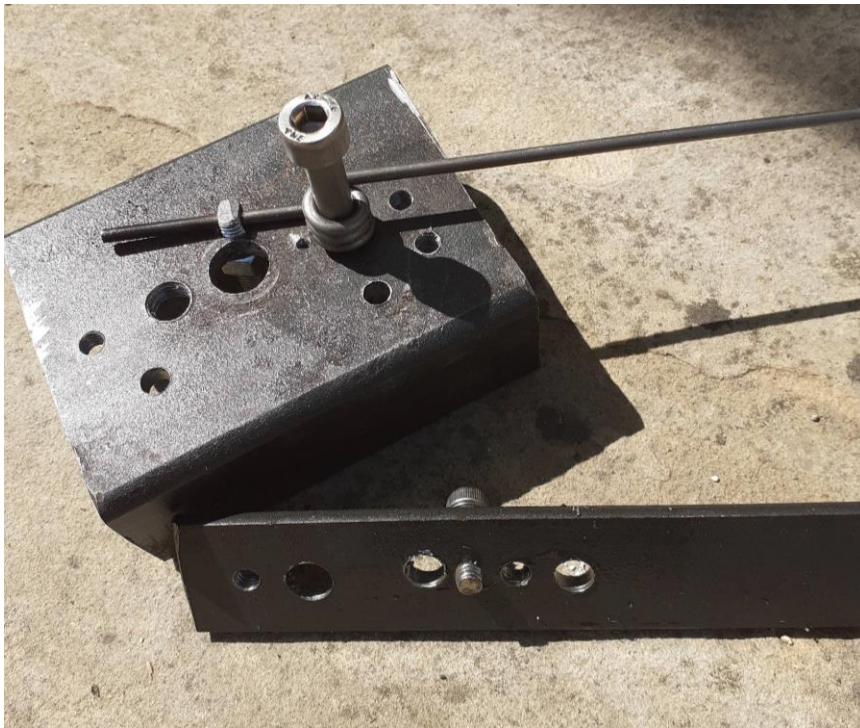


## Fabricating coiled undercarriages – by Mark Saunders

For a long time, I have wanted to be able to make my own coiled undercarriage parts, but never really cracked it 'by hand', so I set about making a coiling/bending device, and I am very happy with the results. I needed a few tools, such as a bench drill, 6mm and 8mm taps, a grinding wheel, and a 3mm diamond cylinder bit for my Dremel (normally used for sharpening chainsaw teeth).

There are only 5 parts to the machine

- a block (in my case, a scrap bit of 3 inch channel), with a tapped hole for the mandrel, and a plain hole for the keeper
- a lever (a bit of 6mm steel strip, about 40mm wide and 600mm long) with a tapped hole for the bit, and a plain hole for the mandrel.
- a mandrel (an 8mm bolt, as a pivot for the lever, around which the coil is formed)
- a 'keeper', to hold the workpiece on the block (another 8mm bolt, ground with 2 flats, and then drilled through to take the workpiece)
- a 'bit' which fits onto the lever, and forms the workpiece (a 6mm bolt with a 3mm curved slot ground into it with the Dremel)



The 'keeper' and 'bit' are both designed to be short, so that the lever and bit can pass closely over the keeper, without clashing to keep the coil tight.



I am working with 3mm piano wire, as this is the size that fits the retracts on my Dynam Trojan, which comes with very pretty (but functionally, useless) undercarriage, but the machine would easily cope with 4mm. The block has also been prepared for a 10mm mandrel and a 6mm mandrel (for bending rather than coiling).

The technique is simple. Mount the block in the Workmate. Put one end of the workpiece in the keeper (which is pushed through from under the block) and tighten the nut on the keeper to pull the workpiece tight into the block. Fit the lever to the block with the Mandrel bolt, with the bit downwards, already set to an appropriate angle. A little bit of grease on the workpiece, and then coil away, guiding the free end of the workpiece over the fixed end, once you get to 180 degrees. My machine is somewhat engineered for 3mm wire, because very little force was needed.



Hey presto! Perfectly formed coil.

The same tool can be used for normal bends, of course. The photo below shows a 90 degree bend in 3mm wire, using a 6mm mandrel. Much neater than sticking it in a vice and hitting it with a hammer!



Marks machine in use!!



'Precision' set up with mandrel and bit closer together (at the other end of the lever) to do fine bending.