A. T. RAIFORD.

WRENCH.

APPLICATION FILED JUNE 13, 1907.

898,990.

Patented Sept. 15, 1908.

Fig. 1.

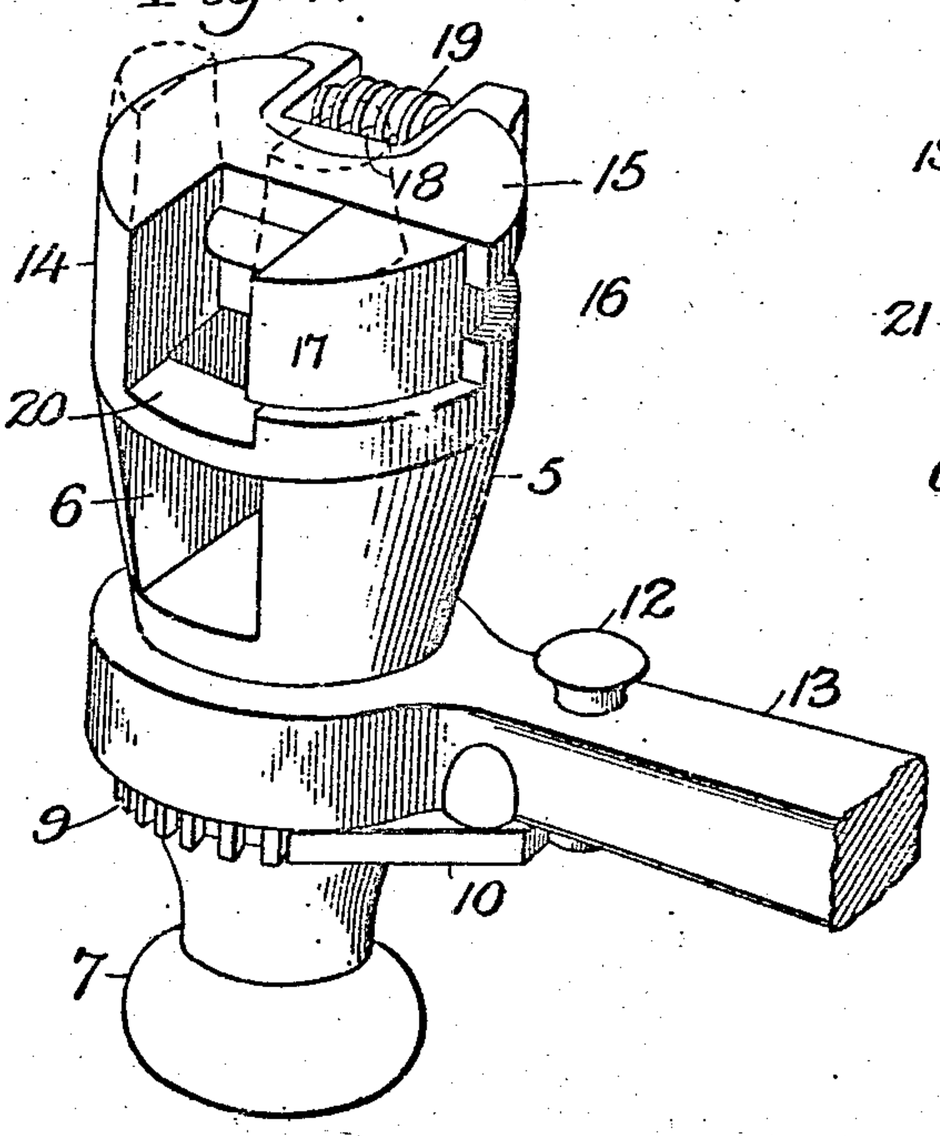


Fig. 2.

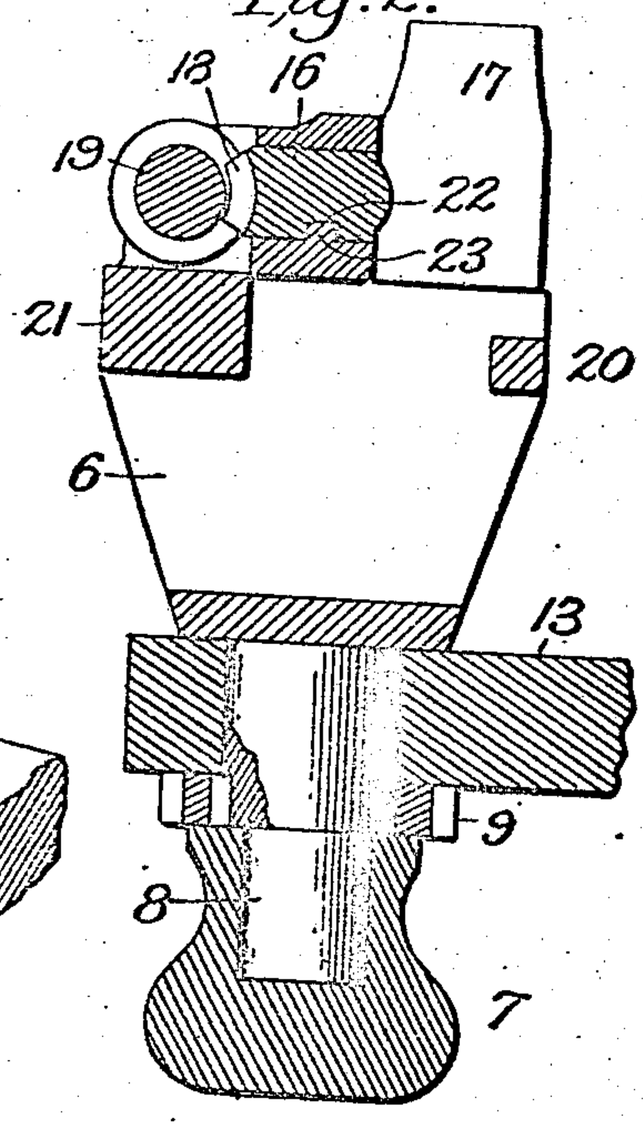


Fig. 3.

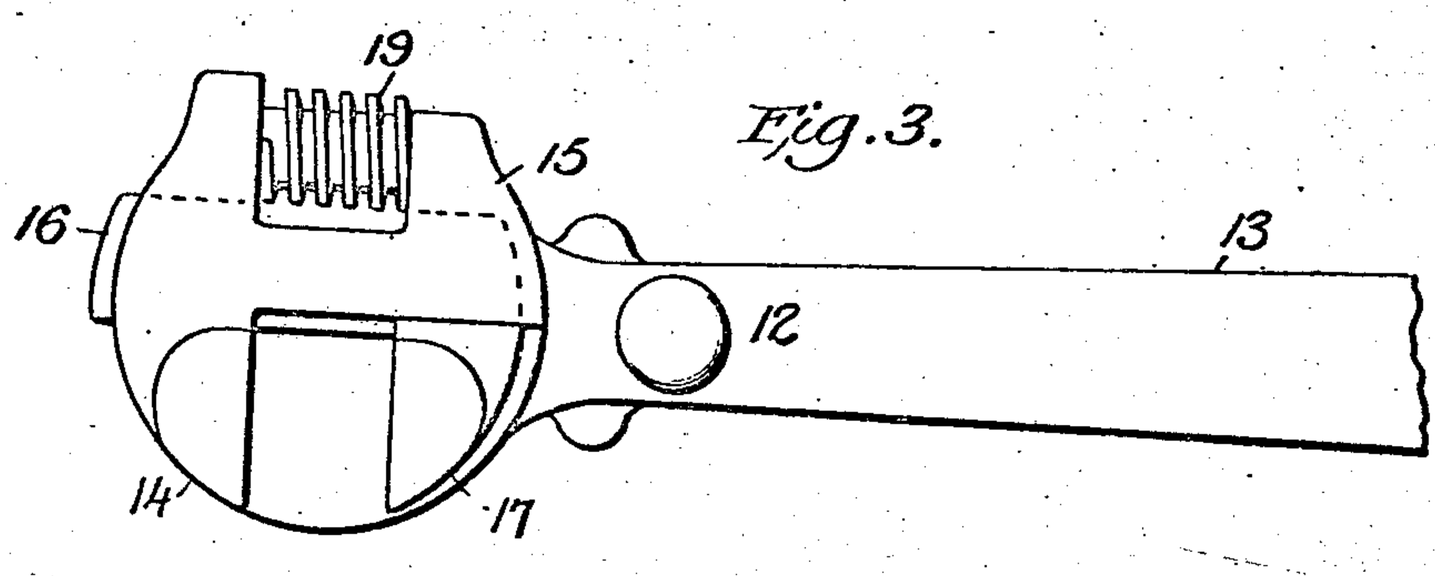
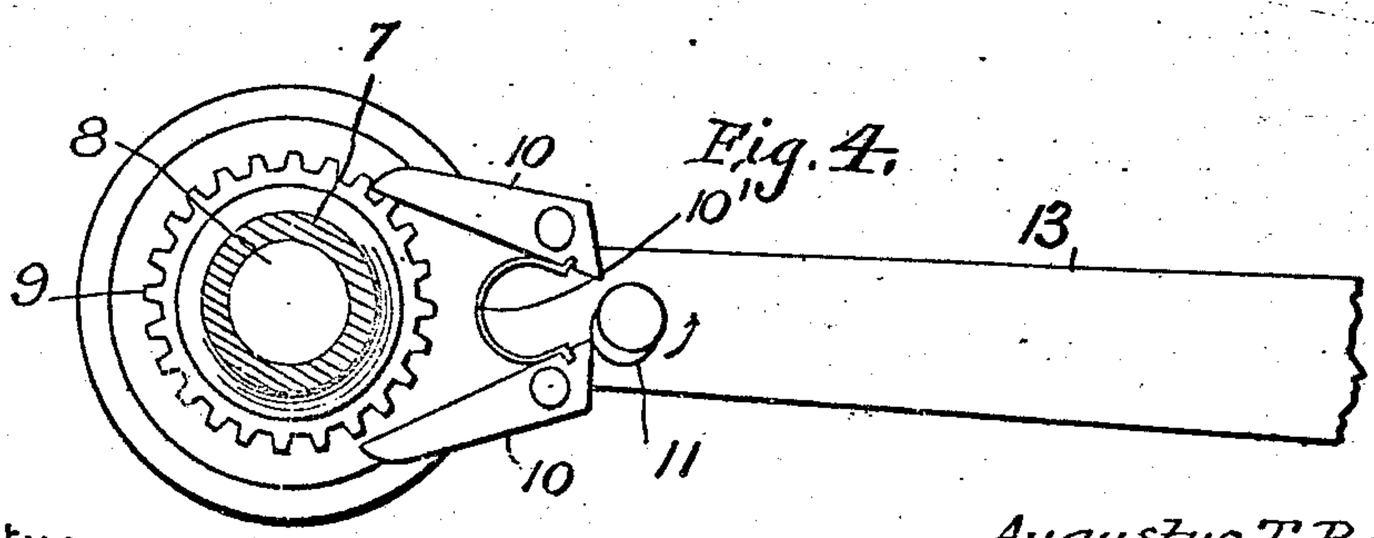


Fig. 4.



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UNITED STATES PATENT OFFICE.

AUGUSTUS T. RAIFORD, OF NEW YORK, N. Y.

WRENCH.

No. 898,990. Specification of Letters Patent. Patented Sept. 15, 1908.

Application filed June 13, 1907. Serial No. 378,879.

To all whom it may concern:

Be it known that I, AUGUSTUS T. RAIFORD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to wrenches of the ratchet type and has for its object a simple and effective tool which is especially adapted to operate in close quarters and at almost inaccessible points, as will be more fully described in the following specification set forth in the claims and illustrated in the drawings accompanying this application, where it will be seen that like reference characters are employed to designate the same parts in the various figures.

Figure 1 is a perspective view of my improved wrench. Fig. 2 is a sectional view of the same. Fig. 3 is a top plan view. Fig. 4 is a view from the under side with the knob broken away.

The wrench consists of a head 5 which is made hollow as at 6 so that the ends of bolts may enter same and the lower end of the wrench is provided with a knob 7 by which it may be pressed upward to engage nuts or bolts on the under side of machinery or in inaccessible places. The stud 8 of the head is provided with a ratchet wheel 9 which is engaged by the pawls 10 alternately engaged or disengaged by a cam 11 operated by a small button or knob 12 and carried by the handle 13 which is also carried by the stud 8 and revolves about same.

On the upper face of the wrench it is cut away so as to form a permanent jaw 14 while the other side of the top 15 is slotted to carry the stem 16 of the movable jaw 17. This stem 16 is provided with the usual teeth 18 to be engaged by the worm 19 which is rotated in order to adjust the movable jaw 17. Cross pieces 20 and 21 connect the sides of the head 5 and brace the wrench and the jaws while the stem 16 is provided on its lower side with a groove 22 in which plays a tongue 23 in the slot 16 and which prevents the removal of the stem and movable jaw 17.

The pawls 10 are operated by means of the spring 10′ which is interposed between their lower ends and tends to force them against the teeth of the ratchet wheel 9, while the cam 11 is adapted to bear against the rear end of one or the other of these pawls and force it away from the line of movement of the ratchet so that this particular pawl will not engage the teeth.

In complicated and intricate machinery, particularly the automobile of the small motor class, it is very difficult to reach certain bolts and nuts with the ordinary wrench and this invention is especially adapted for use in this class of machinery and various modifications may be resorted to in construction of the various details of the wrench without departing from the essential features above described and shown.

In order to facilitate the operation of the wrench in difficult places upwardly extending fingers are formed on the two jaws as shown in dotted lines in Fig. 1 and more clearly in Fig. 2 and 3. These fingers are especially useful when small nuts or bolts are to be manipulated.

What I claim as new and desire to secure by Letters Patent is:

The herein described wrench comprising a hollow conical rotating head, a fixed jaw provided with a horizontal slot, a finger on one side of said jaw, a tongue extending transversely through the slot, a movable jaw provided with a finger, a stem carried by the jaw, said stem being provided with teeth and having a groove in its lower side for engagement with said tongue, a worm gear engaging the teeth on the stem for adjusting the movable jaw, a stud fixed to the lower portion of the jaw, a handle having pawls carried by the stud, means for operating the pawls carried by the handle, a ratchet wheel mounted on the stud beneath the handle and adapted to be engaged by the pawls for rotating the head, and a knob attached to the lower portion of the stud and adapted to secure the said handle and ratchet to the stud.

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

AUGUSTUS T. RAIFORD.

Witnesses:

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J. E. C. THOMAS.