PIPE BENDING

This technical brief describes the construction of a pipe-bending tool that you can make with only a small number of tools. It was originally built and field-tested by ITDG (now Practical Action) in Malawi, Zimbabwe and Botswana.

You will need the following equipment to produce the pipe bending tool.

- a drill,
- a welding machine
- a metal saw

Operation of the pending tool is relatively easy. The pipe that you wish to create a bend in is placed in the clamp and the two nuts are tightened to ensure that the pipe does not slip. Once the pipe is clamped up the bending arm can be slipped onto the pipe and positioned appropriately. The long arm of the tool makes the job of bending the pipe easy.
The components
The components required to make the pipe-bending tool are listed below. They should be made from mild steel. Dimensions are in millimetres unless otherwise stated.

- 50 x 50 Flat bar
- Ø 8 Rod
- Ø ¾ “ pipe
- 50 x 5 Flat bar
- Ø 8 Rod
- 40 x 40 x 5 Angle
The manufacturing process

1. Tack weld

Drill through the flat bars together. dia. 8.0 mm

2. Tack weld

Use a nut for spacing the flat plate while tack welding them to the rod.

3. Cut off excess rod

Tack weld

4. Compress the welded construction in a vice to create a curve.
The clamp

References and further reading

Iron Foundry Basics, Practical Action Technical Brief
Blacksmithing, Practical Action Technical Brief
How to Make a Strengthening Ridge in a Bucket, Practical Action Technical Brief
Wheel Manufacturing Technology for Rural Workshops, Practical Action Technical Brief
Blacksmithing, Welding and Soldering, Van Winden J, TOOL, Amsterdam, 1989
How to Make a Folding Machine for Sheet Metal Work - Workshop Equipment 1, Rob Hitchings, Practical Action Publishing
How to Make a Foot-operated Workshop Drill - Workshop Equipment 2, Paul Smith, Practical Action Publishing
How to Make a Rolling Machine for Sheet Metal Work - Workshop Equipment 3, Rob Hitchings, Practical Action Publishing
How to Make Cutting Shears for Sheet Metal - Workshop Equipment 4, Rob Hitchings, Practical Action Publishing
How to Make a Hand-Operated Hole-Punch - Workshop Equipment manual 7, Ted Stone and Jim Tanburn
How to Make a Metal-bending Machine - Workshop Equipment 10, R.D. Mann, Practical
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