PIE AND TUBE BENDER

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ABSTRACT

A pipe and tube bender having notches in the periphery of the body element for selective insertion by a retractable dog to enable adjustment of the angle of the handle relative to the pipe at different phases of the bending operation to avoid fatigue and uncomfortable positions of the operator. The bender is of such construction that the dog, handle and body are in the same plane for optimum strength and application of bending force.

1 Claim, 3 Drawing Figures
This invention relates to a bending tool and, more particularly, to a tool for bending a pipe, conduit, rod or similar elongated element.

An outstanding disadvantage of conventionally used pipe bending tools is that they are somewhat complicated in design and, particularly, they require exertion of considerable effort and back strain when the operator is compelled to be in an awkward position, overreaching to grasp the handle or lever to initiate the bending stroke.

An object of the present invention is to overcome the abovementioned disadvantages by providing a bending tool for pipes, conduits and the like, which is of relatively simple construction and which enables a wide range of adjustments of the angularity of the handle relative to the pipe when initiating or continuing the bending force.

Another object is to provide a pipe and conduit bender wherein selection of the angularity of the handle can be done simply and quickly without the necessity of making any major and time consuming changes in the basic assembly.

Other objects and advantages will become more apparent from a study of the following description taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a side or elevational view of a pipe and conduit bender embodying the principles of the present invention;

FIG. 2 is a cross-sectional view thereof taken along line 2—2 of FIG. 1, and

FIG. 3 is a side view taken from the left end as viewed in FIG. 1.

Referring more particularly to FIGS. 1, 2 and 3 of the drawings, numeral 1 denotes an arcuate shaped bending element of inverted U-shape cross-section, as shown best in FIG. 2, and having integrally secured at one end a pipe encircling flange 2 of somewhat J shaped cross-section, as best seen in FIG. 3. Integral with element 1 is a body portion 3 of flat shape and having a plurality of notches 4 disposed along an arcuate peripheral portion thereof. Numeral 5 denotes a tubular socket which is pivotally connected at pivot 50 to the body portion 3 and into which a handle or lever 9 is inserted telescopically or screw threaded, only a portion of the handle being shown. Integrally extending from the side of socket 5 is a somewhat rectangular loop portion 50 through which a dog 6 is slidably mounted for selective insertion into any of the notches 4 to adjust the angularity of the handle 9 relative to the pipe to be bent.

The dog 6 is biased into a notch 4 by a spring 8 such as a coil spring, having one end attached to an eye attached to the outer end of dog 6 and the other end attached to an eye which is attached to an extension of body portion 3. When it is desired to change the angularity of the handle, the operator simply pulls cord or wire 7 against the tension of spring 8 so as to withdraw dog 6 from the particular notch in which it is located. Thereafter, the handle is pivotally moved to the newly selected position where the handle is placed at a different angle relative to the pipe to be bent.

As is well known in the art, a pipe or conduit (not shown), while on the floor, will project in close hugging relationship under the end portion adjoining extension 2 as well as through the end portion of extension 2 beyond which the end of the pipe projects. Thereafter, the handle 9 is pulled clockwise whereby the pipe is bent to conform to the arcuate shape of element 1.

An outstanding feature of my invention resides in the particular saddle construction of the lower portion of socket 5 as well as the positioning of the associated spring biased dog 6 to allow very easy and rapid changes of angularity of the handle before the bending action begins or after a portion of the bending of the pipe or conduit has been completed.

By changing the angularity of the handle relative to the pipe at different stages of bending, the operator is enabled to select the most comfortable position, without straining of his back, which will enable exertion of maximum force to the end of the lever so as to obtain bending of the pipe with the least amount of fatigue or strain by the operator.

There are also provided liquid levels 11 and 12 at different angles to show the proper position of the bending tool when starting the bending movement and when completing such movement over the full 90° (or other arc) desired.

The central location of the dog 6 on body portion 3 afforded by the saddle portion of socket 5 allows exertion of maximum strength to the tool despite enormous strains placed thereon through force exerted on the end of lever 9.

Thus it will be seen that I have provided a highly efficient strong and durable pipe and conduit bender suitable for making 90° bends, saddle bends, offset bends and back to back bends on 1 inch thinwall, ¾ inch rigid and larger sizes of tubes, and which enables easy and quick adjustment of the angularity of the lever relative to the pipe at different positions in the course of bending to avoid back strain and fatigue, also in which the dog insertable in notches in the periphery of the body of the bender is coplanar with such body to provide a very rigid and reliable structure.

While I have illustrated and described a single specific embodiment of my invention it will be understood that this is by way of illustration only and that various changes and modifications may be contemplated in my invention and within the scope of the following claims.

I claim:

1. A pipe and tube bender comprising a body portion having an integral groove formed along one arcuate edge for engaging a peripheral portion of the pipe or tube to be bent and having a closed loop integral flange at one end thereof for closely embracing an opposite peripheral portion and having an eye at the other end thereof, said body portion also having a plurality of peripherally spaced notches along an opposite arcuate edge, a socket for a handle having a saddle end portion straddling both sides of said body portion and terminating in an end pivotally connected to said body portion, a handle attached to the open end of said socket, an integrally secured open loop portion extending laterally thereof, a dog slidably mounted in said open loop portion in the same plane as the bottom portion of said groove, spring means normally biasing said dog into one of said notches, means for overcoming the tension of said spring means for withdrawing said dog from said notch and enabling pivotal movement of said dog into alignment with another selected notch at which position said spring means will bias said dog into the newly selected notch for changing the angularity of the lever relative to the pipe that is being bent, said spring means being in the form of a coil spring having one end attached to the extremity of said dog and the other end attached to said projection of said body portion, and a cord also attached to said dog for pulling and withdrawing said dog from one of said notches against the action of said coil spring.

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