

**WOODTURNING**

# FUNdamentals

**AAW**  
EDUCATION

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## PROJECTS

**MAKING A NATURAL EDGE BOWL**

JEFFREY NEFF

**STRING HOLDER**

MARK PALMA

**WHIP TOP**

BRAD VIETJE

**OFF-CENTER TOOL HANDLE**

DAN MICHENER

.....

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DALE LARSON

**SAFETY TIPS**

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**WINE BOTTLE STOPPER PACKAGE**

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**BUILD A LAZY SUSAN**

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**BREATHING IS GOOD - PART 2**

HARVEY ROGERS

.....

## VIDEOS

# Woodturning FUNdamentals

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EDUCATION

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TURNING  
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An accident at the lathe can occur with blinding suddenness. Respiratory and health problems can develop over time. Take appropriate precautions when you turn. Use face shields, safety glasses, and dust masks. Follow all manufacturers' safety guidelines. For more about woodturning safety, visit AAW's website at [woodturner.org](http://woodturner.org).



Cover photo: Dale Larson

# WELCOME

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## A Note from the Executive Director

Every other month, the AAW is pleased to present *Woodturning FUNdamentals*, a digital publication which features information, projects, tips, and videos to help members build foundational woodturning skills and techniques. This publication ties directly into AAW's education mission, and is one of the many publications and services offered with an AAW membership.

In this issue of *Woodturning FUNdamentals*, we are happy to offer four projects, five tips, and two videos to keep you turning! One of the videos is a 90-minute demonstration on seven fundamentals of woodturning by Stuart Batty. We hope you enjoy it. If you're looking for even more resources to build your woodturning skills, I'd like to remind you that past issues of *Woodturning FUNdamentals* are available to members at <http://www.woodturner.org/default.asp?page=FUNDamentalsRes>.

Special Preview: Also, we've produced a special preview edition of this issue of *Woodturning FUNdamentals* for non-members to give them a sample of the useful materials *Woodturning FUNdamentals* offers six times each a year with an AAW membership. The preview includes one project: String holder, by Mark Palma, and the following articles: Jig for turning bottom of bowl, by Dale Larson; Build a lazy Susan, by Dan Burleson; and, Breathing is good - Part 2, by Harvey Rogers.

For as little as \$45 per year (the price of an online membership), AAW members have access to publications including, *American Woodturner* journal, *Woodturning FUNdamentals*, *Safety for Woodturners*, and several mentoring publications, as well as a variety of complimentary services, website tools, grant opportunities, and specialty programming. You can learn more about AAW membership at <https://aaw.site-ym.com/?page=MemberBenefits>.



As always, *Woodturning FUNdamentals* invites you to submit your questions, tips, projects, and problems with us. Every turner develops tips and techniques that work, and also runs into frustrating obstacles from time to time. You're not alone. Please send your submissions to us at [linda@woodturner.org](mailto:linda@woodturner.org).

I welcome your suggestions and concerns.

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



# NATURAL EDGE BOWL

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## My favorite bowl turning project

My favorite turning projects are natural-edge bowls and hollow forms. I enjoy creating natural flowing designs and like working with burl wood. This form showcases the natural beauty of the wood. I would like to share the process I use to create these bowls.

1. Preparing the bowl blank for turning
  - a. Select the bowl blank. The length of the log should be as long as the width.



**Photo 1**

- b. Next, mark the center point of the bowl diameter and cut the bowl blank round on the band saw. Drill a 1" hole (using a 1" spade bit) on the center point on the round bark side of the bowl blank. (See photo 1.) Make sure your hole is through the bark and onto the wood of the bowl blank.



**Photo 2**

- c. Insert 4-prong drive center into 1" drilled hole and use a mallet to hammer the drive center into the bowl blank. (See photo 2.)



**Photo 3**

2. Mount the bowl blank with the drive center into the headstock and use the tail stock live center to secure the bowl blank. (See photo 3.)



**Photo 4**

3. To achieve even high and low point, align a pencil on the toolrest, rotate the blank, and verify that the high points of the bark and low points match the pencil location. (See photo 4.) No matter how well you round the bowl blank on the bandsaw, it's still going to be unbalanced until you true it up and turn the rough shape.



**Photo 5**

Turn the outside of your bowl blank. (See photo 5.) Then repeat alignment using the pencil to verify the high and low point at the same height. If the points are not equal, loosen the tailstock and rotate the blank to match the high and low points are at an even height, and return the outside of the bowl.

4. Finish turning the outside of the bowl and make sure that the tenon for your 4-jaw chuck has a clean shoulder and flat bottom for the chuck jaws to seat against. Make sure that your tailstock live center leaves a good center point in the middle of your tenon.
5. Finish and sand the outside of your bowl.



**Photo 6**

6. Remove your bowl from between centers and insert your tenon into your 4-jaw chuck. Make sure that the jaws seat flush against the flat of your tenon and tighten the jaws of the chuck onto the tenon. (See photo 6).



**Photo 7**

7. Turning the inside of the bowl.  
First, using a narrow parting tool, determine your bowl wall thickness. (See photo 7.) Make sure when pulling out of the cut with the parting tool, that you keep it against the inside diameter of the bowl blank to prevent chipping out the natural-edge bark.



**Photo 8**



**Photo 9**

Hollow out the bowl blank and match the inside curve to the outside curve. (See photo 8 and 9.) Use calipers to verify even wall thickness. Sand the inside of your bowl with the lathe off with a sander. This will keep the sander from hitting the natural-edge bark.



**Photo 10**

8. Remove the bowl blank from the chuck and reverse chuck the bowl. I used a roll of duct tape with the jaws expanded in the inside of the roll (see photo 10). Align the live center into the center mark of your tenon and secure the tailstock. Continue the flow of your outside bowl curve and make sure the bottom of the bowl has a little concave to it allowing the bowl to set flush on a flat surface. Use a saw and remove the final nib and sand.



**Photo 11**



**Photo 12**

9. Finish sanding your bowl blank (see photos 11 and 12).
10. Now your bowl is ready for your final finish.

**Tips and problems in turning natural-edge bowls include the following:**

**Wood selection is important because not all woods will work for natural-edge bowls. The woods I have used successfully include avocado, walnut, iron bark, ash, pacific yew, green ash, carob, Bradford pear, and black acacia. The woods with which I have not been successful include cedar, box elder, redwood, and blue pine. There are a lot of other woods that might work.**

**If the bark comes off, I torch the rim to give the bowl a nice black rim. You can try using CA to hold the bark on, but I have not had success with it.**

Pictured below is a selection of my natural-edge bowls.



~ J.P. Neff  
San Diego, California

I am a member of AAW. I spend time between San Diego, CA, and Stevensville, MT, where I enjoy turning. I am a member of the San Diego Woodturners, Inc., serving on the board as mentor and chairman of the club's raffle. I have always enjoyed woodworking since high school, turning full time for the past seven years. In addition to natural-edge bowls, I also enjoy turning platters, vases, boxes, and artistic forms.

# PROJECT: STRING HOLDER

---

String holder project: Untying the fundamental concepts of spindles and bowls in one simple project.



I remember that when I was a child, everyone had a ball of string handy. Retailers tied up your purchases at the store in paper with the store's logo and string.<sup>1</sup> Libraries used string to tie up books checked out by customers. Newspapers came to the paperboys<sup>2</sup> tied with string. Every home, workshop and business establishment had a ball of string (or many) as a staple of life. How do you think those

---

<sup>1</sup> Except for Ralph, our butcher, who used shiny wax butcher wrap and string to wrap our purchases from his meat counter.

<sup>2</sup> I am not being sexist here! When I was a kid they were called "paperboys." They were all male, rode bikes, collected for the paper with these little books with stubs in them for your bill ( morning, evening, Saturday and Sunday were the four categories). Yes, papers were printed twice a day!

*This is a great skill builder project. It introduces a series of techniques including:*

- *Spindle turning*
- *Drilling*
- *Fitting a tenon*
- *Faceplate or chucking a cross grain piece*
- *Using scraps*

Guinness world record balls of string received massive proportions<sup>3</sup>. In our modern world, string has fallen out of favor<sup>4</sup>. However, it could still have legitimate utility in our daily lives. In my attempt to introduce this resource to a generation who finds string as foreign as the Betamax<sup>5</sup>, I created this string holder.

Commercial string holders are available in several forms. Some are wire or metal cages that hold the ball.

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<sup>3</sup> There are multiple claims to this record so I will not weigh in on such a weighty issue. One ball is estimated to weigh 20,800 pounds and is still growing!

<sup>4</sup> There are two competing views on the "why" of this great societal shift. One school considers the marketing pressure from the 3M Company for "Scotch Transparent Tape" as the source of string's demise. However, another school of thought believes that the work of Jack W. McBride is the real reason. Mr. McBride created the Dixie Bag Company and introduced the plastic grocery bag to America in the early 1980's when he convinced the Kroger Grocery chain to shift from paper bags to plastic. Either way, how could string compete?

<sup>5</sup> The Sony vs. JVC fight over the United States video recording format makes the ball of string fight look like a friendly dinner at my Aunt's house.

Others resemble canisters with a hole a hole from which the string emerges. Some string holders are a stick on a board. For woodturners, I thought we could do something a little more interesting. Using some scraps of wood<sup>6</sup>, I have attempted to come up with something pleasing to the eye and functional.

The base is approximately 4" to 4 ½" in diameter and around 1 ½" to 1 ¾" thick. Don't be too fussy with dimensions here; if you find yourself using a caliper, you are missing the point. Your goal is a piece of wood larger in diameter than your ball of string and heavy enough that the ball is anchored when you pull string from it. The balls of string I favor measure 3 ¼" high and 3 ¾" in diameter, but purchase your string and do not rely on my dimensions<sup>7</sup>. You can start with a single piece of wood or glue up smaller pieces to make a large enough blank<sup>8</sup>. The top side of the string holder base is somewhat dished towards the center (think a very shallow and thick bottomed bowl) to keep the ball of string somewhat centered on the base and make it seem cradled in the holder. Making the base larger than the ball of string gives nice visual balance to the piece and provides the perspective of a sturdy foundation for the string itself<sup>9</sup>.

<sup>6</sup> Woodturners are by nature hoarders, so most have some scraps of wood. I have been in some shops that may have every scrap of wood ever created by their owners!

<sup>7</sup> Of course, use the string, it will shrink (or if you follow my directions and pull from the center it will eventually internally collapse).

<sup>8</sup> A bonus skill builder and way to use up even smaller scraps of flat stock.

<sup>9</sup> Think of those world record contenders and the need for a sturdy base becomes a must!



Turn whatever shape, beads, coves, grooves, wire burning or whatever you desire into the base<sup>10</sup>. Sand as you would a bowl. Remember you have crossgrain on the sides of your blank so watch for tear-out. It is great practice for improving your sanding skills on a bowl, as that is in essence what you have just made<sup>11</sup>.

Drill a hole on the top side of the string holder about half the depth of the base<sup>12</sup>. The diameter of the hole will need to match your tenon on the vertical post section of the string holder. I found a 3/8" to 7/16" tenon to be a good size to provide strength and yet allow the post to be small enough to fit within a ball of string<sup>13</sup>.

<sup>10</sup> You may use a spindle gouge or bowl gouge on the base but NEVER a spindle roughing gouge or a skew. You have a cross grain situation here, and just like a bowl, you need a strong gouge with a stout tang. Watch your lathe speed and use the tailstock for support even with a good chuck. This is great bowl making practice, but be safe.

<sup>11</sup> I haven't told you what grit to sand to, as the type of finish and your tastes will determine your final grit. The examples I present here have a wipe on finish and were sanded to 400 grit.

<sup>12</sup> Do not use ¾" stock for the base, you need some tenon strength. If using thinner stock, consider making the tenon go all the way through the work.

<sup>13</sup> Make sure that you make the tenon the same size as the hole you drilled in the base. This is a good exercise on measuring a tenon, sneaking up on a good fit, and using calipers.



The post is a between-centers project. Almost any spare piece of spindle stock wood will do, so long as it has a minimum length equal to the size of your ball of string, the tenon in the base and extends at least  $\frac{3}{4}$ " above the ball of string. So for those of you who don't do math, that means you need a minimum length of around 5" (think a pen blank) to have a little extra wood to drive the piece and to part off at the end<sup>14</sup>. This is a great opportunity to practice some bead and cove skills and do whatever makes your gouge or skew sing!

This is a good exercise on measuring a tenon, sneaking up on a good fit, and using calipers. Take your time and remember that it's easier to stop the lathe and measure than to try to fix an undersized tenon. I make the tenon first (one half or less of its final length) and see if I get it right. If not, I can use that extra length of the stock to try again.

<sup>14</sup> I would use a 6" piece if it was me so that I had some extra wood on both ends, but you can make your own decision on that as well. A tip for newer turners is do not work with a blank that is too long or it will have a tendency to flex as you decrease the diameter.

It's easier to sort this out first since the length and shape of the post isn't a critical dimension. Once I get the tenon sorted and have a great fit, I proceed to the rest of the post moving from the largest diameter (the bottom of the post) up to the tip.



You will note I make the bottom of the post wider than the tenon to hide the hole and to blend the base into the post. It's a small detail that will rarely (or never) be viewed, but it makes your work that much better. My posts seem to be around  $\frac{5}{16}$ " to  $\frac{3}{8}$ " in diameter. The tip should be a compromise between aesthetics and safety. I blunt the tip enough not to scratch the user.

Sand the post on the lathe with the toolrest removed. This is a great exercise in sanding coves and beads without sanding away your beautiful detail.

My string holder was finished in a multi-coat wipe on oil finish and topped off with a coat of wax. After the finish is thoroughly dry, it is ready to be assembled.



Turning to the topic of string, there are differences. I found that string is not easy to find. I found four distinctly different products in my shopping excursion:

1. Thin, white, kite or balloon string. Most of these were on plastic spools, or cardboard tubes, and it didn't have the look I was seeking.<sup>15</sup>
2. Brown sisal<sup>16</sup> twine.
3. Nylon and other man-made products that melt if you hold a match to them. Most were not in the form of balls, and just lacked any kind of nostalgic warmth.
4. White kitchen twine<sup>17</sup>.

<sup>15</sup> My mother's "V" Store, a variety store chain based in Clara City, Minnesota. The V Store was known for such famous brands as "Paul Bunyan", "Glen Craft", "High Honor" and "Gay Toddler." Most of the 600 V Stores closed in the 1970's. By the early 1980's they were gone from the retailing landscape of small Midwestern towns. V Stores featured large cones of string that were about 10" high on a cast metal holder and had no core. They were "string art" at its finest.

<sup>16</sup> Sisal comes from a plant that appears to be from the cactus family, but is really a relative of the aloe plant. It is a coarse, strong fiber that comes in nice balls, but isn't my childhood memory.

<sup>17</sup> I titled this article "String Holder" not "Twine Holder." Unfortunately, the difference is somewhat unclear. One source insists that six fibers (strings) wound or woven together are a "yarn", six yarns woven or twisted together are a twine, six twines are a rope and, lastly, 6 ropes are a cable. So, if you do



This is my choice for a ball of string. It had the shape, weight, and aesthetics I sought. It had the classic ball-of-string look and feel. I found mine at a farm supply store and also found the product in an old fashioned hardware store. I did not find this product in any big-box retailer in my area<sup>18</sup>.



the math, a cable is comprised of 1, 296 strings, but I have no personal idea if that is right or wrong. Anyway, there is some difference.

<sup>18</sup> If you want to get an odd look, go into a farm supply store and buy 24 balls of string and nothing else. They may think you are out to break a world record.

I think it looks nicer if you start the ball of string from the center. Use tweezers to pull the loose end out of the center of the ball about 4". I put a drop of CA glue onto the loose end of the ball on the outside so that it doesn't unravel or get started by an overly enthusiastic user<sup>19</sup>. Press the ball onto the holder and off you go! A ball of string lasts a long time, so enjoy finding new uses for this classic from the past.

~ Mark Palma  
Cameron, Wisconsin

Mark Palma is a tax lawyer by day and a woodworker whenever he finds that "spare" time that isn't spoken for. He thanks his family for allowing him to have a shop, a tool allowance, wood stash, and the time to pursue his addictive hobby.

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<sup>19</sup> Although the term "burning the candle at both ends" seems to have an application here, it escapes me; oh well.

# TIMELESS SPINNING TOPS

---

## “Whip Top” or “Parish Top” made for games and contests



As a woodturner, I make all sorts of objects, both decorative and functional, but by far my favorite is turning tops. Not only because spinning tops delight and entertain children; their appeal appears to be universal, appealing to all ages, across every culture, rekindling the child in all of us. Tops may be even more timeless and universal than we thought - historical research shows that clay and terra cotta spinning tops have been around for at least 5,500 years! Tops may have been one of the first non-essential objects turned on primitive lathes, though we may never know for sure.

Tops come in a wide variety of forms from tiny finger twirlers to enormous Chinese tops up to 120 pounds. Spinning tops appear to have arisen in multiple places around the globe. When Europeans came to North America, they brought their tops with them, but were probably surprised to learn that the Native Americans they encountered already had tops of their own.

One sort of top that was very well known in colonial America has fallen out of favor, and is only rarely seen these days.

These are tops that are started by hand - usually both hands - and can be kept spinning indefinitely by swatting them with a sort of whip, thus they are generally known as "whip tops." The whip is usually a wooden stick with a few long strips of rawhide or eel skin attached at one end. In practice, a right-handed person would reach down and spin the top very quickly clockwise with both hands, then keep it spinning with repeated whippings.

Whipping the top can impart both spin as well as direction, so with practice you can direct the top to go across the floor or yard in a desired direction, making them a natural focus of many games and contests. These tops were in common use in Europe as well as America 200 years ago, so common that a larger top was often kept in the school yard and parish hall (nowadays town hall or city hall in most areas), so they became known as "Parish Tops." Parish top contests were often mentioned in colonial writings as a form of entertainment, and some schoolmasters considered them a way to allow children recreation and even a way to keep warm during the winter months. Native American versions were often a short section of a log sharpened to a point on one end with a hatchet.

Whip tops may be conical in shape or more cylindrical, with a pointed end that touches the ground. Both shapes were in use as far back as ancient Greece by both children and adults, and can be seen depicted on pottery of the time.

In northern regions of Europe and North America, frozen ponds and waterways made an excellent surface for spinning tops, and larger tops - as much as 10 pounds or more - were used on ice for sport and recreation. Similar to adult softball leagues today, parish top teams competed between villages and even between Native American tribes.

Making a whip top is an easy turning project. Just turn a cylinder about 2-1/2" to 3" in diameter with a blunt point on one end, a 45-degree cut to center will do fine. Make the top no taller than about 3" to 4" total, taller forms are too top heavy, and much harder to spin by hand. For use on hard surfaces like concrete, it may help to insert a metal tip of some sort; I've drilled a tiny hole and inserted a large upholstery tack that has worked just fine. A whip can be fashioned from an old broomstick, and a pair of long rawhide boot laces will do well for the lash material. With whip and top completed, all you have to do is go outside and get the thing spinning, and get some practice whipping it to keep it spinning upright. Don't be surprised if you attract a crowd of on-lookers who will want to give it a try. This is a great opportunity to ask them if they'd like to make one of their own, and you can recruit another to the ~~addiction~~ - er, hobby, that is - of woodturning!

~ Brad Vietje  
South Ryegate, Vermont

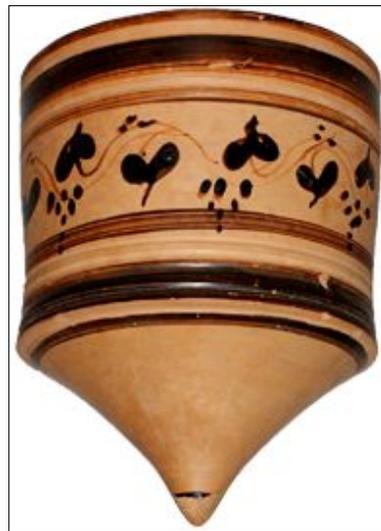
### Photos:

Tops of ancient Greece:



[Weblink to this image, click here.](#)

Another ancient Greek form (the basis for my copy):



[Web link to this image, click here.](#)

### References:

Culin, Stewart: *Games of the North American Indians: Games of skill, Volume 2.*  
[On-line version with diagrams, click here.](#)

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Spintastics Skill Toys, Inc. 2002; revised October, 2003.

# OFF-CENTER TOOL HANDLE

## Tool handle that resists rolling



This tool handle differs from the usual cylindrical shape in that it resists rolling off the workbench, is very comfortable to hold, and sometimes attracts rude comments, as in “What went wrong there?” I first made one of these by mistake. I was doing an exercise in turning a spiral when I confused the off-center marks. The result, with modifications, wound up as my favored type of tool handle. Most of the shaping can be done with just a roughing gouge.



Photo 1

1. Select a piece of hardwood of a size appropriate to the tool to be handled. (I use 2” x 2” x 13”.) Maple and ash are good hardwoods, unlikely to split when being used.
2. Center-punch the ends. Mark the punch marks with a pencil so you can easily tell them from other punch marks you will use later. Round the piece between centers and take it down to 1-5/8” to 1-7/8”. Use the larger size if you are going to mount something fairly robust, like a 1/2” gouge.



Photo 2

3. With the lathe stopped, draw a line the length of the cylinder, using the toolrest as a guide (photo 1).

**Photo 3**

Next, mark off 2" to 2-1/2" on each end of the spinning cylinder with a pencil. Then take the cylinder off the lathe (photo 2).

**Photo 4**

- Decide which end you want as the "tool end" and which will be the "handle end." From here on I keep the tool end on the right. On the tool end, center-punch a point half-way between the center and the end of the line along the cylinder (photo 3).

On the handle end, mark the place at the end of the line along the cylinder, and then mark two points, each 1/3 of the way around from the first mark.

The end of the cylinder will now have three equally spaced marks around the rim. Center-punch points halfway between the middle point and the two rim marks which do not line up with the horizontal line along the cylinder. Mark numbers "1" and "2" on these two center-punched holes. It doesn't matter which is which, so long as you can tell them apart when you are doing the turning (photo 4).

- Put the cylinder back on the lathe with the spur drive in the number 1 off-center punch hole on the handle end, and the live center tailstock tip in the off-center punch in the tool end. The cylinder is now off-center.

**Photo 5**

Be careful! You can't see the edges of the wood while it spins off-center and it is easy to have the toolrest closer than you think it is. Hand turn the piece before you turn on the power!

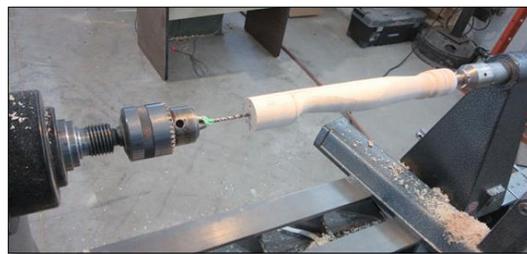
6. Turn the off-center cylinder, removing wood between the pencil lines, leaving 2" to 2-1/2" on the ends. Cut away material, alternating between punch points "1" and "2" on the handle end, leaving the turning piece somewhat fatter in the middle, until a fit pleasing to the hand and appropriate to the tool you want to mount, is achieved. I use a roughing gouge for this, but many tools will do just as good a job (photo 5).



**Photo 6**

It is hard to tell how much wood you are removing from the spinning, off-center piece. To keep the cuts equally deep in the two off-center positions, you can stop and see how close you are cutting to the horizontal line you made in Step 3. Even up the handle by cutting each side about the same distance from that line (photo 6).

Clean up with a scraper.



**Photo 7**

7. Using the center marks, reposition the handle on the lathe. Round the handle end; decorate if you wish (photo 8). Rounding and finishing the tool end can wait until the tool hole is drilled.
8. To drill a straight hole down the center to accept the turning tool, remove the spur drive and put in a drill chuck having a Morse taper. Seat the drill chuck well! I give it a couple of whacks on the end with a wooden mallet to ensure it won't come out while drilling. Use a small drill bit to make the pilot hole. Bring up the tailstock until the off-center handle is only just supported in the center punches, between the end of the drill bit and the live center on the tailstock (photo 7).

Mark the drill bit with tape for depth control and remove the toolrest so you have plenty of room.

Turn on the lathe at **low rpm**. While holding the wood with your hand to prevent it from turning, advance the quill, forcing the bit into the wood. Back out frequently to get rid of the shavings in the hole.



**Photo 8**

Repeat with a larger drill bit to make the hole the right size to take the tool or to accommodate a tool-holding insert.

Remove the handle and take out the drill chuck.

9. Reverse the handle and reposition between centers. Use a cone-shaped live center in the tailstock to fit into the tool hole. Trim the tool end to fit a ferrule if you want to use one. Round off the shoulder.

Clean up the handle with a gouge or scraper to get rid of the pencil lines and refine the thickness as you wish.

10. Sand; a drum sander works well. I use aniline dyes to give the handles a distinctive appearance and I finish with sprayed-on lacquer, usually three coats with a bit of sanding between. Mount your turning tool in epoxy, pound on the ferrule.



After I sold my land, I replaced my farm equipment with woodworking machines. In 2010 I bought a lathe, joined the local woodturning club, and never looked back. Today I am vice-president of the Chinook Woodturning Guild. Visit our website at <http://www.chinookwoodturning.org/cwg/>.

~ Dan Michener  
Picture Butte, Alberta  
[danmichener@shockware.com](mailto:danmichener@shockware.com)

# WOODEN JAWS

## Holding bowls to finish the bottom

This article will cover how I use wooden jaws on my chucks to hold my bowls while I finish turning the bottom of the bowl.

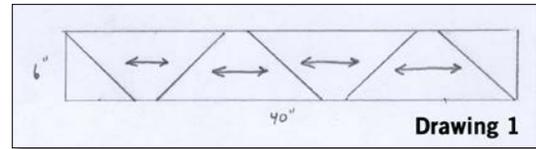
Oneway has two sets of large plate jaws, the jumbo jaws and the mega jumbo jaws. Nova has the Cole Jaws. I suspect the other manufacturers have similar items.

When you get the large jaws from the manufacturer, they come with eight rubber bumpers that can be put in different diameters on the plates. Take those off and throw them away.

I have found that the rubber will leave dark spots in open-pore light-colored woods.

Secondly, the rubber bumpers hold the piece at only 8 points around the rim and the rubber bumpers have some give. The big advantage of the wood jaws is that they hold the piece at 360 degrees with no give. Finally, the wood jaws are quicker because you don't have to move the eight bumpers with different-sized bowls.

What kind of wood to use for the jaws? I generally use red alder because it is the softest of the hard woods. I want the jaws on the chuck to be softer than the bowl I am working on.

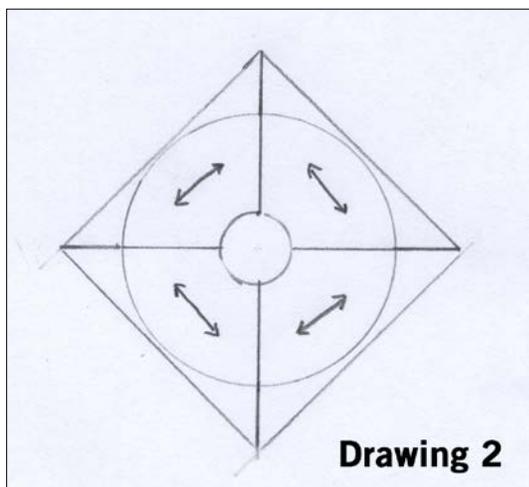


I do not use one large round piece of wood and cut it into pie shapes. This would give you endgrain in two spots on the chuck. I take a 2 x 6 and cut pie-shaped pieces on the table saw using 45 degree cuts (see drawing one).



**This photo shows the back of the jaws with screws and double-sided tape holding the wood on the jaws.**

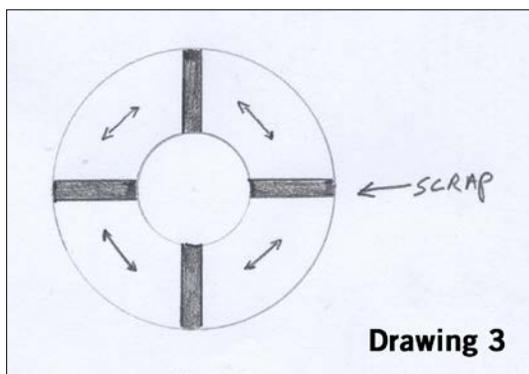
Next, use two-sided tape and screws to attach the wood to the metal jaws (see photo above). Next, I mount the jaws onto the chuck. The wood grain is now tangent/parallel to the outside of the jaws with no endgrain.



At this time your wood jaws will be in a square shape (see drawing two). I put the chuck on the lathe and **rotate it by hand**, using a pencil to mark the biggest diameter on the back of the wood jaws.

Next, I bandsaw off the corners (safety note: make sure the solid wood face is down so you have a supported cut on the bandsaw).

I remount the chuck and turn the outside true round and round the two outside corners. Next, open the jaws to half-open.



Put scraps of wood between the jaws and tighten the chuck so the scrap pieces are firmly held (see drawing three). Now turn your desired steps into the wood jaws. If you turn the steps into the wood jaws with the jaws completely closed, without the scrap wood pieces, when you open the jaws all the way open, the steps will be way out of round.

Each time you put the chuck on the lathe, the steps may not run quite true. You can easily true up the wood step you need for the bowl you are finishing.



**This photo shows the two different sets of jaws I use. On the left is the expanding chuck to hold closed-form bowls from the inside of the rim. On the right is the contracting chuck to hold open-form bowls from the outside of the rim. These are both on Oneway Mega-Jumbo jaws and the diameter closed is 15”.**

I have two main chucks set up, one for open-form bowls and one for closed-form bowls. (See photo above.) On my Nova chuck I have wood faces that I shape if I need a special form to hold an unusual piece.

These wood jaws last a long time as only a minor cut is needed to true up a step to hold a bowl.

Of course, a woodturner always needs more chucks, and these jaws make a good excuse to buy another chuck!

**A note on safety.** The diameters of the jumbo jaws and mega jumbo jaws are bigger than your bowl. You have to turn the speed down. My Cole jaws have 500 rpm max stamped on them.



**The previous photos show a bowl on the expanding jaws. Note how these jaws give the turner complete access to the bottom of the bowl.**

**My toolrest is rounded and I can use it to rub against the bottom of the bowl, keeping it from coming off. The safest route would be to bring the tailstock up and put the live center against the bottom of the bowl. Most of the wood could be removed before the tailstock was backed off to finish the very center. This bowl lathe shown here doesn't have a tailstock so I use the toolrest.**



**The photo above shows two more chucks for smaller bowls. The smaller one has a diameter of 8 3/8". The medium one has a diameter of 11 3/4" and is on the Oneway Jumbo jaws.**

~ Dale Larson  
Gresham, Oregon

# SAFETY TIPS

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## Woodturning safety is YOUR responsibility

Safe, effective use of a wood lathe requires study and knowledge of procedures for using this tool. Read, thoroughly understand, and follow the label warnings on the lathe and in the owner-operator's manual. Safety guidelines from an experienced instructor, video, or book are good sources of important safety procedures. Please work safely.

### ENVIRONMENT

- Don't use a lathe in damp or wet locations or in the presence of flammable liquids, vapors, or gases. Always keep a fully-charged fire extinguisher close at hand.
- Guard against electric shock. Inspect electric cords for damage. Avoid using extension cords.
- Frequently remove shavings from the floor while turning. Eliminate all slipping or tripping hazards from the floor around the lathe and work area.
- Keep your work area well lit and well ventilated. Use anti-fatigue floor matting at the lathe workstation.
- Use a powered dust-extraction system to remove wood dust and other air-suspended particles while sanding or generating any form of dust.
- Do not be distracted. Keep pets out of the shop. Ask family members to enter the shop carefully if the lathe is running, so you aren't startled, and to wait until you turn off the lathe before trying to get your attention.



### EQUIPMENT

- Keep lathe in good repair. Check for damaged parts, misalignment, binding of moving parts, and other conditions that may negatively affect its operation.
- Ensure that all guards, belt covers, and other safety features are in place.
- Keep the lathe bed, toolrest holder (banjo), and tailstock mating surfaces clean and operating smoothly. Remove rust or debris that would cause binding.
- Keep turning tools sharp and clean for better and safer performance. Inspect frequently for cracks or defects. Don't force a dull tool. Never use a tool for a purpose for which it was not designed or intended.

**PERSONAL PROTECTION EQUIPMENT**

- Using a full face shield is recommended for all woodturning operations, but especially for bowl, vessel, or any medium to large turned pieces involving chucks and faceplates. At a minimum, use safety goggles or safety glasses that have side protectors when turning small items.
- Fine particles from a grinder and wood dust are harmful to your respiratory system. Use a dust mask, filtering respirator, or a powered air filtration respirator (PAFR), in conjunction with a dust-collection system and proper ventilation. Be especially mindful of dust from many exotic woods, spalted woods, or any wood that might give you a skin or respiratory reaction.
- Wear hearing protection during extended periods of turning, grinding, or power carving.

**BLANKS & TURNING MATERIALS**

- Turning stock should be physically sound and carefully inspected for cracks, splits, checking, ring shake, and other defects that compromise the integrity of the wood. Always be aware that defects may be present but undetectable through visual inspection.
- Exercise extra caution when using stock with any known defects, bark inclusions, knots, irregular shapes, or protuberances. Beginners should avoid these types of stock until they have greater knowledge of working such wood.
- Frequently stop the lathe and inspect the blank to determine if defects are

being developed or exposed as material is removed. Discard blanks that have significant defects. Adding adhesives to attempt to “fix” defects in the blank is not advised. Do not rely on glue to keep a defective blank together.

**TECHNIQUE**

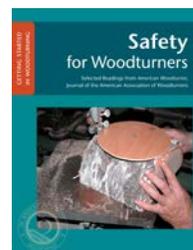
- Tie back long hair, bangs, and beards. Do not wear gloves. Avoid loose clothing, jewelry, or any dangling objects that may catch on rotating parts or accessories.
- When using a faceplate, be certain the workpiece is solidly mounted with stout screws (#10 or #12 sheet metal screws as a minimum). Do not use drywall or deck screws. When turning between centers, be certain the workpiece is mounted firmly between the headstock drive center and tailstock center.
- Before starting the lathe, rotate your workpiece completely by hand to make sure it clears the toolrest, banjo, and lathe bed. Be certain that the workpiece turns freely. Ensure the blank is held securely by the drive center, faceplate, or chuck.
- Always check the speed of the lathe before turning it on. Use slower speeds for larger diameters or rough pieces and higher speeds for smaller diameters and pieces that are balanced. Always start a piece at a slower speed until the workpiece is balanced. If the lathe is shaking or vibrating, lower the speed. If the workpiece vibrates, always stop the machine to verify why. Ensure the lathe speed is compatible with the size of the blank.

- Be aware of what turners call the “red zone” or “firing zone.” This is the area directly behind and in front of the workpiece, the areas most likely for a piece to travel into as it comes off the lathe. A good safety habit is to step out of this zone when turning on the lathe, keeping your hand on the switch in case you need to turn the machine off. When observing someone else turn, stay out of this zone.
- Hold turning tools securely on the toolrest, holding the tool in a controlled but comfortable manner. Always contact the toolrest with the tool first before contacting the wood.
- Turn the lathe off before adjusting the toolrest or repositioning the banjo. Following these adjustments, again rotate the piece by hand to confirm that all parts of the piece will not encounter an obstruction.
- Always remove the toolrest before sanding, finishing, or polishing operations.
- Do not use cloth to apply finishing or polishing materials if you intend to contact a rotating object on the lathe. Never wrap polishing materials around fingers or hands.
- When a lathe is running in reverse, it is possible for a chuck or faceplate to unscrew if it is not securely tightened or locked on the lathe spindle. Use spindle-locking screws in the faceplate or chuck if turning in reverse.

## ROUTINE

- Check that all locking devices on the tailstock and toolrest assembly (rest and base) are tight before operating the lathe. Frequently check the tightness of chuck jaws throughout the woodturning session.
- Remove chuck keys, adjusting wrenches, and knockout bars. Form a habit of checking for these before turning on the lathe.
- Know your capabilities and limitations. An experienced woodturner is capable of using lathe speeds, techniques, and procedures not recommended for beginning turners.
- Don’t overreach, keep proper footing, and keep your balance at all times.
- Never leave the lathe running unattended. Don’t leave lathe until it comes to a complete stop.
- Stay alert and watch what you are doing. Pay close attention to unusual sounds or vibrations. Stop the lathe to investigate the cause. Don’t operate machines when you are tired or under the influence of drugs or alcohol.

~ Rob Wallace  
Ames, Iowa  
AAW Safety Committee Chair



**Members:** [Click here to download a free digital copy of AAW’s 66-page Safety for Woodturners book.](#)

# SHOP TIPS

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## Wine bottle stopper package

After turning several wine bottle stoppers for gifts, I was looking for an inexpensive way to package them. This is what I came up with:

I purchased clear fluorescent tube guards (from Menard's or Home Depot) and Mocap tube caps (Matt Stewart at [www.mocap.com](http://www.mocap.com)) separately.

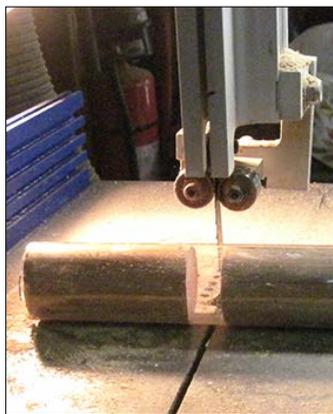
The diameter of the caps was just slightly too large, so I made a fixture for the lathe to attach them to and lightly sanded them to fit.

To prevent the tube from collapsing, I inserted a long 1-1/2" dowel rod into the tube guard from one end, and a 6" piece from the other end. Using my band saw, I cut the tube to length and deburred both ends with sandpaper or a scraper. I inserted a cap at each end and had an inexpensive package.

For 14 years I was a tool and die maker building automation equipment; for 12 years I owned and operated a chimney service company.

After retiring I began woodworking; I started woodturning in 2008. I prefer to make vessels with carved trim (learned from Dixie Biggs at Arrowmont in 2013) and inlaid platters, but like to experiment with other turning methods.

~ Larry Fabian  
McHenry, Illinois  
[fabsweep1185@att.net](mailto:fabsweep1185@att.net)



# SHOP TIP

## Lazy Susan tool holder

I end up with tools lying horizontal after turning a few bowls. Trying to find the one I want in all the shavings can be troublesome. To solve the problem, I took an old stool with a broken seat and turned it into a lazy Susan tool holder. I made a 2' (60 cm) square base from  $\frac{5}{8}$ " (16 mm) plywood and put a frame around it so the little objects placed on it wouldn't fall off. I then drilled two rows of holes, sized from  $\frac{1}{2}$ " to 1" (13 mm to 25 mm) in diameter, around the outer edge. I position the tool holder close to the lathe so it is out of the way, yet within easy reach. I can turn it if needed, and now no matter how many shavings pile up, I can still see the tool handles and grab the one I want.

A few tools had the same style handle, so I color-coded some with spray paint. I also put a paper towel holder on one corner.

In addition, I took a piece of plywood and created a 1" (13 mm) square grid of  $\frac{3}{8}$ " (10 mm) dowels sticking up about  $1\frac{1}{2}$ " (38 mm) to set items on when I need a spray-finish table. I can turn the lazy Susan as needed for achieving the perfect spray finish.

~ Dan Burleson  
Troy, Missouri



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# SAFETY

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## Breathing is good - Part 2

To prepare for this article I borrowed a medical text. It had way too many Latin medicalisms, but it began with a pretty readable history of medical research on lungs and breathing. Long ago, before fancy, modern testing equipment, researchers noticed a really interesting thing:

*When you suck in a deep breath of air that is full of dust and junk and then blow that air back out, the air you blow out is pretty clear and clean.*

That means, of course, that a lot of the dust and junk stays inside you.

Our lungs work by taking oxygen out of the air we breathe and putting it into our blood. This happens in tiny sacks at the end of a collection of tubes that get smaller and smaller as they get closer to the place where our lungs do their work.

The tubes are lined with sticky fluid. As the dusty, junky air flows down the tubes, the dust and junk tends to stick to the fluid. Bigger particles get caught in the bigger tubes, but smaller particles often pass through the bigger tubes and get into the smaller tubes.

Our bodies have a system for cleaning these tubes. It works by washing the inside of the tubes with fresh, sticky fluid. The fluid is pushed along through the tubes by tiny hairs, called “cilia,” that act like little paddles.

The bigger the tube, the faster your body is able to wash it clean with fresh, sticky fluid.

A lot of the larger particles of junk and dust that we breathe in get caught in the sticky fluid lining the bigger tubes leading to our lungs, and our bodies pretty quickly wash that dusty, junky, sticky fluid to the backs of our throats, where we hack it up and swallow it or spit it out, or out to our noses, where we try not to get caught picking it in public.

The little sacks where our lungs do their work and the tubes that lead into them are incredibly tiny. If you get a very tiny bit of wood dust into them, there won't be as much room for air to get in, and those tubes and sacks won't work like they should. And since those tubes and sacks are incredibly tiny, they don't clean out very quickly.



In last month's safety article I said I would say something this month about walnut. We are very fortunate to have access to lots of excellent walnut in the Pacific Northwest.

Unfortunately, walnut has a chemical (called "juglone") that not only helps give the wood its lovely color, but also protects the tree. Juglone is so toxic that many plants will not grow under walnut trees, and horses bedded in walnut shavings can absorb juglone through their hooves and die.

Juglone is why woodturners who bear more than a passing resemblance to the backside of a horse should wear shoes when they turn walnut. Juglone is also why *all* woodturners should be particularly careful about walnut dust, because juglone can paralyze the little hairs (the cilia) in your tubes and keep them from pushing the sticky fluid out. That means little walnut particles can stay in your body and interfere with your breathing longer than little particles of some other kinds of wood.

I'm not trying to scare you away from turning walnut; there are other woods that are much worse. I'm mentioning walnut in this article only because we have so much good walnut here, and because, before I started working on this article, I never realized that walnut was a troublesome wood.

If I'm not trying to scare you away from turning walnut, you might be wondering what the point of this article is.

The point of this article is to emphasize that **really small** dust particles can be **really bad** for you. That's important, because not all the equipment that is designed to help us deal with dust is good at dealing with really small particles. Next month I'll write a bit about that.

Special thanks to Skip Burke for his medical text, and to Mike Meredith at Northwest Woodturners for information about juglone.

~ Harvey Rogers  
Portland, Oregon  
Safety Officer  
Cascade Woodturners Association

## SAFE TURNING IS FUN TURNING.

An accident at the lathe can occur with blinding suddenness. Respiratory and health problems can develop over time. Take appropriate precautions when you turn. Use face shields, safety glasses, and dust masks. Follow all manufacturers' safety guidelines. For more about woodturning safety, visit AAW's website at [woodturner.org](http://woodturner.org).

# VIDEO: DEMONSTRATION

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## Video: Stuart Batty-Seven Fundamentals of Woodturning 90-minute demonstration



- Seven Fundamentals of Woodturning, FEATURING Stuart Batty. (TRT 1:30:03, this is a 90-minute video and may take a few minutes to load.)
- Video link: <http://player.vimeo.com/video/137484615>
- 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.

### **A note about safety**

An accident at the lathe can happen with blinding suddenness. Respiratory and other problems can build over years. Take the appropriate precautions when you turn. Among the most important of these is the use of face shields, safety glasses, and dust masks. It is important to observe all manufacturers' safety guidelines. Following manufacturer's safety guidelines and information will help you continue to enjoy woodturning years into the future.

# WOODTURNING FUN VIDEO

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## Video Tip: Segmented glue-up



- Quick tip that will save you time and improve your segmented glue-up, featuring Jason Swanson. (TRT 1:25)
- Video link: <http://vimeo.com/132494713>
- 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.

### **A note about safety**

An accident at the lathe can happen with blinding suddenness. Respiratory and other problems can build over years. Take the appropriate precautions when you turn. Among the most important of these is the use of face shields, safety glasses, and dust masks. It is important to observe all manufacturers' safety guidelines. Following manufacturer's safety guidelines and information will help you continue to enjoy woodturning years into the future.

# MEMBER GALLERY

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## Turning motivation

My first experience turning wood was in 1988. The AAW was established just two years before I started. Not discovering that it even existed for a few years, I turned in relative isolation. Using an old Boice-Crane lathe and making tools from worn out files, I took the first step.

It is important to help pass on a wonderful heritage that is shared around the world. The videos, books, woodturning symposiums, and access to great teachers *mostly* did not exist 30 years ago.

Each new wood turner is connected and can learn the craft at whatever speed they choose.



Chris Pytlik of Sandy, Utah, has made some important contributions in the area of coloring and finishing hollow forms. Over the years, he has answered my questions and passed on knowledge and experience that have helped me complete pieces like “*Big Blue*,” Box Elder (Acer Negundo), colored with royal blue dye, finished with sprayed guitar lacquer then buffed (pictured left).



*“Our chief want in life is someone who will inspire us to be what we know we could be.” ~ Emerson*

Michael Blankenship is just that sort of man. Michael is an excellent and accomplished woodturner. I have been fortunate to get to know him and to see him demonstrate. He has been blind since 2003. I named the hollow form you see above, “*Looking Into Michael’s Eyes.*”

It is difficult to imagine how to create something you will never see. But I do believe that if we looked deeply into Michael's eyes, we would see a rainbow of colors.



Taking ourselves too seriously can be a danger. We should never stray too far away from our whimsical side. My only intention for making this 9" tall box elder piece was to hide the fact it was made of wood.

The base looks and feels more like pottery, and the cork usually fools the one holding this pot. The surface was wire-brushed, colored, buffed, and generally abused to achieve the texture.



*Crab Apple (Malus domestica) with turquoise inlay*

Crab Apple is to me a unique and beautiful wood, with a deep reddish brown color. But if you have tried to dry your rough-turned crab apple bowl, it can be discouraging.

This 8" tall pot sat covered in dust for many months. The splits and cracks were heartbreaking and unattractive. The piece only needed a bit of sanding and a finish. So I decided to forge ahead. Filling the cracks with turquoise was the obvious solution.



*Box Elder burl cap with metal leaf over black dye*

What motivates me, and at the same time puts everything in perspective, is the role we all play. No matter how great or small our achievements, we have something to contribute. I enjoy chasing threads with hand tools and passing on this unique skill. There is another woodturner somewhere who needs to know what you have learned. I regret having no connection or mentor early on. You can be that mentor for someone. The most difficult part might be finding and making the connection.

~ Sam Angelo  
Worland, Wyoming

Sam can be reached by email at [samandcheryle@gmail.com](mailto:samandcheryle@gmail.com)

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## Submissions

Want to share your work in *Woodturning FUNDamentals*? Please send your high-resolution images along with title, size, and materials used to [linda@woodturner.org](mailto:linda@woodturner.org).

Want to “pay it forward”? *Woodturning FUNDamentals* welcomes other content including tips, projects, and informational articles. Please send your content ideas to [linda@woodturner.org](mailto:linda@woodturner.org). The deadline for submissions for the November issue of *Woodturning FUNDamentals* is October 12, 2015.

Please note: All content submitted may be subject to edit.

### [Expand your resources!](#)

The image shows a preview of the 'The Highland Woodturner' newsletter. On the left, a dark red box contains the text: 'CLICK HERE to check out Highland's FREE monthly online newsletter created especially for woodturners'. Below this are four bullet points: 'Projects', 'Galleries', 'Turning Tips', and 'Featured Products'. At the bottom left of the newsletter preview is the Highland Woodworking logo with the tagline 'Fine Tools since 1978'. The main content of the newsletter includes: 'Making a Guano' article, 'Topping Off a Turning Lesson' article, 'THIS MONTH'S FEATURED PRODUCTS' section featuring a Nikon 8 inch Professional Low Speed Bench Spindle and a Record Power SC3 Geared Scroll Chuck Package 150-Step, 'Photo's Turning Tips' section with a 'Fein Bock Sandpaper' tip, and 'Upcoming Turning Classes at Highland' section. The newsletter also features a navigation bar at the top with links for 'Highland Woodworking.com', 'About Us', 'Turning Classes', 'Woodturning Tips', and 'Subscribe for Free'. Social media icons for Facebook, Twitter, YouTube, and Blogger are at the bottom.

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