J. A. ANDERSON.

ADJUSTABLE HEAD WRENCH.

APPLICATION FILED DEC. 30, 1916.

1,242,097. Patented Oct. 2, 1917.

Fig. 1.

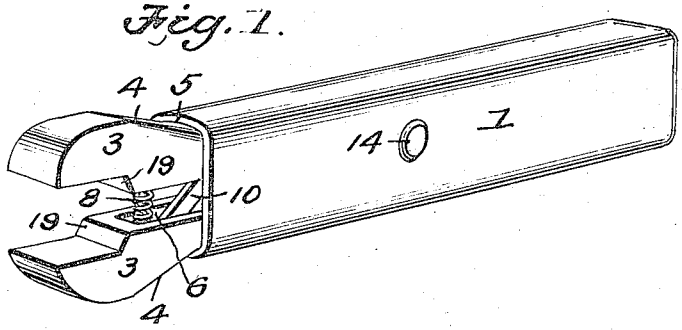


Fig. 2.

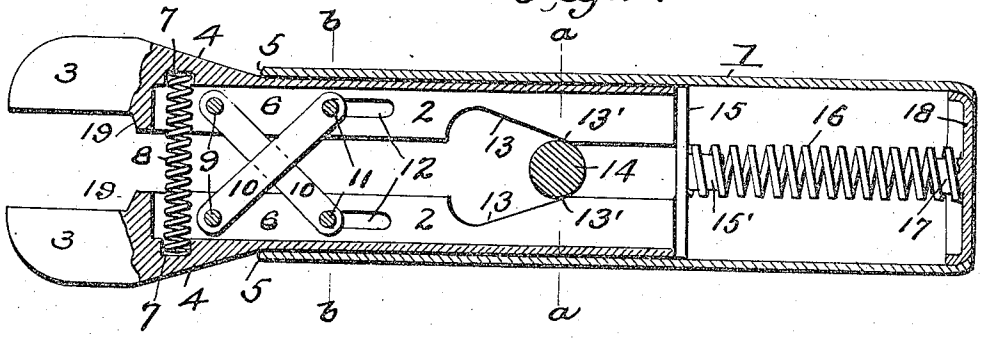


Fig. 3.

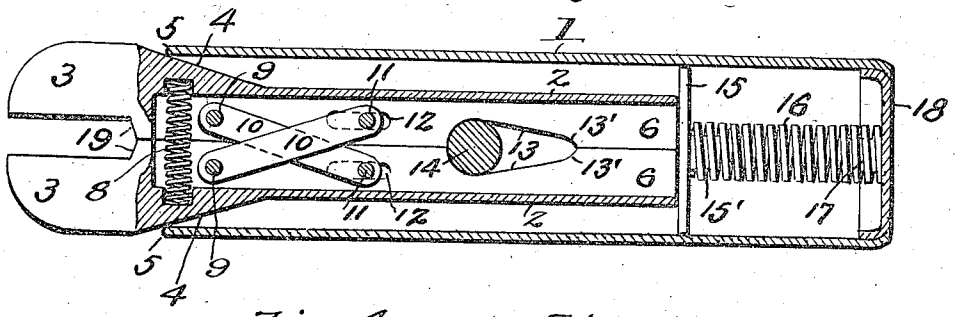


Fig. 4.

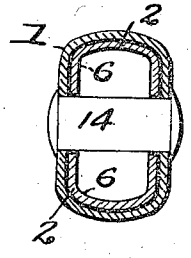
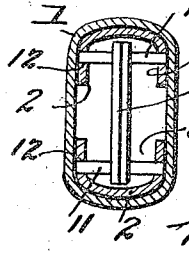


Fig. 5.



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ADJUSTABLE-HEAD WRENCH.

1,242,097. Specification of Letters Patent. Patented Oct. 2, 1917.

Application filed December 30, 1916. Serial No. 139,844.

To all whom it may concern:

Be it known that I, JOHN A. ANDERSON, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Adjustable-Head Wrenches, of which the following is a specification.

The invention relates to wrenches commonly known in the trade as "open-socket wrenches," and the object of the invention is to provide an adjustable open-socket wrench which shall be applicable to various sizes of nuts or bolt heads without requiring special adjustment other than the fiting of the socket end or head of the wrench over the head of the bolt or the nut, as the case may be; this is to say, without requiring special adjustments as is common with "monkey" wrenches or ratchet wrenches now on the market.

The invention comprises a handle member having arms held therein and having their outer ends terminating in jaws providing gripping surfaces to engage a nut or the head of a bolt, the arrangement of the arms and the gripping surfaces of the head being such that the head of the wrench may be readily adjusted over a nut or a bolt head so that the wrench may be used in the same manner as with ordinary ratchet wrenches now in common use.

The invention further comprises certain details of construction, combinations, and arrangements of parts as will be hereinafter fully described and then pointed out in the claims.

In the drawings, illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a perspective view of my improved wrench. Fig. 2 is a longitudinal section of the same, parts of the wrench being shown in elevation. Fig. 3 is a similar view showing the wrench in its extreme closed position. Fig. 4 is a transverse section drawn on the line *a*—*a* of Fig. 2. Fig. 5 is a similar view drawn on the line *b*—*b* of Fig. 2.

In the drawings, 1 designates the handle of the wrench, preferably made of Shelby tubing, and which is flattened upon diametrically opposite sides to provide channel-ways for arms 2. The outer ends of the arms terminate in jaws 3, forming the head of the wrench, and are provided upon their outer faces with beveled surfaces 4, which are designed to engage the outer ends 5 of the handle 1, whereby to cause the jaws 3 to approach each other when the handle is forced over the beveled surfaces 4, as will be hereinafter further described. The arms 2 are formed with recesses 6 (Figs. 4 and 5), and their outer ends, in rear of the jaws 3 of the said arms, are formed with sockets 7 in which are held the opposite ends of an expansion spring 8, which serves to hold the outer ends of the jaws apart.

Immediately in rear of the spring 8, the arms 2 are provided with pintles 9, upon each of which is mounted one end of paralleling links 10 having their opposite ends mounted upon pintles 11, operating in slots 12 formed in the sides of the arms 2.

Adjacent to the inner ends of the arms 2, the side members thereof are formed with wedge-shaped recesses 13, which are designed for engagement with a pin 14 carried by the handle member 1, and having its ends riveted or otherwise secured to said handle.

Slidably held within the inner end of the handle 1 is a plate or disk 15 having a stud 15′ extending therefrom over which fits one end of a helical spring 16, the opposite end of which is held upon a stud 17 carried by a plate 18, fastened in the outer end of the handle 1 and forming a closure for the outer end of said handle. The spring 16 serves to push the jaws outwardly through the open end of the handle and to assist the spring 8 in normally holding the jaws 3 of the head of the wrench in an open position, as indicated in Figs. 1 and 2.

In the operation of the wrench, one has only to grasp the handle 1, and then adjust the jaws 3 of the head of the wrench over the nut or bolt to be operated upon, then by pushing upon the handle 1 so as to thrust the inner ends 19, of the jaws 3 against the nut or bolt, the outer surfaces 5 of the handle will be caused to ride upon the beveled surfaces 4, and thus force the jaws toward each other and the gripping surfaces into engagement with the object to be operated upon, it being understood that the greater longitudinal pressure there is applied to the handle member, the tighter the jaws 3 of the head of the wrench will be caused to engage the object, so that, when a "swinging" movement, as it were, is applied to the wrench, the object whether it be a nut or a bolt will be caused to rotate in one direc-

tion or another. It will be further understood that when longitudinal pressure upon the handle is released, the springs 8 and 16 will force the arms 2 outwardly, hence causing the jaws to open, so that, by again forcing the outer ends of the handle 1 over the beveled surfaces 4 of the jaws, the latter will be caused to move toward each other and thus grip the nut or bolt, thus adapting the wrench for use as with ratchet wrenches now commonly employed.

It will thus be seen that I provide an exceedingly simple, cheap, and highly efficient wrench of the kind described, which will not only be found particularly advantageous over the present construction of "open-socket wrenches", since it is capable of adjustment to fit various sizes of nuts and bolt heads, but also because of the fact that the wrench may be used in the same manner as a ratchet wrench, since it is only necessary to release the longitudinal pressure or pushing movement upon the handle 1 in order to open the jaws of the wrench, and by then applying longitudinal pressure upon the handle 1, the jaws 3 will be forced together and into engagement with the surface to be operated upon.

It will be noted that the wedge-shaped recesses 13 are so beveled as to provide shoulders 13′ at their inner ends, which are designed for engagement with the pin 14, when longitudinal pressure upon the handle is released, to thus prevent the arms 2 from being disengaged from the handle member, hence locking the arms 6 within the handle member. It will also be understood that by the employment of the links 10, the arms 2 are moved in parallel relation to each other when the outer sections 5 of the handle member are forced over the beveled surfaces 4 of the jaws 3.

What I claim is:—

1. A wrench, comprising a hollow handle, jaw members disposed within the handle upon opposite sides of a medial line and in the same plane, and having both a limited longitudinal movement and a transverse movement toward and away from the said medial line, and crossed links arranged within the handle and between the jaw members and pivotally connected at corresponding ends to said jaw members, and having longitudinal sliding connection at their opposite ends with the said jaw members.

2. In a wrench, a handle section, arms mounted for limited movement therein having their outer ends terminating in jaws, said arms having beveled sections adapted for engagement by the outer end of said handle, a spring arranged between the outer ends of said arms, links connecting said arms, and a spring arranged in the inner end of said handle for normally holding said arms outwardly within the handle whereby to normally hold said jaws in an open position.

3. In a wrench, a hollow handle, arms mounted for limited movement within said handle having their outer ends terminating in jaws, a spring engaging the outer ends of said arms for normally holding said jaws in an open position, links connecting said arms for causing them to move in unison, said arms having wedge-shaped recesses formed in the sides thereof, a pin for engagement by said wedge-shaped recesses, and a spring arranged in the inner end of said handle member, as and for the purpose specified.

4. A wrench, comprising a handle, jaw members having a limited longitudinal sliding movement within the handle, means co-operating with the jaw members to insure their maintaining a parallel relation throughout their length at every stage of their adjustment, means between the jaw members for yieldably pressing them apart laterally, other means between the jaw members and the handle to yieldably press them apart longitudinally, and coöperating means between the jaw members and handle to close the jaws when the jaw members and handle are telescoped.

5. A wrench, comprising a handle, jaw members longitudinally slidable within the handle and having matched wedge-shaped recesses in their opposing faces which are rearwardly converged and formed at their inner rear ends with shoulders, a pin carried by the handle and disposed to operate in the wedge-shaped recesses and engage the inner rear shoulders thereof, coöperating means between the jaw members to maintain them in parallel relation at all stages of their adjustment, and yieldable means normally tending to press the jaw members and handle apart longitudinally.

In testimony whereof I have hereunto set my hand this 7th day of October, A. D. 1916.

JOHN A. ANDERSON.

Witnesses:
MAE TESKEY,
J. ARTHUR PEASE.

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