F. J. EBLE.

WRENCH.

APPLICATION FILED MAY 29, 1916.

1,215,640. Patented Feb. 13, 1917.

FIG. 1

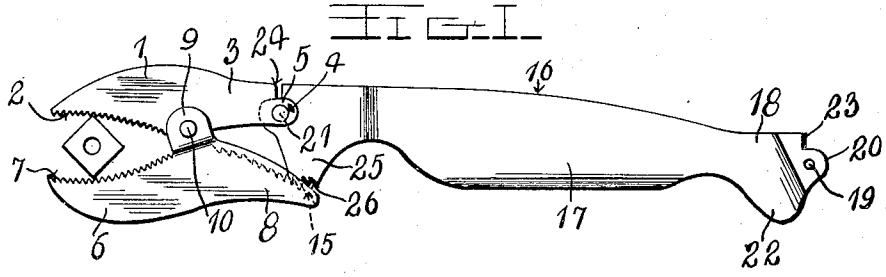


FIG. 2

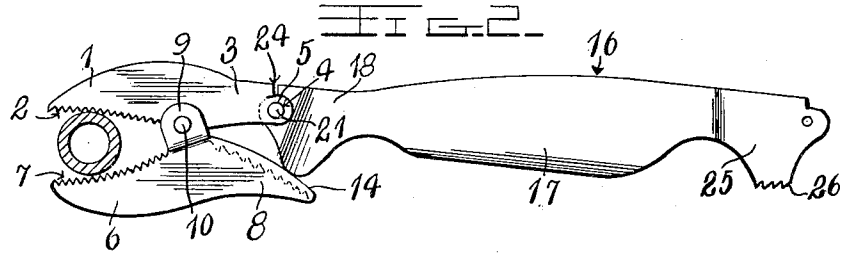


FIG. 3

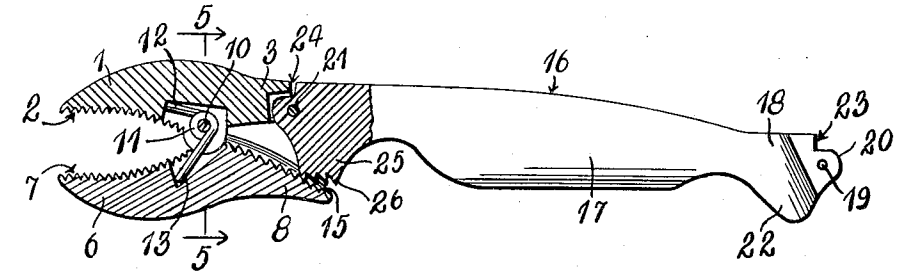


FIG. 4

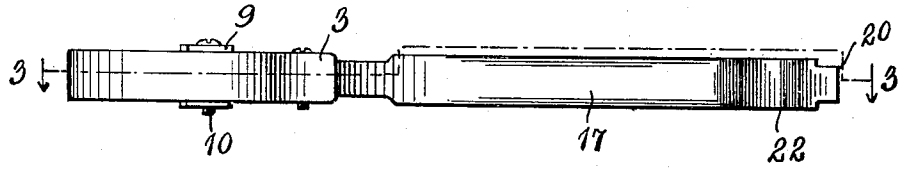
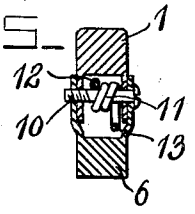


FIG. 5



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WRENCH.

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Application filed May 29, 1916. Serial No. 100,535.

To all whom it may concern:

Be it known that I, FRANK JOHN EBLE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in 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 new and useful improvements in wrenches, and the primary object of the invention is to provide a wrench which is adapted for use as a pipe wrench, having automatically adjustable clenching jaws, and also which is adapted upon the reversal of its handle, to have its jaws locked in various adjusted positions.

Another object of this invention is to provide a wrench of this character in which the handle proper in hinged to the shank of a relatively fixed jaw, and coacting means to operatively connect the handle and the movable jaw disposed adjacent this connection, whereby the jaws are forced to open more widely or grip an object more firmly according to the direction in which the handle is pushed or pulled.

A further object is to provide a device of this character which is simple and durable in construction, inexpensive to manufacture, and one which will be very efficient in operation.

With these and other objects in view, my invention consists of the novel features of construction, combination and arrangement of parts which will be herein referred to and more particularly pointed out in the specification and claim.

In the accompanying drawings

Figure 1 is a side elevation of my improved wrench;

Fig. 2 is a similar view showing the handle reversed so that the wrench is used as an automatic pipe wrench;

Fig. 3 is a vertical section taken on the line 3—3 of Fig. 4, showing the handle of the wrench in elevation;

Fig. 4 is a bottom view of the wrench;

Fig. 5 is a transverse section taken on the line 5—5 of Fig. 3.

In describing my invention I shall refer to the drawings in which similar reference characters designate corresponding parts throughout the several views and in which the numeral 1 designates the relatively fixed jaw of my wrench, which is provided with an inner gripping face 2, and has projecting therefrom a short shank 3. This short shank 3 is provided with projecting ears 4 apertured as shown at 5 for a purpose to be hereinafter more fully described.

The movable jaw 6 of this wrench has an inner gripping face 7, and a long shank 8, and said jaw is pivotally connected with the relatively fixed jaw 1 as shown at 9. This pivotal connection is accomplished by means of a removable screw 10, which projects through the adjacent coacting portions of these jaws, and the screw 10 is surrounded by a coil spring 11 which has its projecting arms 12 and 13 disposed adjacent the inner faces 2 and 7 of the relatively fixed and movable jaws of the wrench. By this arrangement the jaws will be held under a constant outward pressure for a purpose to be hereinafter more fully stated.

The long shank 8 of the movable jaw 6 has its inner face 14 inclined, and is slightly curved in such a direction that the same diverges outwardly from the opposite inner face of the short shank 3 of the relatively fixed jaw. This inclined face 14 has disposed therein a countersunk ratchet 15 which is disposed between the opposite sides of the same and extends substantially its entire length.

The operating handle 16 of this wrench is formed of a single piece, and has formed intermediate its ends a rounded hand grip 17. One end 18 of the handle is constructed with a laterally extending opening 19 therethrough and has its outer extremity rounded as shown at 20 so that the same is adapted to be disposed between the ears 4 which project from the end of the short shank of the relatively fixed jaw of this wrench, and the opening 19 in the end of said handle is disposed in alinement with the openings 5 through said ears, whereby a removable pivot member 21 may be positioned therethrough, to pivotally connect the handle with said rigid jaw. The end 18 of the handle is provided with an outwardly curved rounded projection 22 which when the said end is pivotally engaged with the end of the shank 3, is adapted to engage the inclined inner face 14 of the long shank 8.

The end 18 of the handle 16 is provided on the opposite side of the projection 22 with a shoulder 23 which when this handle

is in operative position is adapted to coact with a shoulder 24 on the outer edge of the shank 3, whereby the movement of the handle is limited in one direction, that is, away from the relatively fixed jaw 1.

The opposite end of the handle 16 is provided with means similar to the pivotal connection means between the end 18 and the end of the short shank, whereby the same upon removal of the end 18 from out of engagement with said shank is adapted to be placed therein and to be pivotally connected with the same in exactly the same manner. The only difference is that this end is provided with a projecting portion 25 which has formed on its outer surface a pawl 26 which when this end of the handle is brought into engagement with the short shank is adapted to engage the ratchet 14 in the inner inclined face of the long shank 8. Owing to the coil spring 11 exerting a constant outward pressure between the jaws of this wrench, the ratchet will be held thereby in constant engagement with the pawl 26 and owing to the construction of these parts, the handle 16 is adapted to be moved inwardly, whereupon the pawl 26 will slide along and up the ratchet 14, to close the space between the relatively fixed and movable jaw, by moving the jaw 6. Upon releasing the long shank of the movable jaw from engagement with the pawl, the said jaws may be swung back to their original position.

When it is desired to use this wrench as an automatically controlled pipe wrench, the handle 18 is connected with the end of the shank 3 of the relatively fixed jaw, whereupon it will be obvious that normally the jaws of this wrench will be held in open position, but upon the engagement of these jaws with a pipe or other object, when the handle 16 is operated the projection 22 will ride up the inclined inner face 14 of the shank 8 whereby the movable jaw will be tightly engaged with the pipe and a firm engagement between the wrench and pipe is insured. Upon backward movement of the handle 16 the projection 22 will slide down along the inclined face 14 and remove the pressure from the movable jaw, whereupon the tension of the coil spring will move this jaw outward to its original position.

The operation of this wrench when the other end of the same is engaged with the end of the short shank 3 of the relatively fixed jaw has been hereinbefore described, and it is obvious that when it is desired to use this wrench in a manner where it is desired to hold the jaws in fixed locked position, the use of this end is particularly applicable. The sliding movement of the pawl 26 along the ratchet allows various adjustments to be obtained for the jaws of the wrench and also locks the jaws in any of said positions. This type of wrench is particularly applicable in removing bolts, etc., from places that are ordinarily inaccessible, as the handle of this wrench may be held at an angle and when the jaws of the same are positioned around the head of a bolt, the movement of the handle in one direction will cause the pawl to slide along the ratchet and thereby firmly lock the jaws in position and prevent their casual disengagement.

From the foregoing description of the construction and operation of this improved wrench, the manner of applying the same to use and the operation thereof will be readily understood, and it will be seen that I have provided a simple efficient means for carrying out the objects of this invention.

I claim:

A device of the class described comprising a relatively fixed jaw, a movable jaw pivoted thereto, a short shank on said relatively fixed jaw, a long shank on said movable jaw having an inclined inner face diverging outwardly from the opposite face of the short shank, a countersunk ratchet disposed in said inclined face and positioned between the sides of the same, a handle pivoted to the end of said short shank, coacting shoulders between said handle and shank to limit the movement of the handle in one direction, a projection on said handle, a pawl extending therefrom and engaging the ratchet in said long shank of the movable jaw, said pawl being adapted for various adjustments therewith to vary the space between the jaws, and a spring on the pivot between said jaws adapted to hold the ratchet in engagement with the pawl.

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

FRANK JOHN EBLE.

Witnesses:
ALBAN VEIT,
PAUL W. ZOLL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."