



Filigree Pen

Product #129170, 129150, 129160, 129155, 129159, 129165

General Instructions

Whether you're a novice turner or a pro, you'll find these projects are all quick and easy to make. Using cut-offs and shorts, the type everyone saves but doesn't know what to do with, you'll find yourself making handsome, custom woodturning projects which are great for gifts or for sale. The following is general in nature, please refer to the instruction sheet on the opposite side for specific dimensions and sizes for your project.

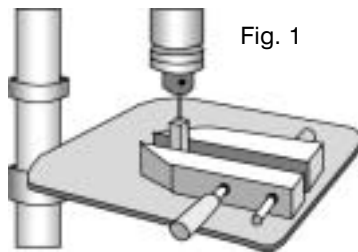
1. Cutting Blanks

Cut wooden blanks to the size specified in the enclosed instructions. For your safety, be sure that the blanks are solid and have no holes, checks or other defects.

2. Drilling Blanks

Center and bore a hole through your stock as specified in the Project Instructions on the opposite side. The center of the blank can be located at the intersection of diagonal lines, drawn from opposite corners.

All holes are easily drilled using a clamp and a drill press (**FIG. 1**). Before you start to drill be sure that your blank is at 90° to the drill press table. You may also chuck and drill the stock on your lathe.



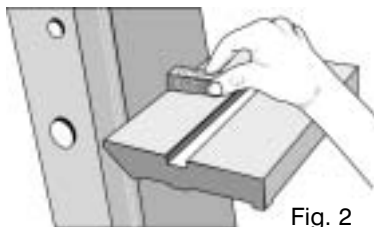
3. Gluing Blanks to Tubes

Rough the brass tube's surface with a fine grit sandpaper and use a quick drying CA type glue to secure the brass tubes into the blanks. Rotate the tube as you insert it to ensure maximum surface coverage of glue. If you find that CA glue is not providing adequate bonding, an alternative is any two part epoxy type glue.

4. Sanding Blanks to Length

Using a belt or disc sander, square the ends of the brass tube/wood blank. The blank should be flush with the brass tube on both ends. Care should be taken to not sand into the tubes (**FIG. 2**). If any excess glue remains inside the tubes it should be gently scraped out.

Tip: Excess glue can be scraped out using the threaded end of the mandrel when mounting the blanks for turning.



5. Mandrel Preparation

Woodcraft's new Pen and Pencil Makers Mandrel system allows you to turn a variety of small projects without requiring the purchase of a unique, special mandrel each time. The only item you will need to purchase to turn new projects is the specially designed bushing set for the project of your choice. The mandrel is provided with either a #1 Morse Taper or a #2 Morse Taper. If you prefer to use the mandrel in a three jaw chuck, simply loosen the Morse Taper set screw and slide the Morse Taper off of the shaft. Now the mandrel shaft may be mounted directly in your three jaw chuck. With the bushing sets specified on the project instruction sheet, mount your wood blanks and bushings as depicted for each project. With the mandrel mounted in your lathe, slide a bushings onto the mandrel, followed by a wood blank and a second bushing or spacer as required, followed by the second wood blank if required. With the wood blanks installed on the mandrel secure the wood blank/bushing assembly using the washer and retaining nut provided. Bring up a live center in the tailstock to support the threaded end of the mandrel. Do not over tighten the tailstock or the mandrel will flex and bend causing oval shaped turnings.

6. Turning Blanks

Place your tool rest parallel and as close as possible to the blank. Rotate the blank by hand to ensure it will not touch the tool rest when the lathe is turned on. Using a turning speed of approximately 1,000 RPM begin turning the blank to a diameter slightly larger than the bushings. You can work the stock down to just short of the desired design or diameter by carefully scraping or sanding.

7. Finishing the Blanks

Blanks can be finished like any other wood project. Using a fine grit sandpaper, sand the blank until it is flush with the bushing for parallel sided projects or until the desired profile is obtained for custom projects. Use a wood filler, if desired, to fill any grain openings in the blank. Final sanding with a wet/dry paper will create a blank which is glass smooth. *Tip: We have found that use of Micro Mesh sanding paper after wet/dry sanding creates a perfect, glass smooth finish.*

8. Assembly

All parts should fit together as depicted in the parts diagram for each project. In some cases a machinist vise will be needed to completely press the parts together. Protect all plated parts from scratching by covering them with a cloth or thin pad before placing them in a vise. Proceed carefully, many of the kit components are delicate and uneven or excessive pressure will cause permanent damage.



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1. Cutting Blanks

Cut two $\frac{5}{8}$ " x $\frac{5}{8}$ " blanks, one $2\frac{1}{4}$ " and one $2\frac{1}{8}$ " long.

2. Drilling Blanks

Using a letter "O" brad point drill bit, drill a hole lengthwise through the center of each blank. See General Instructions for details.

3. Gluing Blanks to Tubes

See General Instructions for details.

4. Sanding Blanks to Length

See General Instructions for details.

5. Mandrel Preparation

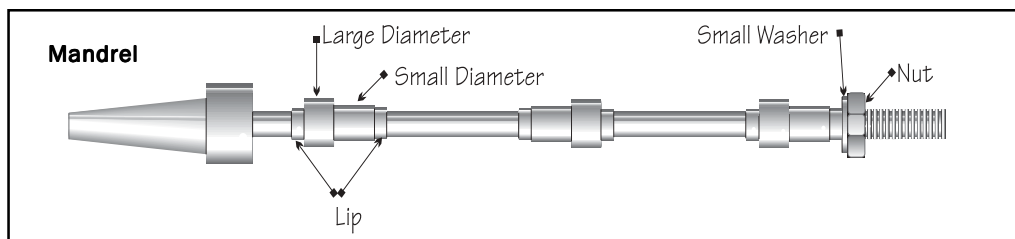
Mount the tube blanks and bushings on your lathe mandrel. All three bushings are identical, but proper placement will enable you to turn to the dimensions required for the pen top and bottom. Place the first bushing on the mandrel with the "large" diameter on the headstock side of the mandrel. Slide the shortest blank onto the mandrel and over the lip of the first bushing. Double check, and be absolutely sure, that the shortest blank is installed first or you will not be able to assemble the pen. Place the second bushing on the mandrel with the "small" diameter oriented toward the headstock and slip the bushing lip into the first blank. Place the second, or longest, blank on the mandrel, followed by the third bushing with the

"large" diameter oriented toward the headstock. In this configuration, the blank closest to the headstock (refer to exploded parts diagram) is tube (D), the Pen Bottom. The blank closest to the tailstock is tube (I), the Pen Top. The smaller Filigree Pen Washer, provided with the Filigree Pen Bushing Set, should replace the large washer supplied with your mandrel when turning Filigree Pens to prevent possible damage to the "lip" of the bushings.

Tip: Mark or identify your bushings so that you can use them in the same mandrel position each time and avoid damaging the bushing lip when the washer and nut are tightened.

6. Turning the Blanks

Turn each blank to the diameter defined by the bushings. The diameter of both Barrels must exactly match bushing diameters. If the diameter of the shorter Bottom Blank (D) is not precisely obtained, the wood of the Bottom Blank will rub or bind on the pen's Center Ring (H) when assembled and your pen will not operate properly. If the diameter of the longer Top Blank (I) is not precisely obtained the Filigree (N) will not fit. A portion of the wood on the Top Blank must be parted off for pen assembly. Measure a distance $\frac{1}{16}$ " from the point where the Top Blank meets the bushing and part this $\frac{1}{16}$ " section of material off down to the brass tube. Be careful not to damage the tube and, if necessary, clean any remaining wood/glue from the tube by hand prior to pen assembly.





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7. Finishing the Blanks

See General Instructions for details.

8. Assembly

1. Push fit the Tip (A) into the black Tip Center (B). Slide the Trim Ring (C) over the opposite end of the black Tip Center. Press this entire assembly into one end of the shorter Lower Tube (D).
2. Press the smooth end of the Twist Holder (E) into the other end of the Lower Tube.
3. Place the spring (L) over the narrow end of the ink refill (M) and insert the refill and spring into the Lower Tube.
4. Screw the Twist Mechanism (F) onto the Twist Holder (now pressed into the Lower Tube) and secure tightly.
5. The Center Ring, part (H), consists of two pieces as shown in the parts diagram. Slip the small black plastic ring (H2) onto the main center ring component (H1). This two piece assembly now becomes the Center Ring (H). Press the Center Ring onto the brass, parted end of the longer Upper Tube (I) so that the flat side of the Center Ring is pressed against the wood of the Upper Tube. If the Center Ring is loose, we recommend carefully gluing it into place with CA glue.

6. Press the Brass Clip Bushing (J) stud end first into the top of the cap assembly until flush with the tube.

7. Slide the Filigree (N) over the Upper Tube making sure that the end of the Filigree, which is notched to accept the Clip (G) is opposite the Center Ring, and the Filigree slides onto the Center Ring until it seats against the Black Plastic Ring (H2). Place the stud of the Finial (K) through the Clip. Align the Clip with the notch in the Filigree and tighten the Finial securely.

8. Push the completed Upper Tube assembly over the twist mechanism until there is no gap visible between the Lower Tube assembly and the Center Ring.

9. Operation

1. Turn the top of the pen clockwise or counter clockwise while holding the bottom and the ink refill will rotate out and lock. This is the double twist action of the American Style Filigree Pen.
2. To remove the pen top for ink refill replacement, turn the top counter clockwise past the point where the ink refill is extended and screw the top of the pen off.

