

A Simple Lathe Pattern Follower, version 2

By R. G. Sparber

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This article presents a "proof of concept" lathe pattern follower. This means that it is not good form to laugh at how I slapped it together ☺.

The follower consists of two parts. There is a bar with a ball bearing attached that clamps under the cutter. Bolted to the lathe ways is a table which holds the pattern. This follower is intended for decorative turning and not precision work.

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You can see a test cut on each end of this bar. I am about to cut a new contour defined by a piece of scrap Medium Density Fiberboard. This pattern is raised up to the proper height by another scrap of MDF and clamped onto the table. The MDF does compress a lot. A pattern made of aluminum or even steel would be better.



An alternate design consists of a piece of drill rod turned to have a cutting edge. It has been hardened and honed.



This design has a follower and cutter of the same shape and size. It is best for finish cuts but more accurately follows the pattern.



The center of the follower /cutter was drilled and tapped $\frac{1}{4}$ -20 before hardening.



It is bolted to a support bar.



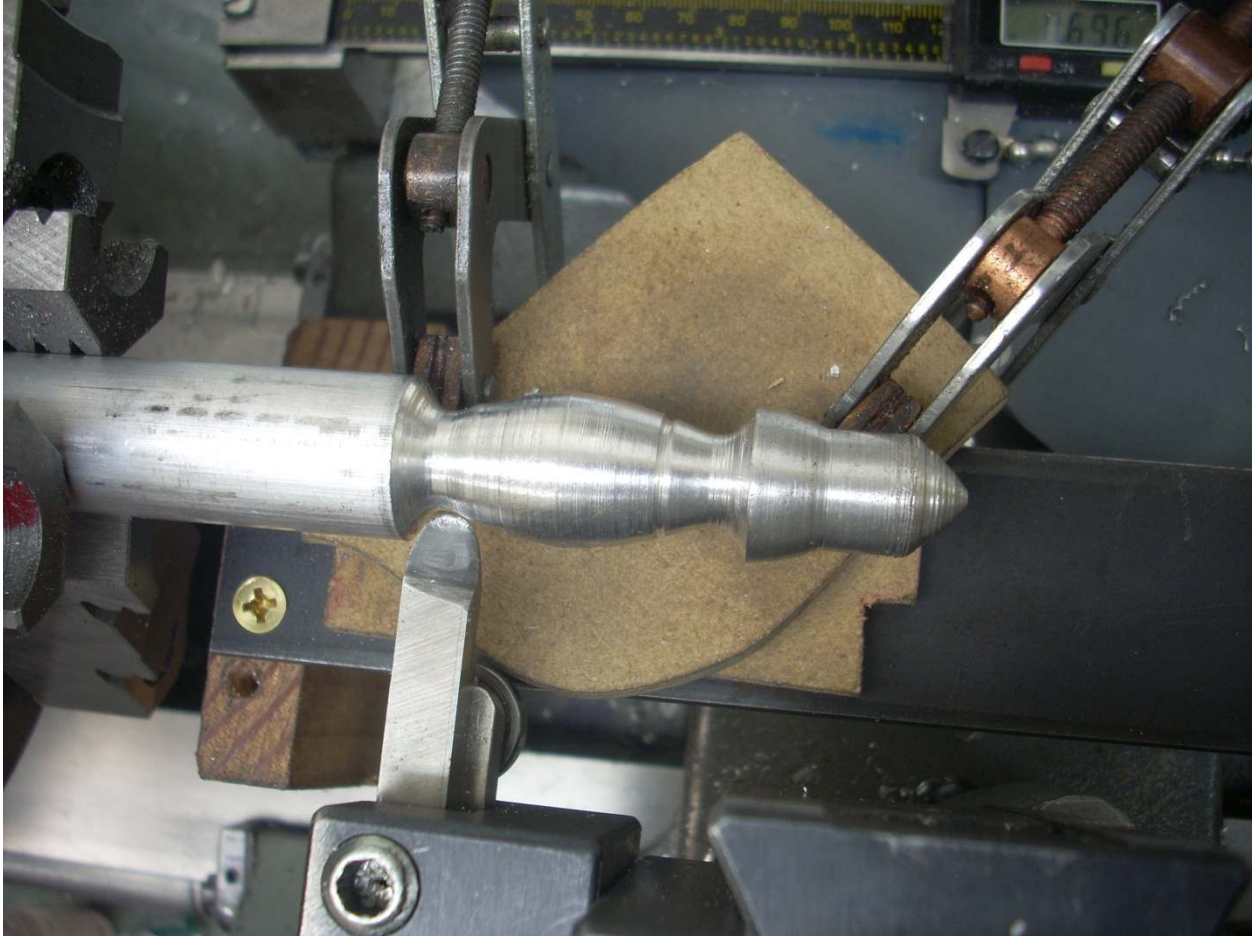
It might be advantageous to hog out the part with the ball bearing follower and then switch to the follower/cutter for the finish cut. As long as the pattern and part are not disturbed, there should be no error generated by the change.



On this side view you can see the cutter plus some packing at the rear of the follower. This arrangement lets me lock down the follower yet adjust the cutter's reach. Note that the tip of the cutter does not have to be aligned with the face of the pattern. I move the compound in until the follower wheel contacts the pattern. Then I slide the cutter out so it contacts the work piece. Then the front two screws of the tool holder are tightened.



The follower table must resist the cross feed force but does not have to endure much downward force. I made it from 1/8" strap It seemed solid enough.



Here is the finished contour. I rough out the form by feeding straight in at various points along the work piece. Then I start at the point of maximum diameter and apply a gentle in feed pressure while moving the apron left or right. The groove to the right of the peak was left over from a previous test.

The cutter is of the shear variety and works well both for roughing and finishing.

The minimum radius of a contour is set first by the follower wheel and second by the cutter.



Here are the parts of my proof of concept. The vertical supports are cut from a 4 x 4.



The follower was made from some machined bars pulled out of dumpster many years ago.



I ground down the head of a bolt so the follower could be used within about 0.1" of the table.



The follower table is mounted over the apron. The bolts in the blocks of wood engage bars that clamp the underside of the ways.



The left block is stepped so the table can get right up to the chuck jaws. The pattern is placed by eye and complex shapes can be achieved by having many patterns that are blended together during turning.

A more finished version of this attachment would use blocks of aluminum for the vertical supports and a table that was about an inch wider on the back side. I might drill and tap holes in the table so the clamps can be avoided.

If warranted, a single pattern could be cut that ran the full length of the follower table. It could be pinned to the table so many work pieces could be cut to the same shape.

I welcome your comments and questions.

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