

Celtic Knot Pen

by Ron Sardo

This Celtic knot pen started out as an ordinary Slimline pen. By mixing and matching bushings from other kits and making the lower barrel $3/8$ " longer than standard, it was easy to make something that was both unique, as well as appealing to the eye. All the sleds, jigs, and procedures in this article provide the basis of what you need to get started yourself.

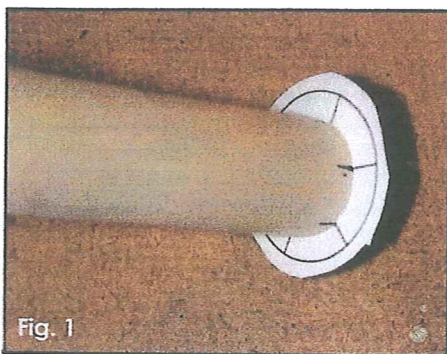
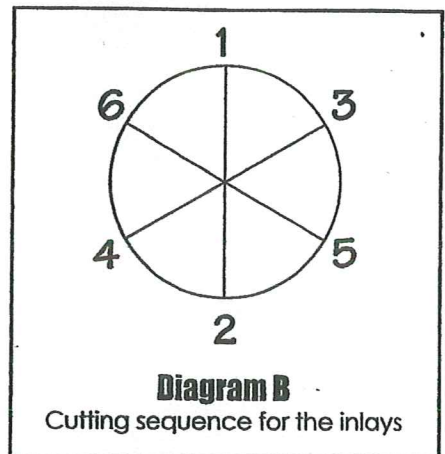
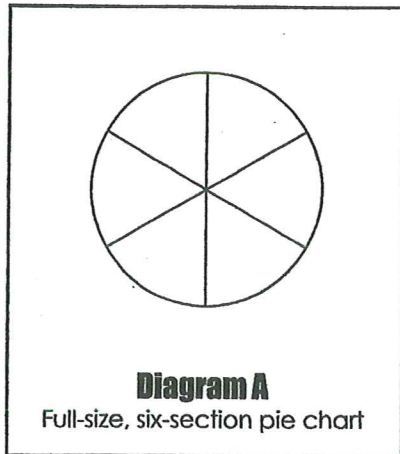
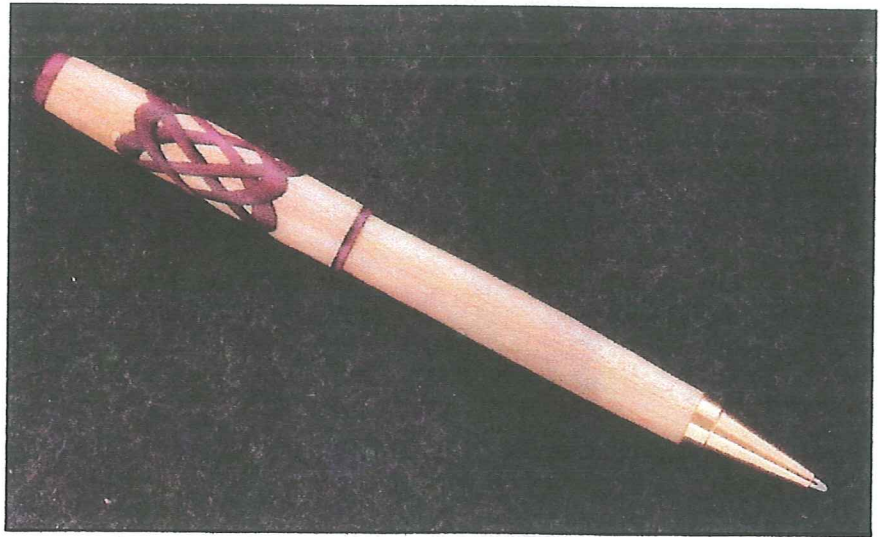
PREPARE THE BLANK

For this project, you need to work with round blanks; so between centers, rough turn a blank about 6 " long and approximately $5/8$ " to $3/4$ " in diameter.

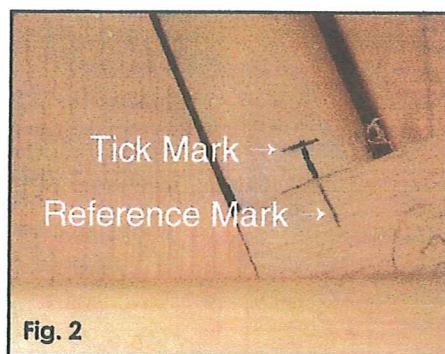
You also need to divide the circumference of the round blank into six equal sections. This is easy to accomplish because pie charts can be created with most popular word-processing computer programs. Either design a 1 "-diameter pie chart broken down into six equal sections on your computer or use the one provided for you in **Diagram A**. Print this out and thumb-tack the pie chart to the blank, placing the tack into the hole created by the drive center. Transfer the lines to the blank (see **Fig. 1**).

MAKING YOUR CUTS

Place the blank on the jig and make a witness mark on the jig (see **Fig. 2**). This reference mark will be used to align all the other cuts. You are going to cut the blank



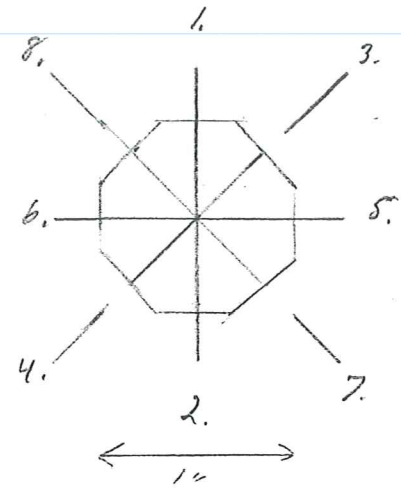
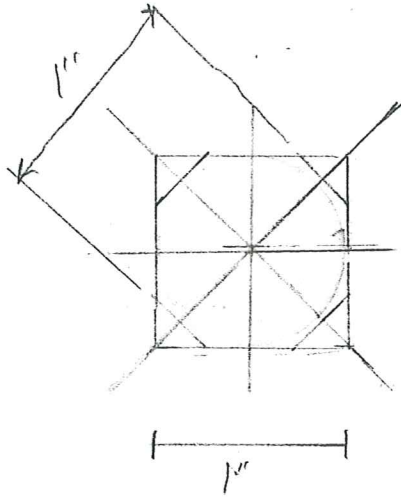
Transfer the lines from the pie chart to the blank.



Reference and tick marks are used to align the blank.



Set up the blank in the jig.



all 8 sides must the same (1" or ?)



Fig. 4

Make the first cut using the hold-down tool for safety.

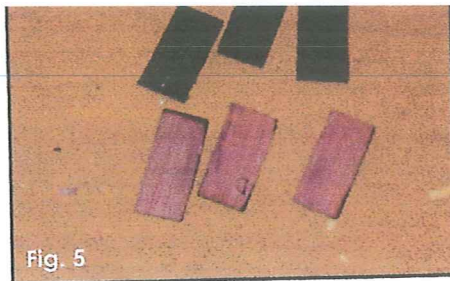


Fig. 5

Singe the inlays with a torch to add an interesting shadow line to the edge of the inlay.

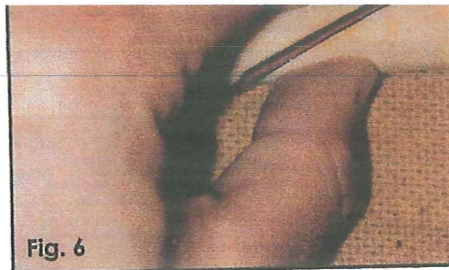


Fig. 6

Glue the inlay in place with CA.

in two and glue the sections back together along with the inlay sandwiched in place. There is a good chance that everything will not be in the same exact position for the second cut. The way to avoid any problems is to make the cuts at the far end of the blank. This way you are always referencing the same end and any movement that occurs will be on the opposite end. It's easy to get confused, so as you make each cut, place a tick mark on the reference line you just used.

CUTTING SLED

I use a cutting sled to separate the blank in order to add the inlays. It is an easy accessory to make for a table saw and I described its construction in my last article. It can be found on page 36 in Issue #14 (Summer 2007) of *Woodturning Design*.

Set up the blank in the jig as shown in Fig. 3. (The rectangular piece of plywood in the upper right-hand corner of the photo is a hold-down block that you can see employed in the next photo.)

Make the first cut (see Fig. 4) and turn off the saw. Wait for the blade to stop before moving the sled back to avoid nicking the blank with the spinning blade. Now you can determine the final size of the six inlays by measuring the width of the fresh cut. An important point to remember is that the thickness of the inlays needs to be the same width as the kerf of the saw.

SUPPLIES

Wood: pen blank approx. 5/8" to 3/4" dia. x 6" long; wood for inlays, center band, and finial (purpleheart was used for pen shown); plywood for hold-down block

Tools: table saw, cutting sled, lathe and turning tools, jig, propane torch, pen mandrel and bushings for pen kit, drill press, modified wrench (optional), pin chuck, calipers

Slimline pen kit

Medium cyanoacrylate glue (CA or superglue)

Assorted grits of abrasive paper

Finish of choice

Thumb tack

Wax paper

I decided to use purpleheart for the Celtic knot inlays, but of course, you can use whatever species you desire. As shown in Fig. 5, I singed one side of the wood black with a propane torch to produce a shadowing effect on the knot. You need to be quick, however—this wood darkens fast!

Cut all the inlays to size; singe and glue the first inlay in place with medium cyanoacrylate glue (CA or superglue).

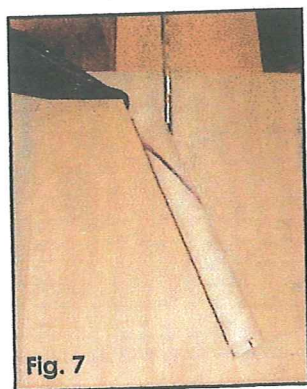


Fig. 7

Line up the blank to make the second cut. Be sure to use the hold-down for all of the remaining cuts.

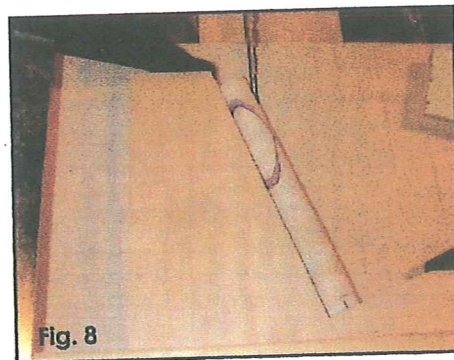


Fig. 8

Make the third cut.

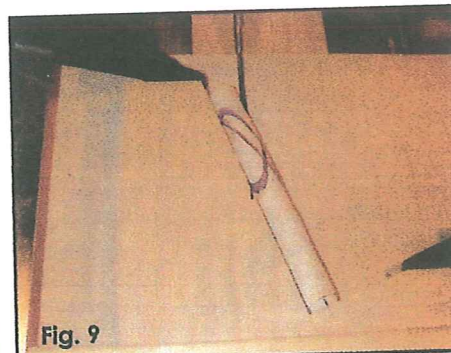


Fig. 9

Make the fourth cut.

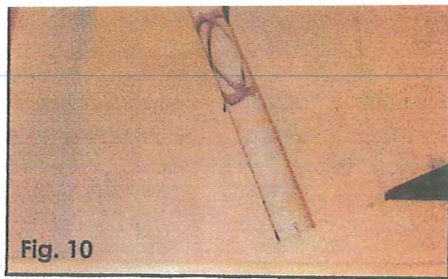


Fig. 10

Make the fifth cut.

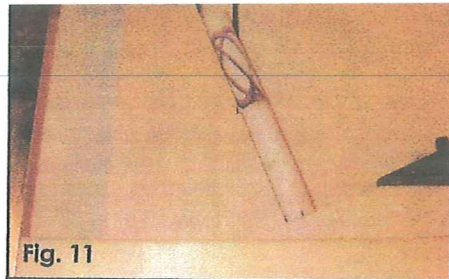


Fig. 11

Make the sixth and final cut.

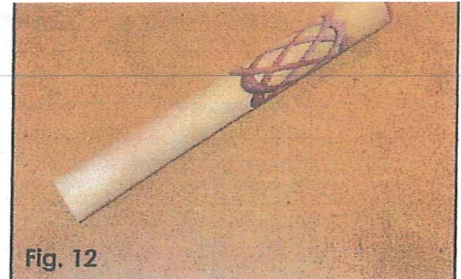


Fig. 12

Finished blank ready for turning. Make sure the "shadow lines" are all on the same side of the inlay.

Hold everything together for a few moments until the glue sets (see Fig. 6), then sand the inlay flush to the blank so the other cuts can be made.

Follow the cutting sequence shown in Diagram B and make the second cut. Fig. 7 shows the blank lined up in the jig. Here is where placing a tick mark mentioned previously comes in handy because, even with only six cuts, it is easy to get mixed up. You can see the tick mark in the bottom of the photo.

Glue in the second inlay. Double-check the alignment while making sure the sections don't slip. I usually lay the blank down on wax paper and just hold it in place with both hands. When the glue dries, sand the inlay flush to the blank.

Make the remaining cuts in the proper sequence, gluing and sanding each inlay flush before making the next cut. Figs. 8 through 11 show the sequence of operations needed to accomplish these tasks. Fig. 12 shows the finished blank.

Drill your blanks, glue in the tubes, and place the barrels on a mandrel. Turn the upper barrel a little oversized for now (see Fig. 13).

On the end of the blank where you want to place the center band, turn off the wood down to the tube, making sure the wood on the blank is square for the center band to sit flush (see Fig. 14). I like my center band to be about 3/32" wide.

Now turn and finish the lower barrel to a nice profile, sand, and finish. The one thing you will notice is that as the upper barrel gets smaller in diameter, the Celtic knot will become shorter. Don't worry; this is normal.

MAKING A WOOD FINIAL AND CENTER BAND

Now you are ready to make the finial. Chuck up a piece of wood in a chuck and turn it round (see Fig. 15). The final diameter of the finial should mirror that of the end of the pen when finished, but for now, leave it a bit oversized. I used purpleheart for both my center band and finial because I wanted the wood to match; you decide what you want to do with your pen.

Turn a 5/16"-long tenon on the end of the blank (see Fig. 16) that is a bit oversized at this point. You can bring the tenon down to finish size by doing it either the traditional way using calipers and a parting tool, or use a little trick I do that works the first time and every time—I made a cutting tool from a wrench (see Fig. 17). I simply ground an edge on the top jaw and use this tool similar to how one would use a scraper (see Fig. 18).

I'm using 7mm tubes for this pen, but unfortunately, a 1/4" wrench is just a little too big. I solved this problem by using a very delicate instrument to close the opening: a 5 lb. hammer! A couple of good taps on the top jaw should be enough to make the jaws a little tighter. Make a test cut on some scrap wood and test the fit by slipping the

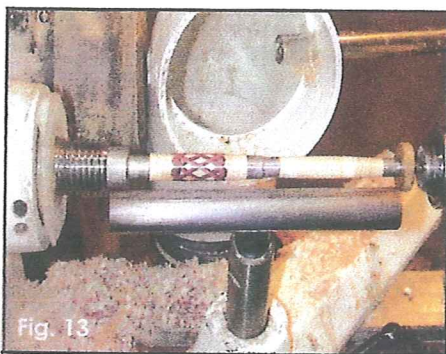


Fig. 13

Barrels installed on the mandrel and turned to rough size.

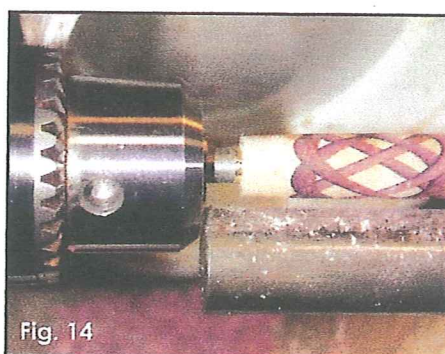


Fig. 14

Turn off the wood on the upper barrel so the center band can be added.

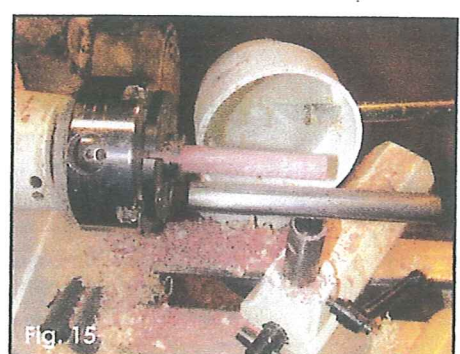


Fig. 15

Prepare stock for finial.

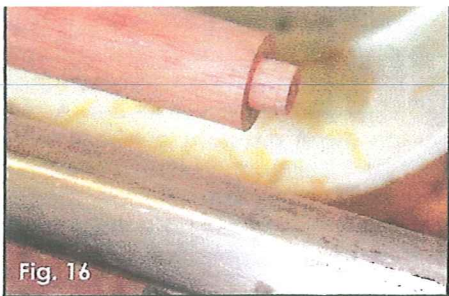


Fig. 16
Cut the tenon oversized.



Fig. 17
Tenon tool made from a wrench.



Fig. 18
Tenon tool in action.

tenon in a tube. If the tenon is too big, a couple more taps should do the trick. If by chance you make the tenon too small, take a file to the bottom jaw of the wrench and file away until you get a perfect fit.

The tenon should be a little tight; you want to compress the wood a tiny bit when the finial is pressed into the tube. Also, when sizing the tool, it is better to sneak up to the right size rather than risk making the tool too small. There is less work involved in giving the wrench another whack than there is in moving the file back and forth!

Since the wood after turning the tenon to the proper size. Turn a small, 1/32" chamfer on the bottom end of the tenon to help guide the wood into the tube. Part off the finial (see Fig. 19).

Re-sing the end grain on the remaining wood (see Fig. 20). Drill a hole that matches your tube and part off the center band.

Insert the wood finial into the tube and hold it in place with a drop or two of CA glue and let it dry (see Fig. 21). You would be amazed how long it can take for CA glue to dry if a little gets squeezed inside the tube—I found out the hard way! Now glue on the center band with a drop or two of CA glue.

Place the upper barrel on a pin chuck, turn the finial to a nice profile, sand, and finish. (Editor's Note: Rich Kleinhenz described how to make a simple pin chuck in his article on "Closed End Pens" in the Spring 2006 [pages

56-62] issue of Woodturning Design.)

There you have it. A beautiful pen that anyone would be proud to own.



Ron Sardo

Ron Sardo and his wife, Marla, own and operate a commercial printing company. They reside in Drums, Pennsylvania, along with their two daughters. Ron had been woodworking for over 20 years when Marla decided to give him a lathe as a Christmas present. Eight months later, in the summer of 2003, Ron decided to open the box and assemble the machine. He was instantly hooked.

Ron enjoys turning many different shapes, everything from bowls to vases and boxes to hollow forms. But he mostly loves to experiment with different woodworking techniques and ideas. He thinks the best way to grow as a woodturner is to stop worrying about making every piece a masterpiece. "Sometimes you learn more from your mistakes than your successes, and I have more than a box full of mistakes to prove it."

Ron welcomes your questions and comments and can be reached by e-mail at mail@simplyturning.com. You can see more of Ron's work by visiting his website at www.SimplyTurning.com.



Fig. 19
Singe the wood after cutting the tenon to final size.

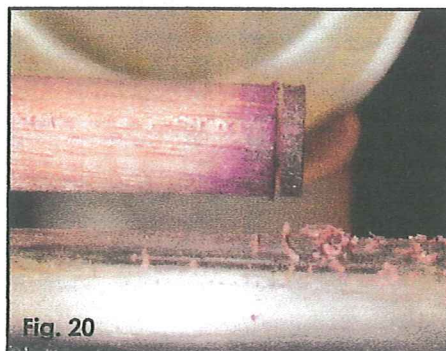


Fig. 20
Parting off the center band.



Fig. 21
Glue in the rough finial in preparation for final turning.