No. 702,762. Patented June 17, 1902.

D. B. ARNOLD.

RATCHET WRENCH.

(Application filed Mar. 31, 1902.)

(No Model.)

Fig. 1.

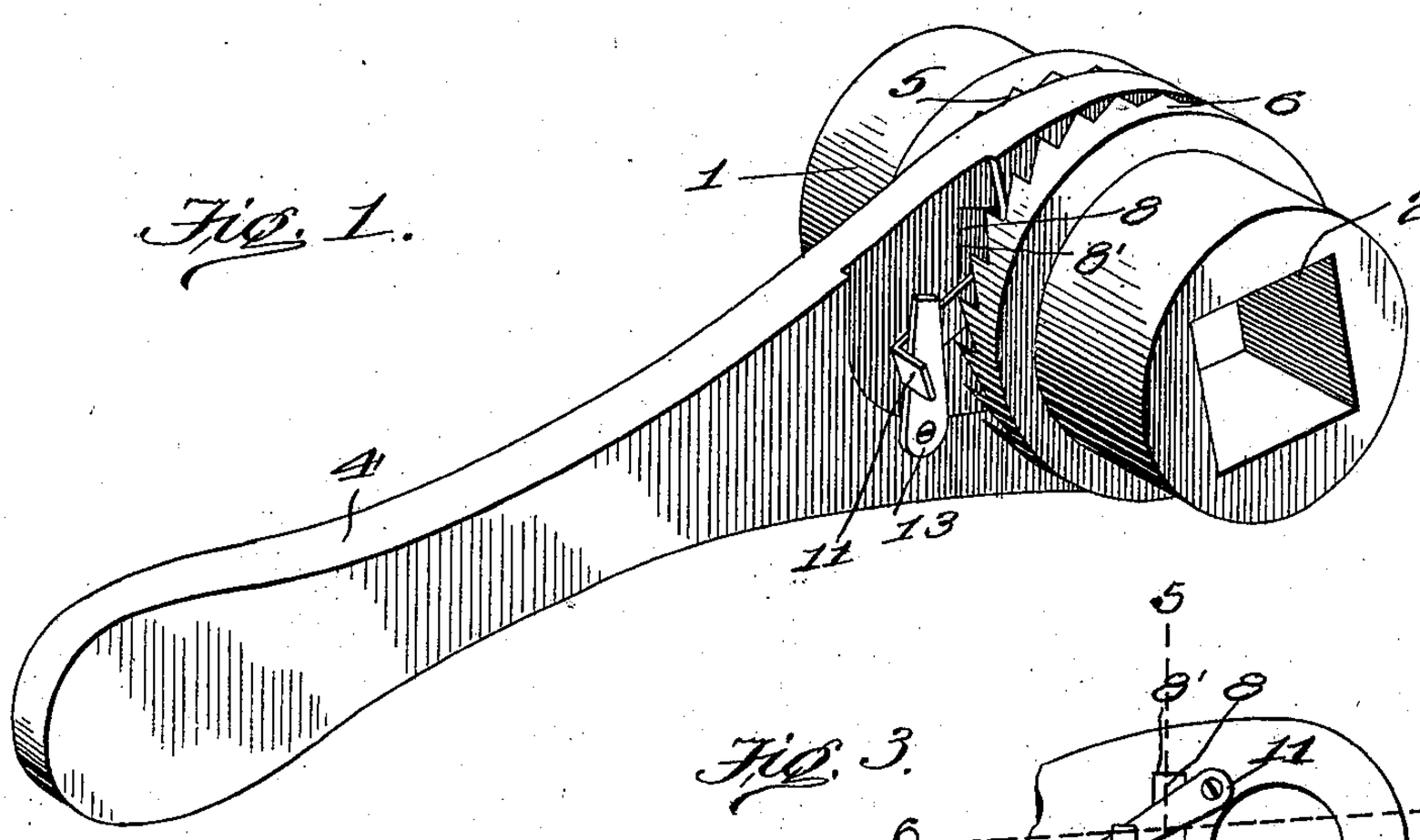


Fig. 3.

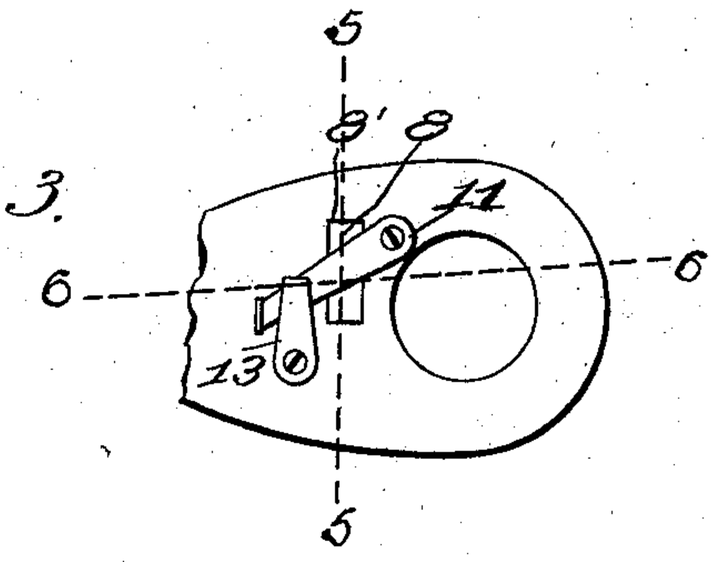


Fig. 2.

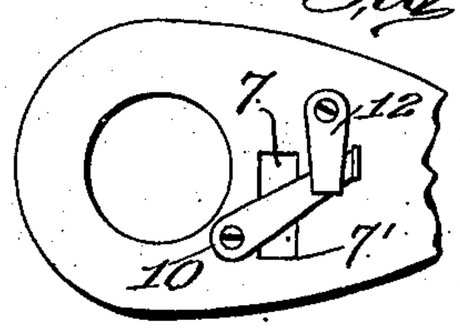


Fig. 4.

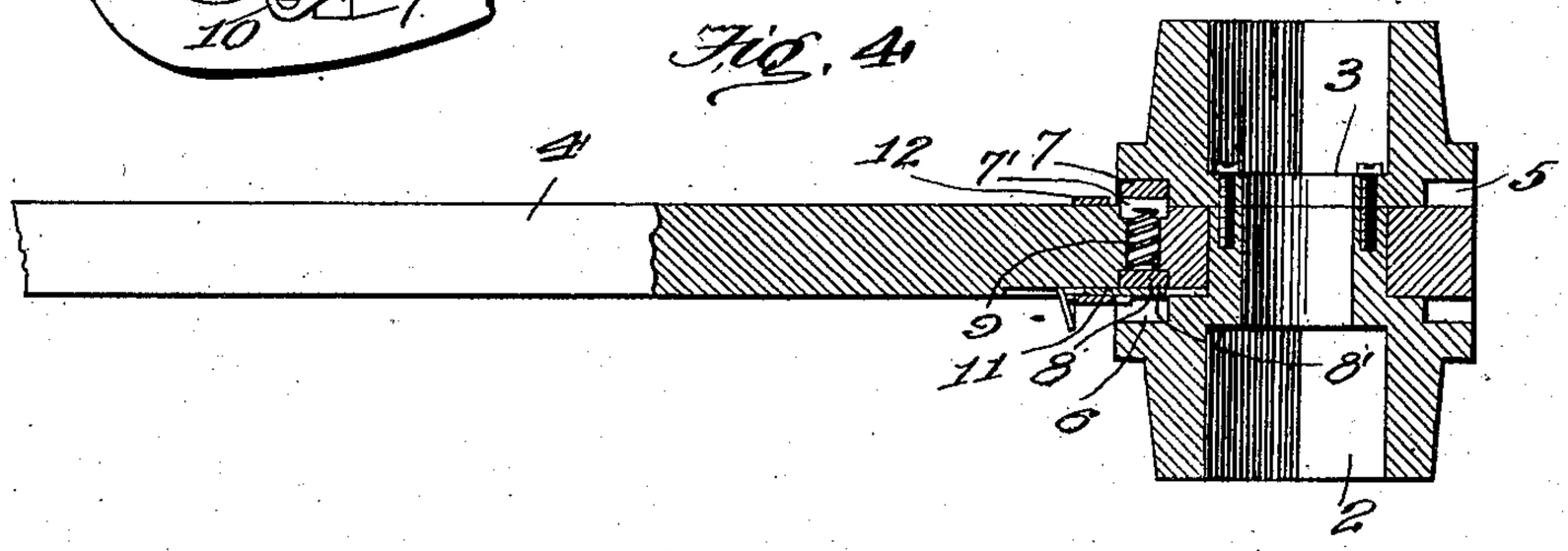


Fig. 5.

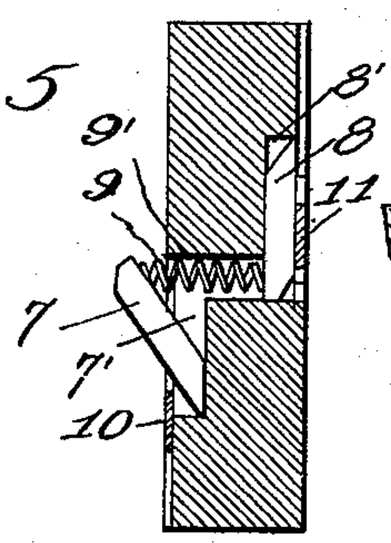
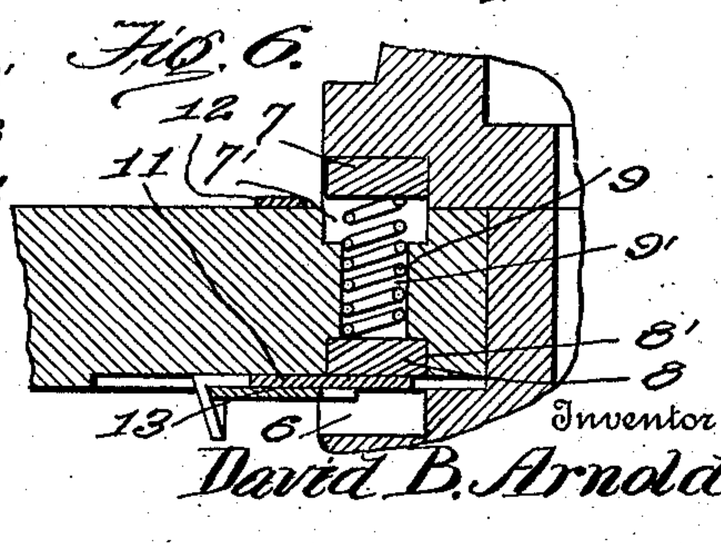


Fig. 6.



Witnesses

G. H. Walmsley.

D. Gibillson

Inventor

David B. Arnold,

By A. B. Willson & Co

Attorneys

UNITED STATES PATENT OFFICE.

DAVID B. ARNOLD, OF TERRE HAUTE, INDIANA, ASSIGNOR OF ONE-HALF TO EDWIN ELLIS, OF TERRE HAUTE, INDIANA.

RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 702,762, dated June 17, 1902.

Application filed March 31, 1902. Serial No. 100,801. (No model.)

To all whom it may concern:

Be it known that I, DAVID B. ARNOLD, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Ratchet-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 ratchet-wrenches.

The object of the invention is to provide a wrench of this character which shall be simple of construction, durable in use, and comparatively inexpensive of production and one which may be set to be operated by a forward thrust or by a rearward pull, whereby with equal facility nuts may be screwed or unscrewed.

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

In the accompanying drawings, Figure 1 is a perspective view of the wrench. Figs. 2 and 3 are fragmentary opposite side views of the wrench-handle. Fig. 4 is a section through the wrench head and handle. Fig. 5 is a section through the handle on the line 5 5 of Fig. 3, and Fig. 6 is a longitudinal section on line 6 6 of Fig. 3.

In the drawings, 1 denotes the head of the wrench, provided at its opposite ends with nut-sockets 2 and intermediate its length with an annular recess 3, in which is journaled the outer end of an operating-handle 4. The wrench-head is also provided with ratchets 5 and 6, the teeth of which project in opposite directions, as shown.

7 and 8 denote pawls to engage, respectively, the ratchets 5 and 6. These pawls are loosely mounted in recesses 7′ and 8′, formed in the opposite sides of the handle, and the reverse ends of the pawls are acted upon by a coiled spring 9, seated in a transverse bore 9′, connecting the inner or adjacent ends of said recesses. Thumb buttons or levers 10 and 11, pivoted to the opposite sides of the handle, are adapted to hold the pawls in place and to lock them out of engagement with their ratchets. These levers are adapted to be held against movement by spring-plate detents 12 and 13, under which they may be swung, the free ends of the detents exerting spring-pressure to press said levers against the sides of the handle 4.

The levers 10 and 11 are so arranged that when adjusted beneath the detents 12 and 13 they will bear upon the central portions of the pawls 7 and 8, thus holding said pawls seated wholly within the recesses 7′ and 8′ and out of engagement with the ratchets 5 and 6, so that said pawls will not move. When the levers are moved out of engagement with the detents 12 and 13, however, the lever 10 will bear upon the inner end of the pawl 7 in line with the bore 9′, while the lever 11 will bear upon the outer end of the pawl 8, thus holding said pawls at an angle, so that their opposite or beveled working ends will project outwardly to engage the ratchets. In this position the pawls will be free to ride over the inclined surfaces of the ratchet-teeth and to vibrate under the pressure thereof and action of the spring 9. The figures of the drawings show the pawl 7 engaged with the ratchet 5 and the pawl 8 disengaged from the ratchet-teeth 6 and clearly illustrate the action of the wrench.

In screwing a nut home one of the pawls is held by its button or lever from engagement with its ratchet, while the other pawl is allowed to engage its ratchet, and by operating the handle back and forth the nut is screwed in place. To unscrew the nut, the pawl which formerly has been in engagement with its ratchet is moved out of engagement therewith by the adjustment of its lever, while the other pawl, which has heretofore been out of engagement with its ratchet, is permitted to engage its ratchet by adjusting the lever to the inner end of said pawl. Now by operating the handle the head will be rotated in a direction the reverse to that previously described and the nut unscrewed from its bolt.

It will be seen that by mounting the pawls and spring in the manner stated provision is made for their ready removal when repairs are required.

From the foregoing description, taken in

connection with the accompanying drawings, the construction, mode of operation, and advantages of the invention will be readily understood without requiring an extended explanation.

Various changes in the form, proportion, and details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a wrench of the character described, the combination of a head provided with ratchets the teeth of which project in opposite directions, an operating-handle pivoted to the head and provided in its opposite sides with recesses and a transverse bore connecting the inner ends of said recesses, pawls loosely mounted in said recesses, a coiled spring in the bore and acting on reverse ends of the pawls, and pivoted buttons or levers engageable with the pawls to hold them out of action or permit them to project and vibrate, substantially as set forth.

2. In a wrench of the character described, the combination of a head provided with ratchets the teeth of which project in opposite directions, an operating-handle pivoted to the head and provided in its opposite sides with recesses and a transverse bore connecting the inner ends of said recesses, pawls loosely mounted in said recesses, a coiled spring in the bore and acting on reverse ends of the pawls, pivoted buttons or levers engageable with the pawls to hold them out of action or permit them to project and vibrate, and means for securing the levers against movement when adjusted to hold the pawls out of action, substantially as set forth.

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

DAVID B. ARNOLD.

Witnesses:
ROBT. R. HARROLD,
EDWARD M. SPARKS.