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# Shareware for the Bicycle world

**Bicycle trailers** The crude cousins of the bike are unsurprisingly the first stop for many an aspiring home builder. You would think that since Carry Freedom is in the business of exchanging hard currency for their factory made examples they would be doing their best to suppress the urges of the garden shed geniuses amongst you. Far from it, in this article we outline how to make a simple strong bike trailer from anything.

This trailer is special because no tubes need bent or welded, and all joints may be simply pinned or lashed. At one extreme this trailer can be made out of eight pieces of green wood or bamboo lashed together, at the other titanium and Kevlar pinned together. Either way you can have a very respectable stiff light trailer. Variations in width length and strength are easy; it will take any load you have. Hitch it behind a donkey if you lack a bike, or make it foldable if you lack space.

**Construction** This is a brief introduction of how to. The full manual is on Carry Freedom's web site. You'll need eight lengths of material capable of withstanding bending and compression, tubing or angle iron are ideal. You also need eight "spokes" that are good at taking tension. These could be wire, chain, or steel strip. The exoticists amongst might like some Kevlar. Oh and two bike wheels and a hitch will also be useful.

Seven of the tubes need pinned or bound together at the ten points where they cross to create the basic frame shape. This structure is prone to distorting like a parallelogram, or warping like a sheet of paper.

**The clever bit** With the addition of the eight spokes and the last tube this floppy structure transforms into a stiff light structure reminiscent of a square bicycle wheel on its side.

Imagine the square load area as the rim of a wheel, with 8 spokes connecting from its corners to a central hub. Truing these controls how square and flat the trailer frame is. The arrangement can be dished to make it flatter on the load side than the underside. Four spokes stops the structure from parallelograming while the addition of another four and the hub stops the frame warping. The top set of spokes could be replaced by a flat load bed.

**The difficult bits** The wheels are supported from each side by brackets attached to the four frame tubes running front to back. These brackets should be attached so they have flat plates facing parallel to each other with slots cut in for the axle stubs. The slots for the axle should be cut over size to allow the ability to adjust the alignment of the wheels so they both are pointing in the same direction and not touching the frame. Attach these plates securely or else you will have no end of problems.

This trailer hitches to the bike at the bike's left hand rear axle stub. The hitch needs to be able to rotate about all three axes as close to the bike axle as possible. See the manual for details of how to fashion a hitch from plate steel.

**The purpose?** If anyone can build a trailer out of practically anything with hardly any tools that can do anything, then a whole new world opens up. The places where bikes are most essential are the very places with the least capacity to fabricate them. This trailer allows what bikes there are to do a more useful job; from acting as ambulances to carrying food to market. Furthermore the building of these trailers provides local jobs, and helps invigorate the local economy.

Carry Freedom is entering this trailer into the IF design awards in Germany, and will be spreading plans for it through charities such as Oxfam. This venture will be supported by donations from Carry Freedom's European trailer sales.

For the foolhardy the central tube can be extended to create a mast for a land sail.

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