

# Needle Threader

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homemade jig to hold the turning square, but whatever you use will work.

## Introduction

This Magnifying Glass/Needle Threader/Necklace would make a delightful gift or an affordable extravagance for someone who sews. It's quite simple to make, as the turning is little different than turning a pen. It does require a little mix and match of kit parts and drilling a hole in the key chain mechanism.

## Supplies

The required supplies are a suitable piece of wood, a Magnifier Necklace kit, a detachable key chain kit, and wire for the needle threader. Required tools are a suitable mandrel, bushings for the magnifying glass and key chain, and a #80 drill.

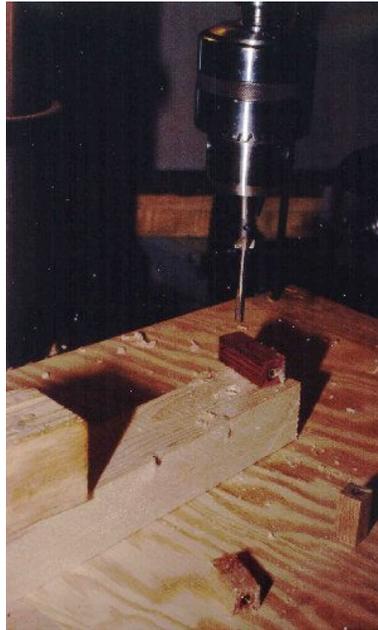
The only source I know for the Magnifier Necklace kit is Craft Supplies USA (1-800-551-8876). A Magnifier Necklace (MMG125) is \$6.95. Bushings for the Magnifier (GM200) are \$2.95. A Detachable Key Ring (DKR100) is \$3.50 and bushings for it (DKR050) are \$2.95.

You probably already have a suitable mandrel. You can get a #80 drill and 0.005 inch music wire from Small Parts (1-800-220-4242). You can get a lifetime supply (ten eighteen inch long pieces) of 0.005 wire (R-SMW-005) for \$3.00. A #80 drill (R-HSD-80) is \$1.77, but I wouldn't buy just one of any drill this small. Alternatively, if you only plan to make a couple of needle threaders, you can go to WalMart or the like, and buy a sewing kit that has a needle threader you can scavenge the wire out of for about \$.97. And by folding over the ends of the wire, you can use a #60 drill that you can find in any well stocked hardware store.

## Preparing and Turning the Barrel

Preparing and turning the barrel is much like making pen parts. I'll go over the procedure I use, but of course, your own favorite method will also be suitable. First decide if you want to use the shorter tube from the Magnifier Necklace or the longer tube from the Detachable Key Chain. I used the longer tube. I cut a piece of  $\frac{3}{4}$  by  $\frac{3}{4}$  inch Purpleheart to 2- $\frac{1}{16}$  inches long, just a little longer than the tube. The  $\frac{3}{4}$  inch Purpleheart is what I had on hand,  $\frac{5}{8}$  inch square would be fine, and  $\frac{1}{2}$  inch square would work as well. I mounted a 7mm drill in my drill press and drilled through the blank. I have a

To square the ends of the blank, I mount my trimmer in the drill press. Then I clamp a board with a  $\frac{3}{8}$  or so hole drilled in it to the drill press table to give clearance to the end of the trimmer. Figure 1 shows this set up:



Then I turn on the drill press, hold the blank by hand, and advance the trimmer until I can see bright brass at the end, as shown in Figure 2:



I like to use polyurethane glue to glue the tubes into the blank. If you're in a hurry you can use a thick super glue, but I've found the polyurethane glue is less likely to fail. To keep glue out of the inside of the tube, I steal a potato out of the kitchen, cut it in half and plunge the tube into it. I would give credit for where I learned this tip if I remembered where I first heard it. I squeeze some polyurethane glue into the turning blank and spread it around with a Q-tip. Then I insert the tube, potato end first, and let the glue cure overnight.

After the glue is cured I mount the blank for turning. In Figure 3 I'm using the Professional Pen Turning Mandrel (126706 for #1 Morse taper, 126705 for #2 Morse taper) from Woodcraft (1-800-225-1153), but any mandrel system can probably be made to work:



I like the Woodcraft mandrel for single blanks because it's adjustable. Put a Magnifier

Necklace bushing at one end of the mandrel and a Detachable Key Chain bushing at the other end, and mount it in your lathe. Then turn to the shape desired. I didn't want a complicated shape competing with the magnifier, so I turned a simple rounded shape. Figure 4 shows the start of the roughing to round:



Figure 5 shows sanding the blank smooth:



In Figure 6 I'm applying a friction polish:



Once you're done turning the blank, remove it from the lathe.

### Adapting and Assembly

The next step is assembling the Needle Threader. To pad my vise for assembly I use a couple of small maple blocks that I've mounted 1/4 inch round magnets so they will stay put as shown in Figure 7:



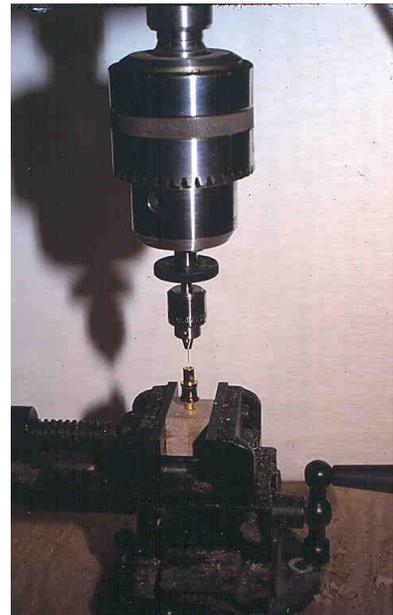
Unscrew the magnifying glass bezel from the mount and press the mount into the tube. Be sure to mount it in the smaller diameter end. Then take the detachable mechanism apart and mount the female half in the other end of the tube. At this point you can re-attach the magnifier bezel to the mount.

The last step is to modify the detachable mechanism for use as a needle threader. The first step is to make a dimple to guide the drill with a center punch. To hold the detachable mechanism without scratching it, I took two small maple blocks, mounted 1/4 inch round magnets, and mounted them in a vise. Then I drilled about 1/4 inch down with a drill slightly smaller than the end of the mechanism. If you don't have any magnets, or only plan to make a few Needle Threaders you could use wooden pieces with a lip that hangs over the vise. Figure 8 shows using a small center punch to make a starting place for the drill:



To drill the hole to insert the wire I transfer the detachable mechanism and the wood blocks to my cross-vise and insert a micro-drilling fixture into the chuck of the drill press. That's not to say you need to have these tools, it only means that my tool fetish got the better of me. You could probably get good results with a drill press and any means to hold the mechanism, or even a hand drill. These fancy tools just make it

less likely that I'll break the drill. Figure 9 shows this set up:



I drill about 1/8 inch deep with a #80 drill. If you drill deeper and aren't exactly in the center you may mess up the retracting mechanism.

I borrowed the wire out of a WalMart threader for this project. I removed the wire from the stamped holder and straightened out the legs. To make it easier to mount the wire, I transferred the wire with the wood holders back to my vise. Then I used a piece of duct tape to hold the spring loaded collar down out of the way. I used super glue to glue the wire into the mechanism. The important thing here is to avoid getting glue down into the works of the mechanism. To avoid this I placed a drop of super glue on a piece of plastic, dipped the wire into it, and then inserted the wire into the hole in the mechanism, as shown in Figure 10:



It didn't feel real tight, so I added a little extra glue by dipping a small wood scrap into the glue to controllably transfer some more glue around the wire. Then I sprayed a little accelerator onto the glue to finish the job. If you can only find a #60 drill you may have better luck if you use polyurethane glue, which fills gaps better.

The project is almost done now. The only thing left to do is test the fit of the detachable mechanism and attach the chain. The completed Needle Threader is shown in Figures 11 and 12:



*The author turns, tinkers, and indulges his tool fetish in Hampstead, Maryland. He welcomes comments, questions, and criticisms by e-mail at [David@DavidReedSmith.com](mailto:David@DavidReedSmith.com).*