This invention relates to new and useful improvements in a pipe and rod bender. It is an object of this invention to provide a hand tool for use in bending pipe, tubing or rod, without splitting same. It is another object of the invention to provide a bending tool for use in bending tubing, and the like having novel means for quick and easy adjustment to varied sizes of tubing, and the like, to be bent. It is still another object of the invention to provide a hand tool for bending pipe, tubing and the like of a sturdy design that may be subjected to rugged use and that will bend the desired work without damage to the tool.

With the above and other objects in view, the invention has relation to certain novel features of construction, operation and arrangement of parts more particularly defined in the following specifications and illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevational view, illustrating a tubing being bent.

Figure 2 is an end view, taken on the line 2-2 of Figure 1, and

Figure 3 is an exploded view of the tool, showing the cover plate and shoe removed.

Referring more particularly to the drawings, the numeral 1 designates a body member, having an internally threaded socket 2 at one end, and having the shoe receiving chamber at the other end. A pipe receiving guide 3 is formed by overturning the end of the member 1 and shoe adjusting ports, 4, 5, internally threaded to receive the adjusting bolt 6, are formed in the member 1. The shoe 7 fits snugly in the shoe receiving chamber 8, and the plate 9 is mounted on the member 1 by suitable bolts 10, 10. The shoe 7 has the adjusting bolt receiving ports 11, 12, through which the adjusting bolt 6 is selectively mounted. The shoe 7 is shaped to conform to the shape of the shoe receiving chamber 8 as shown in the drawings, and the extended end of the shoe 7 has the outwardly extending projections forming the rear and forward ends 13, 14, respectively. The ends 13, 14 extend beyond the side walls of the member 1 and are downwardly turned. The shoe 7 is enlarged adjacent its extended end, forming a shoulder 17 and the end face of the shoe 7 is curved inwardly at its contacting face and is concave at the bending end, which is the forward end 14, the channel formed by the concaved portion of the end face being gradually increased in depth from adjacent the rear end 13 to the forward end 14.

When it is desired to bend a tubing, or the like, the tube to be bent, as 15, is placed in the area between the lip 3 and the shoe 7, the bolt 6 being in the hole or passageway in the shoe 7 to accommodate the size of tube being bent. Handle 16, which usually consists of a one inch pipe, is screwed into the receiving socket 2, and the tube suitably anchored, and then bent by applying pressure to the handle 16. In bending larger sizes of tubing, such as a three-quarters inch tube, the tube is brought to bear against the edges of the shoe 7 at the forward end 14, so that the force will be exerted against the sidewalks of the tube, the sharp edges of the concaved channel formed in the shoe will bite into the side walls of the pipe and act as a gripping means, preventing the pipe from slipping in the tool. In smaller sizes, such as one-half inch tube, the tube will rest in the concave portion of the shoe during the bend.

The shoe receiving chamber 8 and the shoe 7 are shaped to permit the pressure force of the bend to be exerted on the member 1, fully utilizing the weight and strength of the mass of the shoe 7 and the member 1; when the bolt is in the port 4, and when smaller size tubing is being bent, the shoe 7 will pivot on the bolt 6 and bear against the mass of the member 1.

While the above explanation of the use of the tool refers to tubing as being the work being bent, it is intended that the same remarks shall apply in bending pipe or rod.

While the foregoing is considered a preferred form of the invention, it is by way of illustration only, the broad principle of the invention being defined by the appended claims.

What I claim is:

1. In a pipe bending tool, a shoe receiving member, one end of said member having an internally threaded handle receiving socket, and the other end of said member having pipe receiving means, a shoe adjustably mounted in said shoe receiving member between said socket and pipe receiving means and having a pair of transverse ports, a fulcrum pin selectively mounted in one of said ports and said shoe receiving member, said shoe having its extended end curved and a gradually deepening concave channel formed in the outer face of said shoe.

2. In a bending tool, a shoe receiving member, a shoe mounted in said member, said shoe having means for adjusting its position in said shoe receiving member to various sizes of pipe to be bent comprising a pair of transverse ports, and a fulcrum pin selectively mounted in one of said ports and said shoe receiving member, and having its outer face shaped to receive pipe to be bent.

3. In a bending tool, a shoe receiving member, an internally threaded socket in one end of said member, and a pipe receiving means at the other end of said member, a shoe chamber in said shoe receiving member and a shoe adjustably mounted in said shoe receiving member having one end anchored in said shoe receiving chamber and having its extended end face curved and channelled to receive pipe to be bent said shoe having a pair of transverse ports and a pin selectively mounted in one of said ports and said shoe receiving member.

4. In a bending tool, a shoe receiving member, an internally threaded socket in one end of said member, and a pipe receiving means at the other end of said member, a shoe adjustably mounted in said shoe receiving mem-
3. A member having its extended end face curved and channeled to receive pipe to be bent, said shoe receiving member having a pair of threaded ports and said shoe having a pair of transverse ports through which a fulcrum pin may be selectively extended and received by one of said threaded ports in said shoe receiving member.

5. In a bending tool, a shoe, a shoe receiving member having a shoe receiving chamber in which said shoe is mounted, one end of said member being formed to receive a handle and the other end being upwardly turned to receive a tube to be bent, retaining walls in said chamber for restricting the movement of said shoe, a plurality of internally threaded ports in staggered relation to said shoe receiving chamber, transverse ports in said shoe, a fulcrum pin selectively mounted through one of said ports in said shoe and into one of said ports in said shoe receiving chamber to position said shoe with relation to said upwardly turned portion of said shoe receiving means.

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