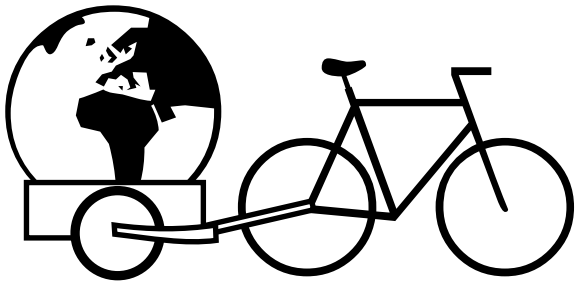
Re-Cycled Bicycle Tralier

Construction Guide 1.0



Re-Cycle

Introduction

Transport of people and goods is vitally important to any economy. Where trucks and vans are not available, a sturdy bicycle trailer will enable traders and farmers to move goods, machinery, tools and materials further and faster than they could ever be carried on foot.

We set out to design a robust, low cost, simple trailer made from globally available materials and scrapped bicycle parts. Any technically minded person can attempt this project.

Ideally it should be welded together using a simple arc welder, or it can be assembled using nuts and bolts if no welder is available.

It trailer has been designed to carry heavy loads (up to 100kg) and has been refined to interfere as little as possible with the safe and comfortable handling of the bicycle. This is achieved by mounting the trailer to the cycle's rear axel with a specially designed, flexible joint.

Please note that if you make refinements to this design, we would very much like to include them in these documents. Please email henryg@ukonline.co.uk with suggestions.

Ingredients

Old bicycle parts:

2x Forks of the same length. Extra thick mtb/bmx forks are no use as they don't allow for attachment to the frame. The spindles are too short.
1x Bicycle frame with standard top tube (not ladies style)
1x Standard type stem (not aheadset)
Handlebars (aluminum racer or steel straight bars)
2x Wheels, 20" or smaller.

Tools needed:

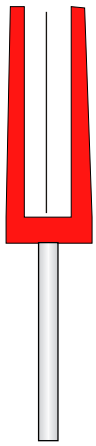
Hacksaw
Vise (optional)
10mm spanner
Adjustable spanner
Drill + 3mm, 6mm and 10mm drill bits
Plyers
Arc Welder (optional)

To buy:

3-4m of 25mm Angle-iron
150mm of 3mm wire rope
2 small U-clamps
5x 6mm bolts (50mm in length)
10 20mm 6mm bolts
15 nyloc nuts
Pipe bender

Concept: Richard Andrews
Realisation: Ian Benford
Tweeks: Michael Weltikle
Instructions: Henry Godfrey (henryg@ukonline.co.uk)
Thanks to FIDEMA PROJECT

1.

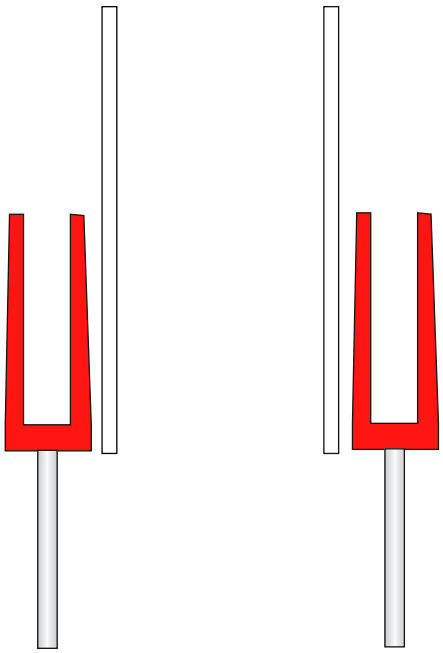


Lay the forks onto the ground and measure from the crown to the dropouts.

Multiply this measurement by two and add 5cm. This will be the length of your trailer.

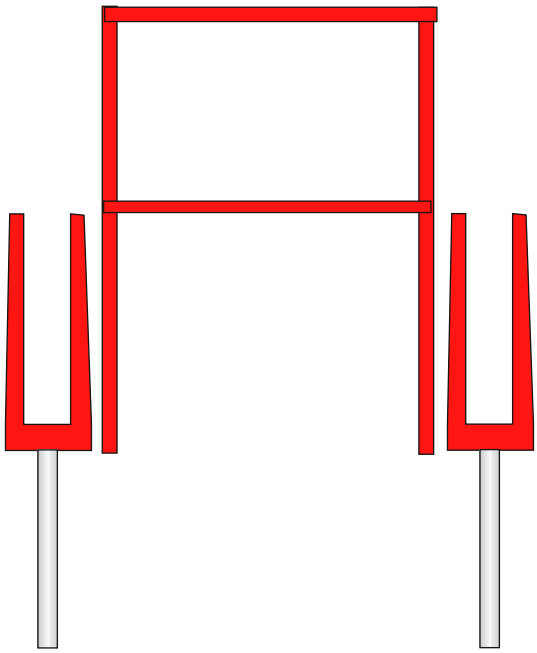
Any longer and it may not be stable.

2.



Cut two legths of angle iron to the required length.

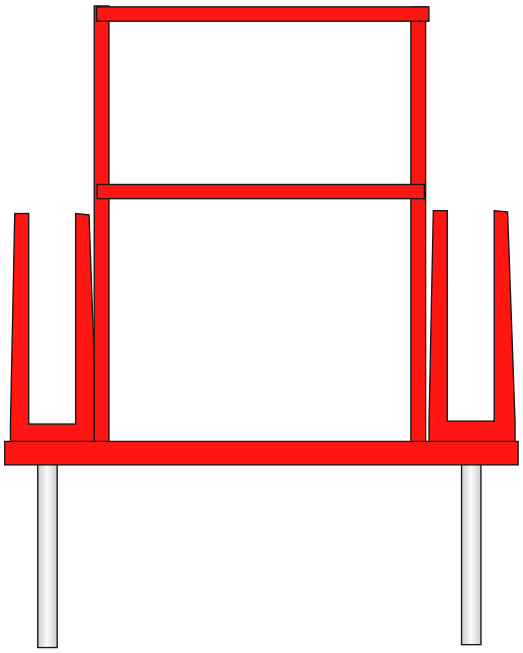
3.



Decide how wide you would like the trailer to be. Ideally it should be between 16" and 3'.

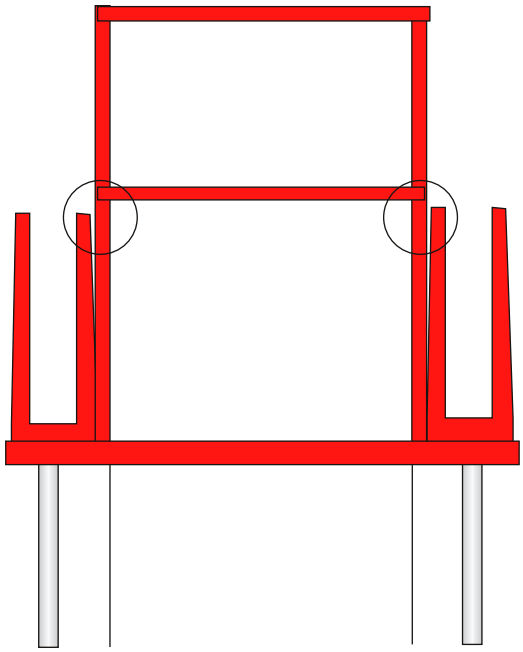
Cut two sections of angle-iron to this lenth and weld between the legnth sections. One at the end and one at the middle point.

4.



The final cross section needs to be long enough to attach both forks to.

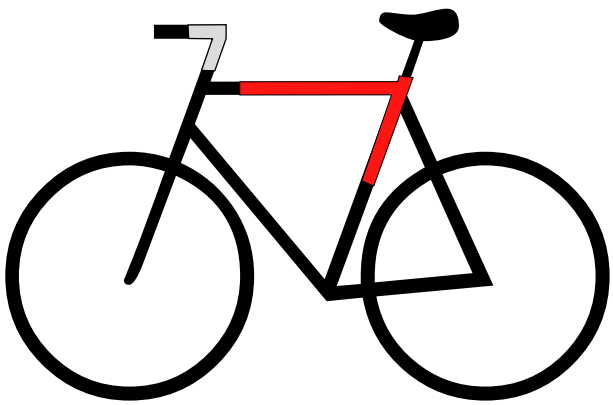
5.



Before welding, Ensure that the sections are all square and that the forks are parallel with the trailer frame.

Mark the points where the axels will go through angle iron and drill holes on both sides using a 6mm bit.

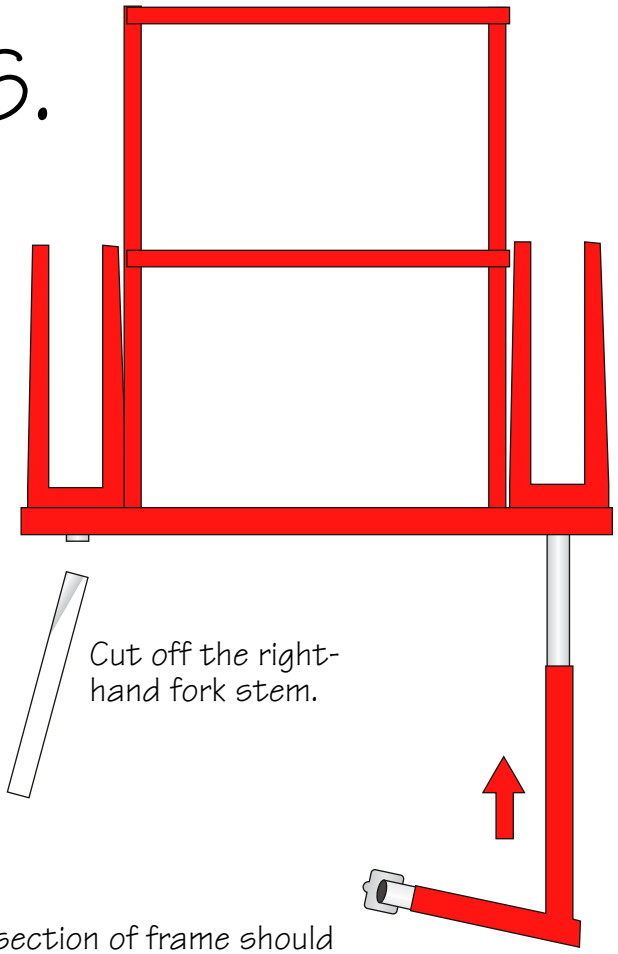
Now you can weld the frame together.



From your bicycle frame, cut a section that includes the top tube and the seat tube. This will form the towing bar.

this section should fit over the left-hand fork stem.

6.

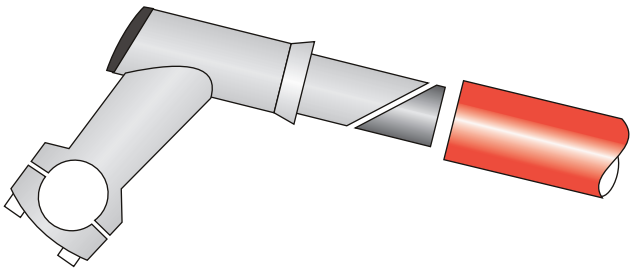


Cut off the right-hand fork stem.

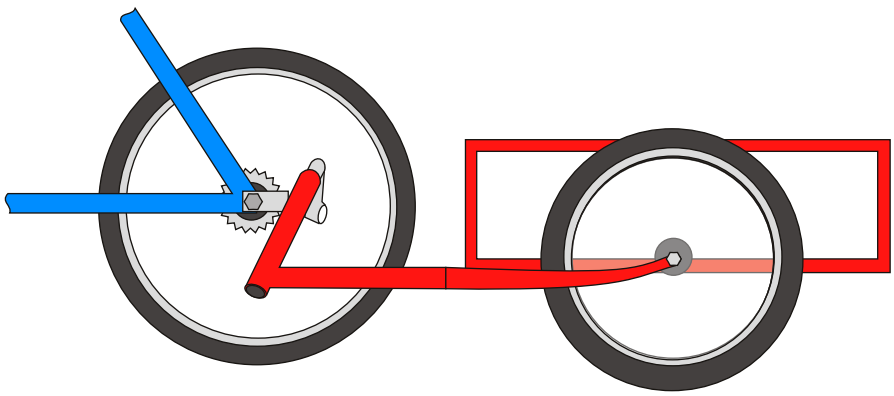
The section of frame should fit over the fork stem giving extra strength.

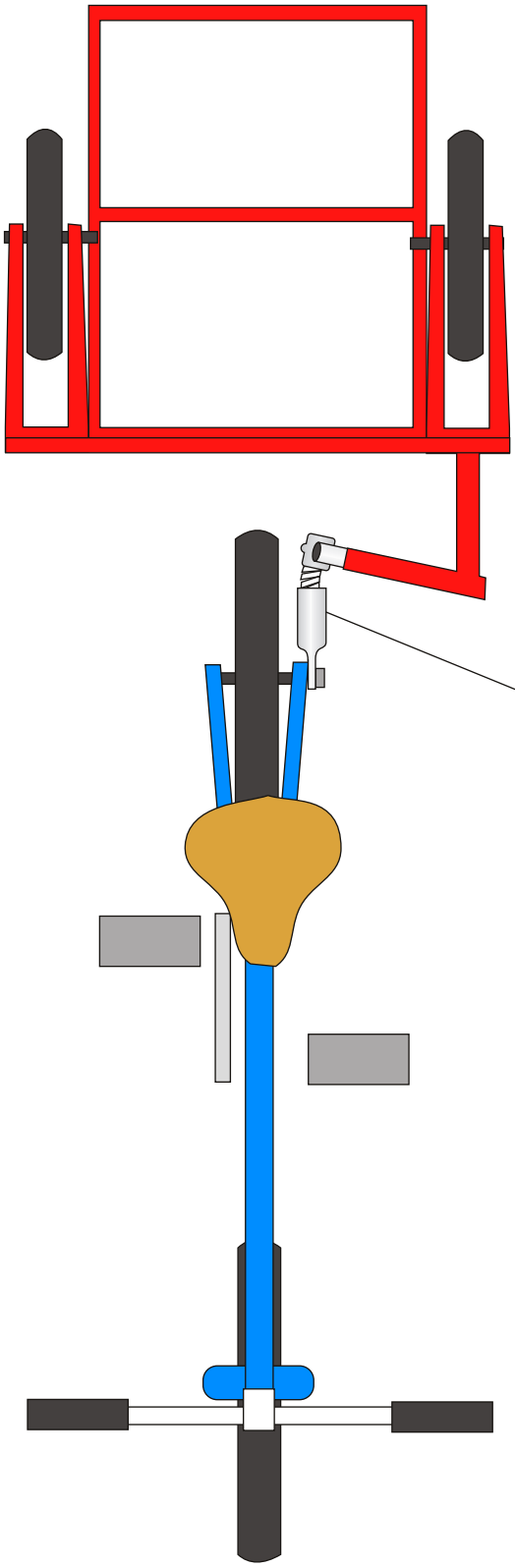
The next part is the towing bar. It needs to line up exactly with the left hand rear wheel mount.

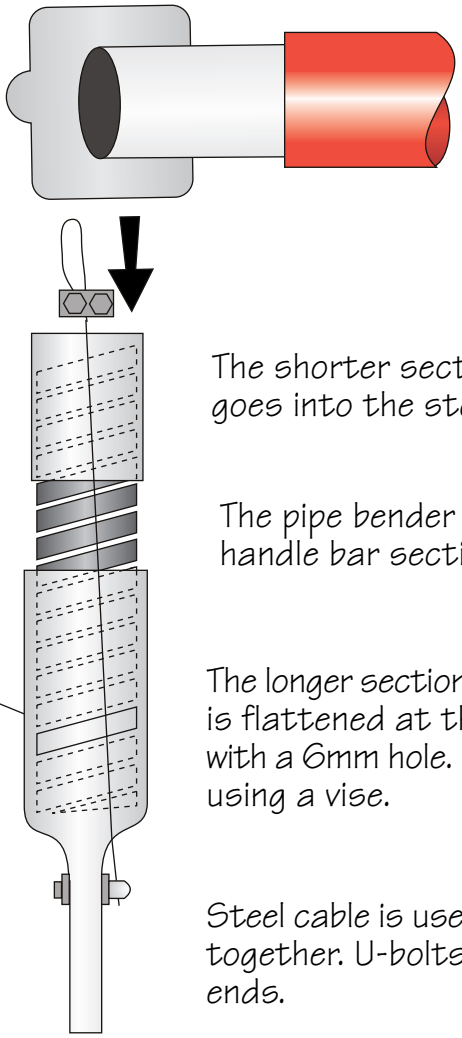
Make sure it does before you weld anything.



The stem fits into the top end of the towing bar.







The shorter section of handlebar goes into the stem.

The pipe bender should fit into handle bar sections.

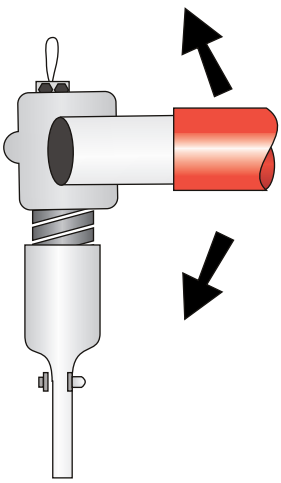
The longer section of handlebar goes is flattened at the end and drilled with a 6mm hole. It can be flattened using a vise.

Steel cable is used to keep the joint together. U-bolts secure it at both ends.

The joint between the trailer and the bike is made from a bicycle stem, two sections of handle bar and a section of pipe bender.

Pipe bender is ideal because it will bend in any direction, but it will not stretch or compress causing the trailer to lurch back and forth.

If no pipe bender is available, thick rubber tubing will suffice.



To attach the trailer, simply use the bolts that hold the wheel.

For quick release wheels, remove the spindle and insert the attachment between the frame and the wheel. Replace the spindle and retighten.

Finishing: Line the trailer with whater is available. Plywood is reasonable light and weather resistant. Metal merchants sell mesh in sheets.

Prime the metal with rust inhibiting (zinc) primer or Hammerite if using in a damp climate.

Warning: Drivers don't expect bikes to be towing! Paint with bright colours to make it more visible. Add lights, reflective tape or even a flag.

Tips

Avoid using inner-tubes with unusual valves. Stick with Schrader (car type) valves - OR THE SAME AS THE BIKE

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A bolted trailer can get out of shape. Carry a spanner for adjustments.
For quick release wheels, remove the spindle and insert the attachment between the frame and the wheel. Replace the spindle and retighten.