

The Upset Square Corner Bend
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An square corner bend like this is often used as a decorative element to embellish scrollwork and frames.

There are more than a couple of ways to make a square corner bend. The following method is taught at the school for a first square corner. The example below uses 8-inches of 1/2-inch square bar.

I like to use a pre-determined length of bar so that it can be measured again to see what happened to the stock after the corner has been made.

Center punch the middle of the bar and heat about an inch or more either side of the mark.

Clamp the bar in the vice with at least 1/2-inch between the side of the vice and the center-mark. The vices at the school have the edges rounded. Position a dog wrench on the other side of the



Figure 1

mark and an equal distance away from the mark as the vice. Shown in Fig 1

Bend the bar away from you. The direction is important and will be mentioned later. Also, do not bend to 90-degrees yet. Bending to 90-degrees will cause cracking in the inside of the corner later during the upsetting process.

Figures 2 and 3 show the bend and the angle.



Figure 2 above and 3 below



Grasp the free end of the bar with a pair of tongs and reach for a light hammer.

A light hammer is used for light rapid blows. Certainly the process can be done with a heavy hammer, but the upset will be further into the bar than just the corner, something that you will have to rectify later.

Start to straighten the curve of the bar on one side of the center-punch mark shown in fig 4.



Do not let the centerline of your hammer migrate to the corner, in fact keep it above the inside edge of the other leg of the bar.

Due to the natural arc of your hammer, material is pulled into the corner area. If you had bent the bar towards you initially, the arc of your hammer would pull the material away from the corner.

Notice that the corner is not held tight up against vice as this could cause a galling of the material. Take another heat and clamp the other end in the vice to work on the second side.

Unfortunately, you cannot see the center-punch mark as it is on the underside of the bar. However, you do have the flat side that you just forged as a guide. Shown in Figure 5.



Figure 5

At this stage you should see a thickening of the stock at the corner. Go to the anvil and flatten the excess stock as shown in figure 6.



Return to the vice and continue to work up the corner as before, until the corner is sharp.

Only when the corner is nearly finished do you allow the corner to come to a right angle.

Figures 7 and 8.

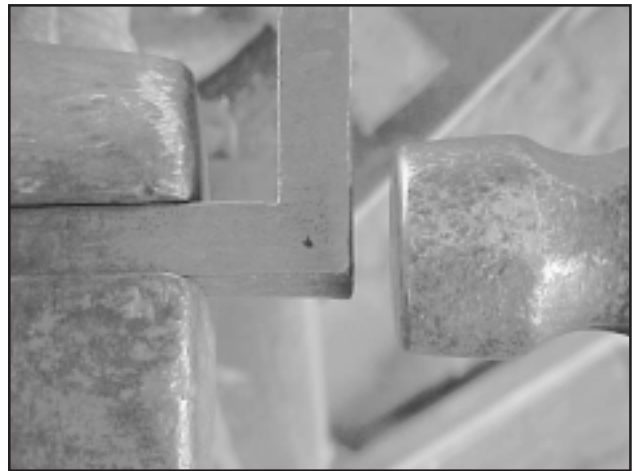


Figure 7 above and 8 below



The inside of the corner should be free from cracking as shown in figure 9.

