

PENTURNERS CORNER

By Scott Greaves and Don Ward

I am going to try something a little different in my column this month, but I promise I will only do it just this once! I want to introduce Don Ward, whose article on turning the Pentel Pencil appears below. Don is an old friend who is also one of the best penturners I know. He has perfected the techniques that many penturners take for granted, and then has written about them to share his knowledge with the whole community. Don wrote the definitive article on the CA/BLO finish. He was one of the first people on board when we started up the International Association of Penturners (IAP), and he has been a constant source of good information there since. Don is a member of the Pen Maker's Guild, and has demonstrated penturning on numerous occasions, most recently at the SWAT Symposium. On top of all that he is a nice guy, and he is committed to spreading the word about penturning to all who are interested! So why the nice long introduction? Because Don will be taking over this column after this installment, then I can spend more time actually turning pens!

The Pentel Pencil

By Don Ward

I have wanted to make one of these Pentel pencils for a long time. I even bought the special dedicated drill bit from Craft Supplies USA, which has been discontinued now for a couple of years. Pentel makes what many consider the "Gold Standard" of inexpensive, reliable mechanical pencils. The nice thing for us penturners is that the Pentel can be disassembled in a few seconds, and the mechanism inserted into a fine hand-turned barrel of our choice. A custom Pentel pencil is the perfect marriage of proven commercial reliability and the beauty of hand-turned art. Here is how it's done!

The Pentel Pencil Revisited

By Don Ward

I am continuously trying to find the not so usual pen to make. I've made several modifications of slimlines, and I really think the slimline is the most versatile kit we have with which to modify and experiment. But that will be another article in itself.

One intriguing modification I came across was taking a Pentel pencil (Pentel Sharp #205 (0.5mm) or #207 (0.7mm)) and replacing the plastic barrel with a turned barrel from the material of your choice. The earliest reference I've found to the Pentel conversion goes back to 1987 and I found it on Nick Cook's website: <http://www.nickcookwoodturner.com/articles-pencil-pusher.htm>

Craft Supplies USA (<http://www.woodturnerscatalog.com>) also provides instructions but requires the use of a step drill for drilling the blank. But the step drill was priced at \$24.95 and I was not willing to purchase the bit, and now it is no longer available. I did use some of the information in the CSUSA instructions.

My original article on the Pentel pencil can be found at <http://tinyurl.com/ylkt3m>. Other instructions can be found in the Yahoo! Penturners Group's archives.

The major change I've made is the use of a pin chuck to hold the blank. See figure 1.



Figure 1

This method is sturdier than other ways to hold the blank. It also allows the blank to spin true which makes the finished barrel nice and round and not oval or off center. Pin chucks came onto the penturning scene a little over a year ago. The pin chuck is a very easy way to hold a pen blank for making closed end pens from the capped pen kits available. Using a pin chuck also requires the use of a brass tube. No other article on the Pentel pencil has mentioned using a brass tube. I use 7mm tubes and these tubes make the finished pen barrel much stronger.

The list of materials needed is:

- (1) a Pentel Pencil – Item #'s P205, P207 or P209 depending on your lead size preference.
- (2) A 4" section of 7mm (slimline) tubing. Ten inch sections of 7mm tubes are available from most major pen kit suppliers.
- (3) 1/4" drill bit 6" long
- (4) 9/32 " drill bit 6" long
- (5) 5/32 " bit 6" long
- (6) A chuck for holding the pen blank
- (7) Pin chuck for 7mm tubes...I make my own pin chuck using letter D drill rod and a 1/16 " pin. I make the slot on my grinder but stop short of final depth. I finish the slot with a flat file. It is important...imperative...that the depth of the slot be exactly equal to the diameter of the pin, which in this case is 1/16" or .0625". An excellent article on the pin chuck, written by Richard Kleinhenz, can be found on the Pen Makers Guild website at <http://tinyurl.com/yj6rqh> .
- (8) A Jacob's chuck
- (9) Sandpaper for your sanding routine
- (10) Finish of choice

Assemble the necessary tools and materials and we are ready to start this project.

Select the blank: The finished pencil barrel will be quite thin toward the nib end. I suggest that a fairly straight grained wood be used to have the best strength. A lovely burl with swirling grain may not hold up. Other excellent choices for materials include antler, Corian, and plastics. I've made several with antler, although the challenge is finding a piece of antler straight enough over the length of the blank. Slightly curved pieces can be straightened by mounting them between centers and rough turning it round. The blank you choose needs to be cut to a length of 4.5 inches.

Drill the blank: Use $\frac{3}{4}$ " blanks for easier drilling, but smaller blanks can be used depending on your drilling ability and accuracy. Smaller blanks means less material to turn away to finish the pencil barrel. You will actually use 3 drill bits to drill the blank. Chuck the blank in the chuck of you choice. I drill on the lathe because the accuracy obtained is better than with my drill press. See figure 2.



Figure 2

And accuracy is needed on this project. I bring up the tailstock to make sure the blank is centered in the chuck. Finding the center of the tailstock end is a good practice on this project. Tighten the chuck. Drill the first hole using the $\frac{1}{4}$ " bit in the Jacob's chuck. Drill the hole that to a depth of 4.25". Drill shallow and clean out often, especially when the bit flutes are totally inside the blank. The drilling can produce quite an amount of heat. I use drill bit stop collars and find them quite handy. Be sure not to move or bump the blank. The other two drillings must be centered with the first drilling. Put the $\frac{9}{32}$ " bit in the Jacob's chuck and chase the $\frac{1}{4}$ " hole to a depth of 3.66". This hole will allow the brass tube to be glued in for added strength and to make the use of the pin chuck possible. The last drilling will be done with the $\frac{5}{32}$ " bit. Drill the $\frac{5}{32}$ " hole centered on the first hole and drills until the bit exits the blank. This smaller hole is where the pencil mechanism will exit the finished blank.

Glue the tube: A 7mm brass tube is needed and should be cut to a length of 3.00 inches. Glue it into the blank being sure it is pushed all the way into the

blank. The end of the tube should be .66 inches below the end of the blank. The tube cannot come to the end of the blank because the tube's ID is too small for the chrome eraser cover and the movement to advance the lead will be restricted. Care should be taken to insure no glue is pushed into the small hole drilled in the end of the blank. I use a small punch to clean out the 5/32" hole and a cotton swab to clean out the other end of the blank's hole. My glue of choice is 5-minute epoxy. Other glues will work. See figure 3, which shows a finished pencil barrel cut in half lengthwise. Notice the placement of the brass tube in relationship to the holes drilled in the pencil barrel.



Figure 3

Ready to turn: I use the Beall Collet Chuck to hold my mandrel, which is actually the pin chuck mentioned earlier. A Jacob's chuck can be used to hold the pin chuck, but be sure to use a drawbar so you won't have to chase the chuck around the shop, and to avoid injury. Any chuck that will hold the pin chuck can be used. You may need to be clever to devise a way to hold the mandrel if no chuck is available. Place a slimline bushing (I use a short one) on the mandrel and slide the blank onto the pin chuck and lock the blank into place by rotating it toward you slightly. (Be sure to read the article about pin chucks). The bushing is not needed, but it keeps the blank away from whatever is holding the mandrel. Bring up the tailstock and apply light pressure to stabilize the blank and begin to turn. See figure 4.



Figure 4

The small end (writing end) should end somewhere close to .300" and the eraser end to .374" after sanding. Take this into consideration how far to actually turn with tools. The pencil barrel should taper from the .374" end to the .300" end. Turn the blank round, establish the ends' diameters and turn between them. Adjust the turning to fit your turning style. Or, be creative in your design...coves, beads, grooves, or maybe even a captive ring. Prior to making the final shaping, remove the blank from the mandrel and trim the blank to its final length. The final length will be close to 4.34". I cut it a little longer and test fit the mechanism. There should be about .278" of the threaded end protruding from the blank's end. See figure 5.



Figure 5

This will allow the nib to screw on and secure the mechanism in place. Use a disk sander to remove the final amount of blank after trimming. This way a small amount of material can be removed and the final length can be slowly reached. Square the end, return the blank to the lathe and finish turning.

Notice on the original plastic barrel there is a groove for the clip. Duplicate this groove on your pencil barrel. Duplicating the grooves on the writing end is optional. Personally, I don't like them.

Sand and apply your finish of choice. Assemble the pencil. Be careful attaching the clip, it can scratch the finish. Use a turned dowel just a little larger than the pencil barrel, slide the clip on and transfer it to the pencil's large end which requires only sliding the clip a very short distance.

Congratulations! You have now completed your Pentel pencil...on the first try, I hope. See figure 6.



Figure 6

The Stick Pen
By Scott Greaves

One of the common things we penturners hear if we sell our handmade works of art is “Why should I spend ‘however much’ on your pen when I can use a thirty-nine cent Bic?” Being the perverse individual I am, I usually just say “Go ahead and use your Bic, it’s as good a pen as *You* will ever need!” I know, I know, we should be nice to our customers!

A few years ago a friend of mine showed me how he turns this question around, and uses an inexpensive Bic stick pen to make a beautiful and functional hand-turned pen. Wally Dickerman is known for his amazing hollow forms, often seen in galleries. A couple of years ago while I was putting together an article on penturning for the American Woodturner magazine, I asked Wally if he had ever made any pens, and if he would mind sending me one for the article. He responded that he had never really made any pens using kits, but that he makes a few pens each year for gifts using the “refill” from a cheap Bic pen. The pen he sent was about as far from a Bic as you could imagine – long, slender and shapely, with the kind of exquisite detail often seen in lace bobbins – a real work of art.

I knew that I was going to have to try one of these pens myself! There are no instructions for a pen like this. All you have to do is dismantle one of these cheap pens and you know what you have to do to turn your own barrel for one. The “refill”, for lack of a better term, is simply friction fit into the nose of the pen. So to turn a replacement barrel you start by measuring the part of the refill where it is friction fit into the barrel to calculate

the size hole you need to drill into the rough blank. I found that diameter to be .157, which was determined by using a dial caliper. This measurement equates out to either a 4mm drill bit, or a #22 bit. I had a 4mm bit on hand, so I went with that size. The depth of the hole is determined by measuring the length of the refill, in this case 4 3/4". So the challenge is first to find a 4mm drill bit 4 3/4" long, the stiffer the better, and second to drill a hole that deep straight into the pen blank.

Skinny little drill bits with any kind of quality are hard to find. To find them more than about three inches long is next to impossible! I resorted to ordering from MSC (www1.mscdirect.com), a large mail-order machining supply and tool catalog. What I found that fit the bill was an extra-long parabolic bit. About 6 7/8" (175mm) long, it was priced at almost \$17, but it was exactly what was needed for this project.

To drill a deep hole as straight as possible I used my lathe, holding the blank in a chuck, and the drill bit in a Jacobs chuck in the tailstock. Unless I try to go too fast the accuracy using this method is usually very good. Back the bit out often to clear the chips, and avoid overheating the bit if possible. After drilling to the depth required, I like to apply some thin CA glue around the entry hole and just inside, to add some small amount of reinforcement. After the CA cures I use the drill bit to ream out the hole to the proper size again.

Now replace the Jacobs chuck in the tailstock with a good live center, and bring it up to lightly hold in the mouth of the hole you just drilled. Turn the blank down to round and approach the diameter you want for your pen. Measure the outside diameter of the tip of the refill, the portion that holds the tip for fitting into the hole completely. This will be the diameter you want to turn the blank down to at the tip of the pen. Remember you will have no metal nib section, and there is no brass tube, so be careful, as this area will be thin. Add whatever embellishments along the shaft of the pen as you desire, and finish however you want.

Even the lowly Bic pen can produce a beautiful work of art at the hands of an innovative penturner. Your imagination is the limit when making these pens. There are almost no hardware limitations involved as there is using a pen kit. It is just you and the refill!

Good Luck! And remember to have fun!

No News is Good News!

I usually try to report some penturning related news at about this point in my column, but I really haven't found much news of interest to report! So I would like to pass along some of my favorite Penturning related Internet links. Remember that when typing in an Internet link that computers are very literal! Be careful to get the correct sequence of dots and letters correct, or who knows where you may end up!

Forums and Associations

International Association of Penturners – <http://www.penturners.org/>
YAHOO Penturners - <http://groups.yahoo.com/group/penturners/>
Pen Maker's Guild - <http://groups.yahoo.com/group/PenMakersGuild/>
The Pen Shop forums - <http://www.thepenshop.net/>
Wood Central - <http://www.woodcentral.com/>
American Association of Woodturners - <http://www.woodturner.org/>

Suppliers

HUT Products - <http://www.hutproducts.com/>
Berea Hardwoods - <http://www.bereahardwoods.com/>
Penn State Industries - <http://www.pennstateind.com/>
Craft Supplies USA - <http://www.woodturnerscatalog.com/>
Arizona Silhouette - <http://www.arizonasilhouette.com/>
Woodturningz - <http://www.woodturningz.com/>
Pens of Color - <http://www.pocwoodworking.com/>
Bear Tooth Woods - <http://www.beartoothwoods.com/>

Hot Tip!

This month since there are two of us writing this column, and also since you deserve a little something extra for Christmas, we are going to include two tips, one from each of us! Enjoy!

When you turn pens from an acrylic material, it is wise to paint the brass tubes so that the brass doesn't show through the translucent acrylic. The problem is that many of the glues we use either dissolve the paint so the brass shows anyway, or bubbles up and the bubbles show through the material. One way to avoid these problems is to instead paint the inside of the hole you drill through your blank. Usually a quick spray with some paint adequately coats the inside of the hole. Wait a few minutes for drying, and glue your tubes in.

During this festive Christmas season, penturners can participate in decorating the tree along with other family members! I find that key-ring kits make a good basis for turned Christmas tree ornaments. The end caps of the kit add nicely to the look of the ornament, and the one with the hole in it provides a handy way to hang it on the tree, either with a wire hanger or a loop of string. Turning these ornaments is much easier when using a penturning mandrel, and using longer pieces of brass tube allows you to turn them almost any length.

We wish you a Very Merry Christmas Season! Thank you for reading this column, and I hope you enjoy it just as much with Don Ward at the helm!