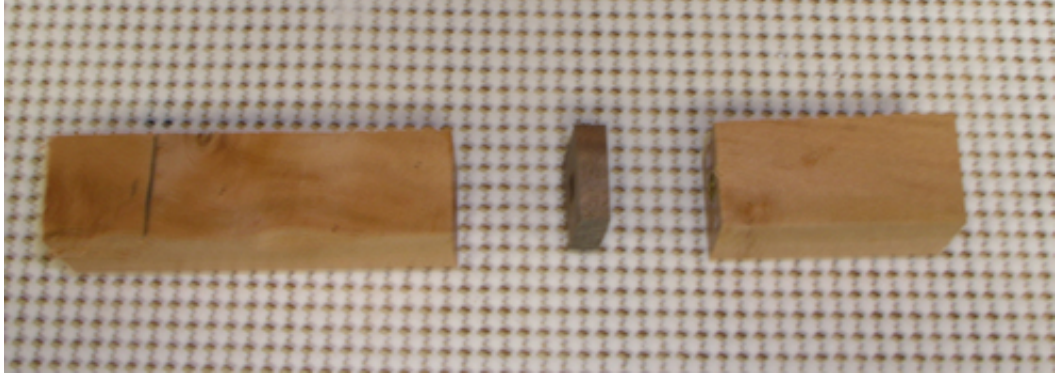
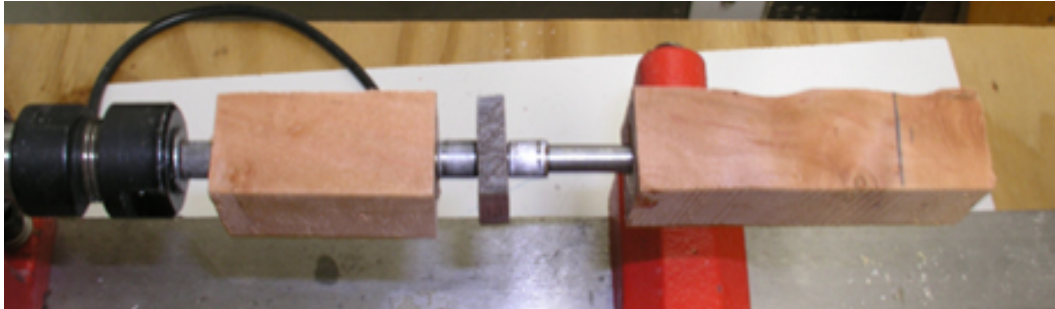


## Closed End Slim Line Pen

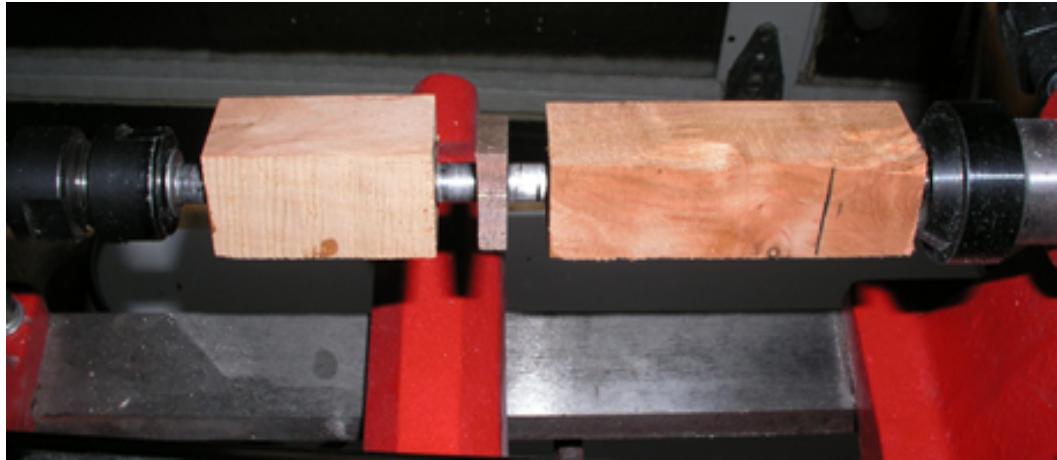
1. Here is a quick step by step on how I make a closed end pen using a Slim Line Mandrel. This is probably the 20<sup>th</sup> pen I've turned, so not a huge amount of experience here.



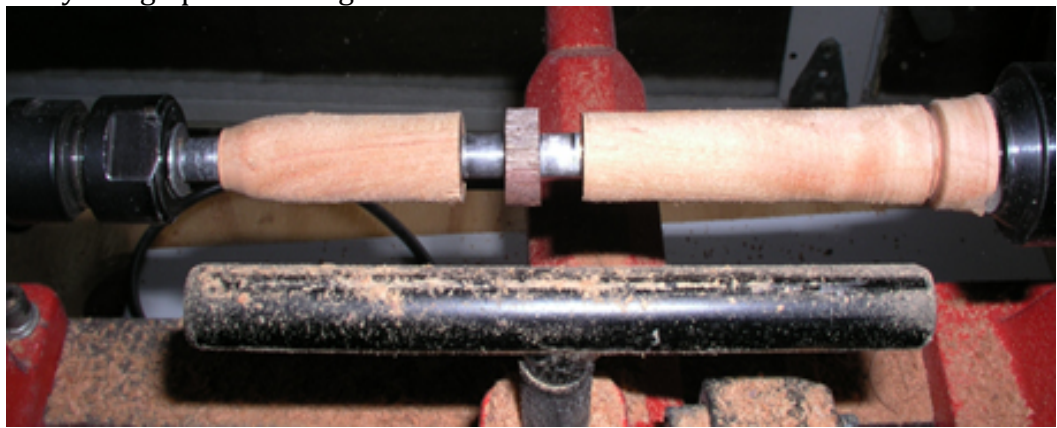
2. My first step is to cut and drilled the blocks to the desire length. On the right is the nib end of the pen and the left is the back end. I wanted to make a wood center band so cut and drilled this as well. The line on the rear piece is the depth of the hole I drilled.
3. Glue your brass tubing in. On the rear piece, the brass tube is flush with end where it will meet the center band.



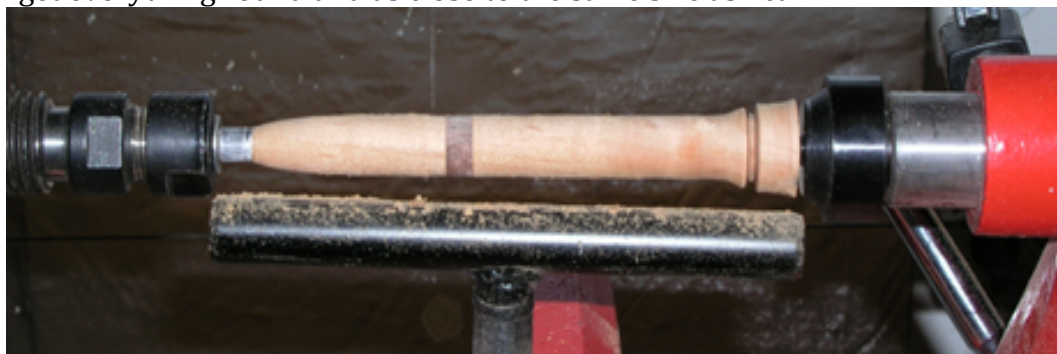
4. Loosen the two securing nuts on the morris taper end so that the mandrel can slide freely. Slide you bushing, nib end and center band on. Slide your rear piece on, pushing the mandrel in until the rear piece is flush with the bushing.



5. Bring your tailstock and live center up into to the rear blank and tighten every thing up. Now retighten the to two nuts to secure the mandrel.



6. I get everything round and as close to the same size as I can.

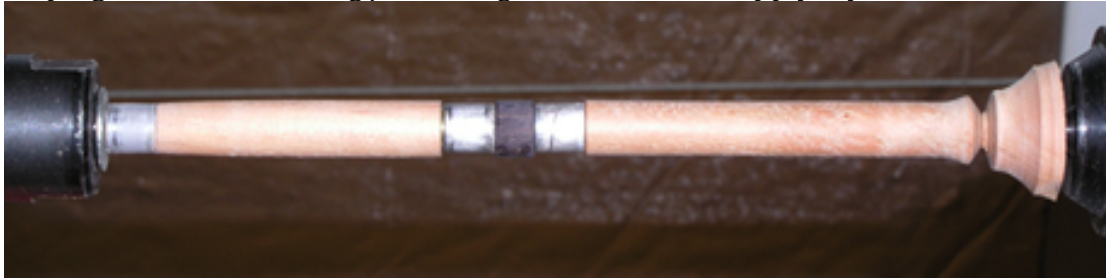


7. Now I remove all the bushings, save the one at the nib end, loosen the to bolts to slide the mandrel in and finish turning down to my desired size. I also decide how I want my end to look and start shaping it ensuring I'm not cutting into the center hole.

8.



9. Sand to whatever level you desire. I dry sand to 2400 MM and do my final shaping on the end leaving just enough to allow me to apply my finish.



10. Before I do my CA finishing I put the bushings back in so I don't glue all my parts together. For this project, I ebonized the walnut band, followed by 6 coats of thin CA, then dry sanded up to 12,000 MM and, finally, 2 cycles of EEE paste abrasive.



11. Slow the lathe down and finish the end cut. With the lathe on it's slowest setting I sand and finish the end of the pen. Then install the nib and twist mechanism in the front piece and slide the rest together.





12.

13. Viola, a closed end slimline.

### **Lessons Learned.**

The final diameter was way too thin. I wasn't paying attention and went too deep on a pass and that was that. Can't add wood back on.

I made the rear too long. I wanted to use my pen mill to square the rear face of my rear blank, I don't own a sanding station, so it would meet flush with the band. In order to do this, I needed a deeper hole. The deeper hole allowed a little wiggle while turning and ended up with a slightly out of round pen.