W. A. BRYANT.

WRENCH.

APPLICATION FILED MAR. 21, 1919.

1,317,546. Patented Sept. 30, 1919.

Fig. 1.

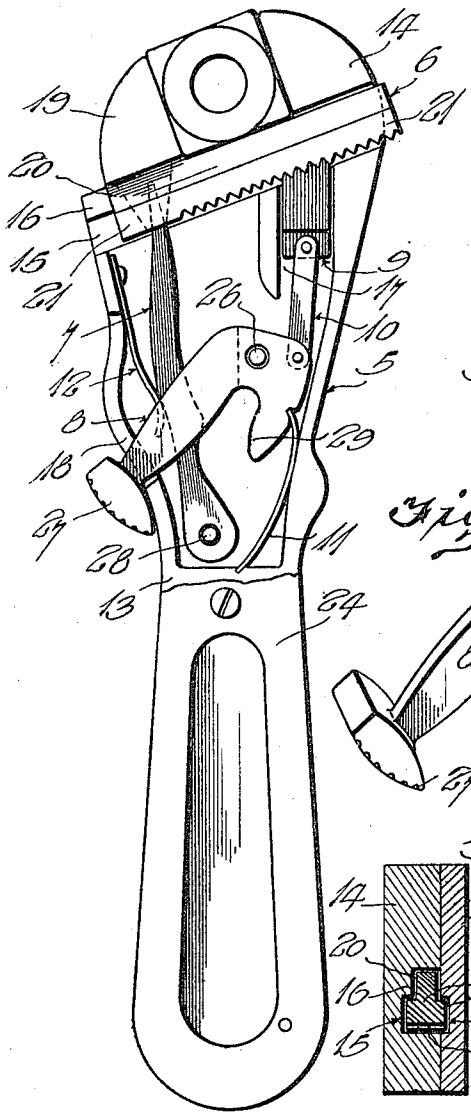


Fig. 2.

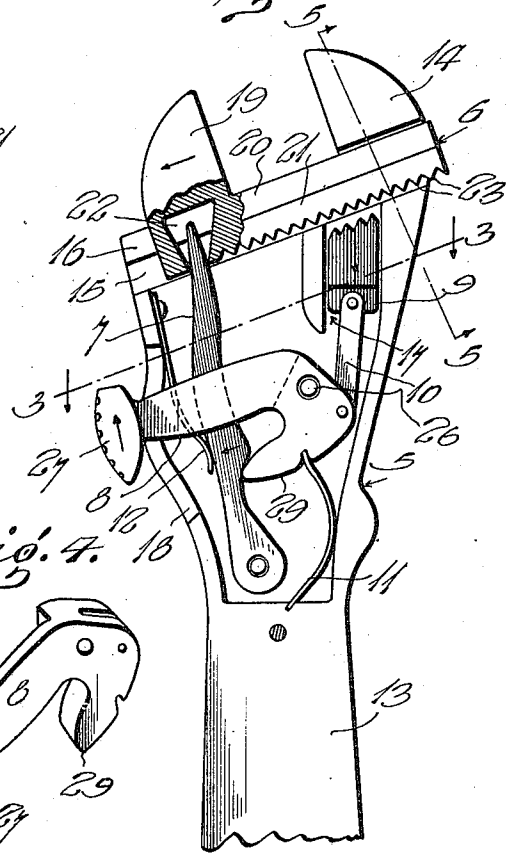


Fig. 4.

Fig. 5.

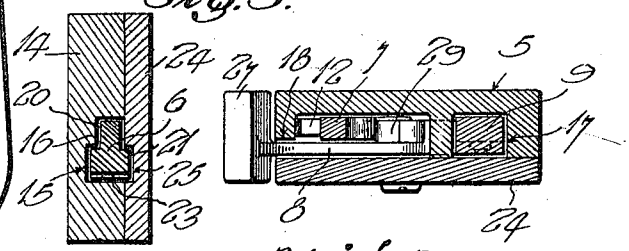


Fig. 3.

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WRENCH.

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To all whom it may concern:

Be it known that I, WILLIAM A. BRYANT, a citizen of the United States, residing at Wetumpka, in the county of Elmore and State of Alabama, 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 wrenches, and it relates more specifically to an improved self-adjusting wrench.

One object of this invention is to provide a wrench which automatically adjusts itself while in any position, to conform to and grip a nut or bolt-head of any size, within its range of adjustment.

Another object is to provide a wrench of this character which automatically locks its jaws in their different adjustments as soon as a nut or bolt has been gripped thereby.

Another object is to provide a device of this character in which the unlocking and opening operations are effected by a single stroke of a lever or manipulative member independently of spring action or gravity.

Other objects and advantages may become apparent to persons who read the following details of description in connection with the accompanying drawings in which—

Figure 1 is a side elevation of my improved wrench, a portion of the cover plate being broken away to render the internal working elements visible.

Fig. 2 is a view similar to Fig. 1, except that other parts are broken away and the working parts are shown in a different position relative to one another.

Fig. 3 is a transverse sectional view along the line 3—3 of Fig. 2.

Fig. 4 is a perspective view of the actuating lever detached.

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 2.

Referring to these drawings in detail, in which similar reference characters correspond with similar parts throughout the several views, this improved wrench consists broadly of a hollow body or handle-carrying member 5, a jaw-carrying member 6, a jaw-engaging lever 7, an actuating lever 8, a locking member or slide-bolt 9, a link 10, and springs 11 and 12.

The member 5 is formed with a handle 13, a jaw 14, a groove 15, a rib 16, a groove 17, and a lateral opening 18.

The member 6 comprises a jaw 19, grooves 20, ribs 21, a cavity or recess 22 and a series of teeth 23. A cover 24 may be provided, and this cover may extend over the jaws 14 and 19 and be provided with a groove 25 to correspond with the groove 15 and receive one of the ribs 21 of the member 6. It will be seen, therefore, that the grooves 15 and 25 constitute a guide in which the ribs 21 are slidable longitudinally. Moreover, it will be seen that the movable jaw 19 and fixed jaw 14 may embrace a nut or other object therebetween, as illustrated in Fig. 1, and that the slide-bolt has teeth corresponding with the teeth 23 and are engageable therewith to hold the jaw carrier 6 in any adjusted position. It should be understood, however, that the link 10 connects the slide-bolt 9 with the lever 8, the latter being pivotally connected at 26 to the body 5, so that the swinging of the lever 8 on its pivot withdraws the slide-bolt 9 from its engagement with the carrier 6, and also moves the slide-bolt into engagement with the teeth 23, according to the direction of movement of the lever 8. The lever 8 is provided with a manipulative element or finger-piece 27 by means of which it may be rocked on its pivot through the opening 18, and the spring 11 returns the lever 8 to its jaw-locking position, shown in Fig. 1, this spring also yieldingly holding the lever 8 in said jaw-locking position.

The lever 7 has its free end extending into the cavity 22 of the jaw-carrying member 6, and the spring 12 tends constantly to move the jaw 19 toward the jaw 14, so that when the carrier 6 is released from its engagement with the locking bolt 9, the elements 7 and 12 force the jaw 19 against the jaw 14 or against whatever object is interposed between the jaws 19 and 14. The lever 7 is pivotally connected at 28 to the body 5.

The lever 8 is provided with an arm 29 which moves into contact with the lever 7 when the lever 8 is moved toward the jaw 19. It will be seen, therefore, that the action of the lever 8 upon the lever 7 causes the jaw-carrier 6 to move its jaw away from the fixed jaw 14.

It will be seen that the channel prevents lateral movement of the slide-bolt 9, while allowing free longitudinal movement thereof.

In operating this device, the lever 8 is swung forward or toward the jaw 9 to its fullest extent, and this opens the wrench or separates its jaws. The article to be seized and turned by the jaws is now placed therebetween, and the lever 8 is released, thereby releasing the lever 7 and allowing the spring 12 to coact with the lever 7 in closing the jaws of the wrench. When the jaws are closed upon the object to be turned, the lever 7 ceases to move, but the lever 8 continues its movement until the bolt 9 engages with the teeth of the carrier 6. It will be seen that the spring 11 coacts with the lever 8 and link 10 for retaining the bolt 9 in engagement with the teeth of the carrier, and therefore, that the jaws 14 and 19 are now locked in their fixed relation to one another.

Although I have described this embodiment of my invention very specifically, it is not intended to limit this invention to these exact details of construction and arrangement of parts, but I am entitled to make changes within the scope of the inventive idea disclosed in the foregoing description and following claims.

What I claim as my invention is:

1. In a wrench, a body comprising a jaw and a jaw-guide, a jaw-carrier mounted for movement along said jaw-guide so as to move its jaw toward and from the first said jaw, and automatic means to move the jaw of said jaw-carrier toward the first said jaw, said means also being automatically operatable to lock the said jaw-carrier in different positions with relation to the first said jaw.

2. In a device of the character described, a body comprising a jaw, a jaw-guide and a bolt-guide, a jaw-carrier mounted for movement along said jaw-guide toward and from the said jaw, a slide-bolt mounted for movement along the said bolt-guide and being engageable with the said jaw-carrier to lock the latter, a lever engaged with said jaw-carrier, a spring mounted to coöperate with said lever for moving the said jaw-carrier toward the said jaw, an actuating lever mounted on said body and being cooperative with the first said lever to move the jaw of said jaw-carrier away from the first said jaw, and a link connecting said slide-bolt to said actuating lever, whereby the operation of said actuating lever effects the locking and unlocking of the movable jaw and also controls movements of the jaws toward and from one another.

3. The combination of a body comprising a jaw, a jaw-guide and a bolt-guide, a jaw-carrier mounted for movement along said jaw-guide, a slide-bolt mounted for movement along said bolt-guide, a lever connected to said body and to said jaw-carrier, a spring in position to cause said lever to move said jaw-carrier in one direction, an actuating lever connected to said body and being operatable to cause the first said lever to move said jaw-carrier in the opposite direction, a link connecting said slide bolt to the actuating lever, and a spring in position to coact with said actuating lever and link to hold said slide-bolt yieldingly in engagement with said jaw-carrier.

In testimony whereof I have hereunto set my hand.

WILLIAM A. BRYANT.

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