

TOOL GRINDS LIBRARY

There are as many grinds as there are turners, and that a skilled turner knows instinctively how to present an edge to the work for the best result. Still, we feel that by publishing these photos and explanations, we can offer you some options and rationales for alternative grinds and techniques. Here are some photos of lathe tool grinds submitted by our Turning forum visitors.

To submit your favorite grinds to this collection, please **E-mail** me your photos and explanations of each tool and grind. Please identify the size and type of tool we are looking at and give us a rough (or accurate) idea of the included grind angle(s), as well as your reasons for using this grind and any special grinding or usage techniques. Thanks.

... Ellis Walentine, Host

TURNER: Ellis Walentine

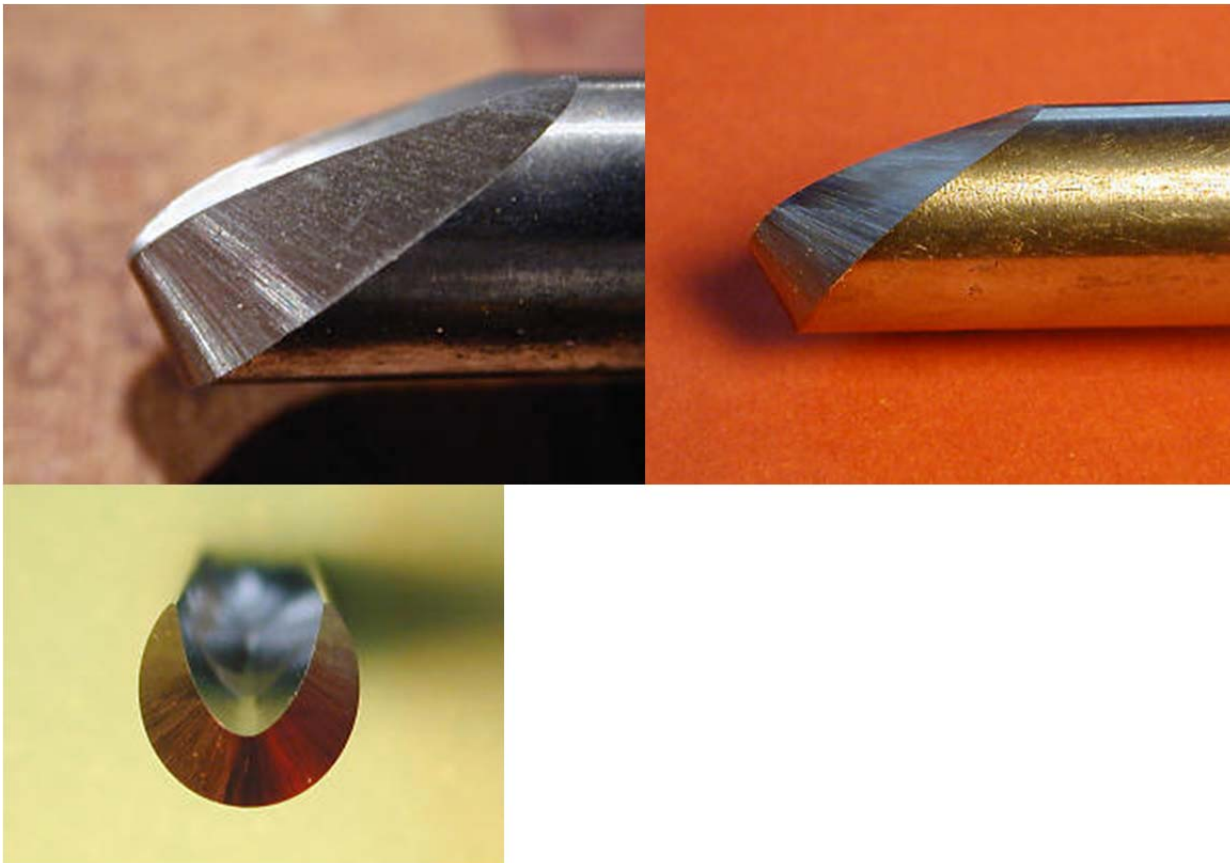
TOOL: Henry Taylor, "Ellsworth signature model" bowl gouge

COMMENTS: This is David's classic bowl gouge. He uses it for roughing, slicing and shearing cuts on the outside of bowls, and for roughing and finishing on the inside.

Two manufacturers -- Crown and Henry Taylor -- make this particular gouge, which is actually about 9/16" in diameter. Crown calls it a 5/8" gouge and Henry Taylor calls it a 1/2" gouge, referring to the distance across the flute.

I sharpened this gouge with an Ellsworth jig (top photo at right), but I had it sticking out from the jig only 1 3/4" instead of the 2" that David recommends. As a result, the bevel angle is too steep -- about 70° instead of the 60° that is recommended in the instruction sheet. He likened it more to a scraper grind. The second photo shows what it looked like after David reground it for me.

David has told me that the 60° is actually the middle of a useful range of between roughly 55° and 65°. It is up to the user to learn the differences in the way different bevel angles handle. He says that all the commonly available jig systems will give you a side-grind edge, but not all side ground gouges perform the same, because the angle varies along the sweep. Naturally he prefers his own little cast aluminum jig.



TURNER: Joel Hunnicutt

TOOLS: Various bowl gouges

COMMENTS: The top gouge is my 5/8" Glaser. The grind is close to a factory grind. It is my workhorse gouge, but very easy to control for fine finishing cuts.

The middle gouge is an artisan gouge that was my first bowl gouge. I use it mostly for shear scraping and for running down a steep side wall. It has gotten so short that it is out of balance now.

The bottom gouge is an ancient Sorby long and strong. It is perfect for making the transition from the sides to the bottom and for running across the bottom.



TURNER: David Ellsworth

TOOL: 3/8" Crown spindle gouge, a.k.a. "Detail gouge"

COMMENTS: I got this idea from Mike Mode many years ago. He used to use it to turn his Christmas ornaments. The bevel is ground back to a smooth curve in all directions and then sanded and polished. I like it for undercutting the final cut on the bottom of bowls because it has no heel to put compression lines on the wood. You just ride that convex bevel right in. It is also excellent for details on the rims of bowls and for spindles and small objects.

As you see in the lower photo, I've replaced the regular handle with a short one only about 5" long. The shorter handle doesn't get in the way.



TOOL: 3/4" diamond parting tool

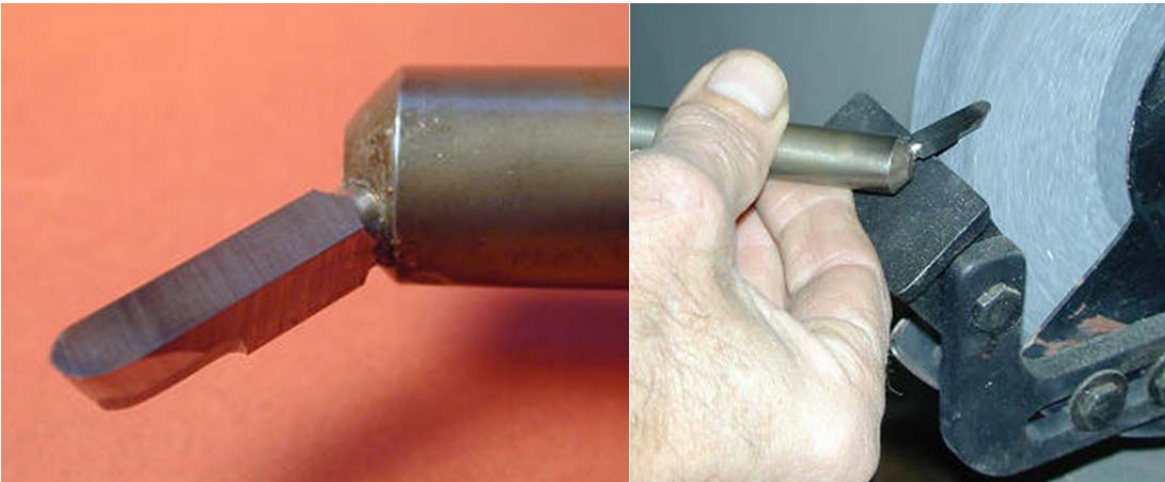
COMMENTS: Here is the grind I prefer for my parting tools because of the mass and support that the curved lower bevel brings to the edge, eliminating most vibration.



TOOL: Bent hollow turning tool

COMMENTS: This is my bent hollow turning tool. It has a 3/16" square tool-steel tip mounted at 45° to the 9/16" shank. I try to grind a round nose on the tip; with roughly a 65° bevel at the front and a 70° bevel partway back the sides. The carefully rounded nose makes it easier to scrape the tool back and forth smoothly inside a vessel. For the center cuts inside a vessel, I use a similar straight tool, with a 1/4" square tip coming straight out the front, ground to the same angles.

When sharpening the rounded profile, I only use the corners of the wheel, not the face.



TURNER: Jennifer Shirley

TOOL: Parting Tool

COMMENTS: This grind is achieved by using the "corner" or edge of the grinding wheel to create the V in the tip. Both of the points cut the wood, and then the interior scrapes away the area between the cuts from the points. This tool cuts very fast and with less heat buildup. This particular parting tool is very small, but you can use this grind on any size parting tool. Be careful when making this or any grind using the edge or side of the wheel. It is not recommended by the wheel manufacturer.



TURNER: John Lucas

TOOL: Deep Bowl Gouge

COMMENTS: My deep bowl gouge is one I use for hollowing bowls with closed rims and deep bowls. It is ground at about 80 or 85 degrees so you can stay on the bevel while turning the bottom of these bowls.



TOOL: Stuart Batty Bowl Gouge

COMMENTS: I'm still playing with this tool. It is ground at 45° over the whole edge. At 45° it gives a very clean cut. When you rotate the tool the cutting edge stays the same unlike Ellsworth or Irish grinds which change as you go from the front edge to the side of the edge. It is a good all-around tool.



TOOL: Thompson Bowl Gouge

COMMENTS: This is my ½" Thompson V bowl gouge. I use a grind shape similar to what comes with the tool when you buy it. I put a secondary bevel on it so there is less meat to shape and sharpen on the first bevel. The short bevel also gives a cleaner cut when hollowing bowls. The moderately long wings work for pull cuts and shear cuts.



TOOL: Rough out Gouge

COMMENTS: My rough out gouge is ground differently than some. The bevel angle is around 45 degrees. This doesn't hold up as well as the more blunt rough out gouges but I use mine to first rough out and then fine tune the shape. I keep the upper U shape relatively flat because I use these "wings" like miniature skews to help clean up the tool marks from roughing. With this tool I can almost completely shape a spindle with very little clean up with the skew. This saves the edge of the skew and at the same time lets me work faster.



TOOL: Spindle Gouge

COMMENTS: This is my 1" spindle gouge. I grind it about 35° with a broad fingernail grind. This way it works more or less like a skew but will make coves which are more difficult with a skew. The top view shows the tip shape.



TOOL: Thompson Detail Gouge

COMMENTS: My Thompson detail gouges are ground using the Wolverine Jig. I use the same V-arm setting as my bowl gouge but put a spacer block in to give me a much sharper angle. I believe it's about 35°. This allows me to leave my V-arm set the same and sharpen both bowl gouge and detail gouge very quickly. I grind a lot of metal away on the secondary bevel because the tool is so thick. This helps me reach into tighter areas. The thickness of the tool keeps it from chattering so you can reach over the tool rest further when needed.



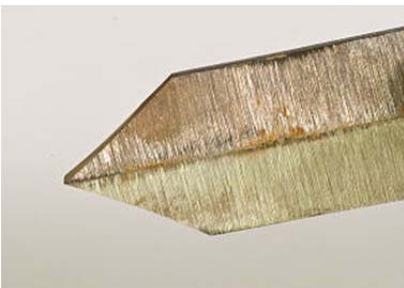
TOOL: Hand-Mirror Gouge

COMMENTS: My hand mirror grind is a grind I developed early on while doing the hand mirrors. I used a lot of pull cuts. The long bevel on the wings helped with this. This gouge has very narrow sides on the U shape. I use this to my advantage when doing a pull cut. The extremely narrow grind along with the downward angle of a pull cut gives a very clean cut. The top view shows how narrow this cutting edge is. The nose is also kept at a sharper angle than my standard bowl gouge. I now use the Thompson detail gouge for these cuts so the tool isn't used as much anymore.



TOOL: Parting Tool

COMMENTS: This is my diamond parting tool. I sharpen it this way because I find it easier to keep the cutting edge exactly in line with the thickest part of the tool.



TOOL: Narrow Parting Tool

COMMENTS: My homemade thin parting tool made from a key hole saw. I grind it lower than the center line so it doesn't have a tendency to try and flip sideways which gives you a catch. I grind the tip so it is the same height as my bowl gouge tip. Doing this means I don't have to change the height of my tool rest when switching from the bowl gouge to the parting tool. The photo of the bowl gouge with parting tool illustrates this.



TURNER: Terry Daniel

TOOL: All bowl gouges

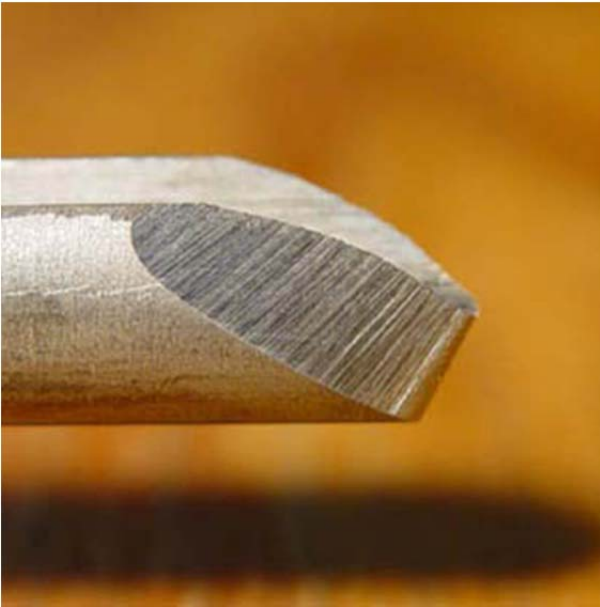
COMMENTS: I use no other grind although I do use smaller and larger gouges with this same grind.



TURNER: Dave Peebles

TOOL: Bowl Gouge

COMMENTS: This is my 3/8" V-15 Glaser gouge. I use this for detailing work. It works very well for forming tenons for mounting in the chuck. I also use this gouge for making a last clean up pass on difficult woods. The nose bevel is also about 62 degrees on this one.



TOOL: Bowl Gouge

COMMENTS: This is my 5/8" V-15 Glaser gouge. I use this for about 90% of my work. It has a little longer side grind than my other gouges. This is also the gouge that I do most of my shear scraping with. The nose bevel is about 62 degrees.



TOOL: Bowl Gouge

COMMENTS: This is my 3/4" V-15 Glaser. I use it mostly for roughing out large blanks. It removes a lot of wood in a hurry. This is basically the way it was ground when I bought it. The nose bevel is about 65 degrees.



TURNER: Mark Kauder

TOOL: Bowl Gouges

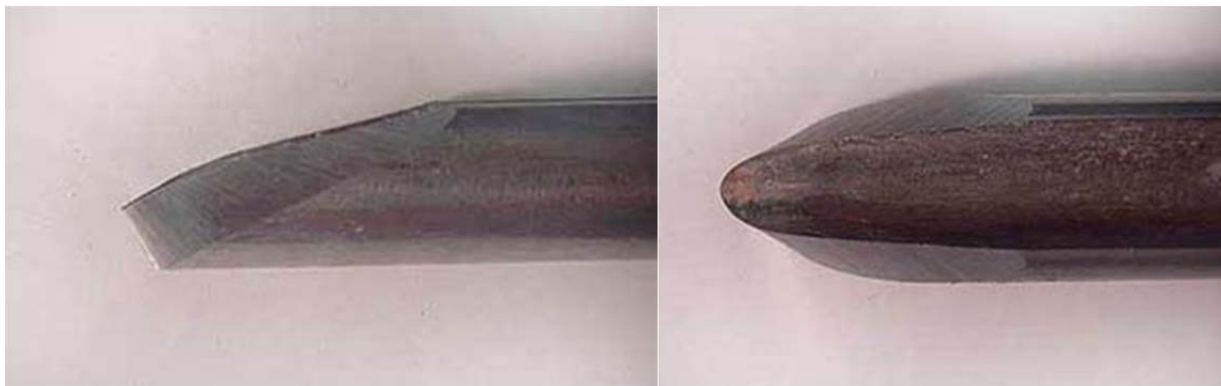
COMMENTS: I suspect that they work for me because I work on a 1/2 HP Jet Mini Lathe. I have to take relatively light cuts, to keep from stalling the motor. I predominately take long shearing cuts with the side of the gouge, and thus a long grind gives me more cutting edge to work with.

Sharpening setup: I use the Oneway Wolverine Jig. The grinder is a homemade slow speed, old 1HP 1750 motor connected to a mandrel holding two grinding stones, one 100 grit, one 80 grit. Both have worn down to 5 1/4 " in diameter - about time for new ones. The slow motor speed, and the small diameter makes for a very slow speed grinder! All of my gouges are ground on the 80 grit wheel.

The back of the pocket on the Wolverine grinder when using the fingernail jig, is 7" from the face of the wheel. The bottom of the pocket is 4 1/4" below the center of the center of the grinding wheel. When using the fingernail jig, all gouges are extended out 1 3/4" from the jig and the jig arm is set to approx 40 degrees. The front angle on all of my fingernail grinds is 60 degrees.

TOOL: 1/2" Bowl Gouge

COMMENTS: The 1/2" Sorby Bowl Gouge is my main gouge - 80% of my turning is done with this gouge.





TOOL: 3/8" Sorby Bowl Gouge

COMMENTS: This was originally ground to a fingernail grind. I decided one day to grind it to an old style/conventional grind, but at a high angle, so that I could use it at a fairly straight angle for the transition from the wall to the top of some semi-enclosed forms, and along the transition at the bottom in some tall forms. I like it, but this is my experimental gouge. Notice that I am too cheap to grind away all of the old fingernail grind, so it gives it a rather odd appearance.



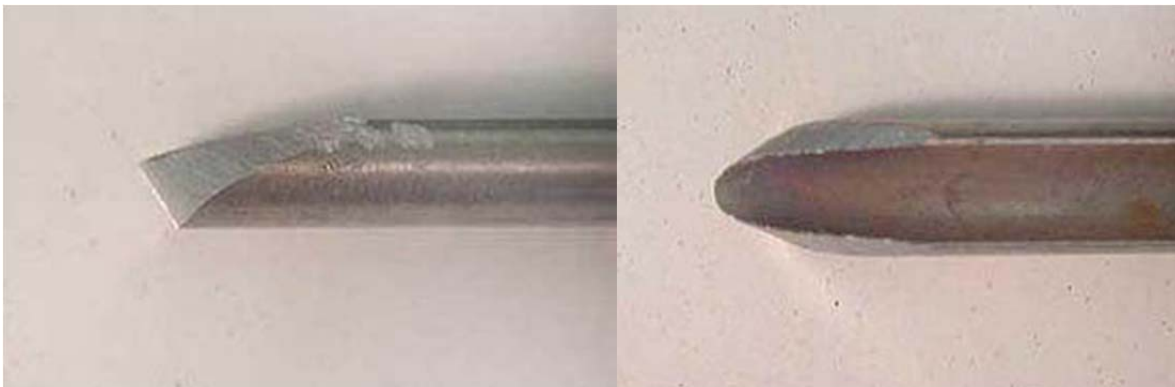
TOOL: 1/4" Sorby Bowl Gouge

COMMENTS: This was my first bowl gouge. I continue to use it, mostly around the foot, when I am working close to the faceplate or with some tight curves, like on the neck of a vase.



TOOL: 1/4" Taylor Detail Gouge

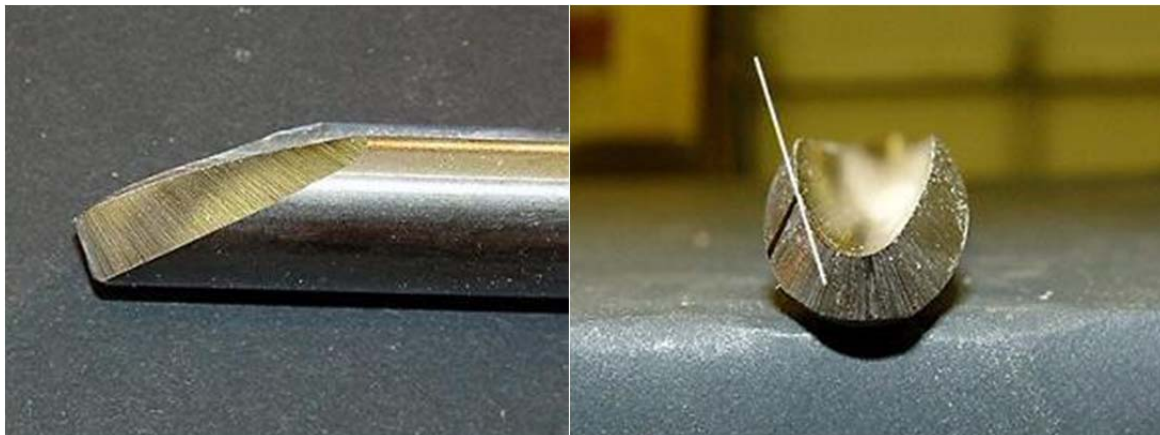
COMMENTS: I love this little gouge for fine detail work, up around a bead, or around the lip of a bowl. I got it at a tent sale for \$10. It has a shallower flute than the bowl gouges, but not as shallow as my Sorby Spindle gouges.



TURNER: Russ Fairfield

TOOL: Bowl gouge, side grind

COMMENTS: My "workhorse" tool is similar to the Ellsworth tool. The only difference may be in the nose angle and the bevel angle. Mine starts out with a nose angle of about 75° (15° relief angle) and wraps around to a 40° - 45° angle along the side grind. This is somewhat different from the Ellsworth tool where the angle is a constant 60° all the way around the cutting edge. I have used both and prefer the variable angle. To me, the changing angle better matches the inside curve of the bowl and I can take deeper cuts in both wet and dry wood. This is one of those cases where I don't know if it is really better or if it is that I have learned to use it and am comfortable with it.



TOOL: Bowl gouge for "inside" turning

COMMENTS: With its convex flute, this one is truly an inside gouge. This is an excellent tool for eliminating grain tear out in such places as the end-grain on the inside of a green natural-edged bowl. This also a better tool for those woods where the heel of the standard gouge will cause ripples in the surface as it passes over the hard grain boundaries. I used to grind these to a smooth bevel with a soft belt and a hard buffing wheel, but have since found that the multifaceted bevel does just as well and it is faster. I can somewhat match the bevel to the curvature of the surfaces and get a strong stable fulcrum on the bevel behind the cutting edge (see the arrow in the photo). The result is excellent tool control and finish on the inside of a bowl.

I have to use a second gouge with a blunter nose angle to get through the transition and across the bottom of a deeper bowl. The profile works best when the gouge has a deep "U" shaped flute.

The third photo shows how the tool is held to make the cut - about 10° up from level with the lathe bed (tool handle down for those who think that way), the flute rolled back about 10° or just enough to make the cut, and riding the bevel behind the tip.





TOOL: Continental bowl gouge

COMMENTS: I use a Continental Spindle Gouge when I need a smooth cut on the inside of a bowl. I grind the tool with a blunt fingernail shape and usually with a 40° tool angle, but that can be changed for the task at hand. This is akin to using a curved skew chisel on the inside of a bowl, and the finish it leaves on the wood will look like it was cut with a skew. I use this tool on green wood where grain tear-out is a problem, on the thin wings of square turnings, on other odd shapes where tool pressure can cause deflection and vibration, and in the shallow dish across the outside bottom of the base of a bowl. This is definitely a tool for light cuts only. The advantage is that its cutting ability is independent of speed, and I can rotate the wood across it with the handwheel and still get a smooth and controllable cut.

