard maple (also known as sugar maple). The 5/4 stock gives you a little more room for design opportunities.

## Mount the turning square

Use a centerfinder to locate and mark the center on each end of the blank. Put a dimple at the center of each end with an awl or centerpunch. Remove the drive center from the spindle and use a mallet or dead-blow hammer to drive the center into one end of the stock. Return the drive center, with the blank attached, to





the spindle. Bring up the tailstock with live center to the opposite end of the blank. Lock the tailstock in place and advance the quill to engage the blank. Lock the quill in place.

Adjust the toolrest to a position just below the centerline and about 1/4" (3mm) away from the corners of the blank. Always rotate the workpiece by hand before starting the machine to check for proper clearance. Never move the toolrest with the lathe running.

### ***Adjust turning speed***

You can safely turn this project at about 1800 rpm. With experience, you can turn a spindle this size at up to 3000 rpm. It is best to start out slowly and gain confidence before increasing the speed. If you are working on a mini-lathe with step pulleys, you should always stop the machine, unplug it, and move the belt to the proper pulley, then plug in the machine and proceed with the turning project.

### ***Rough out the blank***

Begin turning with a spindle roughing gouge. Place the gouge on the toolrest near the tailstock with the bevel above the workpiece. Lift the handle until the bevel comes into contact with the workpiece. Once the cutting edge engages the workpiece, roll the tool to the right to cut the corners off the end of the square stock while maintaining bevel contact, **2**.

Repeat the process several more times, each time beginning further to the left of the previous initial cut, until only 1" or 2" (2.5 or 5cm) of the left end of the block is untouched.

Next, start at the left end of the workpiece and repeat the cutting process, rolling the tool to the left with each cut until the workpiece is fully rounded. Make a light pass the length of the toolrest in each direction to leave a relatively smooth cylinder. Stop the machine and check that all flat surfaces of the square have been removed.

### ***Cut grooves***



**2 Rough to round.** Beginning near the tailstock end, and working left to right, use the spindle roughing gouge to round the spinning blank.



**3 Grooves.** Use a narrow parting tool to make the dipper grooves 1/4" deep. They should be a bit farther apart than they are wide.

With a thin parting tool, make grooves in the right end of the workpiece. Start about 3/4" (2cm) from the end of the workpiece and make five evenly spaced grooves to hold honey. The grooves should be approximately 1/4" (3mm) deep, **3**.

As with all turning tools, first anchor the parting tool on the toolrest with its bevel and cutting edge above the workpiece. Gently lift the handle to engage the cutting edge and push forward to make the grooves 1/4" (3mm) deep. Keep the parting tool in a vertical position and perpendicular to the axis of the lathe.





**4 Thin the shaft.** Use the spindle roughing gouge, or a regular spindle gouge, to pare the neck of the dipper and shape the handle.

### *Design the handle*

After cutting the grooves, return to the spindle roughing gouge to finish shaping the honey dipper. Add a little shape to the working end of the dipper and start thinning the handle end. The smallest diameter should be just to the left of the grooves. Thin that area down to the desired diameter, working first from the right and then from the left, **4**. Remember to always cut downhill (from large diameter to small diameter) on spindle work. Shape the rest of the handle with the spindle roughing gouge.

### *Pare down to part off*

Starting at the tailstock end of the workpiece, use a 3/8" (9mm) spindle gouge to pare down the ends of the honey dipper. Turn the gouge to 90° with the flute facing the direction of the cut. Lift the handle and push the cutting edge into the workpiece, **5**. Rotate the tool to the opposite direction and repeat until the stock is reduced to about 1/4" (6mm) diameter. Move to the other end of the workpiece and pare it down to 1/4" (6mm).

### *Sand and finish*


You must sand the honey dipper before separating it from the lathe. Start with 150 grit and finish with 220-grit sandpaper.



**5 Pare the ends.** Use the spindle gouge to reduce the wood to a narrow neck at both ends to prepare for parting off.



**6 Buff with beeswax.** Use a paper towel, not a rag, to buff the wood with beeswax, a simple finish that's safe for food.

Use paper towels to apply a coat of mineral oil and burnish it into the wood, **6**. At the lathe, I never use rags. A single thread from a rag can wrap around your finger in a split second, perhaps causing serious injury. Add a light coat of beeswax and buff with paper towels. 

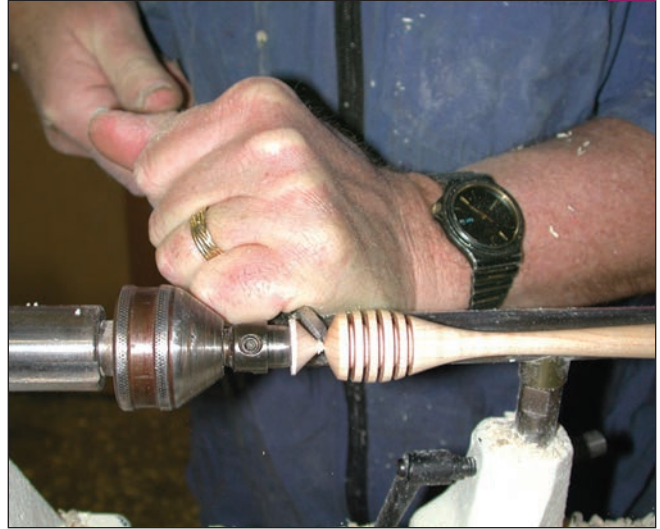


### Separate the ends

After buffing, continue to pare down each end of the honey dipper with the 3/8" (9mm) spindle gouge. Reduce both ends down to just under 1/8" (3mm), photo 7, then cut through the right end while reaching over it and cradling the dipper in your left hand. Reach under your left forearm to cut the left end from the lathe.

Sand and finish the tiny nibs on each end of the honey dipper, then find yourself a pot of honey and a fresh, warm biscuit.

*Nick Cook is a professional woodturner and popular teacher, living in Marietta, GA. A version of this article first appeared in American Woodturner Vol. 21 No. 6, Summer 2006.*



**7 Part off.** Use the spindle gouge to clean up the ends of the dipper and part it off the lathe.



Left to right: Narrow parting tool with a flute, shopmade parting tool, shopmade mini tool, standard narrow tool (no flute), standard diamond parting tool, narrow parting tool shop-made from a hacksaw blade.

## Parting Tool

The primary function of the parting tool is to do just what the name implies, divide or separate one piece of wood from the other while the lathe is running. It does this by cutting a groove its own width. Furniture makers use the parting tool to establish dimensions for various elements on a spindle. There are thin parting tools, parting tools with flutes, diamond parting tools, mini-parting tools, and parting tools made from bandsaw blades and old knives.

The kind of parting tools you own and use depends on the type of turning you do. I have all of them because I make a variety of

objects, but I consider the diamond parting tool to be my workhorse. It costs more than a standard parting tool because the diamond profile requires more machining, but this profile minimizes binding and heat buildup. A standard parting tool does not have a diamond profile so it tends to bind and generate heat.

A thin-walled parting tool is about 1/16" (1.5 to 2mm) thick, but the blade is wide, which helps give the tool strength. I like to use these tools when I am turning lidded boxes. The thin blade minimizes waste when I separate a box lid, which helps keep the grain pattern intact between the lid and body of the container.

The diamond parting tool may be my workhorse, but the "Nick Cook" parting tool made by Sorby is my absolute favorite. It is no different than the 1/16" parting tool already mentioned except that it has a flute ground in it. This creates two spurs that slice the fibers of the wood, leaving a very clean surface.

—Bob Rosand

# Parting Tool: Sharpening

When any tool first comes from the factory, plan on sharpening it. Toolmakers make great tools, but for the most part they are not woodturners, so your tools need to be modified.

I do initial grinding with a 36-grit wheel, which allows me to remove metal quickly to get the shape I want. I find that the factory bevels on most parting tools are too blunt, so I lengthen them.

Once I have the bevel about where I want it, I switch to an 80- or 60-grit wheel to do a final touchup. I do all of my sharpening at 1,725 rpm. I like this slower speed because it allows me more time to refine the edge of the tool. You could easily use a jig for sharpening, but all that's really necessary is a good eye, a steady hand, and a substantial platform in front of the grinding wheel.

The parting tool has a cutting edge, a bevel, and a shoulder or heel. To sharpen it, place your fingers on the toolrest and use them as a fulcrum. Touch the heel of the tool to the grinding wheel, and then lift the handle of the tool until the curve of the bevel fits the curve of the grinding wheel. You want to sharpen the bevel, not the cutting edge. If you sharpen just the cutting edge, the tool will be sharp, but the bevel will eventually become so short that the tool will be virtually unusable (it will be blunt) and you will have to regrind it to make it useful again. Sharpening the bevel—not the edge—is an important concept that took me a long time to comprehend. If you learn it sooner than I did, it will serve you well.

While sharpening the parting tool, I also look at what I am doing from the side so that I can see the gap closing between the bevel and the wheel of the grinder as I lower the bevel onto the wheel. You do not need or want to exert a lot of pressure when sharpening. Let the grinder do the work. You might also want to try using a set



The diamond parting tool on the right is too blunt. The bevels need to be reground (lengthened) for the tool to be used properly.



When sharpening a parting tool freehand, place your fingers on the toolrest and use them as a fulcrum.

of magnifying lenses so that you can see what you are doing up close and personal. The older I get, the more I find myself taking advantage of visual magnification. Good lighting helps too.  
—Bob Rosand





# Parting Tool: Cut Instead of Scrape

To part or separate a cylinder of wood, let's say the lid for a container, place the parting tool on the toolrest, drop the tool handle down, and rub the heel of the bevel on the wood. At this point, nothing will happen. Slowly lift the tool handle up until the cutting edge engages the wood. This is the proper cutting angle. To finish the cut, continue lifting the tool handle and at the same time advance the tool forward, in an arcing motion, toward the center of the cylinder. There is a rhythm involved and it takes practice to master, so take a short piece of green wood and practice, practice, practice.

Some people use the parting tool as though it were a scraper rather than a cutting tool. They keep the tool handle high to start, rather than dropping the handle down and feeding the cutting edge into the wood. The scraping method will part the cylinder of wood, but it creates sawdust rather than fine shavings. It also generates heat, dulls the tool quickly, and requires brute force.

## Other uses for parting tools

The parting tool is capable of performing other cuts. Its edge is similar to a skew chisel. When I am turning small cylinders, such as perches for birdhouse ornaments, I use the parting tool like a skew chisel because it saves time.

Try turning the parting tool on its side to cut like the long point of a skew chisel. This allows you to cleanly part a finial from the turning stock without changing tools. I also like to grind the cutting edge of one parting tool at an angle to look like a skew chisel. This allows undercutting finials for a better fit. With practice, you can even turn partial beads with the parting tool. When you become familiar with your tools and how they work, the possibilities abound.

*Bob Rosand lives in Bloomsburg, PA; RRosand.com. A version of this article first appeared in American Woodturner Vol. 24 No. 2, Summer 2009.*



With the handle held too high, the parting tool is scraping the wood, not cutting.



To properly cut with a parting tool, hold the handle of the tool down and arc the cutting edge into the wood to start the cut.



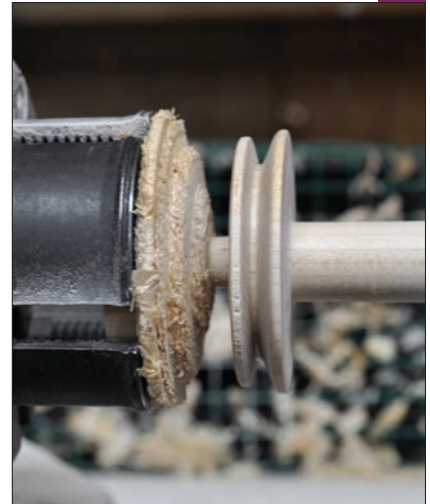
As the cut progresses, raise the handle of the tool and feed the cutting edge into the wood. It should make shavings, not dust.



# Parting Tool: Techniques



**Parting tool does a lot.** This spinning-wheel spindle could not have been made without a parting tool, used initially to create the tenon shown plugged into the scroll chuck. Then it was used to create, from right to left: small shoulder, large diameter of cap, small diameter of spindle, large diameter and groove in pulley, and small neck to part off with plenty of clearance to the waste side.



**1 Parting off.** Deep cuts with the parting tool reduce the waste to a narrow neck of wood. Always make the cut wider than the tool itself, for clearance.

Parting tools can do a lot, including:

- Cutting off a piece from the lathe (“parting off”), photo **1**;
- Cutting a tenon on a spindle, **2**;
- Squaring the end of a spindle, **2**;
- Cutting a shoulder, **3**;
- Making space, **3**;
- Sizing a project by marking critical diameters, **4**;
- Turning small beads;
- Cutting grooves for wire burning or for other purposes;
- Cutting a dovetail for your chuck;
- Undercutting an area;
- Making clearance next to a chuck;
- Defining an area for embellishments;
- Being used as a mini skew.

When creating clearance, I use a guideline of 1.5 times the width of a tool as a minimum, to prevent burning and binding.

Cut short of your final line and then sneak up on it. Stay to the waste side of the line and be patient.

To make a finished end, your last cut should be a small fraction of the parting tool’s width, not a full cut. Make your last cut a single continuous cut down to the final diameter. Stopping and starting results in ridges.

When cutting (or parting off), turn down your lathe speed before the last little cut. With a sharp tool you can slow down and still get a great result. Use the tailstock for support whenever possible.

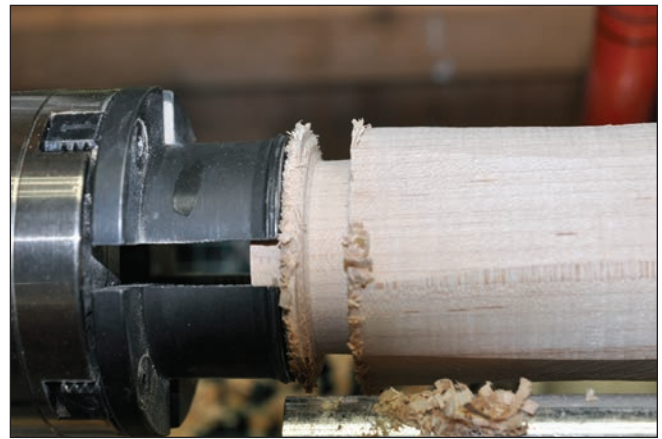
Look at the grain in your wood before you start a cut. With small growth rings or straight tight grain running between centers, you can get down to one or two growth rings in some cases. When the growth rings are not running parallel to centers, you may have instability issues and ↩



# Parting Tool: Techniques and Tips



**2 Tenon and finished end.** The parting tool forms a tenon on the end of the workpiece. Light, continuous cuts leave a clean-enough surface on the maple endgrain.



**3 Room to work.** Use the parting tool to make space to work and establish a starting diameter. Make overlapping cuts about 1.5 to 2x the blade width. Make a fillet or a square shoulder the same way.

tear-out if you try to cut off the piece. You may have to either part the piece off long and hand-cut the remaining nub, or stop the lathe and cut with a handsaw.

Have a plan as to how to use one hand, catch your work, and turn the lathe off safely. I rehearse the cut in my head, to end up with a safe, stress free job.

When parting between centers, use your dominant hand to control the tool, and your non-dominant hand to catch the work. Hold it in position against the tailstock until your other hand can shut off the lathe, then extract the piece from between centers. It may not be dramatic, but it makes one piece into two.

When parting unsupported work, it is even more important to have a plan. You may need to cover your lathe bed with a towel to create a soft landing pad. I turn down the lathe speed, get ready and make one confident cut. When the work diameter reaches the point of no return, don't panic! Just follow your rehearsed plan and go through with the cut.



**4 Parting to dimension.** The parting tool cuts down to dimension; note the extra clearance, to avoid binding and burning. The next few full-depth cuts, spaced about an inch apart along the cylinder, will guide the spindle gouge to the finished size of the yarn spindle..

If it comes down to you doing something unsafe and wrecking the piece, write it off and have a better plan next time. The OFF switch is your friend.

— Mark Palma



# Two-Piece Cake Stand

by Dave Schell

I had a request to make a cake stand. I used a piece of local cherry as the base and paired it with a piece of dark-colored Brazilian cherry as the top, **1**. Here are the steps I followed:

I cut off a piece of the Brazilian cherry. I decided to go with a 10" (25cm) diameter top, so it could be used with standard 9" (22cm) cake pans. I used a compass to lay out an 11" (27cm) diameter circle so I would have enough to trim down to the 10" (25cm) diameter.

The top piece was cut out on the bandsaw. I decided to use a faceplate to mount the top, since the base piece was going to be large enough to cover up the screw holes. I didn't worry about the bottom of the top piece, since I was just going to sand it down later. You could sand the bottom down first before you attach the faceplate.

I trimmed down the diameter of the top and used a parting tool to create two small decorative lines along the edge, **2**. You can



**1 Dave's cherry cake stand**

decide to use more lines, fewer lines, no lines ... whatever design you prefer. For future cake stands, I may carve the edge to add more decoration. I tested the flatness of the top using a straightedge and highlighted the areas I wanted to flatten more using a pencil, **3**. After some light passes with a straightedge scraper, I got the top to the flatness I wanted. Cakes are flexible, so small bumps won't affect the final product — don't worry too much about exact flatness.

I drilled a 1-1/2" (37mm) hole about half-way through the top, **4**, to receive the tenon I planned to turn on the base and provide stability once connected.



**2 Decorative edge.** Parting tool cuts enhance the disk edge.



**3 Check for flat.**

Straightedge indicates flatness; pencil marks show where more wood needs to come off.



**4 Bore for tenon.** Dave takes the top to the drill press to bore a hole for the stand.





**5 Block for base.** Punky chunk of cherry wood is big enough for the stand base.



**6, 7 Shape the base.** Round scraper shapes the base, then a series of beads decorate it.

## Base

I used an interesting piece of local cherry for the base. I liked the colors in the wood and the way it would carry through the dark top. The piece had some holes, some punky wood and voids, which I thought would give it a nice rustic look. I used a faceplate to attach it to the lathe, because I was gluing a piece of felt to the base and it would cover the screw holes. I wanted the base solid to support the weight of a three-layer cake. This piece of cherry is approximately 7" (18cm) tall and 5" (13cm) wide, enough wood for a base about 6" (15cm) tall and 4" (10cm) in diameter, **5**. You can make your base as tall and wide as you would like, but I would recommend keeping good proportions of height and diameter to avoid a stand that easily tips over.

I used a roughing gouge to take off the corners and then used a round-nosed scraper to remove most of the wood. I selected this tool because I was looking for smooth curves, and this tool would help create them uniformly (**6, 7**).

After roughing out the general shape, I used a pencil to outline the measurement of the top tenon to fit into the drilled circle of the base. Since I was gluing the items together, this did not have to be exact, **8**; to make an exact fit, see the sidebar on page **35**.

After making the tenon, I added some more decorative accents to the base. I decided to keep it simple and rustic, so I just added some more



**8 Tenon for top.** The stubby tenon will plug, with glue, into the 1-1/2" hole bored in the bottom of the top piece.

lines with a parting tool, plus a few more curves to my liking (**7, 8**).

I stopped the lathe and decided it was time to sand. I didn't sand it totally smooth because I wanted some of the punky wood to show through and keep the voids and imperfections. It helped maintain the rustic look of the base (**9**, next page).

The final piece! I glued the top to the base and finished everything with a few coats of tung oil. ➞

I waxed the top piece so it would be easier to clean off any stray frosting. I am recommending that cakes are put on here with a paper doily to prevent knife cuts from scarring the top (9).

I like this cake stand because it is a very solid piece. The top is large enough to hold standard 9" (27cm) cakes with frosting. The stand is 7" (18cm) tall and the base is 4" (10cm) in diameter. The finished top is about 7/8" (22mm) thick and can easily hold a three-layer cake.

It took me about two hours to make this cake stand. It is an easy project that can use stray chunks of wood. This item will be an addition to my booth at craft shows. Here are some variations you might like to try:

—Laminate wood species together for the top or base piece.

—Carve notches into the edges of the base.

—Use different species of wood for the top and base. Walnut and maple would make a great combination, as would walnut with cherry.

—*Dave Schell lives in Mount Joy, PA. He is vice president of Lancaster Area Woodturners.*



**9 A solid project.** Tung oil makes a durable finish, with wax on the top surface to resist gooey frosting.



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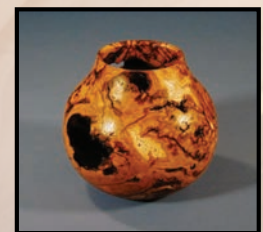
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# Parting Tool: Caliper to dimension



**1 Part by eye.** Round the caliper tips to not catch, and eyeball the caliper to cut the part a bit large. Hold the parting tool with your dominant hand, bracing your index finger against the toolrest.

Many projects involving two or more parts will be joined by turned tenons fitting into bored holes. The turner must form the cylindrical tenon to an exact dimension. With a little practice, you will become able to wield the caliper in one hand while paring the part to final size with the other.

It doesn't matter what style of caliper you use — an inexpensive vernier is shown here — but be sure to grind off the sharp tips on the jaws, so it won't catch on spinning wood.

Begin by locking the caliper at the exact size of the drill bit, or dimension you want. Find a comfortable but loose grip that will allow you to approach the workpiece from above and behind.

Hold the parting tool down on the toolrest with your dominant hand, brace your index finger against the rest, and align the handle with your forearm. Rest the bevel on the workpiece, then flex your wrist to raise the handle and start the cut. Pause to gauge the dimension with the caliper, and after a little practice, you'll be able to caliper while cutting. The wood will probably be a bit too big when the caliper just slides on: make one final cut, or sand, to fit.



**2 Caliper the part.** Withdraw the parting tool and test the dimension with the caliper. Alternately cut and gauge until the caliper just slips onto the spinning wood.



**3 Gauge while parting.** Once you acquire the knack, you can part and gauge at the same time. Withdraw the tool as the caliper slides onto the turning wood.



**4 Extend the parts.** Remove the waste between the parts with a sharp skew chisel held flat on the rest. Lower the skew's handle until it slices the wood in between the two parting tool cuts.



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