

BENDING TOOL

This invention relates to a bending tool and in particular, but not exclusively, it relates to a tool for attachment to one or more sheet metal
5 clamps or mole grips (Trade Mark) to enable said clamps or grips to be used to bend sheet metal for testing welds in the metal for example. The tool may also be used to provide one or more screwdrivers for use, advantageously, in confined spaces.

10 According to the present invention there is provided a tool comprising a handle, two elongate members detachably engageable to the handle to extend in generally opposite directions and two further
15 elongate members each detachably connectable to respective distal ends of the first members to depend therefrom, the further members being threaded so as to co-operate with the pre-existing internal thread on one arm of a clamping tool having an arm including an internal screw thread.

20 Advantageously, one or more ends of at least some of the elongate members are shaped to form screwdriver heads, which can selectably be flat bladed, cross-headed or any combination of these and of which one or more may be magnetic to aid retention
25 of screws. Other tool heads or bits can be substituted if desired.

According to the present invention there is further provided a method of testing welds of sheet metal, which method comprises attaching a tool as
30 described above between appropriately spaced sheet metal clamps holding an edge of the metal securely between the plates or jaws of the clamps and using the tool to bend the sheet according to a selected test procedure.

35 For testing the welds on relatively long

pieces of metal, two or more of the tools may be attached together and more than two clamps attached to the metal. Alternatively, a chain of handles and elongate members may be used, of the desired length, with further members depending from the elongate members at appropriate positions.

The tool is also useful in bending, for example, pipework and conduits in plumbing, building and electrical installations.

Embodiments of the invention will now be described, by way of example only, with reference to the accompanying diagrammatic drawing which shows a tool according to the present invention.

Referring to the Figure a tool comprises a plurality of screwthreadedly detachable parts including a handle 1. The handle is provided with holes at respective opposite ends into which respective ends of two elongate members 2 and 3 can be inserted, the ends having co-operating external screwthreads.

Members 2 and 3 are substantially identical and are elongate members having a screwdriver portion 2a, 2b, 3a, 3b at each of their respective ends and respective screwthreaded portions 2c, 2d, 3c and 3d extending inwardly from the screwdriver portions for a fixed distance. The members 2 and 3 are each telescopic and can be adjusted through a range of lengths by, for instance, portion 2b, 2d being slidably mounted inside portion 2c, 2a. The two portions can be held in a desired position by friction. Alternatively, a more complex method may be used, as will be apparent to those skilled in the art. Through-holes 4 are provided in each of the members.

Two blocks 5 and 6 having though holes 7

and 8 respectively with internal screwthreads adapted to co-operate with the external screwthreads of members 2 and 3 are positioned with respect to members 2 and 3 as shown in the Figure. Further
5 elongate members 9 and 10 extend from one side of respective blocks 5 and 6 and are provided with an external screwthread and, at their ends, screwdriver bits 11 and 12.

As shown in the Figure, some of the
10 screwdriver bits, ie those shown at 3b and 12, may be cross-headed whilst others, such as those shown at 2b and 11 may be conventional flat blade screwdrivers. One or more of the screwdriver bits may also be magnetic.

15 In use, the tool is assembled as shown in the Figure. If it is desired to test a weld on an article, such as testing the welding together of two pieces of metal on a car, then two pairs of mole grips or, more preferably, sheet metal clamps are
20 positioned at suitable spaced intervals along the piece of metal to be tested. Such clamps include a pin which can be screwed into an arm of the clamp to alter the opening of the jaws. This pin is removed, leaving an internal screwthread in the arm, which is
25 of similar dimensions to the external screwthread of members 9 and 10. Members 2 and 3 are altered in length so that members 9 and 10 can both mate with a respective arm of a respective clamp and are then the screwed into place. Then, by applying pressure
30 on handle 1, the clamps can be moved in such a manner that the sheet of metal is pivotally flexed about a chosen testing point. Thus, the weld can be tested for bend strength. Typically, a weld passes a test if it can be bent twenty five times without showing
35 any signs of strain or breaking. Of course, it will

be more normal to perform a bend test on a test weld rather than the actual weld on a car or other article.

5 The tool is also applicable in bending, for example pipes and conduits in other fields such as plumbing, electrical work, etc.

10 The screwdriver blades can be used especially in positions where use of normal screwdrivers is precluded because of confined spaces. Additional handles (not shown) may be fitted through
15 respective holes 4 to aid this action. If necessary, members 2 and 3 may be detached from handle 1 and then screwed further into blocks 5 and/or 6 to serve as handles for screwdrivers 11 and 12 which, being of short length, are useful in confined spaces.

CLAIMS

1. A tool comprising a handle, two elongate members detachably engageable to the handle to extend in generally opposite directions and two
5 further elongate members each detachably connectable to respective distal ends of the first members to depend therefrom, the further members being threaded so as to co-operate with the pre-existing internal thread on one arm of a clamping tool having an arm
10 including an internal screw thread.
2. A tool as claimed in Claim 1, wherein the first elongate members are adjustable in length.
3. A tool as claimed in Claim 1 wherein
15 at least one end of at least one of the elongate members is a screwdriver head.
4. A tool as claimed in Claim 2 wherein the screwdriver head or heads are flat-bladed, cross-headed or any combination of these.
5. A tool as claimed in Claim 2 or Claim 3
20 wherein at least one screwdriver head is magnetic.
6. A tool as claimed in any one of the preceding claims wherein the clamping tool is a sheet metal clamp.
7. A method of testing welds of sheet metal,
25 which method comprises attaching a tool as claimed in any preceding Claim between appropriately spaced sheet metal clamps holding an edge of the metal securely between the plates or jaws of the clamps and using the tool to bend the sheet according to a
30 selected test procedure.
8. A method as claimed in Claim 5 wherein two or more of the tools are attached together and more than two clamps are used to hold the metal.
9. A tool as claimed in any of Claim 1 to 4
35 used for bending materials.
10. A tool as claimed in any of Claims 1 to 4 used for bending pipes or conduits.



11. A tool substantially as hereinbefore described with reference to, and illustrated by, the accompanying drawings.

5 12. A method of testing welds substantially as hereinbefore described with reference to the accompanying drawings.

13. A method of bending members substantially as hereinbefore described with reference to the accompanying drawings.



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