Building a better bender

1

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John Barrett made his own metal bender after being none to impressed with commercial versions.

Some years ago a friend at the **Southampton SME** had lent me a Kennedy bender, a huge and heavy device from the 1950s that I couldn't work out how to use. When I returned it unused, my friend said that he'd never been able to work it out either!

I therefore set to work to produce a device that would bend any shape material, including 'I'-beams and channels, to small radii. This machine will bend cold 5mm solid bar back on itself on a 10mm radius. It will also bend any size or shape you like if you care to make a former. The bending mechanism is free to slide up and down the fixed column, thus accommodating any diameter tube or bar within the capability of the machine. I have to say that the example shown here was hacked out of anything spare to hand, so I am not seeking any gold medals for finish or presentation (**photo 1**).

Principle of operation

A suitable former is placed over the fixed column on the base plate. The pipe to be bent is placed against (or in) the shaped former (**photo 2**). The moving column on the actuating arms has a rotating bushed swivel at its base. This column moves along the actuating bars, and is positioned up against the pipe to be bent and locked in position with the Allen key. The static part of the pipe or bar to be bent is held in place by hand pressure on the eccentric actuating lever. The eccentric has two positions, thus I can make bends up to 1in. radius. The pipe can be placed flat on the base, thus keeping it nice and square to the previous end or bend. Formers are quick and easy to make, and may be made from steel, alloy, brass or even hard plastic, depending on the material being bent.

How to make the bender

For those who prefer the written word to a drawing, I have set out some basic instructions below. All dimensions are in metric, and all material is steel unless stated otherwise. As I have grey hair, I made this gadget in Imperial units, but to go along with the modern trend I have resized it into Euro units. I therefore apologise in advance if the finished product looks slightly different from the one in the photos!

Base plate

Obtain a substantial flat steel plate; 10mm thick and 100mm square will do or a round disc would do the same job. Drill and ream a 10mm dia. hole in the centre. Drill and ream two 6mm dia. holes on the same centre line 15mm apart, the first some 20mm from the centre of the 10mm dia. hole. Make two similar holes part way through underneath; these will accommodate the mounting pins.

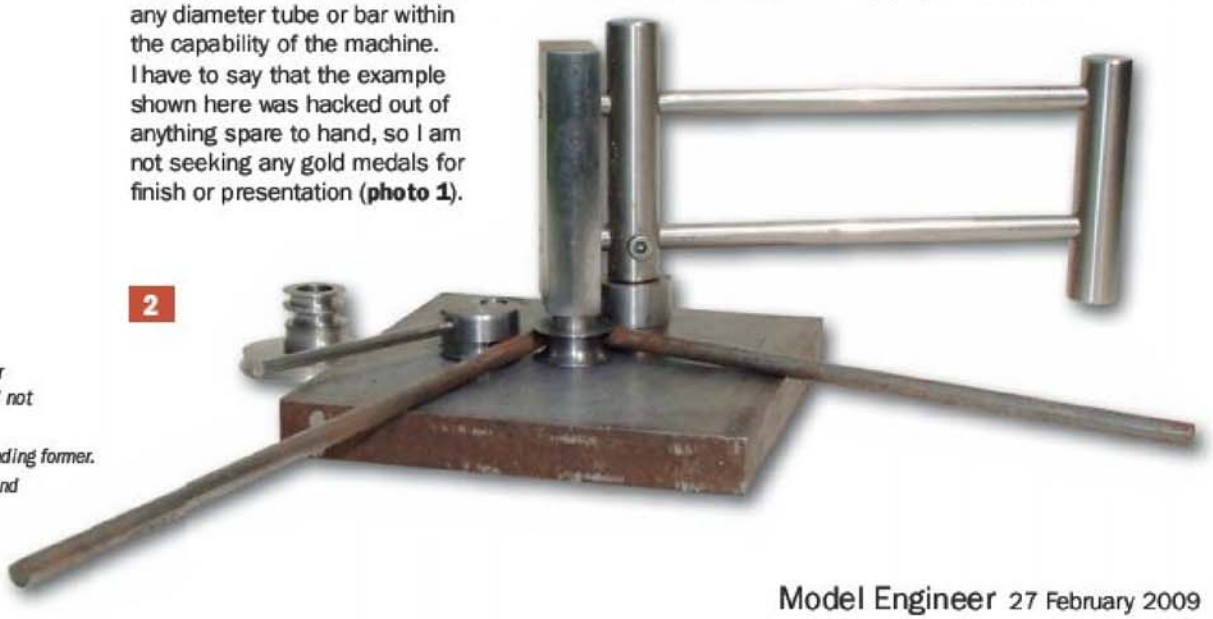
Mounting column

Cut a 10mm dia. round bar to 50mm length and Loctite it, or press it, into the hole in the centre of the plate.

Eccentric

A piece of bar 20dia. x 10mm long, drilled 5mm off-centre and reamed 6mm dia. Drill a 3mm dia. hole in the side and insert/glue a 50mm long silver steel/stainless actuating lever. Cut a 6mm dia. swivel pin 25mm long. The swivel pin is inserted through the eccentric into the appropriate hole on the base

2



1. The author's finished bender together with the one he could not figure out how to use.

2. The bender showing the bending former.

3. The bender can do simple and complex bends.