

UNITED STATES PATENT OFFICE.

JOHN R. MORRIS, OF MARSHALLTOWN, IOWA.

PIPE-WRENCH.

947,081.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed January 27, 1909. Serial No. 474,438.

To all whom it may concern:

Be it known that I, JOHN R. MORRIS, a citizen of the United States, residing at Marshalltown, in the county of Marshall and State of Iowa, have invented certain new and useful Improvements in Pipe-Wrenches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in pipe wrenches.

The object of the invention is to provide a wrench of this character having a pivoted longitudinally adjustable jaw which may be readily operated to engage the wrench with pipes of different diameters.

A further object is to provide a wrench having means whereby the pivoted outer jaw will be automatically swung outwardly and held in operative position when adjusted longitudinally of the stationary jaw.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side view of a wrench constructed in accordance with the invention; Fig. 2 is a rear edge view; Fig. 3 is a longitudinal sectional view; and Fig. 4 is a side view showing the movable jaw in its laterally adjusted position for engaging pipes of large diameters.

Referring more particularly to the drawings, 1 denotes the wrench which consists of an inner stationary jaw 2 provided with a shank 3 which is preferably rectangular in cross section and is provided on one edge with a series of worm gear teeth 4. On the inner end of the shank is formed a handle 5, said handle preferably having its sides recessed or countersunk, thus reducing the weight of the wrench.

The inner stationary jaw 2 is preferably provided with a curved convex working face which is serrated or formed with gripping teeth 6 and with said convex working face of the inner jaw is adapted to co-act the concave working face of the outer movable jaw 7, the working face of said jaw being preferably serrated or provided with teeth 8. The outer jaw 7 is provided with a shank 9 which is preferably rectangular in

cross section and is provided with a reduced inner end 10 which forms shoulders 12, on the opposite sides of the shank.

Slidably mounted on the shank 3 of the inner jaw is a jaw adjusting block 13 which is provided with a laterally projecting extension 14 in which is formed a recess adapted to receive the reduced inner end 10 of the shank 9 of the outer jaw member, said reduced inner end being pivotally mounted in the recess of the extension 14 by means of a pivot screw 15 which is engaged with one of a series of pairs of aligned apertures 16 formed in the opposite sides of the extension 14 whereby the outer jaw may be adjusted laterally with respect to the inner jaw, thus adapting the wrench for use in connection with large sized pipes.

On the inner end of the shank 9, is secured one end of a substantially straight jaw retracting spring 17, the opposite end of which is flexed around so as to lie beneath the end of the shank 9, and bear against the lower wall of the recess in the extension so that when the movable jaw is operated away from the stationary jaw, the spring will slide over the lower wall and will normally exert pressure to throw the movable jaw toward the stationary jaw so that the movable jaw will always be held in operative engagement with a pipe or other object to which the wrench is to be applied. The shoulders 12 on the shank 9 are curved and are adapted to engage the outer edges of the extension 14 thus limiting the outward movement of the jaw.

On the inner edge of the extension 14 of the block 13 is formed a stub shaft 18 having a reduced outer end 19 which is threaded and on said threaded end is screwed a guide block 20 having formed therein a rectangular passage to receive the shank 3 of the inner jaw upon which it is slidably mounted.

On the stub shaft 18 is revolubly mounted a worm 21, the threads of which are adapted to operatively engage the worm gear teeth 4 on the shank 3 of the inner jaw whereby when said worm is revolved in one direction or the other, the coaction of the threads thereon with the teeth on the shank 3 will move the jaw carrying block inwardly or outwardly, thereby adjusting the outer jaw longitudinally with respect to the inner jaw, thus opening said jaws to the proper distance to engage the pipe or object to which the wrench is to be applied. The threads

of the worm 21 are preferably milled on their outer surface to facilitate the operation of the worm.

Pivottally connected at one end to the inner jaw shank 3 and at their outer ends to the outer jaw shank 9 are jaw opening bars 22 which, when the outer jaw is moved outwardly in line with the inner jaw, will cause said outer jaw to be simultaneously and automatically moved laterally away from the inner stationary jaw, thus increasing the size of the space between the jaws and providing for the more rapid adjustment of the same. When the outer jaw is moved inwardly by means of the operating mechanism hereinbefore described, the bars 22 will act in a reverse direction to draw the outer jaw inwardly into close engagement with the side of the inner jaw. The bars 22 are preferably of sufficient length and are provided with a plurality of pivot holes to provide for their connection with the movable jaw when in a laterally adjusted position, on the jaw carrying block 13.

A wrench constructed as herein shown and described will be simple, strong and durable in construction, efficient and reliable in operation and combines in its construction, the idea of an alligator and a monkey wrench.

It will be noticed that when the links 22 are removed the spring 17 will retract the jaw 7.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent is:

1. In a wrench of the character described, a stationary inner jaw member having a shank, a jaw carrying block slidably mounted on said shank, an outer jaw member having a shank pivottally mounted in said block, a spring to force said outer jaw into operative engagement with the object to which the wrench is applied, and means whereby said outer jaw is adjusted laterally on the block with respect to the inner jaw.

2. In a wrench of the character described, a stationary outer jaw having a shank, a series of worm gear teeth arranged on one edge of said shank, a jaw carrying block slidably mounted on the latter, an outer jaw having a shank pivottally mounted in said block, a worm arranged on said block and

adapted to operatively engage the worm gear teeth on said stationary jaw shank whereby said outer jaw is adjusted longitudinally with respect to the inner jaw, and means to adjust the outer jaw laterally on the block.

3. In a wrench of the character described, an inner jaw having a shank, a handle on the inner end of said shank, a jaw carrying block slidably mounted on said inner jaw shank, a spring retracted outer jaw shank, an outer jaw formed on said shank to co-act with said inner jaw, means to adjust said outer jaw longitudinally on the inner jaw shank, means whereby when said outer jaw is adjusted longitudinally, said jaw will be simultaneously moved laterally with respect to the inner jaw, and means to adjust the outer jaw laterally on the block.

4. In a wrench, an inner jaw having a shank, a jaw carrying block slidably mounted on said shank, an outer jaw having a shank pivottally mounted in said block, a spring to normally retract said outer jaw and to hold the same in engagement with the object to which the wrench is applied, means to adjust said outer jaw longitudinally with respect to the inner jaw, and outer jaw operating links pivottally connected at one end to the inner jaw shank and at their outer ends to the outer jaw shank whereby when said outer jaw is adjusted longitudinally, said jaw will also be automatically and simultaneously adjusted laterally with respect to the inner jaw.

5. In a wrench of the character described, an inner stationary jaw having a shank provided with worm gear teeth, a jaw carrying block slidably mounted on said inner jaw shank and having formed thereon a laterally projecting extension provided with a recess and a series of pivot holes, an outer jaw having a shank provided with a reduced inner end adapted to engage the recess in said extension, a pivot bolt adapted to be engaged with said series of pivot holes whereby said shank is adjustably pivoted in said extension, a stub shaft on said block, a guide block slidably mounted on the shank of the inner jaw and having its outer end detachably engaged with the end of said stub shaft and a worm revolubly mounted on said stub shaft, said worm having milled threads adapted to engage the teeth on said inner jaw shank whereby said outer jaw shank and jaw are adjusted longitudinally to open and close the jaws.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN R. MORRIS.

Witnesses:

M. C. KEENAN,
ALLIE TINKER.