SCHOOL OF VISUAL PHILOSOPHY

STEPS FOR THE SOCKET EYE CHISEL

INSTRUCTED BY YORI SEEGER

FIRST STEP

The first step in creating the socket eye chisel is to fuller the shoulders for the neck of the cone or socket. In the video I use a press with drawing dies. If you do not have a press there are several other ways you can do this. If you have a partner the most traditional method is to use top and bottom fullers. If you don't have a partner use a spring fuller. Otherwise you can use the edge of your anvil and the peen of your cross peen hammer. Do not set them too deep. with a 2" chisel I fuller the neck to about 1 1/4". Leave enough material on the neck so you don't get it too thin. I will forge to actual thickness later.

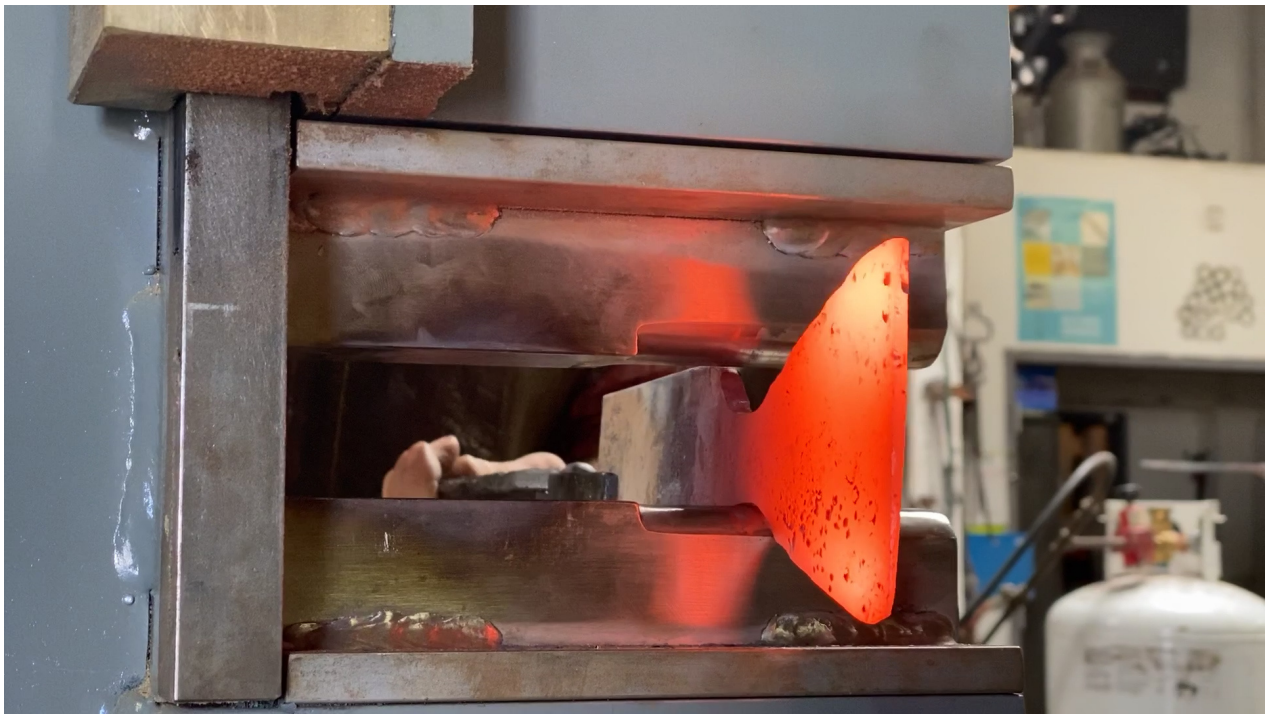
SECOND STEP

The second step is to creat a triangular shape above the neck. I do this by using the cross peen part of my hammer to draw the material out in width. I do not want to let it draw in length. Rotate your tongs so that the the trangular shape pivots at the bottom of the neck while you strike. This will help you to establish a triangular shape instead of drawing our a rectangle. Be sure to turn the hammer over to the flat side toward the end of this set down so that you can remove the divots created by peening.

THIRD STEP

On the third set down turn the work on end and shape the triangle by bringing down the edges toward the neck. This is a good time to true up your shape. Use the edge of your anvil and angle your tongs down and match the angle with your hammer so that you form equal and opposite angles with hammer and anvil while centering your work between them. Turn 180 degree so that your forming is uniform on both sides. Be sure to turn the work back to flat against the anvil and correct any curling or upsetting that form on the edges during this step.

FOURTH STEP



The fourth step is to finish fullering the neck to actual size. For a two inch wide chisel I leave 3/4". Use whatever method you used in step 1.

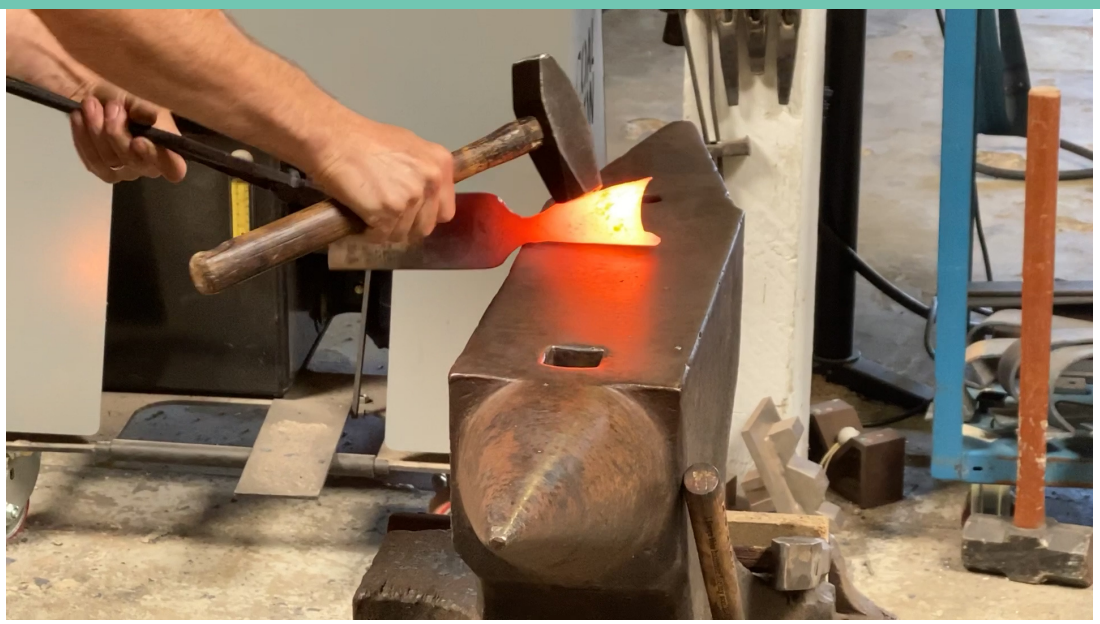
FIFTH STEP

It is time to clean up your forging. I use a flatter. If you do not have one use gentle blows with the flat face of your hammer. The goal is to remove irregularities and unwanted hammer marks. Be sure that you have an even 1/8" thickness with tapered edges on the sides but not the top. I left room to grind the top of the cone which is why I am ok that the edges are a little rounded. They will get cut off anyway.

SIXTH STEP

I begin to roll the cone using my hammer and two other points of contact. I like to use my vice and adjust the jaws so that the trangle has half an inch of contact on either side. Use the peen of your hammer and gently strike the middle until it has slipped free of the vice. Move to the anvil and continue to roll by hammering the edges down. Rotate while hammering so that you roll the cone instead of creating a taco.

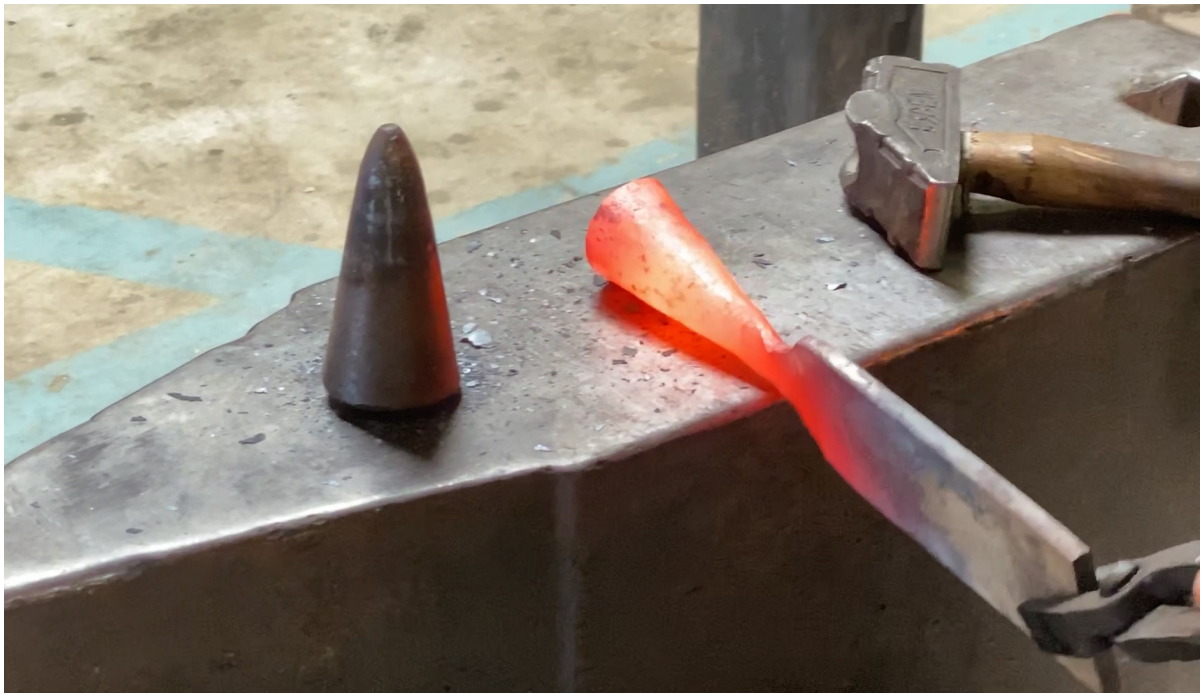
SEVENTH STEP



Finish rolling the cone into shape by lightly hammering and rotating your tongs 360 degrees. Be careful not to hammer with a heavy hand or you will flatten the work instead of creating a conical shape.

EIGHTH STEP

Clean and true up your cone with a cone mandrel. Hammer with a light touch and rotate while working.



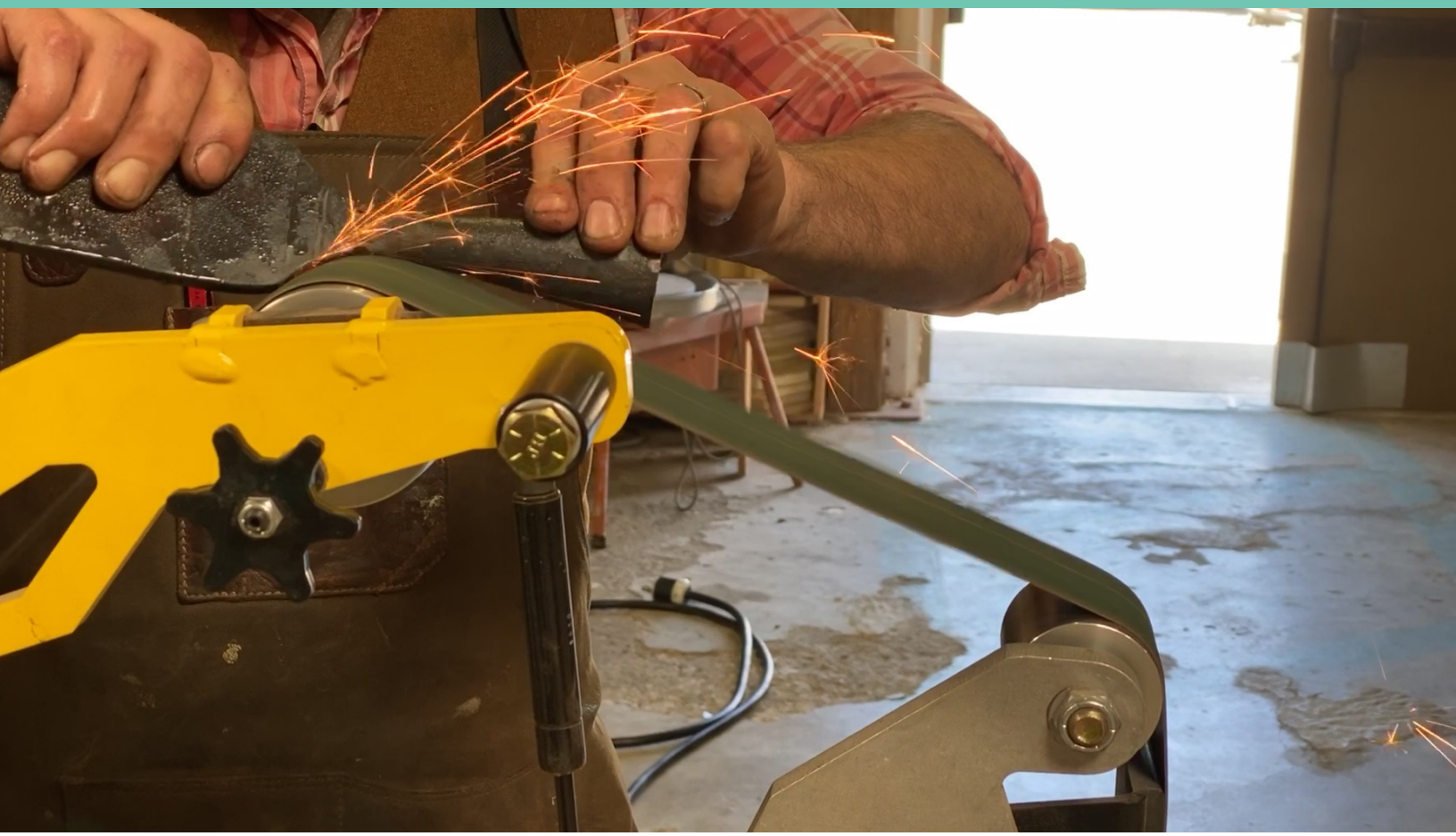
NINTH STEP

If your socket eye chisel is a Timber Frame Slick like the one I created in the video, it will need to have a curve in the handle or blade to give your hands room to hold the chisel while working. I begin the curve in the last third of the blade and continue it into the neck of the socket. Keep the socket straight so that you can fit the handle later.

TENTH STEP

With a file, angle grinder or belt grinder squaure off the edges and end of the chisel. Then file or grind the bevel. Wood chisels have anywhere from a 25 to a 30 degree angle. The bevel angle depends on the work you wish the chisel to perform and the types of wood you will want it to cut. The harder the wood and the more abuse you expect it to take, the closer to 25 degrees your angle should be.

ELEVENTH STEP



Dress and clean your forging by grinding or filing to final shape. I like to do a little grinding on the neck and shoulders so that the transition from blade to socket looks nice and clean. At this time I also grind or cut the end of the socket so that it is flat and true to the edges on the chisel.

TWELFTH STEP

Time to make a handle. For the timber frame slick I have put an 18" handle on it including the socket. This gives me about 16" of finished handle to work with. You can use a wood lath or carving axe, drawknife or files to form your handle. Consider how you want to use the handle. I like to round the end so that it fits well in my palm and I carve in a neck and shoulders toward the socket end for my left hand. I find it ergonomical and easier to use this way.

THIRTEENTH STEP

Quenching time. I used 5160 steel so I am quenching in oil. I do not want the entire chisel to be hardened material so I have only heated half of the blade. Submerge the entire chisel in the oil and gently stir until the heat has discipated. You can tell if it has cooled enough if it is no longer smoking when you pull it from the quench. Be prepared to temper as soon as you can.

FOURTEENTH STEP

After quenching I sand the back of the chisel just enough so that it is reflective. During the heat for the quench I also prep a block of scrap steel and use it as a heat source to run colors. Be sure that the cutting edge of the chisel is off of the heat block so that you don't temper to soft. Allow the colors to run from the middle of the blade outward. As soon as I see straw yellow reach the cutting edge I quench in oil to hold the tempering treatment.

FIFTEENTH STEP

It is now time to make a usable tool by sharpening and setting the handle. Follow the steps in the sharpening video. I use epoxy to set the handle. Be sure to dry fit the hadle before glueing it in place. Don't add the glue until your fit and finish is satisfatcory.

SIXTEENTH STEP

Use it, sell it or enjoy your new paperweight and make another one!