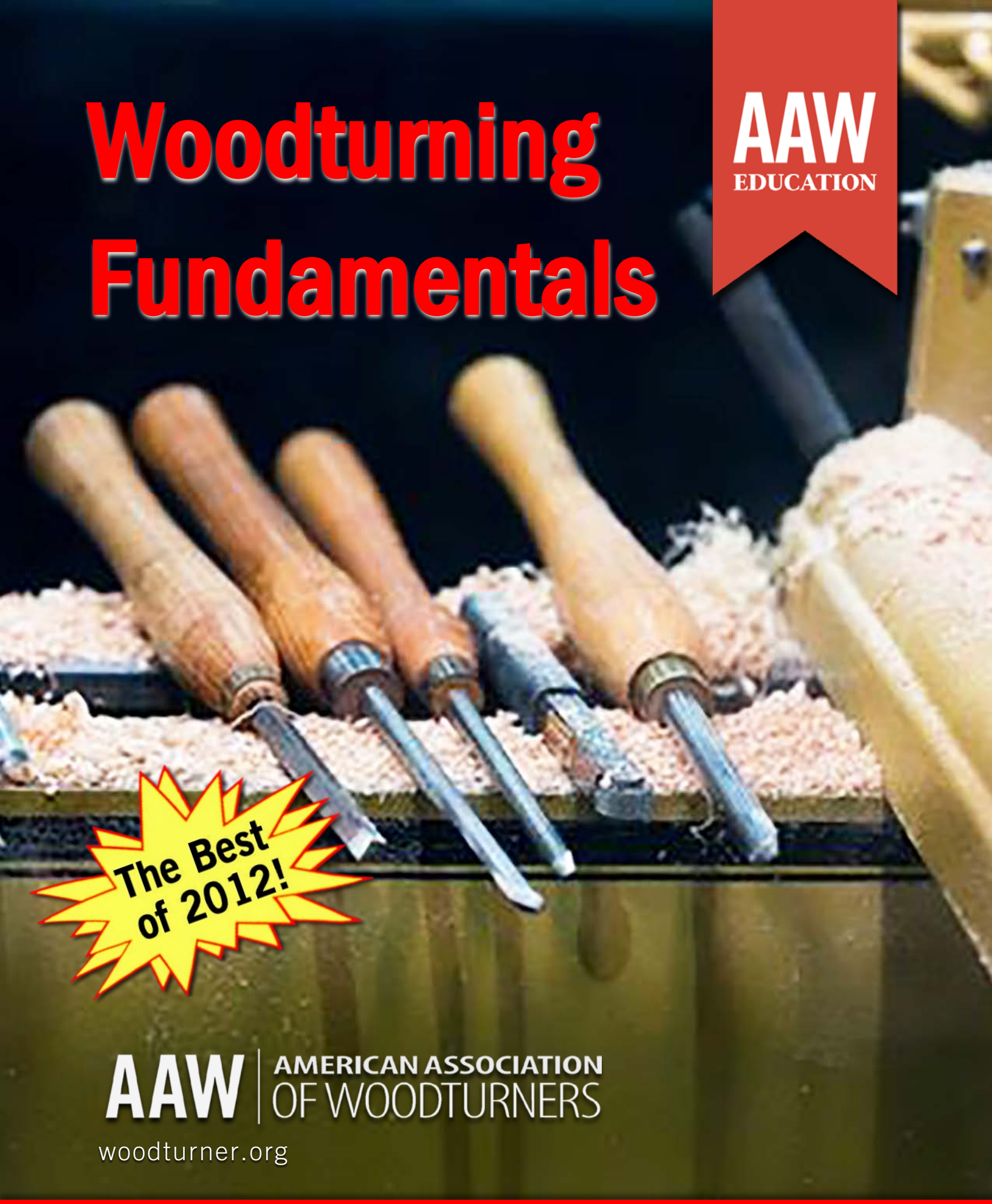
Woodturning Fundamentals

AAW EDUCATION



The Best of 2012!

AAW | AMERICAN ASSOCIATION OF WOODTURNERS

woodturner.org

2012 I VOLUME 1: ISSUE 1-6 I Safety I Projects I Tips I Techniques

Woodturning Fundamentals
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2012 - Volume 1: Issues 1-6

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Woodturning Fundamentals
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A Note About Safety:
An accident at the lathe can happen with blinding suddenness. Respiratory and other problems can build over years. Take precautions when you turn. Safety guidelines are published online at http://www.woodturner.org/?page=Safety Following them will help you continue to enjoy woodturning.

Cover photo: Andi Wolfe

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WELCOME

A Note From the 2012 Woodturning Fundamentals Chair

Welcome to Woodturning FUNdamentals:

Please let me welcome you to a new educational effort by the American Association of Woodturners. We call it "Woodturning Fundamentals." It will be an easy-to-find and easy-to-use area of multimedia materials on all facets of woodturning, providing a source for basic skills & techniques:

- Encourage and assist members of the woodturning community in the development of their skills.
- Provide a source for starting and developing woodturning skills.
- Provide reference for equipment.
- Provide woodturning safety information

We encourage you to forward this email to your woodturning buddies who might not be aware of AAW and its educational benefits.

The release of new materials will be timed to alternate with the publishing of the A*merican Woodturner* journal. Between these two, you'll have new materials to enjoy each month.

The contributors to Woodturning Fundamentals include Nick Cook, Rob Wallace, Beth Ireland, Keith Tompkins, Joe Herrmann, John Lucas, Linda Ferber, and Kurt Hertzog. In our content, we'll include past journal materials, specially created articles, tool and equipment reviews, educational video clips, tips and tricks, and questions & answers.

Feel free to send in questions for the Q&A as well as suggestions for content or improvement in our Woodturning Fundamentals program. We look forward to hearing from you.

For more than twenty-five years, the American Association of Woodturners has continued to provide encouragement, support, resources, and opportunities for woodturners of all skill levels from hobbyist and student to seasoned professional. Members of your chapter that are not AAW members can learn more about **AAW and benefits at this link.**

Best,
Kurt Hertzog
2012 Chair
Chapters and Membership Committee

Square Mirrors

Square and circular reflections from the scrap pile

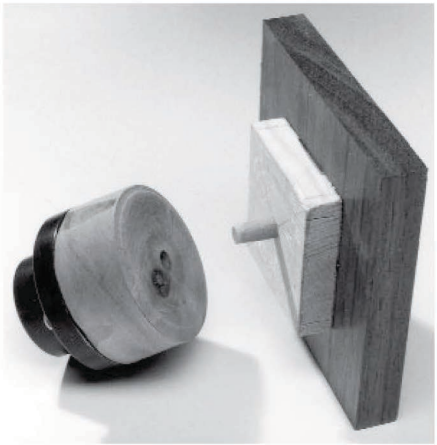
JOHN LUCAS

Several years ago when I joined the Tennessee Association of Woodturners, I met Charles Alvis, and became fascinated with the square platters he was making.

Since I had a scrap box full of small pieces, I began experimenting with turned forms that started out as squares. Eventually I decided the stock was perfect for hand mirrors. Turning these mirrors has been a great deal of fun and the size keeps the cost down, so I can afford to play with shape, color, texture, and design.

In this article I'll explain how to turn a basic square mirror. I generally attach the mirror blank to a waste block which can be fastened to a faceplate or held in a chuck. I prefer a 4-jaw Nova chuck to hold the waste block or to expand into the mirror opening, instead of using a faceplate. This speeds up the centering process but the gripping pressure should be checked often if you're using soft woods.

For simplicity, the process I use here will be based on two waste blocks, each bored with a center hole for accurate alignment. One waste block is screwed to a faceplate, the second, which is square, is glued to the blank that will be turned to hold the glass mirror.



Mounting system uses two waste blocks, bored with alignment holes.

A bevy of designs reflecting the author's fascination with wood and mirrors. All photos in this article by the author, except where noted.

Begin by mounting the waste block on your faceplate. Round the block off and true up its face. Then drill a $^{3}/_{8}$-in. hole in the center. This will be used to align things later, so be as accurate as you can. I bore the hole in the faceplate block using a Jacobs chuck in the tailstock and bore the square block on my drill press.

The second waste block, the one attached to the mirror blank itself, should have a diagonal measurement slightly larger than the glass mirror insert, so that it can be used later as a sort of jam chuck to fit into the mirror opening. For a 4-in.-dia. mirror this will be approximately 3-in.-square.

Next, drill a $^{3}/_{8}$-in.-hole in the middle of this blank. If you are making a square mirror this is critical for even spacing of the edges.

Cut a $5^{1}/_{2}$-in.-square blank for your mirror. I decided on this size blank by trial and error. The glass mirrors come in 1-in. increments from 2 in. up. A 4-in. mirror is a good size for a handled mirror. If you add space for a bead or cove to surround the glass and a blank area for some visual space, then you end up with 5-to-$5^{1}/_{2}$-in.

In cutting the blank, play with the grain. I use a $5\ ^{1}/_{2}$-in. piece of Plexiglas as a template, so I can see the grain pattern. I move the template around the board until I find an area that I think would be attractive for my mirror.

Choose the best side of the blank and draw diagonal lines from the corners. Now place your square glue block on the lines and line up the corners of the block with the diagonal lines. I draw a square around the block to make it faster to align it when gluing.

The author checks the depth of the recess turned to accept a 4-in. diameter mirror glass, using the shop-built gauge shown below. Photo: Gared Mach.

Glue the waste block onto the mirror blank using a paper joint or medium-viscosity cyanoacrylate glue. For paper joints I usually use lined notebook paper. Kraft paper or paper sacks work better, but I never seem to have any on hand. I use yellow woodworkers glue but it takes much longer to dry than it would without the paper. I allow at least four hours drying time for the paper joint.

If you use CA glue, make sure your glue block is a softer wood than your mirror blank. That way any torn wood will be on the waste block. I have also found that if I put accelerator on the block the joint will separate with less tearing of the wood. Hot glue and double stick tape may work but I haven't tried those yet.

Put a short $^{3}/_{8}$-in. dowel in the faceplate hole and glue the square block with the mirror blank attached to the face plate. The dowel will align these parts accurately.

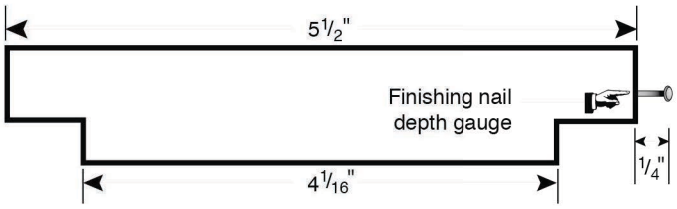
Set the tool rest with the lathe off and rotate the piece so you won't knock off one of the corners. Now turn a 4 $^{1}/_{16}$-in. opening for the mirror. I use a parting tool to start with and go down 2 times the thickness of the mirror to allow for some shaping of the lip later. I use a bowl gouge to hollow out the opening, which should be very slightly concave. I use a homemade Go-No-Go gauge, shown below, to check for size, bottom flatness and depth.

Draw a circle to define the mirror lip. Now start turning from the outside toward the middle. I use a "sharp" spindle or bowl gouge. Take very light cuts with almost no pressure on the bevel. I try to think about gliding the bevel rather than riding the bevel. Use a strong side light to show the cutting marks. Placing a black card behind the piece will help you see the shadow created by the corners. I sometimes put a piece of tape on the tool rest to define the corner if I'm having trouble finding the edge. Use a high speed to reduce the time the bevel can drop into the void between the corners. I strongly recommend trying this with scrap wood. You can get a lot of tearout on the edges until you learn to control the pressure on the bevel. I start the cut with the flute of the tool pointing at 1 o'clock and rotate the flute toward 3 o'clock while lifting the handle as I approach the bead that defines the mirror opening. I sometimes run the bevel back and forth across the work without taking a cut. It vibrates badly when you push too hard and glides smoothly when you get it right.

Beads and coves and raised areas are the decorations I use the most on the front of the mirror. The trick is not to overdo it. Look at the wood carefully and try to add a bead or cove to accentuate the pattern or defects that are already there. I have tried both raised beads and recessed beads. They both work well but they must have a sharply defined bottom. A crisp line makes the bead look taller and adds a nice shadow line. Coves have a more classical look and stand out better if there is a fillet on each side. You might call this detail a rabbit or a stair step. A trick I learned to make a fillet really crisp is to add all of the details except the fillets and sand to 180 grit. Then use a sharp parting tool to add the fillets. Now sand lightly with 220 grit. This way you don't round over any of the crisp edges. Sometimes the finish will tend to fill in the corners of fillets and the bottom of beads, making the edges look softer. I have found that a toothpick applied gently to the piece while the work is spinning will clean out these corners. This works really well with the HUT abrasive sticks.

Texturing can be fun. I've used a wire wheel to brush the wood. Cherry works real well for this technique. Try making a series of random circles with a Dremel engraver. I use a broken $^{1}/_{8}$-in drill bit that I rounded over, instead of the engraver point. This works better with dark woods, but adds an interesting texture to any of them.

Go-No-Go Gauge for Mirror Opening



Drawing by John Wengren.

The face of the mirror is shaped with a sharp gouge.

Sometimes I turn a groove in the face of the blank and then add a contrasting layer of wood. I glue an 8 sided segmented circle to a faceplate and then turn it until it just fits the groove. I taper the walls of the groove and then taper the ring to match. This way you can adjust the size until it just drops into the groove. I glue this onto the mirror blank and then turn away the scrap waste block that the ring was glued to. An easier method is to fill the groove with "Inlace." This plastic resin mixes like epoxy and dries to form a tough layer similar to Corian. It comes in several unique crushed stone colors that are quite striking. You can order these from Craft Supplies USA (800-551-8876) or directly from Inlace Products. 502-885-0776.

Carving and painting on the front have endless variations. I am currently trying to learn chip carving which I think will look very nice on these mirrors.

Sand and finish this side. I power sand using a 2-in disc with the lathe running but this is very tricky and can damage your sanding pad. I recommend power sanding with the lathe off and use your spindle lock or index lock to hold the mirror while sanding. This is slower but much safer.

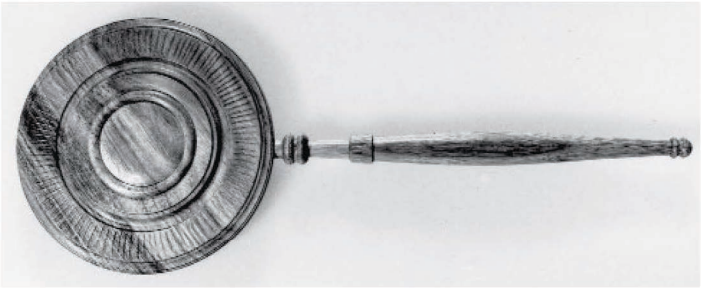
I use a blend of $^1/_3$ shellac, $^1/_3$ alcohol, and $^1/_3$ boiled linseed oil as a finish. I mix this together in an old mustard squeeze bottle with the "Mr. Yuck" symbol attached. I apply the finish with the lathe off and then buff it with the same rag while the work is spinning. To buff the corners make a very firm ball by putting some steel wool or cotton inside and then coat the outside with a thin layer of your finish. If the ball is firm enough and you keep the pressure really light you can buff the inside of a concave surface. Try this on a convex surface first.

Use a chisel to separate the mirror from the waste block and then true up the face of the waste block. It should just fit the mirror opening . If it doesn't, turn it down slightly until it does. Glue the mirror with CA glue or a paper joint to the waste block with the long grain running perpendicular to the flat side of the block. This is to insure that you can separate it from the glue block without breaking the mirror.

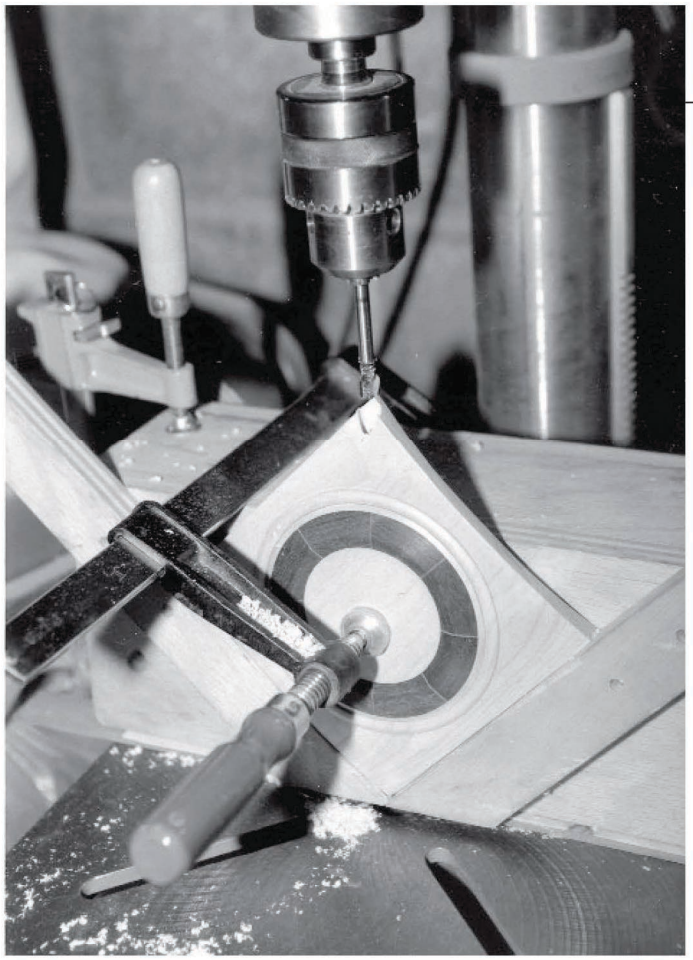
Turn the mirror to your favorite design. Let the wood tell you what to do. Sand and finish this side the same as before.Then separate it by putting a chisel between the mirror and the block.

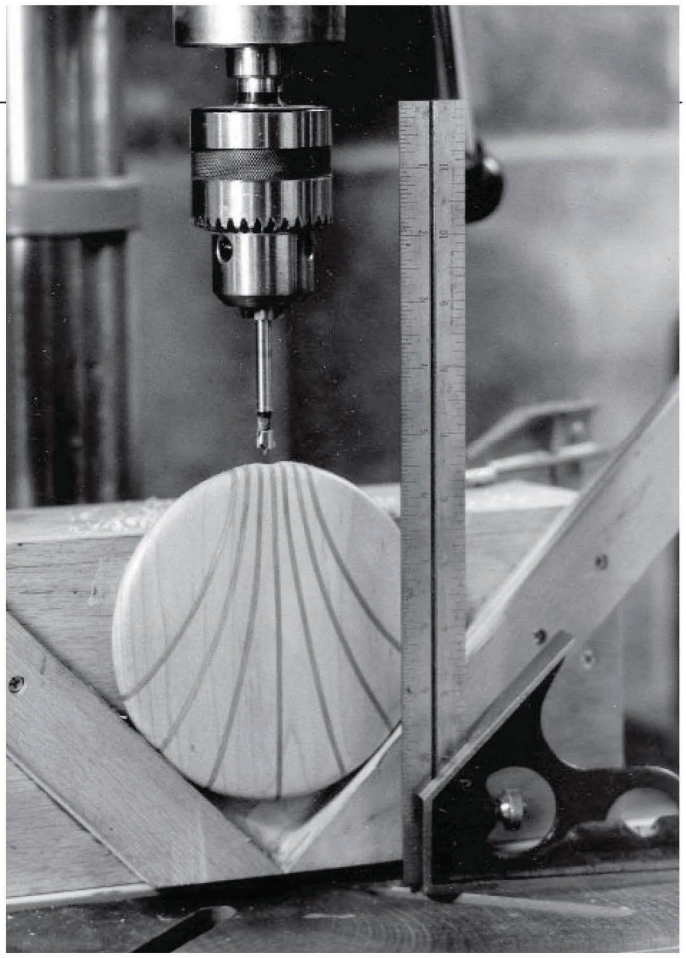
Getting a handle

For the handle start with a piece $^3/_4$-in. square and 10-in.-long. Place marks 1 in. from each end to define



Two Lucas mirrors: Zebra wood, left; Tarara wood, above.





The author's drill press fixture for boring the mirrors. It is two boards fastened together at 90 degrees to each other and mounted on a block to form a V-cradle. The system works with both square and round blanks.

the tenon and the end of the handle. Place marks defining the details for the handle. I like a ball or a couple of beads to break up the line between the handle and the head.

Handles are easy to turn but trying to match the details in the handle with some detail in the body gets interesting. I think handles should be graceful without being bulky or too delicate. The length that works for me is about 8 in. from the 1st bead to the tail. I have found that areas thinner than $^{3}/_{8}$-in. appear visually weak to my customers, so I try not to go below that. If I taper the handle from the middle out, I try to make the tail portion the same or thinner than the head area. On my barn wood mirrors I turn the tail end of the handle off center, so that a portion of the grey wood is left showing.

I use a parting tool to define the edges of the ball. Leave the tenon $^{7}/_{16}$ in. at this point. Turn the handle to the desired shape. I rough out the shape with a gouge and make the final passes with a skew to clean it up and perfect the shape.

A spindle this thin will flex and vibrate as you turn it. I cup the fingers of my left hand over the spindle and apply gentle pressure to the opposite side to dampen this vibration. Use a glove or slow the lathe down to keep from burning your fingers. Now turn the tenon down to $^{3}/_{8}$-in.

My gauge is a $^{3}/_{8}$-in. open end wrench that exactly fits my $^{3}/_{8}$-in. Forstner style bit. Buy a cheap wrench and peen the edges with a ball peen hammer. This will reduce the size of the opening. Then file it to exactly fit your drill bit.

I sand and finish the handle while on the lathe. Carefully shape the tail end of the handle with a skew until there is only a small point left. I trim the small point with a sharp knife after removing the handle from the lathe.

If your mirror ended up more than $^{3}/_{8}$-in. thick, simply drill a $^{3}/_{8}$-in. hole in the edge and glue it in place.

If its thinner and curved, as my square mirrors are, I drill through the point at a slight angle with a Forstner style bit and carve off the protruding tenon when the glue is dry.

I glue the mirror in place using a flexible adhesive such as silicon caulking. You can buy mirrors from Craft supplies USA or Woodcraft Supply(800-225-1153).

I hope you have as much fun making mirrors as I have. Any scrap piece of wood in my shop may end up in one of these mirrors.

John Lucas is a photographer at Tennessee Technological University in Cookeville, TN.

VIDEO TIPS

Tips on Turning a Hand Mirror

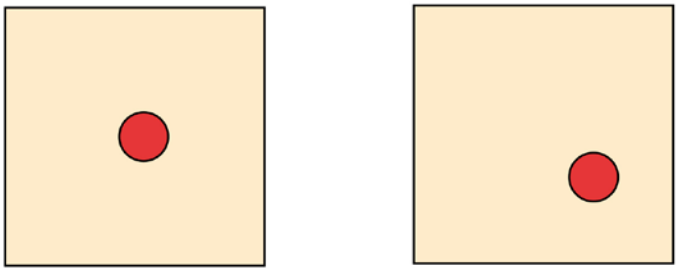
John Lucas shares tips on turning a hand mirror (TRT: 1:39).

Video link: http://vimeo.com/72487911 (Tip: If you have trouble accessing the video directly from this document, you may copy the video link and paste it directly into your browser.)

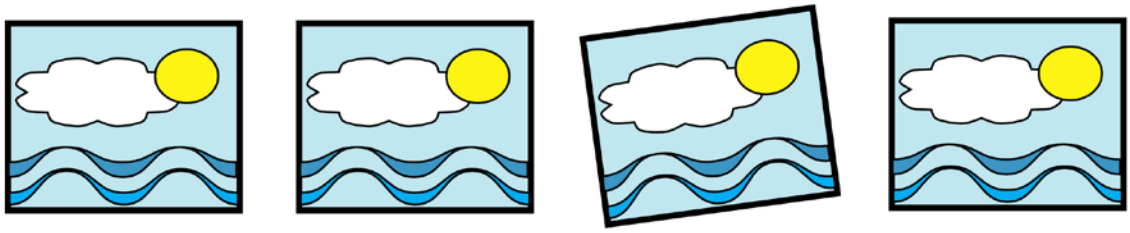
TIPS: DESIGN

Static vs. Dynamic

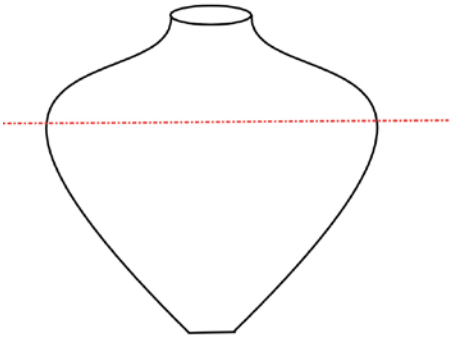
By Keith Tompkins



Above are two identical squares, each contains a red dot. The dot in the first square is centered; while the dot in the second square is randomly placed inside the square. The dot in the first square is balanced, and gives a sense of equilibrium. It generates little visual interest. The off-center dot in the second square catches the attention of the casual observer; who instinctively wants to place the dot back into the center where it seemingly belongs. The first square can be considered STATIC, while the second square has a DYNAMIC quality. Could we use this concept to our advantage as wood turners?



Four identical paintings are hanging on a wall, yet one attracts your attention when you walk past it. Why? It's not hanging squarely, as the others are. Similar to the red dot above, our mind's eye wants to straighten the picture, thus restoring balance. Can you think of a way to incorporate this sense of TENSION into your work?



Here is an example of how we can create a dynamic vessel, as opposed to a static one, by employing the simple ideas I outlined above. By changing the placement of the largest diameter of the vessel away from the centerline, we Create a sense of movement or lift. We have disturbed the balance, and have broken the symmetry between the top and bottom sections of the piece. Notice also the foot and the Opening are not the same size...The symmetry along that axis has been broken as well, creating even more visual interest.

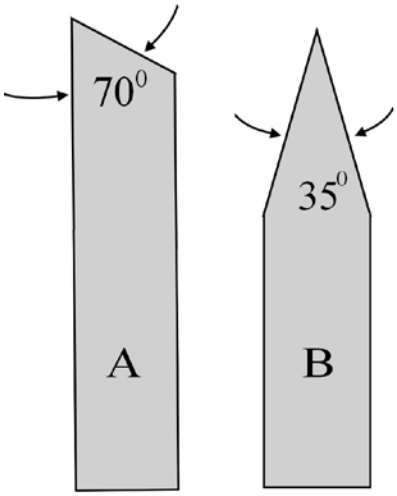
(Selection from *Woodturning Fundamentals*, July 2012)

TIPS: SHARPENING THE SKEW

Sharpening the Skew Tip

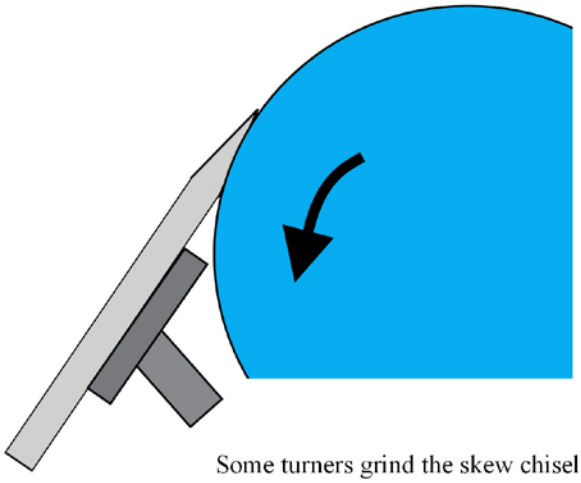
By Keith Tompkins

When discussing the fundamentals of turning, proper sharpening techniques must be at the top of the list. Many problems new turners experience can be traced back to improperly sharpened tools, so in this segment, we will discuss sharpening the skew chisel. After all, what tool could be more troublesome?

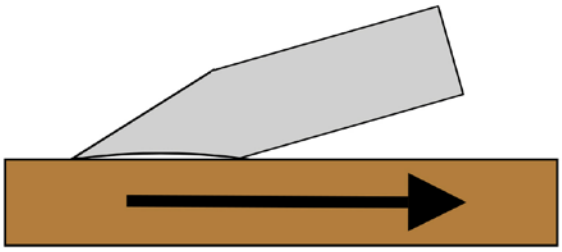


TOP VIEW SIDE VIEW

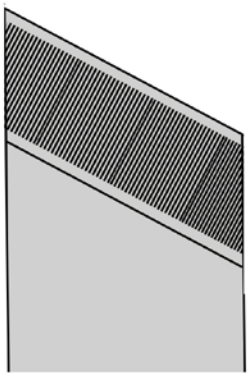
When sharpening the skew chisel, there are two separate angles to consider. The amount the cutting edge is skewed to one side, fig. A, and the angle produced by grinding, fig. B. Many turners develop their own favorite grinding angles over time, but the angles shown will give good results.



Some turners grind the skew chisel freehand, but I suggest always using a platen, or grinding platform in the beginning. This will help create a smooth surface, free of facets, and will help in the ability to grind the same angles consistently.



Once you are satisfied with the results of the grinding process, honing the surfaces is the necessary final step. To simplify the honing process, I recommend using a stationary bench stone. The surface created during grinding will be slightly concave; rock the tool on the stone surface until both the front and back edges of the grind contact the stone. Then, draw the tool in the direction shown by the arrow, repeating until both edges are uniformly polished. Flip the tool over, and repeat the process. Resist the temptation to speed up the process by honing in both directions; back and forth.



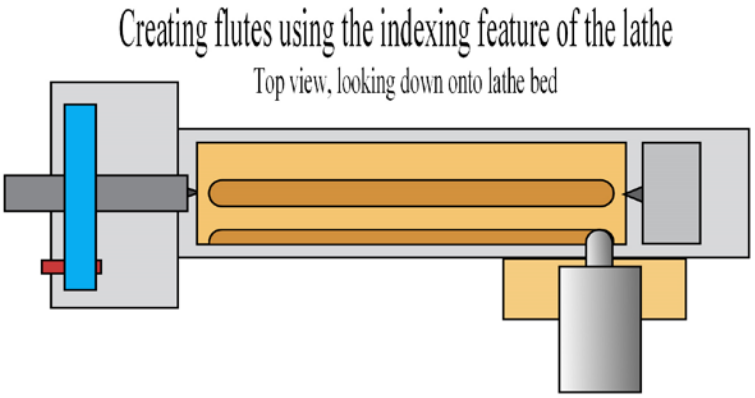
After honing, the result should Look something like this.

(Selection from *Woodturning Fundamentals*, September 2012)

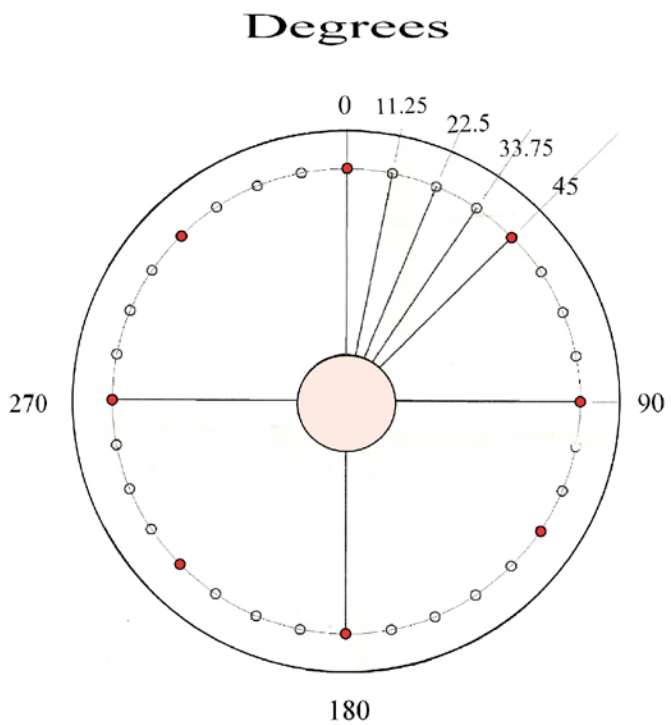
TIPS: INDEXING

Creating Flutes Using the Indexing Feature

By Keith Tompkins

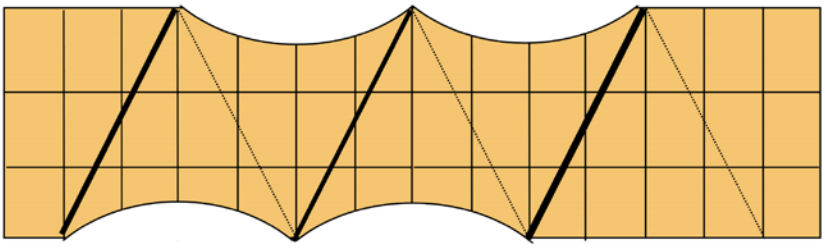


Indexing ring,(blue) is locked into position with indexing pin (red). A hand router, held in a fixture, is guided along the bed to create a flute. After the flute is cut, the indexing pin is disengaged, the stock rotated to the proper position, and the index pin is engaged. The remaining flutes are cut in this manner.



This illustration of an indexing ring has 32 divisions, The holes highlighted in red would be used to create a turning with eight flutes around its circumference.

The indexing feature can also be used to lay out spiral-carved work. This illustrates an example of a single-twist carving, where lines are drawn along the length of the turning, and also evenly spaced around the circumference. Many variations are possible, including drawing out several twists.



An excellent reference for creating spiral work is "Techniques of Spiral Work" by Stuart Mortimer.

(Selection from *Woodturning Fundamentals,* November 2012)

TIPS: WORKING SAFELY

Listen to Your Inner Voice

Working safely helps you to avoid accidents. Here is a tip that anyone can and should use as he or she begins the learning curve of woodturning. In fact it's a technique that, once mastered can be used very effectively in all walks of life.

This simple yet powerful technique can be summed up into a very simple statement, "Listen to your inner voice." This little voice is also known as intuition, instinct, insight, even precognition. It is a subtle but uncanny sense that something isn't quite right. Nine out of ten times a person will disregard this moment of odd feeling and nothing out of the ordinary happens and the feeling fades away. However, the one time that something does materialize out of that feeling, an accident may occur with disastrous unintended consequences.

Think back in your own experience. I'll bet you can remember a time when you or someone you know said something like this. "Ya know, I felt something was wrong just before..." Or perhaps you heard, "I should have listened to myself." Or, "I just knew something was going to go wrong." These are very common exclamations people make when telling the story of an accident they were involved in.

There is a reason why these statements are common. In order to bring this well-studied safety concept to the forefront, so it may help you avoid an accident, you must accept one important assumption. ***These intuitive feelings are not random thoughts. There is a reason why these thoughts develop.*** Your job is to figure out what triggered these odd feelings. Fortunately, using this seemingly esoteric safety concept constructively is far easier than understanding the psychology of the concept itself.

Implementing your intuitive sense is simple. Just follow one simple rule. Any time you have an odd feeling that something isn't quite right. Stop the machinery immediately. Double check everything you are working on and with. Make sure everything is snug, sharp and in its proper place. Once you're confident all is well, then and only then proceed with your project. This routine only takes a few extra moments and you will be surprised how many times you actually find something that is amiss. Remember, woodturning is no fun if you're hurt.

Stop the machinery immediately. Double check everything you are working on and with. Make sure everything is snug, sharp and in its proper place.

~ Donald Derry
Ellensburg, Washington

TIPS: WORKING SAFELY

My Favorite Safety Tip

"Never use the ON/ OFF switch to turn off your lathe. Always use the variable speed knob."

We have all had the experience of mounting a turning blank and watching, in horror, as it ramps up to three times more speed than it should – all because we neglected to lower the speed of the machine after the last project. We then find out how scary it is catching a bucking bronco while trying to hit the off switch. Once the shaking stops and we've counted our fingers and toes and made sure the shop didn't self-destruct, we give a sigh of relief and tell ourselves that we will never enter that rodeo event again. Then a few weeks or a month later, we neglectfully make the same mistake.

I made this very mistake in front of a room full of people at a chapter meeting one time. I had turned off the lathe to change the belt to high range. I then told a witty anecdote and totally forgot that the lathe would now be in hyperspace-mode when re-energized. I hit the ON switch and... You can visualize the rest. Fortunately, nothing was hurt during the incident except for my professional pride the overhead light fixture.

I gave a lot of thought to this experience and later figured out that it would never have happened if I had used the variable speed knob to turn the spindle off and on. I now use the knob religiously and not the ON/OFF toggle. To their credit, the club left that damaged light unrepaired for years as a reminder of how dangerous a lathe can be when it's not piloted correctly.

~ Donald Derry
Ellensburg, Washington

TIPS: FOOD SAFE FINISHES

Food Safe Finishes

Question:
I am a woodturner and a member of the Chippewa Valley Woodturners Guild. I would like a listing of the FDA-approved wood finishing products such as oils, etc. Thank you.

~ Dennis, Wisconsin

Answer:
The topic of food safe finishes is a recurring theme for many woodturners and woodworkers who envision placing their projects in contact with food, drink, or any materials meant to be consumed. Some of the concerns raised about whether something is "food safe" or not stem from invalid assumptions about the nature of the available finishes used to protect the wood, accentuate its figure, and reduce infiltration of moisture and other materials from the food into the wood. While in their liquid state, most finishes should be considered "toxic" and unsafe for human consumption due to the presence of solvents used to carry the actual finish into or onto the wood surface. However, once the finish has "matured" to its final state, many would argue that nearly all finishes are "food safe," specifically with regard to direct contact with food, such that no undesirable chemicals will leach out of the wood and finish into the food material being consumed. If you don't eat or drink the finish, it's food safe!

We first need to determine the kind of finish desired, as to whether it forms a film on the surface of the wood, or whether the finish penetrates into the porous structure of the wood. For those pieces that will not be subject to damage from food handling utensils, film finishes, such as polyurethane, lacquer, "varnish," or even shellac would be acceptable to use, for example, on serving platters. For those pieces where a film finish is likely to be damaged (cutting boards, salad bowls, etc.) a penetrating oil finish is recommended. For film finishes, once the carrier solvents have been permitted to fully leave the finish, and the surface has "dried," one might consider these surfaces food safe. For example, it is necessary to allow polyurethane finishes to fully polymerize and lose their carrier solvents (essentially making a "plastic" film finish), and to allow soluble finishes such as shellac and lacquer to fully evaporate away their solvents. Assuming you don't serve food mixes containing high concentrations of alcohol or lacquer thinner, which would dissolve these finishes, the surfaces should also be considered "food safe." In fact, purified shellac is a frequent ingredient used in various pharmaceutical products (e.g. coated tablets or pills), and is fully ingestible and generally safe.

However, once the finish has "matured" to its final state, many would argue that nearly all finishes are "food safe."

Similarly, oil finishes are often supplied as dissolved in a solvent which must leave the oil behind in the wood as it evaporates, and then allow the oil to "cure." That is, if the oil finish used is composed of one of the so-called "drying-oils," such as linseed, tung, or walnut oils. These oils do not actually "dry" in the evaporation sense, but actually undergo spontaneous cross-linking of their molecular structures (in the double bonds of their fatty acids) with the incorporation of oxygen from the air. The fully-cured oils would also be considered food safe. In some commercial preparations of oil finishes (such as those using primarily linseed oil), metal-based chemicals are added to increase the rate of cross-linking with oxygen; without these "metallic driers" some of these finishes would take quite a long time to cure. Are the metallic drier chemicals "toxic" – yes, if they are ingested in their soluble form – however as the oils cure and become cross-linked, very little, if any of these additives should leach out into one's food. Even if the wood itself is ingested containing the cured, cross-linked oils, it is doubtful that a sufficient amount of metallic drier and cross-linked oil could be considered toxic in any significant concentration. Finishes sold as "salad bowl" or "butcher block" finishes are chemically related to other penetrating oil finishes that "dry" and should be considered "food safe." Oils that do not "dry" such as olive, peanut, canola, and "vegetable oil" will turn rancid through degradation of the oil's fatty acid components, and impart bad odors or flavors in foods used on these surfaces. Although these degradation products are generally not toxic, they are undesirable, and these types of oils should not be used on utilitarian wood products. Mineral oil, which "never dries or turns rancid" is sometimes used, and as long as a purified (USP) form of mineral oil is used (and replenished as needed), it, too, may be considered a food safe finish.

Finally, waxes such as beeswax and carnauba wax may also be considered food safe, provided any solvents used as a carrier for the wax are allowed to evaporate fully.

~ Rob Wallace, Ames, Iowa
rwallace@iastate.edu

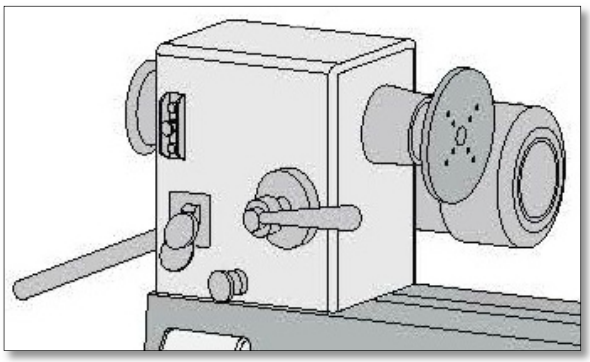
TIPS: LATHE SPEED

How fast should I run my lathe?

The question often asked, especially by newcomers, is, "How fast should my lathe be running?" The answer, as facetious as it sounds, is, "It depends." The guiding principle must always be that you run the lathe no faster than is safe. Generally, the quality of the cut is better with the wood moving faster by the edge than slower. That is, of course, with sharp tools and appropriate tool presentation and there is a point of diminishing returns. Depending on the activity – roughing, interrupted cuts, finishing cuts, detailing, sanding – different speeds are appropriate.

There are many things that will influence your determination of how fast to run your lathe. These include: size and balance of the material; size of the lathe; mounting technique; cut being performed; tool being used; your experience; and more. Again, the overriding factor is safety. Never turn any faster than is safe and that you feel comfortable with. If you have any doubts, always err on the side of safety. Going slower and making judicious increases in speed, if appropriate, will be a much wiser choice.

Good practice when turning on a lathe, for everyone from the beginner to the professional, is to know what the speed is set, prior to turning on the lathe. Set the speed to be slower and safer than needed prior to turning on the lathe. After ensuring that the speed is safe, double-checking the work mounting, and checking for rotational clearance between the work and the tool rest, you are now ready to turn on the lathe. Be sure you are positioned safely when turning on the lathe and then speed up the lathe from your safe start up speed to your desired turning speed.



Rotations Per Minute (RPM) is really not a useful concept in woodturning. Surface feet per minute, however, is an important consideration. A pen blank might be safely turned at thousands of RPM, while a 30" platter might only be safe at a couple of hundred RPM. Always be cognizant of the size and speed relationship with your lathe speed selection. Always remember that there is no advantage to going faster than appropriate. Not only do you put safety at risk but you gain no improvement in work quality or rate. Start slow, speed up as is safe.

~ Kurt Hertzog
Henrietta, New York

(Selection from *Woodturning Fundamentals,* March 2012)

TIP: SEGMENTING

How to Cut Segments

Question:
I like doing segmented turning a lot and I have been using Ray Allen's book entitled "Woodturning with Ray Allen." On page 51 at the bottom of the page there is a beautiful bowl that has these little triangle (brown in color) pieces in it and I would like to know how he made those. Can someone send me a detailed explanation on how to get those little triangles into one of my bowls? Thank you so much in advance for your help.

~ John, Tennessee

Answer:
I was happy to read your e-mail concerning Ray Allen's vessel designs. One of the fun things about segmented woodturning is not the turning but figuring out how to make the designs we desire. Creating a specific design requires several steps

- A detailed drawing of all component parts
- A plan on how to cut the components while maintaining the grain alignment
- Building jigs/fixtures to allow the creating of accurate components
- Building the vessel, etc.

With Ray's vessel the 16 segment ring is not made from just sixteen individual segments. Each segment is individually constructed.

- First the curly maple segment is cut to the correct angles
- A sanding fixture is built to sand away the top right corner of each segment
- A contrasting color wood is glued onto that corner (keeping the grain aligned horizontally)
- The segment is re-sanded to blend in the contrasting wood and regain the correct segment angle
- The top of the segment can also be sanded to re-flatten it however, that steps can be done later after that ring is added to the assembly.

With many complex designs there is a lot of sub-assembly, sanding to get precise alignments, sub-section gluing, etc.
A great source for assistance in solving many technical design/assembly problems is to join the AAW chapter on segmented woodturning where many daily discussions deal with similar points.
http://www.segmentedwoodturners.org/

I hope that this gives you some help. If there are more questions please feel free to contact me directly.

~ Jim Rodgers, Martinez, California

MEMBER Q & A

Starter Tools

Question:
I am a new turner and am confused by all of the tools available. What tools should I buy?

~ Klem, Kansas

Answer:
Klem, as is the case with any other hobby or craft, there are a myriad of tools available. They range from critically necessary to the tasks at hand, through the nice to have making the task easier, to virtually useless but were promoted nicely. My suggestion is to go VERY SLOWLY in your tool purchases. In the excitement that comes with a new pastime, it is easy to shop to excess only to find out that many of the purchases were inappropriate or unnecessary.

The first order of business is to decide what your turning interest is now. It will probably change as you go forward and you may need to expand your tool arsenal as you branch into other areas. The needs for a bowl turner are quite different than those of a spindle turner. There are some common tools but your workhorse tools for bowls are different than those for spindle work.

If you are interested in bowls as you start, your first purchase will probably be a bowl gouge. Select a size that will work for the type and size of bowls you are doing. Initially, you should be able to work quite nicely with just one. Size it for the size work you plan to be doing. Later on, you might add other sizes or duplicates that you will put a different grind on. Your next tools are likely to be a parting tool and then a spindle gouge. Again, size them based on the size of work you plan to be doing.

If you are going to be more involved with spindles, your initial tool purchases will bypass the bowl gouge in favor of the spindle tools. You probably will start with a roughing gouge, spindle gouge, and parting tool. Those will get you going with the fundamental spindle type activities. Whether you do stairwell balusters or pens, the concepts and the tools are basically the same though the tool size and grind may vary. Later on, adding a skew and other spindle-specific tools will be your choice.

In both arenas, you'll probably have a need for the scraper family. My caution is to be very careful with your scraper size and its application. The tendency for new turners is to use the

scraper as a crutch to cure poor turning. There are great uses for scrapers, but don't use them to cover up for turning that could easily be done better with a cutting tool.

Some words of advice on tool purchases. Go slowly! Buy as you need and make sure you look at it for the long term. If you'll get 25 years of service out of a tool, amortizing the cost of that tool becomes more palatable. I recommend against buying the various manufacturers kits of tools. While the sales agents will pitch the cost savings for you to buy all of them as a package, you'll wind up with tools you probably won't use or which are inappropriately sized for your application. Buy what you need in the way of tools as you need them rather than the "one size fits all" kit of tools.

Do not be afraid to buy used tools. There is little to go wrong with a tool, even if it has been improperly ground. It may look ugly but it can be fixed with proper sharpening. As long as it is high speed steel, as opposed to the older carbon steel tools, a grinder won't damage the underlying tool steel properties. If you are looking at used tools, I suggest you avoid the older styles of tools. The designs have progressed and the older styles, while they certainly will work, might not be what you'd like to use over the long haul. Older tools of the more modern design are fine, but older designs might not be the best choice for a beginner.

High quality tools will cost more than lower quality tools. You certainly can over pay for anything, but buying smart yet searching for the quality is a good goal. Buy as you need and buy the tool for the long haul. You'll be much better off with fewer tools and more mastery of those tools than a huge array of tools that you can't handle and aren't capable of properly sharpening. Spend time with your local chapter and turning friends. Try out the tools you'd like to buy to see if you really want them. Your fellow turners can recommend their favorites and will likely let you try them. It is a good way to make sure you don't wind up with tools that you bought but have no need for.

If there is a bottom line, it's to go slowly, get advice from knowledgeable turners, and master fewer tools rather than be ineffective with a large assortment.

~ Kurt Hertzog
Henrietta, New York

MEMBER Q & A

Starter Equipment

Question:
There are too many things to buy when getting started in woodturning. I can't buy them all right now, so what should I buy first?

~ Ferdinand, Los Gatos, California

Answer:
Ferdinand, you are right about the many things but don't worry. You can get started pretty simply and pace your purchases. With the assumption that you have a lathe or have access to one, let's focus on the initial other turning items. First and foremost is the personal protective equipment you should have and always use in your woodturning endeavors. A good pair of safety glasses, face shield, or goggles should be your first item to have. Depending on your turning projects, one type of eye protection might be more desirable than another, but it is imperative that you have eye protection at all times. Dust protection is also important. Disposable paper dust masks or a permanent version should always be available and used as appropriate. Whether or not you use a turning smock, make sure you always are safe with nothing "dangling" to be a safety concern. With the personal protection equipment in order, now let's talk about a tool or two and a sharpening system. For all of your turning projects, you will need to have some method of sharpening whatever tools you buy or borrow. You can use a 6, 7, or 8-inch grinder that runs at low or high speed. It doesn't matter as long as you use only one grinder to sharpen your tools. Changing grinders, even if the same wheel diameter, will cause you more problems that you need. Use the same grinder all of the time if at all possible. You can buy a used grinder or new. It need not be expensive but you will need a sharpening system of some kind. There are a host of jigs to remedy your sharpening difficulties. You can choose as you wish.

With a sharpening system in place, you can focus on your tools. Start simply with the minimum you need. You can add as required when you've mastered the initial tools. The tools will vary depending on whether you are interested in bowl turning or spindle work.

In review, you'll need a lathe or access to one. Assuming you have the lathe and basics for mounting the work, you should have your personal protective equipment, a sharpening system, and a couple of initial tools. Once you've had time to use these tools, working on mastering the fundamentals, you can begin to add the additional tools, work-holding devices, and other items that will allow you to continue your woodturning journey. Don't be afraid to purchase used items. Great values can be had if the items are still serviceable. You can stretch your dollars a bit farther buying used so consider it when you have the opportunity.

~ Kurt Hertzog
Henrietta, New York

VIDEO TIPS

Measuring a Tenon on a Spindle Turning Using a Caliper

By Beth Ireland

Beth Ireland demonstrates how to measure a tenon on a spindle turning using a caliper.

Video link: http://vimeo.com/65051640 (Tip: If you have trouble accessing the video directly from this document, you may copy the video link and paste it directly into your browser.)

Turning a Morse Taper

By Beth Ireland

Beth Ireland demonstrates how to turn a morse taper (TRT 7:28).

Video link: http://vimeo.com/70348015 (Tip: If you have trouble accessing the video directly from this document, you may copy the video link and paste it directly into your browser.)