**Keep ‘Em Sharp**

You need four things in order to be a woodturner – a lathe, tools, a way to sharpen them, and wood. This article addresses the issue of sharpening as it is a basic necessity in our craft. Without a way to sharpen our tools well and efficiently, we will gradually be more and more frustrated and likely drop out of the craft altogether. So let’s nip that problem in the bud right now.

When I got my first lathe, it was a used Sears 4-speed from the classified ads section of the paper. The seller even gave me three Craftsmen turning tools with it, two of which I still use. But what I didn’t know about sharpening would fill a book. I had always sharpened my tools with a sharpening stone. I watched my dad sharpen the kitchen knives on his stone so I figured that was how to sharpen everything. What I found was that trying to hand-sharpen a curved edge set at a 55 degree angle on a sharpening stone was pretty darn tough. Oh, I managed a bit but one day at a meeting of Capital Area Woodturners (CAW), the demonstrator turned to a grinder he had set up, and in a few seconds was back at the lathe with a sharp tool. WOW! What a revelation. So that was the second in a series of purchases I have made in my woodturning life, getting a grinder with a grinding jig to properly position the tools when sharpening.

It seems there are basically two kinds of grinders, high speed and low speed. Even the low speed grinders are spinning pretty fast, about 1750 rpm. The high speed grinders double that. Low speed is preferable to what we do. Grinders come with two grinding wheels, coarse and not so coarse. The coarse wheel is usually something like 60-grit, a good wheel for shaping tools as it cuts the steel away pretty fast. The other wheel may be something like 120-grit, a much finer wheel which will sharpen just fine but not wear the steel away so quickly. The details of grinding wheel materials is beyond this article, but the guys at Woodcraft or other source will be able to advise which ones may be preferable. I find that the coarse wheel works well to properly shape a tool but for regular sharpening, the finer wheel is preferable. There is also a new product on the market called cubic boron nitride, or CBN. It is an abrasive substance which is bonded to steel wheels and is far superior to regular grinding wheels but is also far more expensive. I definitely don’t recommend it for new turners because of the expense. Once you are solidly into the craft, then give CBN wheels some consideration.

You also must have a way to hold the tool to the edge of the grinding wheel in a way which will result in a nice sharp edge without grinding off too much metal. There are several sharpening rigs available but the vast majority of turners use the slow speed grinder with the Wolverine jig, which is what I recommend. That is what you will find when you use a grinder away from your own shop and you will be familiar with it. The Wolverine system is made by Oneway, a maker of outstanding lathes and other related equipment. Talk to someone about it if you aren’t familiar with it for tips on how to set it up. Once set up, you will be able to leave the lathe, sharpen the tool, and be back at the lathe in fifteen seconds.

Now, how about the tools themselves. The basic tools are the bowl gouge, spindle gouge, parting tool, spindle roughing gouge, and scraper. An additional jig which you will need with the Wolverine system is the Vari-Grind jig which you will use to hold both the bowl gouge and spindle gouge. The Vari-Grind jig sits in the pocket bar, part of the Wolverine system, and holds the tool against the wheel at whatever angle you set. Generally, woodturners have found that having the tool extend 2” beyond the face of the Vari-Grind holder is best. I have a little stop-block on my grinder base which is 2” from the front of the base so I can easily set the tool 2” through the Vari-Grind jig and tighten it down. Set the Vari-Grind in the pocket bar and slide the bar in or out so the bevel on the end of the tool rests flush against the wheel. Once set up, you can step to the grinder to quickly sharpen the tool and return to the lathe.

I will give you the bevel angles which seem to work best for me. I recommend them but will also tell you that a little more or less than noted here is just fine. But what is a bevel? That is what we woodturners call the part of the tool which is ground off against the grinding wheel to produce the sharp cutting edge. The angles which I use are these, all in degrees:

Parting tools 25

Spindle gouges 35

Spindle roughing gouges 45

Bowl gouges 55 - 60

Scrapers 80

To sharpen a \*parting tool\*, place the handle end of the tool in the pocket of the pocket bar and slide the bar in or out to bring the bevel of the tool flush against the wheel. This is most easily and accurately done with the grinder off and the wheel stopped. As you sharpen the parting tool, be cautious that you are grinding it so the cutting tip is 90 degrees to the shaft of the tool and the length of the bevel on one side matches the length of the bevel on the other side. The actual cutting tip should be i the middle of the shaft of the parting tool.

To sharpen \*spindle and bowl gouges\*, extend the tool from the Vari-grind holder 2” and then establish the proper angle to the wheel as noted above. Once the tool is placed in the Vari-Grind jig, place the bottom end of the Vari-grind in the pocket and adjust the pocket bar so the bevel matches the angle of the wheel. Grind one side of the gouge, then the other side, then connect them across the point. You are looking for a slightly convex curve across the top profile of the edge. If you try to sharpen the tool by swinging the tool from one side to the other at a steady speed, you will end up spending too much time on the point and not enough time on the sides of the bevel and will grind too much off the tip.

For the \*spindle roughing gouge\*, place the handle end of the tool in the pocket bar pocket and move the pocket bar so the bevel of the tool matches the curve of the wheel. Be cautious with this one as it is easy to rotate the tool too far left and right as you sharpen and end up grinding back the right and left corners of the gouge. Note that the shape of this tool is not a half circle but a parabola. Don’t over rotate the tool on the wheel as the end of the tool should be straight across from tip around the curve to the other tip. You should be able to put the end of the tool against a flat surface and have the entire cutting edge touch that surface.

The angle on a \*scraper\* is about 80 degrees and is most easily achieved by using the platform rather than the pocket bar. Set the platform with the scraper flat on the top so the bevel of the scraper is aligned with the grinding wheel. For a round nose scraper, in one smooth motion, start at one side of the scraper and grind around the end to the other side, moving the handle from one side to the other with one hand and keeping the blade of the scraper flat down on the platform with the other hand. Other scrapers will be sharpened pretty much the same, following the shape of the tool.

Sharpening is critical to woodturning. We in woodturning seem to always be willing to help our fellow turners with technique and sharpening is no different. Don’t hesitate to ask around about sharpening, especially if you have a particular tool which presents problems in sharpening.

**Sharpening Considerations**

Tom Boley

Sharpening can be done in 15 seconds from lathe to grinder and back. DON’T turn with dull tools! Take the time to sharpen ‘em up. You will get a much cleaner surface.

There are multiple sharpening systems on the market, all of which work well. The one I use is the Oneway Wolverine jig with the Vari-Grind jig for gouges and a slow speed grinder. I recommend that as it is the most commonly found set-up so if you go to someone else’s shop or do a turning demo somewhere, that is likely what you will have available for sharpening.

Here is a helpful chart of angles for various woodturning tools. They don’t have to be exact and some turners use a different angle. Try these but be open to other options if recommended by others.

**Bevel angles**

Parting tools 25

Spindle gouges 35

Spindle roughing gouges 45

Bowl gouges 55 - 60

Scrapers 80

**Bowl and spindle gouges**

Extend the tool from the Vari-grind holder 2” and then establish the proper angle to the wheel.

Set the pocket bar at a point where the angle of the grind on the gouge, also known as The Bevel, matches the curve of the grinding wheel. Place the bottom end of the Vari-grind in the pocket. Grind one side of the gouge, then the other side, then connect them across the point. You are looking for a slightly convex curve across the top profile of the edge.

**Spindle Roughing Gouge**

Use the pocket bar for sharpening this gouge so that you can keep the end of the gouge straight and not let the wings become swept back. The corners of the gouge should be square. The reason for that is so you can use it to cut up to a shoulder.

**Scrapers**

As noted in the chart above, this bevel angle should be about 80 degrees. Set the scraper flat on the platform so the bevel of the scraper is aligned with the grinding wheel. In one smooth motion, start at one side of the scraper and grind around the end to the other side.

**Skew**

I grind the skew on the platform but it can also be ground using the pocket bar. Set the platform so the angle of the skew matches the wheel and grind in one smooth motion. OR, set the pocket bar so the angle matches the wheel when the end of the skew is firmly inserted into the pocket, and grind in one smooth motion. Don’t go back and forth between methods as the bevels will be different for these two methods and you will cut off a considerable amount of metal to achieve an edge. Once sharpened in this manner, many skew-users will then hone the edge to achieve the smoothest and sharpest edge possible. But what is the angle? The width of the bevel of the skew should be one and one half times the thickness of the skew. That will produce the correct angle.