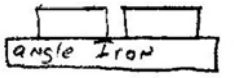
Offset Lap Joint

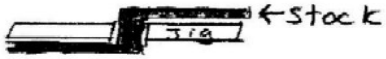
by Dennis Tingle, Hammerhead Forge, Jackson Georgia

I recently attended Walt Hull's architectural ironwork class at the John C. Campbell Folkschool. Our project was to design and make a set of doors for the fireplace in the library at the Keith house at the school. All joinery was done using traditional blacksmithing techniques. The following is one of the joinery techniques we used.

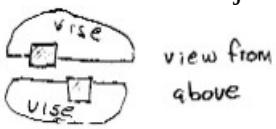
We used this to join the corners of the door frame. First is to make a jig for the initial bend. Take 2 pieces of flat that are close to the thickness and as wide or wider than the stock being bent and weld them vertically to a piece of angle iron so the jig can be held in a vise. Leave a gap between the 2 vertical pieces slightly wider than the width of the stock used so the metal to be bent can be inserted.



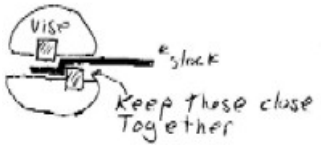
Mark where the bend is to be made and insert the heated, bright orange, stock into slot and bend 90 degrees against one of the vertical pieces. Reheat stock and insert into slot with the short bent side tight against the upright and clamp with vise grips then bend long side of stock against opposite upright, you made need to use a bending fork, or hammer to get stock snug against upright. When viewed from above your piece should look like this.



Next you will need to tighten the bend. Take two, 5 to 6 inch pieces of the same size stock you are using and bend 90 degrees into an L shape. Place these, one bend down in vise other end over top of vise to hold in place, into opposite sides of the vice's jaws.



Reheat to bright orange and place between the pieces hanging over edge of vice and squeeze tightly.



Keep the 2 pieces in vice close to make tight bend.
This should tighten the offset to closely match the thickness of the part you will be joining.

When put together the top of the piece that was bent and the piece you will be attaching should be flush across the top. If not repeat the above step.

You can then use rivets to attach the parts. Align the parts drill the first hole and use a small nut and bolt to hold the pieces together while you align and drill the other rivet holes. This procedure can also be used the join the ends of flat stock bent in a circle such as a chandelier.

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