No. 803,790. PATENTED NOV. 7, 1905.

W. J. RYAN.

WRENCH.

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Fig. 1.

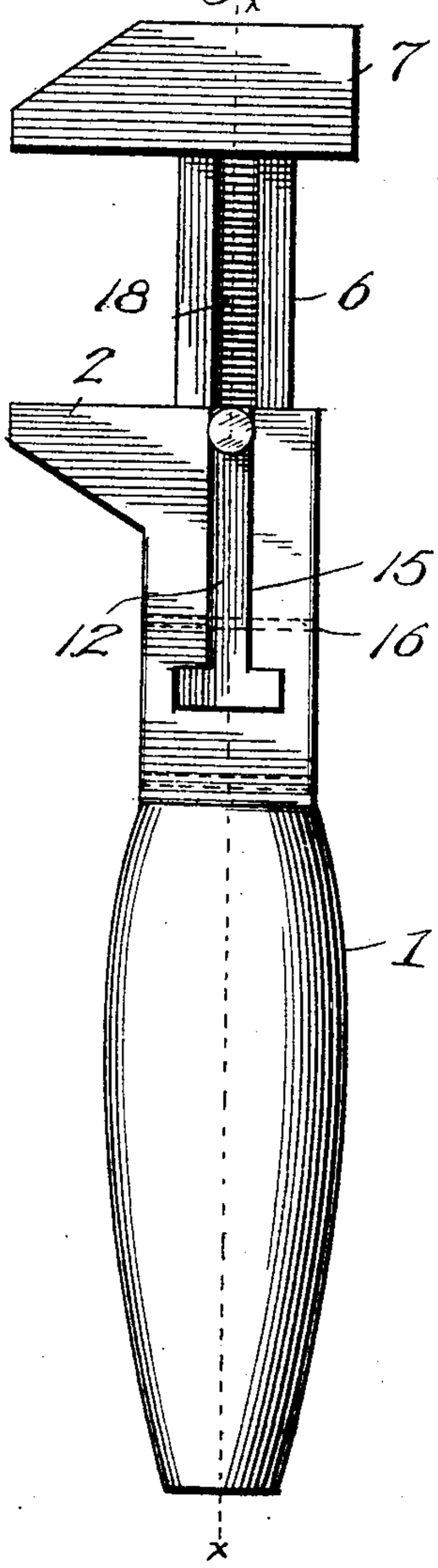


Fig. 3.

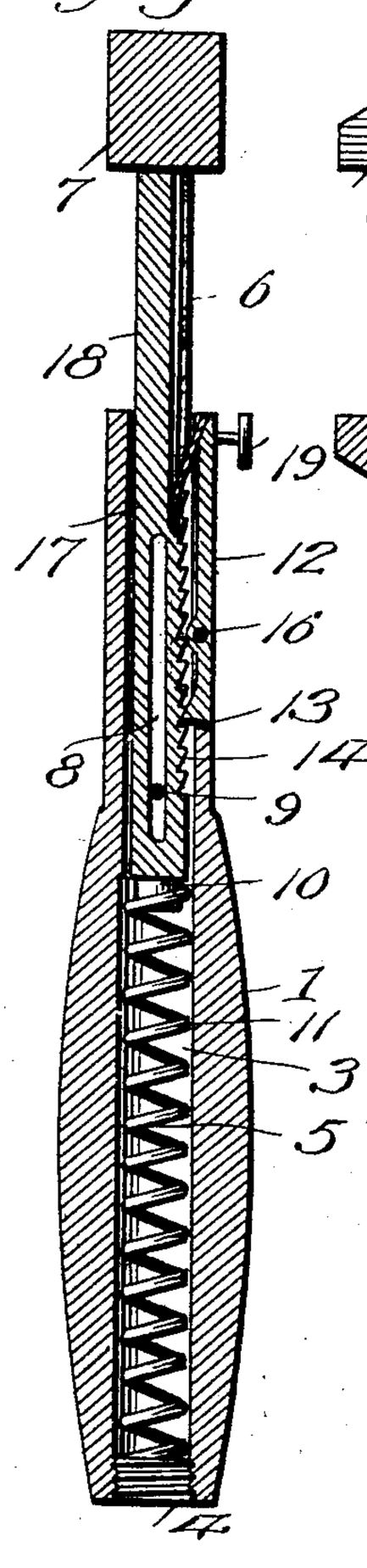


Fig. 2.

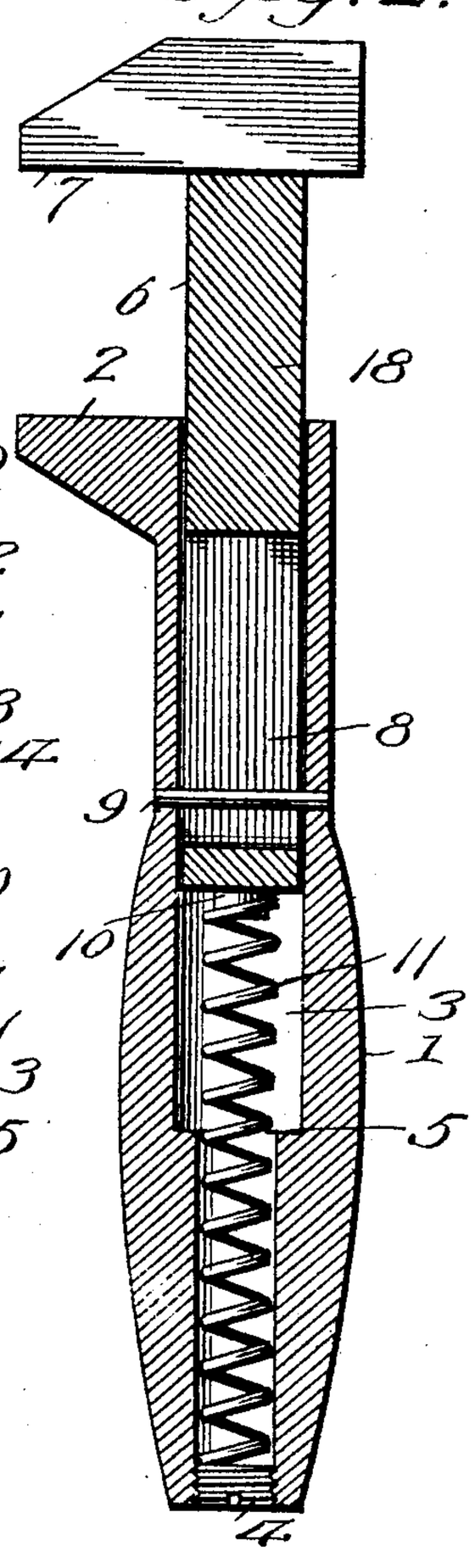
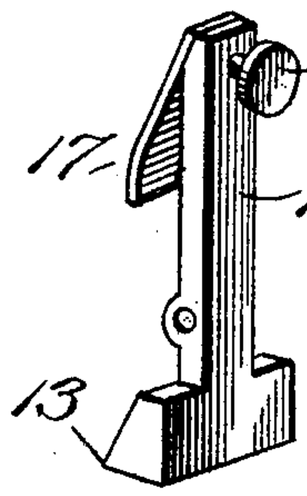


Fig. 4.



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WRENCH.

No. 803,790. Specification of Letters Patent. Patented Nov. 7, 1905.

Application filed August 6, 1903. Renewed April 11, 1905. Serial No. 255,011.

To all whom it may concern:

Be it known that I, WILLIAM J. RYAN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Wrenches, of which the following is a specification.

My invention has relation to wrenches; and its primary object is to provide a new and useful device of this character adapted to have its movable jaw automatically projected to normally retain the same in advance of the stationary jaw, whereby the movable jaw may be easily and quickly caused to approach the stationary jaw to effect an accurate adjustment.

Further objects of the invention will appear as the nature, novelty, and advantage thereof are more fully understood from the following description and accompanying drawings.

The invention consists of the construction, combination, and arrangement of parts hereinafter fully described, claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a wrench constructed in accordance with my invention. Fig. 2 is a vertical longitudinal sectional view thereof. Fig. 3 is a vertical sectional view on the line *x x* of Fig. 1. Fig. 4 is a detail perspective view of the dog.

Referring to the drawings by reference-numerals, 1 designates a wrench-handle having its upper portion constructed to provide a rigid jaw 2 and its lower portion constructed to provide a hand-grip. This handle is provided throughout its entire length with a longitudinal opening 3, the greater portion of which is rectangular in contour, while its lesser portion is cylindrical and closed by means of a cap 4. The intersection of the rectangular and cylindrical portions of the opening provides a shoulder 5, the purpose of which will be hereinafter pointed out.

Mounted within the opening 3 to have a reciprocating movement is a shank 6, carrying on its outer end a movable jaw 7, which is adapted to be automatically projected to normally retain the movable jaw in advance of the rigid jaw, from which position it may be caused to approach the rigid jaw to effect a quick and accurate adjustment. The shank is rectangular to correspond to the contour of the opening 3 to prevent the shank having any but a reciprocating movement, and its lower end is provided with a longitudinal slot 8, through which projects a pin 9, carried by the handle and adapted to limit the extreme outward movement of the jaw, the inward movement of which is limited by the shoulder 5. A projection 10 is formed on the lower end of the shank and is adapted to be received by one end of a spring 11, which is mounted in the cylindrical portion of the opening 3 between the lower end of the shank and the cap 4 to normally retain the movable jaw in advance of the stationary jaw. This spring may be extracted and replaced by a new one when worn by the removal of the cap 4, which may be easily accomplished by means of a screw-driver.

To retain the jaw 7 in its adjusted position with relation to the jaw 2, I provide an inverted-T-shaped dog 12, which has the inner face of its head tapered to provide a lip 13, adapted to engage one of a series of serrations 14, carried by the shank. An inverted-T-shaped slot 15 is formed in the upper end of the handle and is adapted to have the dog 12 fulcrumed therein by means of a pin 16. The dog has secured to its upper beveled end a leaf-spring 17, the opposite end of which is curved and adapted to engage the inner wall of a groove 18 in the shank to exert a tension upon the dog in order that the lip 13 will be resiliently held in the path of the serrations 14. The dog is provided with a button 19, by means of which it may be tilted upon its fulcrum.

The operation of the wrench may be explained in the following manner: The lip 13 may be moved from engagement with the serrations to permit the spring 11 to project the movable jaw 7, from which position it may be caused to approach the rigid jaw 2 to grasp a nut therebetween. The lip 13 of the dog 12 will alternately engage the serrations 14 to retain the jaw 7 in its adjusted position with relation to the jaw 2.

It is apparent from the above description, taken in connection with the accompanying drawings, that I provide a wrench in which the adjustment is simple, quick, and accurate and that the wrench is cheap, durable, and efficient.

Having thus described the invention, what is claimed as new is—

1. In a wrench, the combination with a handle provided with an opening having one end closed by a removable cap, said handle having one end thereof formed into a rigid

jaw, said opening having one of its ends reduced to provide a shoulder, of a shank provided with a groove and slidably mounted within the handle, said shank being provided with a movable jaw, means mounted in the reduced end of the opening to project the shank to space the jaws, the inward movement of the movable jaw being limited by the engagement of the shoulder by the shank, a dog fulcrumed upon the handle and adapted to engage the shank to retain the movable jaw in its adjusted position, and a spring carried by the dog and adapted to engage the inner wall of the groove to retain the dog in engagement with the shank.

2. In a wrench, the combination with a handle provided with an opening and having one end thereof formed into a rigid jaw, said opening having one end thereof reduced to provide a shoulder, of a shank provided with a longitudinal slot, a groove, a movable jaw and a projection on its lower end, a spring mounted in the reduced portion of the opening and adapted to engage the projection to normally retain the shank projected to space the jaws, a pin carried by the handle and adapted to pass through the slot to limit the extreme outward movement of the movable jaw, the inward movement of the jaw being limited by the engagement of the shoulder by the shank, a dog adapted to engage the shank to retain the movable jaw in its adjusted position, and a spring carried by the dog and adapted to engage the inner wall of the groove to retain the dog in engagement with the shank.

3. In a wrench, the combination with a handle provided with a longitudinal opening and having one end thereof formed into a rigid jaw, of a shank slidably mounted in said opening, and provided with a movable jaw and a longitudinal slot and a groove, said shank being also provided with serrations, a pin passing through the slot to limit the outward movement of the shank, a spring mounted in the opening to normally retain the shank projected to space the jaws, an inverted-T-shaped dog fulcrumed in a similar slot in the handle and having the head thereof provided with a lip to engage one of the serrations, and a leaf-spring secured to the dog and adapted to engage the inner wall of the groove.

4. In a wrench, the combination with a handle provided with an opening and having one end thereof formed into a rigid jaw, said opening having one end thereof reduced to provide a shoulder, of a shank provided with a longitudinal slot, serrations, a groove, a movable jaw and a projection on its lower end, a spring mounted in the reduced portion of the opening and adapted to engage the projection to normally retain the shank projected to space the jaws, a pin carried by the handle and adapted to pass through the slot to limit the extreme outward movement of the movable jaw, the inward movement of the jaw being limited by the engagement of the shoulder by the shank, an inverted-T-shaped dog fulcrumed in a similar slot in the handle and having the head thereof provided with a lip to engage one of the serrations, and a leaf-spring secured to the dog and adapted to engage the inner wall of the groove.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM J. RYAN.

Witnesses:
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