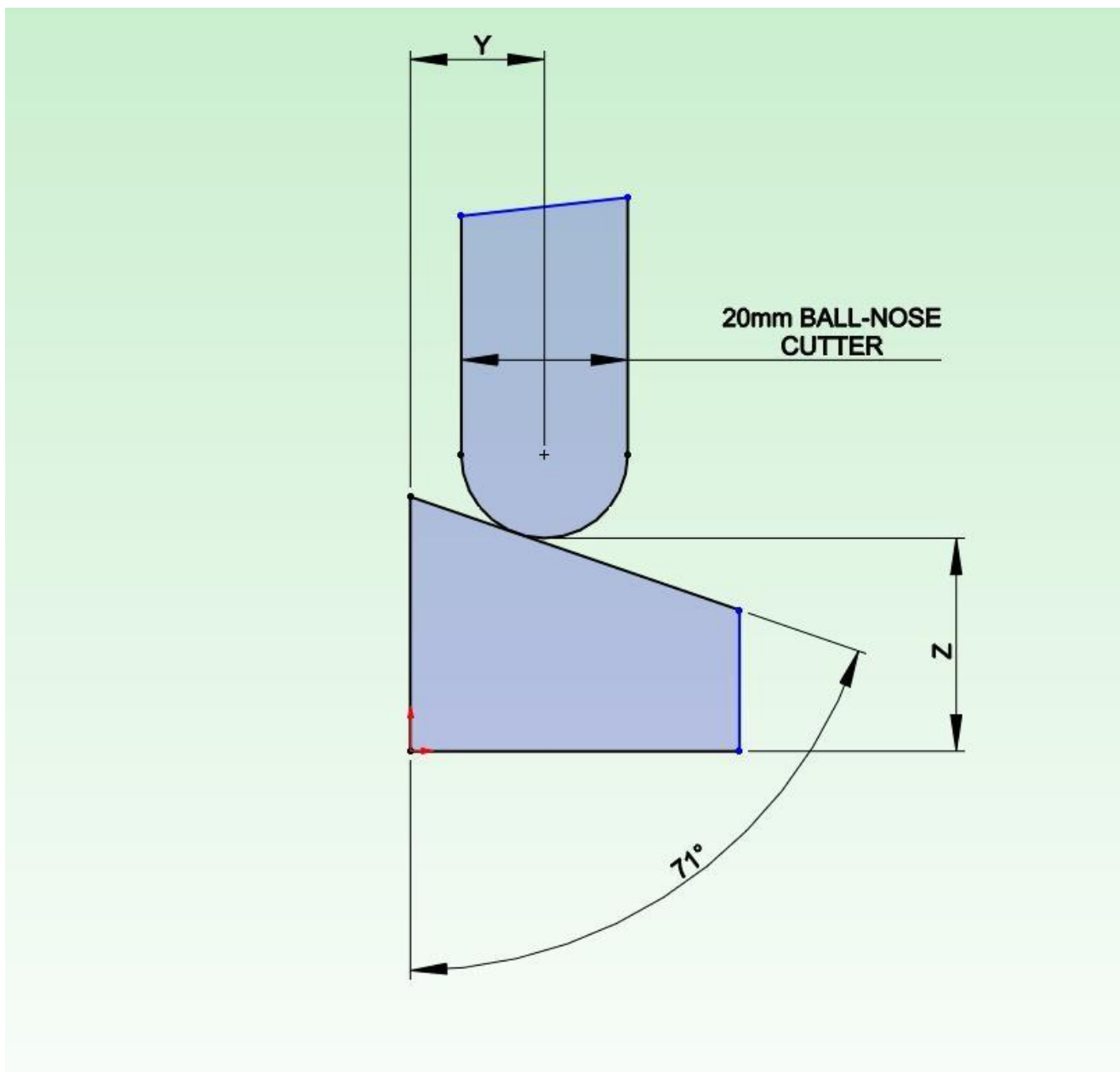


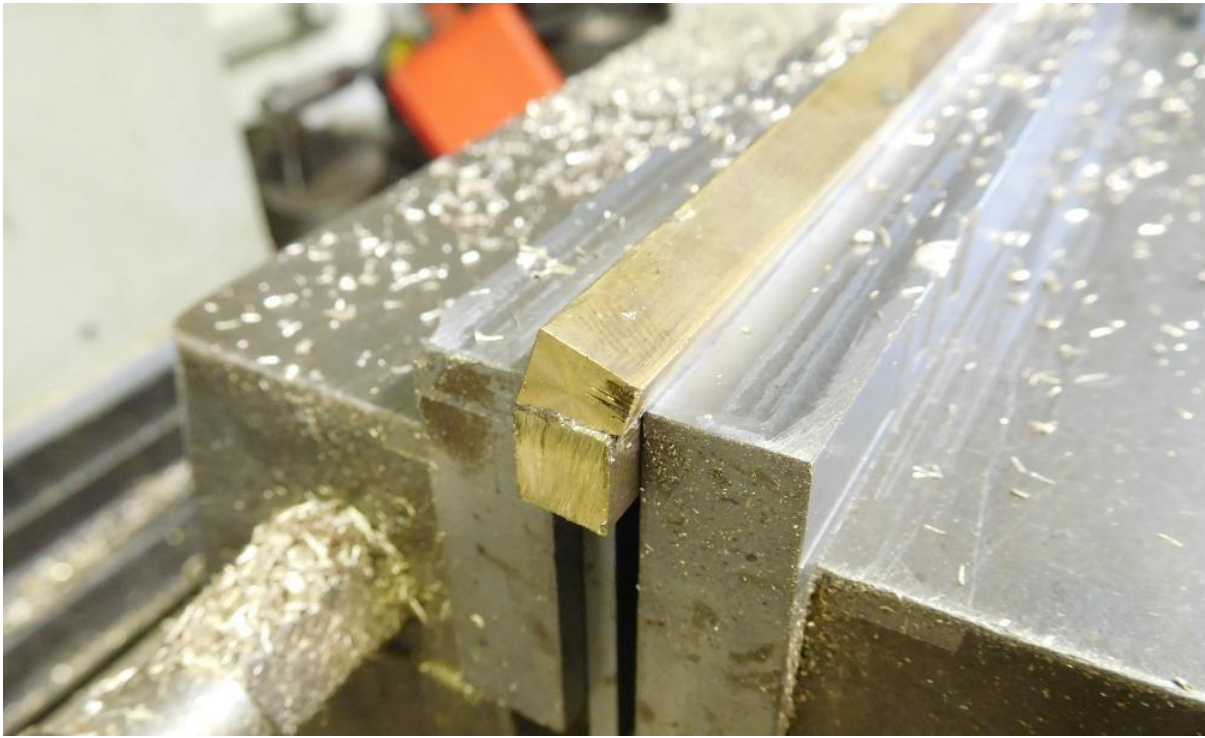
## More progress on Ashley- October 2020

I needed some bits of angle for the join between the cab roof and the cab sides. Normal  $90^\circ$  angle isn't suitable; it needed to be  $109^\circ$ , and I needed just over a foot of the stuff in two equal pieces. I don't really have facilities for bending things above a couple of inches long – certainly not accurately, so making it from sheet wasn't an option. I milled it from solid. I could have swung the vice through  $90^\circ$  and angled the head over, but I avoid moving the head if at all possible because of the time and effort involved in trammung it level again. Unfortunately I've no photographs of the first part of the process! I put a length of  $5/16''$  square brass bar into the vice on a parallel and tapped it down nicely. I then used a 20mm ball-nosed slot drill to run right along the bar in a series of cuts, incrementing Y by 0.5mm each time, and dropping the cutter (Z dimension) down by an appropriate amount, to generate a series of ruts (See below) at the correct angle. As the cutter is fairly large in diameter, the ruts pretty well merge into a nice flat surface – and a quick rub with a piece of emery would make it look just fine. And as it would be hidden by the roof, I wasn't too bothered!

Here's the general idea:



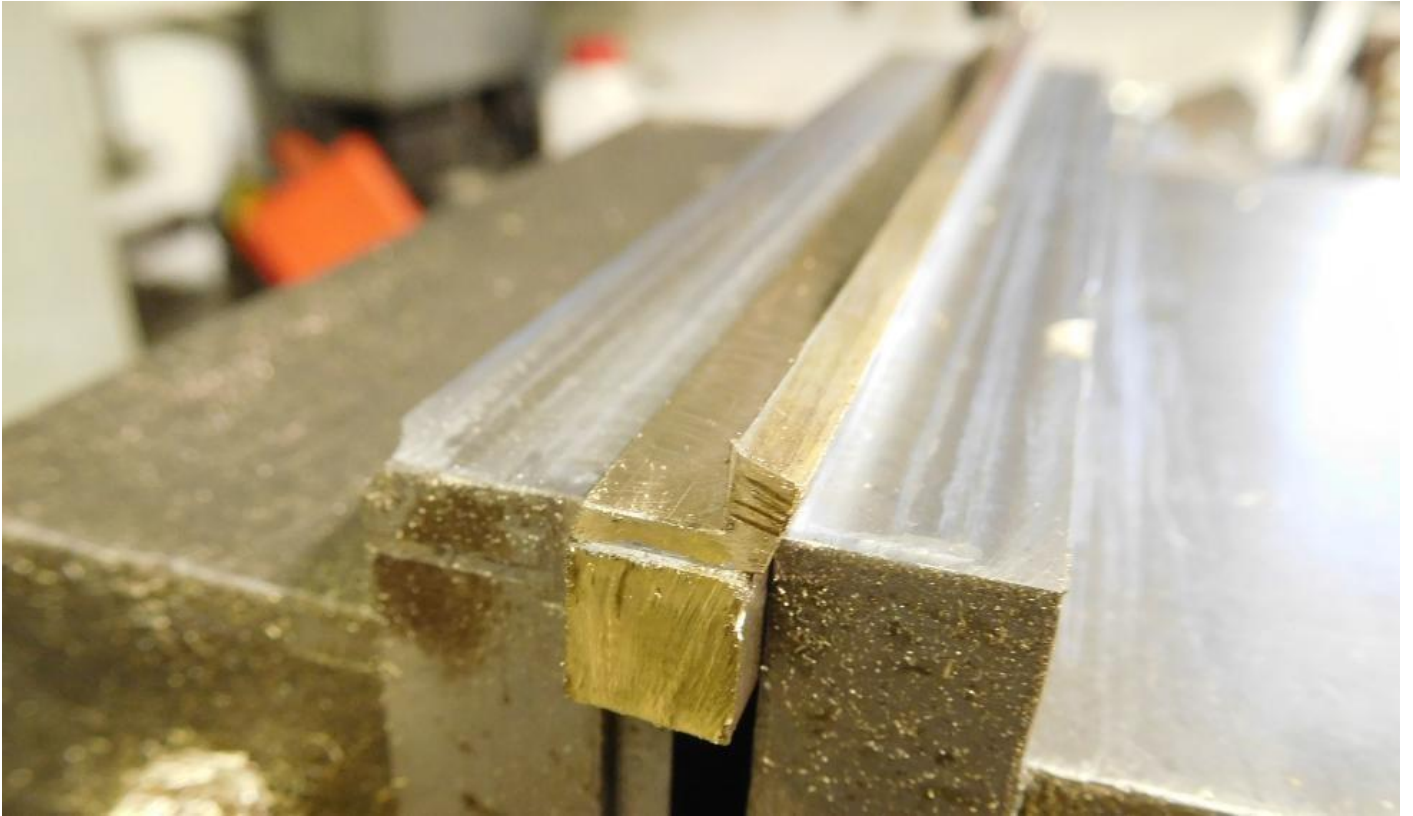
Having got my angled face, I soft-soldered it to another piece of square brass, taking great care to align it well. The "plain" brass bar was then gripped in the vice, on parallels.



I then chewed out most of the unwanted material with a 12mm slot drill:



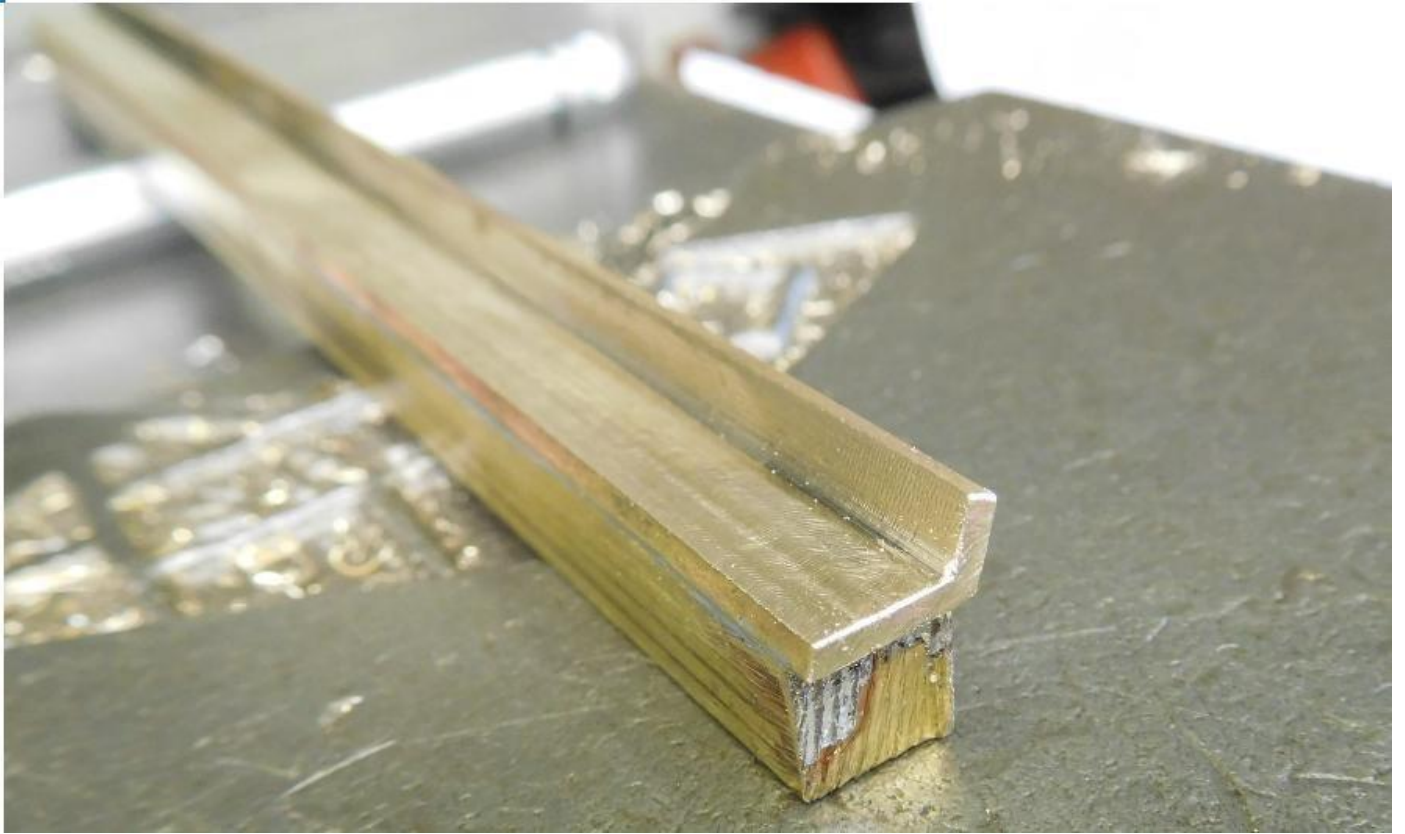
This left one leg of the angle the correct thickness.



Next step was to repeat the “ploughed field” idea, but this time with a small (5mm) slot drill with a small (about 1mm) radius stoned on the corners. This enabled me to produce the little radius in the corner of the angle. Because the cutter was a lot smaller and so the ruts (“Cusps” is the technical term!) would be more apparent, I reduced the step height to 0,25mm.



Finished:



Next step was to de-solder it and clean it all up.

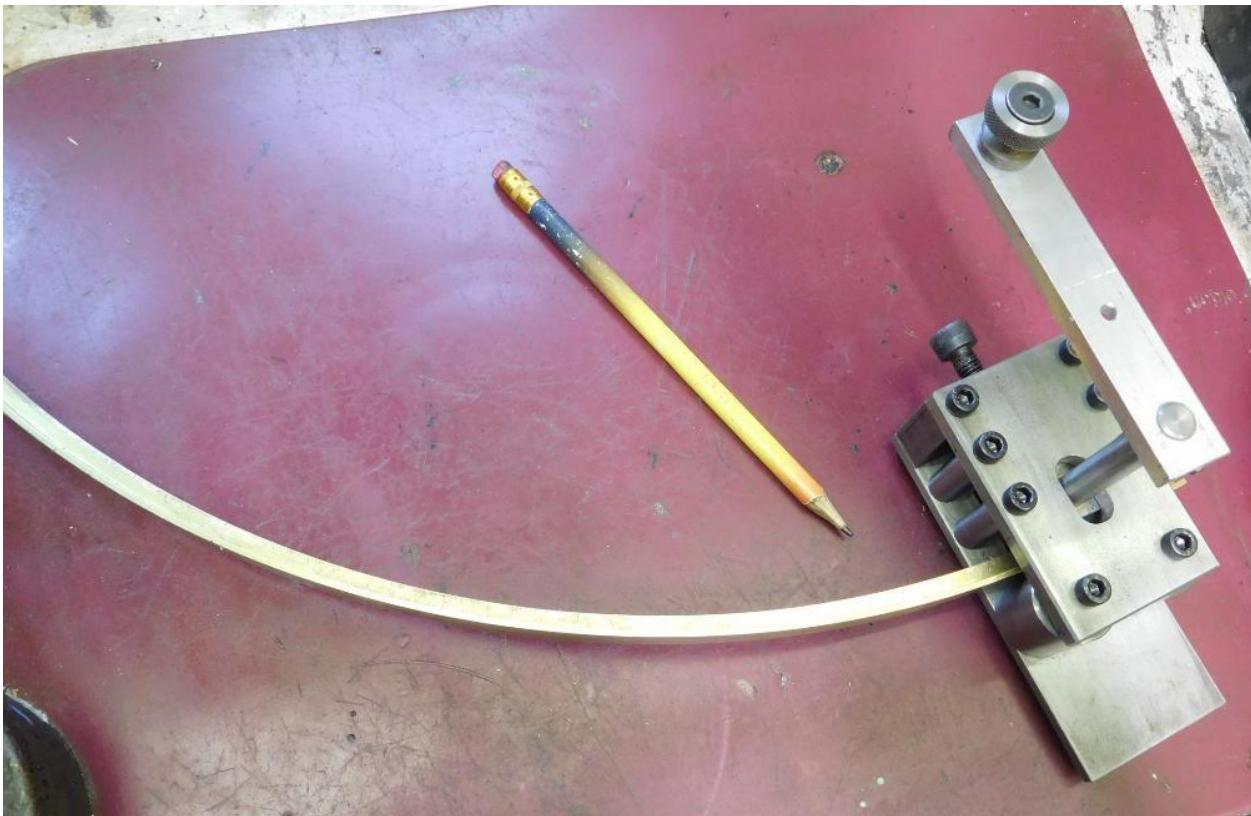
Now I could have re-soldered the angle on its shorter face to the brass bar and done some cunning sums in order to create a small clearance that I needed, but it was far easier to file it. However it was a difficult thing to hold so I had to clamp it to a piece of bar with toolmaker's clamps and attack it with a file!



There – it was just to clear the Tee-section surround.



Next thing I needed was some curved angle for the cab roof/cab front and cab rear joints. Normal angle is just fine for this but it needs bending to the correct radius. Bending angle to a curve generally results in distortion and so the technique I use is to solder two pieces of brass back-to-back to make a Tee section. Bending then is much easier and once done it's unsoldered and fitted. But I wanted a set of bending rolls. So I drew one up and made it!



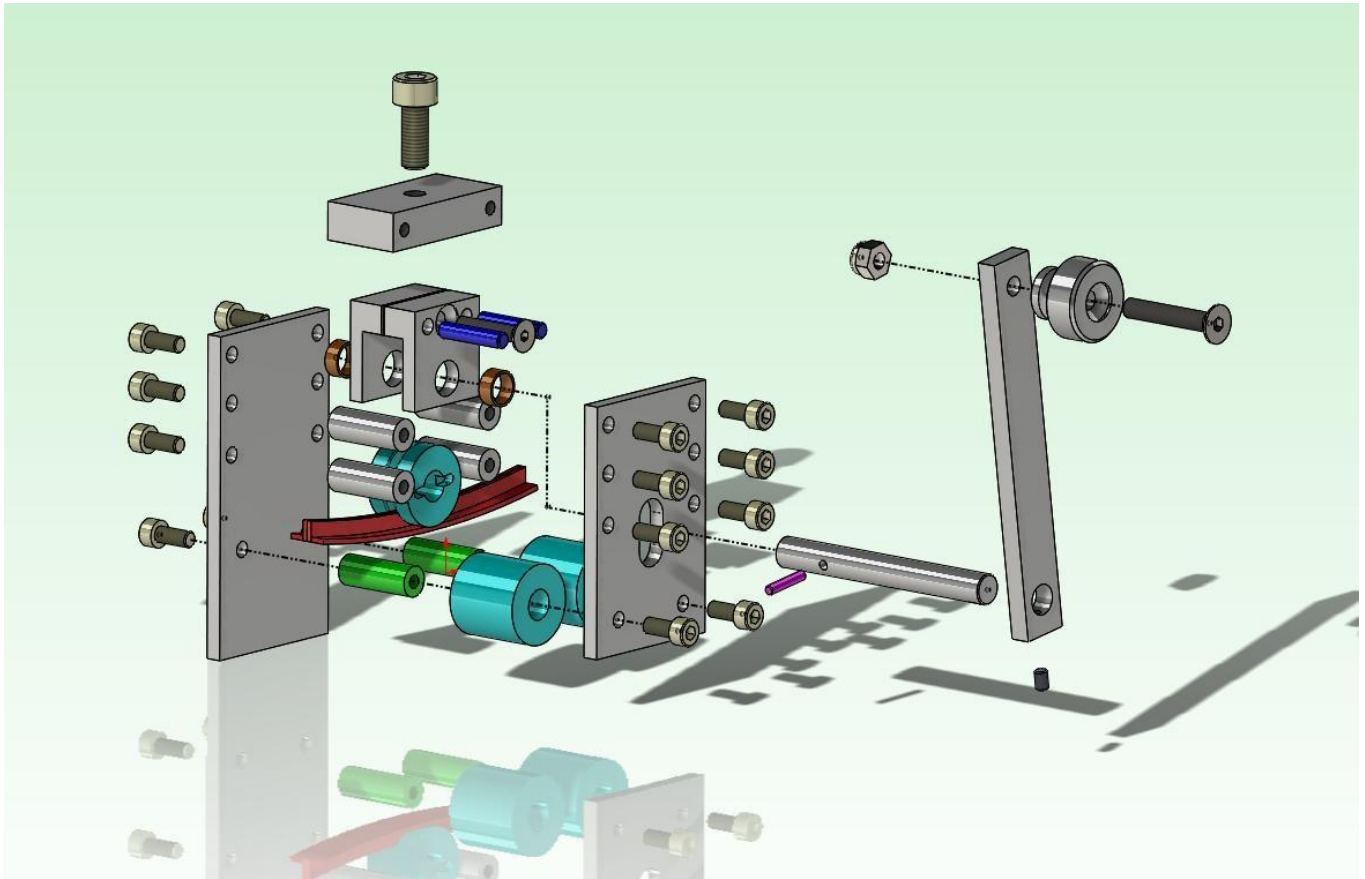
You can see the soldered back-to-back angle clearly here:



And it seems to fit! (NB always allow for straight bits at each end of the job as the rolls can't bend it all the way.)



Here's a CAD exploded view of the doings:



And thereby hangs a tale. I had hoped that it would be possible to make the bending rolls *without* the windery handle and just pull and push the job through the rolls but just taking it very gently. It started OK, because I could persuade it through by tapping each end with a mallet, but after it became only slightly curved, it became impossible to do this without damaging the job. So I revised the design to include the winding handle and it worked a treat. Note how the driving pin in the handle spindle engages with the slot in the upper roller. I also made a spare upper roller but with no groove in it for possible future use with other bendy things. The slot arrangement makes swapping rollers a lot easier.

I had to laugh though, because having made it, I was watching *The Repair Shop* on TV, and a bloke resurrecting a bass guitar trotted out a set of rollers to bend some brass frets for it. It was so like mine I thought he must have borrowed it!

16-Oct-20