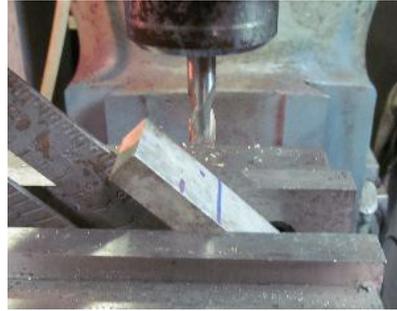


Mosaic Pin Clamp 2013

S.A.Bloom, IronFlower Forge

One of the tasks that virtually every knife maker faces is the cutting of tiny tubes whether that be mosaic pins, grommets to be, or whatever, The tool described here makes that task a snap.

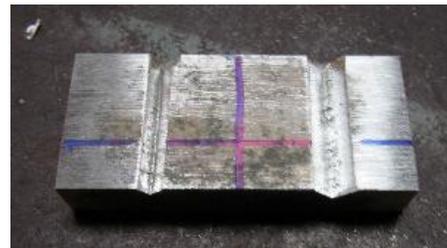
Start with a 1" x 0.5" bar of aluminum (just because it is easy to mill – steel or brass will work just as well). Clamp the bar at 45° as shown. Because it is easier to clamp a longer piece of material, I usually make two at the same time, so the bar is about 4" long.



Make a cut across the face of the bar. The depth of the cut will control the minimum size of the tubing to be held, so it ought to be a bit less than half of the diameter of the smallest usual tube. Of course, you can just make a shallow cut and then repeat on the other end of the bar with a deeper cut.



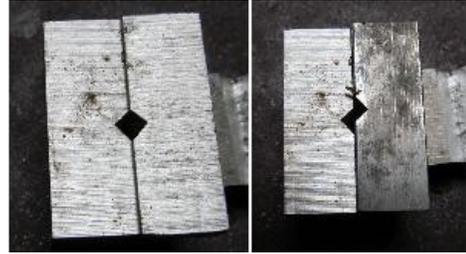
What you end up with is a bar with two “V” shaped cuts. Mark off a line at the mid point paralleling the cuts and another line at right angles to the first and about 1/3 of the way across.



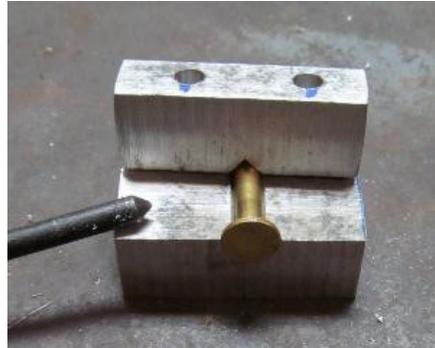
Saw the bar along those lines to generate four pieces.



Match the blocks such that the “V”'s define a square. The one on the left is correct, the one on the right needs to be flipped over to be correct.



Drill a pair of holes in the smaller (upper) block and transfer the locations to the larger (lower) block with a transfer punch. The hole size will be controlled by the bolts to be used. In this case, they are 10-32 screws, so a #9 bit was used for the upper (a close fit) and a #19 bit was used for the lower (about a 65% thread).



Then tap the lower block for the designated screw size. The tool shown here is a “Tap and Reamer Aligner” (Enco Model #325-4924 at ~\$75). It is also carried by MSC. It doesn't take too many broken taps before dropping the money begins to make really good sense.



Run a pair of screws into the holes. If you are using screws that need an Allen wrench, a neat trick is to run the wrench through a rubber cork (either from lab, a hardware store, or a recycled wine cork). When you drop the wrench on the floor, it is not only easier to pick up, it is easier to just find it.



The last step is to make a cut with the band saw along the inner face of the upper block as shown to just beyond the edge of the “V”. For at least this right-handed smith, I like the upper block on the left so that the piece to be cut off is on the right – where I can catch it as it is parted from the stock material.



You can now measure the length of the tube/pin needed with an 'official' depth gauge or maybe a screw, a nut and a ruler. Scribe that length on the material, clamp it in the jig with the mark just to the right (see above) of the saw cut in the base, and go to the saw. Make the cut and keep a finger tip on the part to the right so you don't have to go looking under the table to see where it bounced.

