Illusion Pen

Contributed by: Don Ward

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I have chosen to revisit a couple of past pens but with a new twist. The techniques used will be some of the same ones used to make the challenge pen and the one piece slimline. I will, once again, be using the slimline pen kit. All of the parts will be used except the center band. I hope the new twist to the one piece slimline proves to be interesting. Actually, the pen will not be a one piece slimline but will appear to be a one piece slimline. I guess I could call this pen the illusion pen. Let's get started.

The blank is a piece of Imbuia cut into two pieces. One was 3 ¾ inches long and the rest of the blank will be used and shortened later. The blank was a standard 5 inches long. All four ends need to be squared. I use a pen mill but other methods will work. The two pieces will meet without a center band so spot on squaring along with perfectly round turning of the two pieces will make for a nice tight and almost invisible interface where they meet.

Figure 1

See Figure 1 The two blanks will be turned at the same time without gluing in a tube. Squaring must be done with a loose tube over the pen mill pilot shaft and then inserted in the drilled hole on the blank. Squaring with other methods will be similar. Slide a tube into the blank and slice this assembly over the mandrel of whatever squaring jig is being used. Cut the blank into the two parts, drill with a 7mm or J bit and square all four ends.

Turning without a tube glued into place requires a tube that is the exact same length as the pen blank …a single blank or two pieces together. Use a single long tube cut to the needed length or use two tubes with a total length needed. Put the two pieces of the blank on the mandrel with tubes inserted (BUT NOT GLUED) and turn the two ends round to a diameter just less than the pen mill footprint. Next, turn the junction of the two blanks to a diameter just less than the pen mill footprint. When this diameter is reached the blanks may become loose on the mandrel. If this happens the tube or tubes must now be shortened a little more.

Figure 2

Figure 2 shows the two blanks with the ends turned to a diameter just smaller than the pen mill footprint along with the single tube both blanks. The bushings need to push against the ends of the blanks and the tube for best results. The tube can be just a little shorter than the blanks but can't be longer.

If the bushings are pressing against only the tube the blank will spin on the tubes. Put these two pieces back on the mandrel. The pen is now ready to be shaped and its final length determined.

Figure 3

Figure 3 shows the blanks back on the mandrel. Turn the blanks round and then start shaping the nib end. The shape of the pen is not critical but the diameters are.

If too large under the clip the clip will touch the wood and not function properly. I am pretty conservative with my shapes but some like weird shapes, beads, coves, bulging middles and other features. The longer blank needs to be as long as possible with refill remaining accessible.

Figure 4

Figure 4 shows the nib, lower tube and transmission assembled normally. The refill is in place and the assembly is placed next to the two blanks on the mandrel. The pencil line is the junction between the two pieces of the blank. Notice the lower blank's (longer blank) length.

Just keep the longer lower barrel shorter so the refill end can be reached to remove and change it. No gluing has been done yet.

The length of the upper blank (the shorter one) needs to be determined. I placed a standard slimline next to the two blanks to help me gauge the total length. Although the final length of the upper blanks is somewhat flexible I chose a length to give a total length equal to a standard slimline. I made a pencil mark and cut the blank at that line.

Figure 5

Figure 5 shows a slimline next to the two blanks while still on the mandrel. The left pencil mark is the junction between the two parts. I marked it so it can be seen.

The mark on the left will be the end of the shorter blank. After cutting this end will need to be squared. Here is an added bonus: the slimline in figure 5 is actually my very first pen**.**

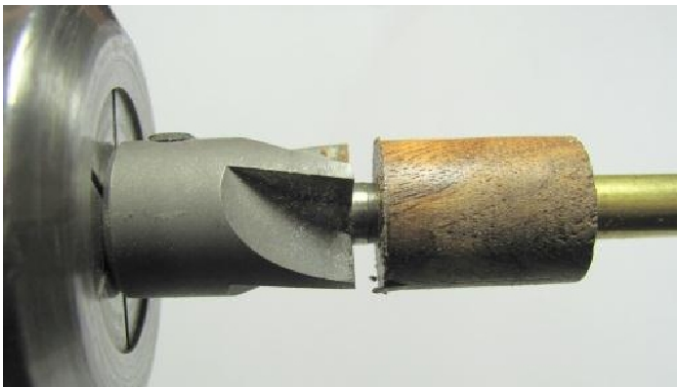

Figure 6 shows the smaller blank ready for the newly cut end to be squared. The brass tube will need to be shortened again for the new total length of the two blanks. Place the two blanks with the tube back on the lathe and continue shaping. Once a final shape is determined, then sand and apply the finish.

Figure 6

If CA is used be careful with thin as it may wick between the two pieces and glue them together. A nice tight joint will help prevent this from happening. If gluing the pieces together is a concern, then finish them separately.

Figure 7 shows my completed blanks with a CA finish. The two blanks are now ready to become a pen. The pen parts are now ready to be assembled into a pen.

Figure 7

Press the nib into one end of one of the tubes from the slimline kit being used. Press in the transmission to the correct depth and insert the refill. Now place the finial into the clip ring and press into one end of the other kit tube. No gluing had been done but gluing is getting close.

Insert the nib-transmission assembly into the longer barrel to test the fit. The refill should protrude out the end of the blank.

Figure 8 show refill protruding. How far out the end of the blanks should the black plastic tip on the refill protrude? The distance isn't critical as long as the refill can be griped and removed for changing.

Figure 8

Figure 9 shows that I found 3/8 inch to be a comfortable amount.

Figure 9

Figure 10 We now have 4 parts for this pen. They include the two blanks sections, the assembly with the transmission and nib, and the assembly with the finial and clip.

Figure 10

And we are finally ready to do some gluing. Since all of the lathe work has been done I see no reason to use as much glue as we would if gluing tubes in for making a normal pen. The shorter blank section glued to the tube of the clip and finial assembly will get the most pressure. This piece will be where we will twist to propel the writing tip and retract it.

This assembly needs to be glued into the blank a well as we can. The lower barrel and transmission assembly needs a good gluing but too much glue may cause problems.

We certainly do not want any glue to get to the transmission assembly and lock down the twisting action. Use plenty of glue but don't over apply. Even if CA glue is normally used to glue tubes I would suggest that two part epoxy be used for this pen. Epoxy will give more working time and cleans easier if some glue gets on the outside of the pen. Have some denatured alcohol ready for any needed clean up.

Apply glue to the tube of the nib and transmission assembly. Drop down about ¼ inch below the top of the tube and apply glue all the way around. Slowly insert the nib and transmission assembly twisting as it is pushed to its final position. Do not pull and push this assembly back and forth as this action may get glue into the transmission. Insert the assembly with a little twisting until the nib is against the end of the blank then stop. Set this assembly upright with the nib down and allow the glue to dry. Laying it down may allow the wood to move or the assembly to move and the nib may end not seated against the wood.

Figure 11

I actually used a wide rubber band wrapped lengthwise around the pen to hold it all together. I slipped a long slimline bushing over the refill to push against the end of the pen barrel. **Figure 11** shows the glued pieces with the rubber band as the glue sets.

Figure 12

Figure 12 The shorter blank section will be glued to the clip-finial assembly. Any glue on the exposed brass tube needs to be cleaned off before it cures. I placed about ¼ inch band of glue around the tube about where the end of the shorter blank section will be when slipped onto the tube.

Slide the blank section onto the tube and slowly push it onto the tube. Twisting will help spread the glue. Just before it is in its final placement any glue pushed out between the end of the blank and the finial can be removed and the blank seated in its final resting place. With the amount of exposed brass tube securing it with a rubber band proved to be a challenge. I used a rifle shell case slipped over the tube resting against the wood.

Figure 12 above shows the rubber band was stretched around the assembly and left for the glue to cure. Be sure all glue on the exposed brass tube is cleaned off while the glue is still wet. You'll be happy later.

Figure 13

Figure 13 shows the 4 pieces glued into the two final assemblies. All that is left is to place the clip-finial assembly's tube placed over the refill and onto the transmission. The two pieces can be pushed together. The shorter blank section can be short enough that there will be a gap between the two blank sections.

If this happens then the exposed brass tube on the clip-finial section can be shortened until the two sections fit together. Be sure to remove any burr that may have been raised on the end of the tube. Check on both the inside and outside of the end of the tube.

The blank section can be longer as long as the tube still slips over the transmission and will hold while twisting. This assembly may be difficult to remove once in place. Shortening the tube, so less of it fits over the transmission will make it easier to remove.

Figure 14

Figure 14 shows the final assembled pen. There you have it…an illusion pen that appears to be a one piece slimline but with a new twist.

Comments and questions are welcome. Email me at don@RedRiverPens.com