

Alligator Jaw Bone Pens

by Barry Gross of Arizona Silhouette

While demonstrating at the Dallas-Fort Worth woodworking show this past March (2013), Don Ward introduced me to a talented pen blank maker by the name of Tom Barron. Tom told me that he was making pen blanks from alligator jaw bone, and when he showed me the blanks, I was instantly "hooked." I thought that this was the coolest thing I had seen in a long time. We traded pen kits (I think I got the better deal), and I could not wait until I got home to try them. The secret to these blanks is that Tom stabilizes the jaw bone at the same time he is combining his special alumilite colors to enhance the blank. I think the result is spectacular and I bet you will agree by the time you finish reading this article! So without any further ado, let's sink our "teeth" into this project!



SUPPLIES

Tools: disk sander with squaring jig; drill chuck with appropriate drill bit for pen kit selected; lathe with turning tools, including roughing gouge and skew; scroll saw or bandsaw; Norseman 9/16" and 12.5mm drill bits; chamfering tool; pen press
Pen kit of choice (Over/Under Pen Kit—PSI055)*
Alligator Jaw Bone Pen Blank*
Assorted grits of abrasive paper
PFK-1 Acrylic sanding kit*
PFK-2 Abralon sanding kit*
APBS-1 Acrylic Pen Buffing System*
Hot Stuff Super T thin and medium cyanoacrylate glue (CA or superglue)*
BladeCote*
5-minute epoxy (optional)
Compressed air

**Available from Arizona Silhouette, 3430 Progress Drive, Suite C, Expressway 95 Business Center, Bensalem, PA 19020; phone: 888-717-4202 (toll-free); website: www.arizonasilhouette.com.*

Please refer to all manufacturers' labels for proper product usage.

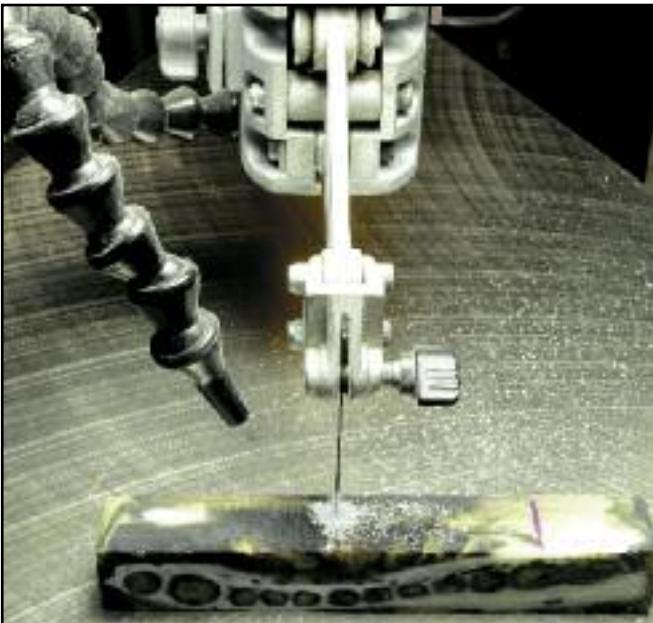
PEN BLANK PREPARATION



Step 1. Remove the pen parts from the plastic bag and line them up according to the manufacturer's instructions. For this project, I am using an Over/Under shotgun rollerball pen kit with the Black Lava Swirl Alligator Jaw Bone Pen Blank.



Step 2. Lay the pen tubes on the pen blank and align the tubes so that you get the most tooth holes showing within the pen blank.



Step 3. Mark the pen blank upper and lower, and cut it with either a bandsaw or scroll saw.



Step 4. Rough-up the pen tubes so that the glue will have a good bonding surface with the tube and the inside of the alligator pen blank.



Step 5. Make sure that you mark the blank by putting an orientation line on the blank so that you know which half of the blank is the upper and which one is the lower. Doing so will ensure that the tooth holes line up.



Step 6. Drill the blank at around 1000 rpm with a Norseman 9/16" bit for the upper tube and a Norseman 12.5mm bit for the lower tube. *Hint:* I only use a drill chuck to drill all my pen blanks and spray the drill bits with Bostik BladeCote before drilling. The BladeCote reduces friction and keeps the drill bit sharper longer!



Step 7. This is a comparison of the entry hole on the left and the exit hole on the right. See how clean both holes are by using a combination of the appropriate speed; a sharp, lubricated drill bit; and a constant feed rate while relieving the debris consistently.



Step 10. These blanks do not require carbide-tipped tools, so start with a roughing gouge taking LIGHT CUTS and reduce the blank down close to the bushings. (My definition of light will be different than yours, but please take very light cuts.)



Step 8. Place a light coating of thin cyanoacrylate glue (CA or superglue) into both pen blanks to soak into the jaw bone for additional strength. Use medium CA and glue in the pen tubes that were roughed up in Step 4. You can use 5-minute epoxy here as well—it just takes longer to dry.



Step 11. Once the blank is reduced close to the bushing diameter, square the ends of the blank. I do not use a barrel trimmer for this purpose—I use a squaring jig. I always reduce the blank almost flush to the bushings before squaring the ends—by doing it this way, only a small amount of material is removed, rather than trying to surface a large square piece.



Step 9. Place the pen tubes onto the mandrel with the appropriate bushings. *Note:* Make sure that you have the blank lined up so that the teeth are showing in the proper direction! Both blanks have been placed on the mandrel just for visual purposes—I only turn one blank at a time!



Step 12. Return the blank to the mandrel, and if you see any tiny inclusions, fill them with medium CA.



Step 13. Use a skew to reduce the blank down to the bushings, and then use the skew as a scraper for a final pass.



Step 16. Put the blank back onto the mandrel and sand it with abrasive paper, starting at 180 or 220 grit because you already had it fairly smooth with the skew. Sand up to 800 grit.



Step 14. Use compressed air to blow out any debris that might remain after taking a final pass with the skew.



Step 15. Drip thin CA over the entire blank to fill in any small hairline openings that the jaw bone may have (this is natural because it is a biological product). The CA will also give additional strength to the piece.



Step 17. After the 800 grit, sand with the four Abralon pads to 4,000. The Abralon pads use a different grit system, so the 4,000-grit pad is equal to the 12,000 grit from other manufacturers.



Step 18. Wet-sand the blank using the acrylic finishing pads.



Step 19. Buff the blank using the acrylic pen buffing system with the special blue rouge designed specifically for acrylics. Repeat the process for the other half of the alligator blank.



Step 20. Once both halves of the pen blanks are turned and polished, line them up for assembly according to the instructions. Make sure that you have the blanks in the correct order to expose the teeth of the gator jaw bone.



Step 21. Use a chamfering tool on the inside of the brass tube to break the sharp edge. This will aid in assembly when the pieces are pressed into the tube and will reduce the number of "cracks" on the ends of the pen.

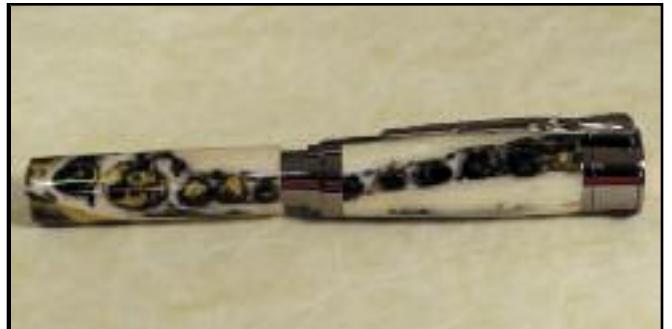


Step 22. Start with the upper barrel of the pen, and press the clip and then the centerband into the upper blank.

**IMPORTANT STEPS (23, 24, and 25)
for proper alignment!**



Step 23. Screw the rollerball nib section into the nib coupler and loosely push it into the lower barrel.



Step 24. Screw the lower barrel nib section into the cap assembly, making sure that the tooth holes line up. If they do not line up, pull out the lower barrel section and rotate it until it does line up with the cap section, and then press it back into the cap section.

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Step 25. Unscrew the nib section, leaving behind the nib coupler. Carefully move it to the pen press and press it into the barrel. Press the finial end into the other end of the barrel to complete the lower barrel assembly. Once you screw the nib section back on and screw it into the cap section, it should line up. Your Alligator Jaw Bone Pen is finished—now that did not take a bite out of you, did it?



Step 26. Other Alligator Jaw Bone Pens from Bolt Action Pen Kits are shown.

Barry Gross

Barry Gross is an artisan with over thirty years of experience working in several diverse media. He has published articles in several woodworking magazines, is an author of three books on turning, and just released a DVD on penmaking. Barry is a member of several woodworking organizations and the Pen Makers Guild. He is frequently a guest speaker/presenter at woodworking shows and turning clubs throughout the northeast. He was featured by Pennsylvania Cable Network for his unique style in using recycled material to make pens.



Barry was commissioned from the "White House" to make pens as gifts for former Vice President Cheney, and his pens can be found in the pockets of several well-known individuals, including Steven Spielberg, Greg Norman, Norwegian concert pianist Leif Ove Andnes, and the former Speaker for the House of Representatives, Dennis Hastert.

Barry welcomes your questions and comments, and can be reached by e-mail at 2bgross@comcast.net or through his website at www.azsil.com.