

## MAKING A CARVING GOUGE FOR SMALL SCALE WORK

By Fran Sussman

May 11, 2014

Working in small scale often requires making your own tools (or doing without). Some high quality commercially available carving gouges go down to 1 mm or even 0.5 mm in width [see this two cherries 1 mm gouge, for example, [source for two cherries gouge](#)]. But there doesn't seem to be anything smaller.

I'm not particularly handy, and I don't quite get all the stuff about annealing, different types of tool steel, angles of grinds, etc. But I figured that a tiny gouge wouldn't take a lot of abuse, and so even if I didn't use the best steel or put the rod into the handle in the best way, whatever I made would likely survive. And I figured I could copy the profile of a tool I liked and the bottom line (does it work?) to determine the correct angle for the grind.

My friend Tom ([Tom Jones' website](#)) is a wonderful turner (full size, small, and dollhouse miniatures) and loves to innovate (and share those innovations). He gave me a few tips on how to make my own gouge, and I found a few other tutorials on the internet. Here's what finally worked for me.

### STEP 1. MAKE A TOOL BLANK

Find or make a basic blank for your tool. You can start with a used, good quality, small screwdriver (grind off the tip so you have a rod). Or you can purchase a round graver handle from a jewelry supply website or store, and add a steel rod of some sort. One option for the rod is a 3.3 mm steel point (for example, [source for 3.3 mm steel points](#)).

Graver handles are widely available, and come in different sizes and shapes.



Above are some examples of the types of round graver handles available online from sources, including Otto Frei, Metalliferous, Gesswein, Rio Grande, and Contenti.

The advantage of this approach (rather than using an old tool) is three fold: you can purchase a graver handle that is a size that will comfortably fit in your palm and suit the size of your hand, you know the quality of the steel you're using, and the steel point is already uniformly tapered towards the tip, improving the accuracy of the shape you will ultimately produce.

- Insert the steel point in the handle: Drill a small hole about the diameter of the point in the handle. Put the point in a vise and use a mallet (on the handle) until the point is partway into the handle. It doesn't need to go in far--just needs to be in firmly. You can also drill a hole that is larger than the point, and use epoxy to hold it in place.

For this blank, I put the point in at a slight angle, to mimic the action of a bent gouge—i.e., so that the cutting edge could be held close to the wood surface during use. [In reality, it was a mistake, of course, but a fortuitous one that I would repeat.] See photo below.

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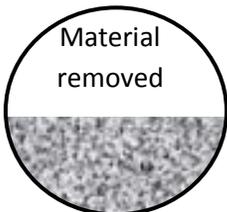
- Mark the point that will be the bottom of the handle with a sharpie.



- Flatten the long edge of the rod, the part that will be facing up and into which you will put a groove. Flatten the rod from the point up about 1/2" or more. Looking head on at the point, the shape will be a half circle. Keep the mark on the handle facing upright at all times.

*Be sure not to overheat the metal--use water and stop frequently to keep it cool!*

*TIP: A grinder will take away material rapidly, but it is difficult to use a grinder to get a flat edge (unless you have lots of skill or a jig. A GRS Power Hone, if you have one or a friend does, is good for creating a straight, flat surface [[Source for power hone](#)]).*



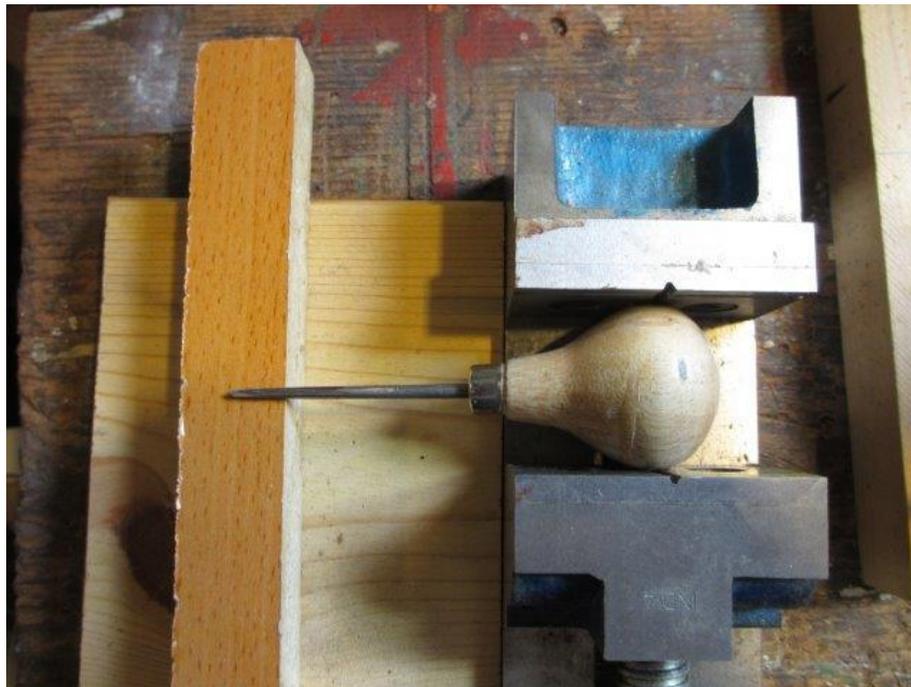
## STEP 2: SHAPE THE GROOVE FOR THE GOUGE.

The shaping will be done in two stages: First, you will make a shallow groove in the steel. Next, you will shape the groove into a “U”. Use a cutoff blade in a flex shaft to form a U shape in the rod. Very fine cutoff blades are available from jewelry supply companies, such as those where you buy the handles.



### Make a groove

- Put the handle in the vise, flat side up. You may want to mark a line down the middle of the steel point with a scribe.



- Insert a thin cut-off blade in a flex-shaft. For the tiny gouge in this tutorial, the starting disk was 0.009" thick--very fragile, so be careful
- Turn on the flex shaft at a medium speed. You want to go fast enough to cut a slot, but not so fast that you lose control or overheat the metal. Holding the flexshaft as steady as possible, making a thin groove the width of the disk, starting at the point and going up about 1/4".

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The groove does not need to be deep—just enough to distinctly catch your finger nail. *Stop often or use a bit of water or saliva on the point to be sure it doesn't overheat. Be careful not to cut through at the point.*



### Shape the “U”

Switch to a finer disk—0.006”. Use the disk to shape the groove into a U shape. You will need to rock the flex shaft a little bit forward and back to get a "U" rather than a "V" shape. *This disk cuts very slowly, giving you time to check your progress and adjust. Again, be sure not to overheat the steel, or to cut through the point. If you do cut through the point to the other side, grind off the tip and start again.*

### STEP 3. SHAPE THE OUTSIDE OF THE GOUGE

Round the outside of the rod around the groove you cut, using the GRS Hone or grinder to recreate the shape of your favorite carving gouge. Test the tip on a piece of scrap wood often, both holding it vertically (to see how clean the “U” it makes is” and as a gouge (to see how sharp it is when you cut).

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Marks made by new  
gouge—about 0.3mm

Marks made by  
commercially available  
0.5 mm gouge

Once you're happy with the tool, sand / flatten the bottom side of handle (where you made the original mark with the sharpie) so you can quickly identify the groove and to prevent the tool rolling off the table.

You're done! Notice that the gouge is a little small for my hand/palm. It was made for a friend who has commented that commercial gouges are a little large for her hands. We'll see how this one does!

