Crucible Tongs

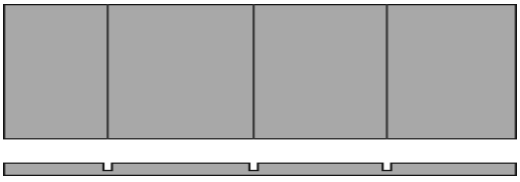
By Brian Oliver

Crucible tongs are a particular kind of tongs that are needed when lifting a crucible out of a smelting furnace. This design is based on a couple of prototype tongs that I have made and is designed to be fairly easy to construct.

Materials Needed:

- Flat Bar – 18mm thick. 2 x 120mm and 2 x 40mm
- Steel Reinforcing Bar – 4 x 400mm
- 1 x 8mm bolt + nut and 3 washers
- Tools Needed:
- Angle Grinder (to cut the bars)
- Welder (I've used an arc welder for this project)
- Drill (and 10mm drill bit)

First I cut the flat bar for the tong jaws.



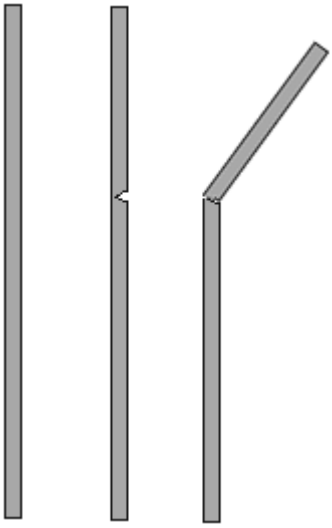
The jaw is cut into a 120mm length and then 3 cuts are made in the bar ¾ of the depth of the bar.

The jaw is then placed into a vice and bent out into a semi circle.

Check that the curve of the tong jaws is a good fit for your crucible.

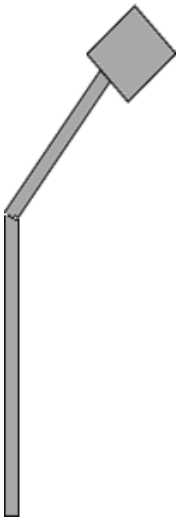
The curved flat bar is then fillet welded. This is simply using a welder to fill the v-groove made in the flat bar by cutting and bending.

Next I made the lower tong levers. These are made from a bar of reinforcing steel.



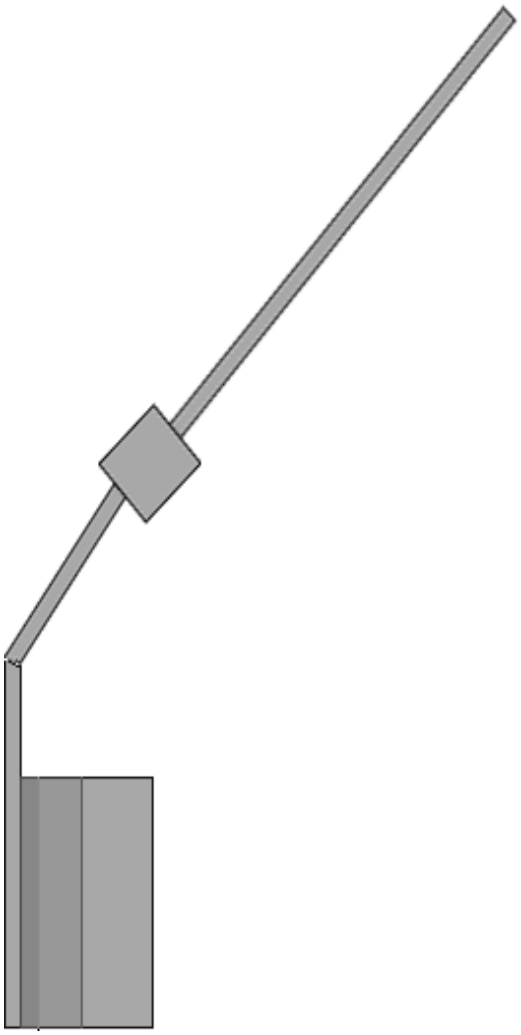
These were made by cutting a V into the bar at about 1/3rd along the bar, then bending the bar at the cut and welding the form into this position.

Because the round bar doesn't make a particularly good pivot point on the tongs, I welded a square cut piece of the flat bar to the top of the bar. This was welded onto the bar so that the pivot is offset onto the bar to allow the flat bar to rotate smoothly without catching on the reinforcing steel.

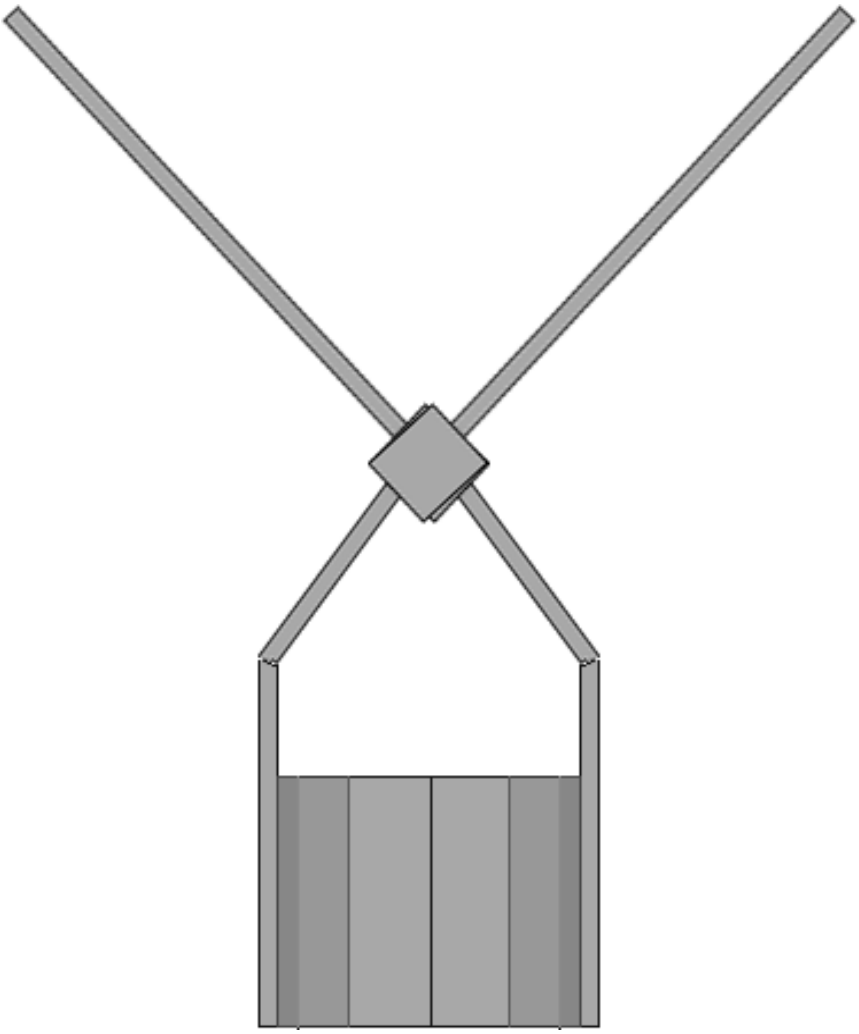


Next, the upper bar was welded to the tong levers.

While the upper tong levers were being welded, the curved tong jaws were welded to the bottom of the levers.



This makes up half of the pair of tong levers. The same process is repeated for the other arm of the tong levers.



The pivot point is then drilled through with a 10mm drill bit and the nut, bolt and washers were added. A washer should be placed between the pivot points.