No. 720,373. PATENTED FEB. 10, 1903.

J. W. MUSKETT.

RATCHET WRENCH.

APPLICATION FILED JUNE 13, 1902.

NO MODEL.

Fig. 3.

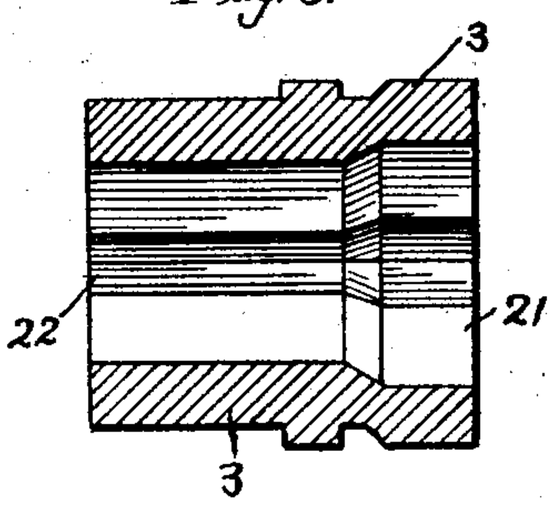


Fig. 1.

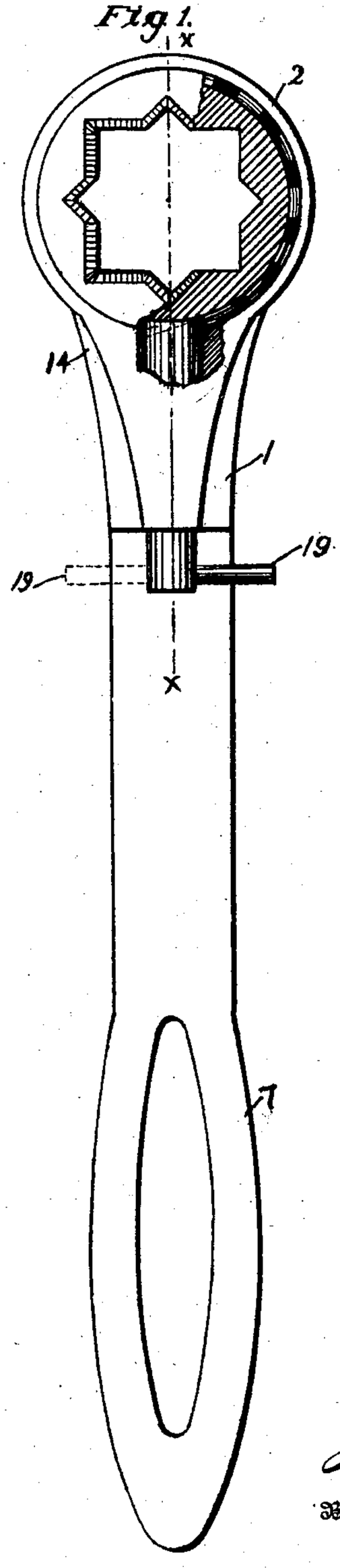
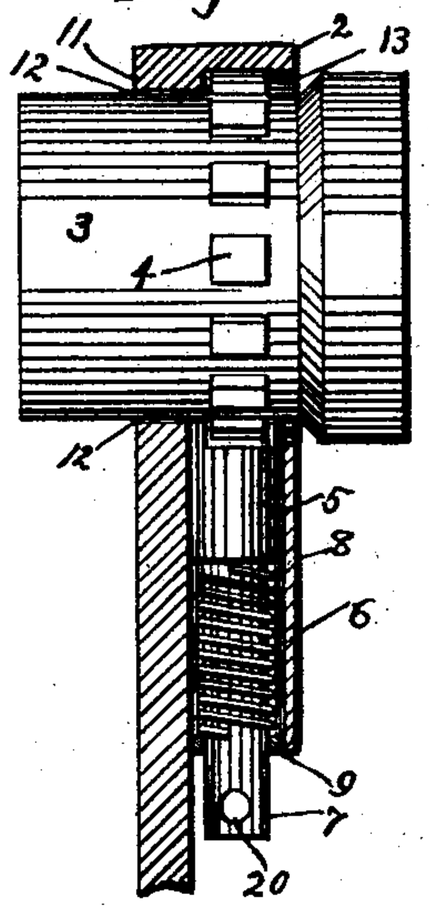


Fig. 2.



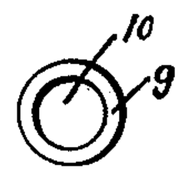


Fig 6.

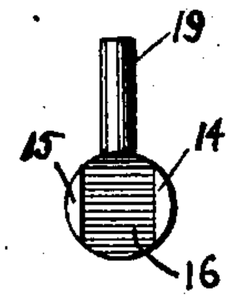


Fig. 4.

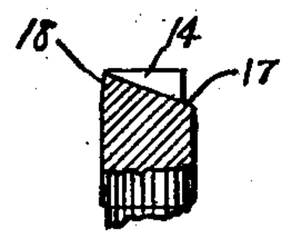


Fig 5.

Witnesses.

Earl S. Replogle.

R. G. Moran.

Inventor,

James W. Muskett

By D. B. Replogle

Attorneys

UNITED STATES PATENT OFFICE.

JAMES W. MUSKETT, OF SCRANTON, PENNSYLVANIA.

RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 720,373, dated February 10, 1903.

Application filed June 13, 1902. Serial No. 111,513. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. MUSKETT, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Ratchet-Wrenches, of which the following is a specification.

This invention relates to ratchet-wrenches suitably constructed for turning nuts, bolts, and the like; and the objects of the invention are to provide a ratchet-wrench of simple construction with interchangeable parts, to provide a means for turning in opposite directions without inverting the wrench, to provide for taking a greater variety of sizes of nuts, to render such wrenches stronger and more efficient generally, and other objects, as are herein set forth, and specially pointed out in the claims.

To these ends my invention consists of the arrangement and combination of parts herein set forth, and illustrated in the drawings, in which—

Figure 1 is a general view, parts broken away, of a wrench embodying my invention. Fig. 2 is a view, partly in cross-section, taken on the line X X of Fig. 1. Fig. 3 is a view in cross-section of the socket member of the device, taken on the line X X of Fig. 1. Fig. 4 is an end view of the sliding catch or dog constituting part of the ratchet of the device. Fig. 5 is a view, partly in cross-section, cutting the upper end of the catch shown in Fig. 4. Fig. 6 is a detail view of a small retaining-ring used in connection with the ratchet device.

Similar characters of reference denote like and corresponding parts throughout the several views.

In the drawings, 1 denotes the handle of a wrench made according to my invention and has integrally constructed therewith a ring 2 on one end thereof, the said ring being adapted and arranged to encircle and hold a ratchet-wheel socket member 3, provided with ratchet-stubs 4, which are arranged to permit of turning the wheel in either direction by engagement with the dog 5, sliding in a recess in the handle and held into engagement by means of a spring 6 on the stem 7 thereof. One end of said spring 6 rests against the shoulder 8 of the dog, and the other end is seated on the ring 9, which is set into one end of the recess by being compressed therein. The central opening 10 of said ring affords a sliding bearing for the contracted end 7 of the dog aforesaid. The ring 2 is furnished with a shoulder or seat 11, on which the stubs or teeth 4 rest when the socket member 3 is put into its place. A sliding concave surface 12 of the ring 2 rests on the convex surface of the socket member 4 alongside of and parallel to the belt in which the stubs 4 lie. The outer ends of the stubs 4 also have sliding contact with the inner convex surface 13 of the ring 2, so that these two convex surfaces, taken in connection with the shoulder 11, provide the sliding bearing of the revolving socket member or head-piece of the wrench. The dog 5 is provided with right and left lips 14 and 15, with a sloping groove 16 between them wide enough to accommodate the passage therebetween of the stubs 4 aforesaid. The upper ends of the lips 14 and 15 are designed to rest against the convex surface at either side of the stubs on the member 3, and thus they serve as keepers to prevent the socket member from sliding out of its place, the lip 14 serving to keep the member 3 in place when the dog holds the position shown in full lines in Fig. 1, and the lip 15 serving for the same purpose when the dog is reversed, as shown in the dotted lines in Fig. 1. The socket member 3 has one of its ends at 21 of a larger caliber and its other end, as shown at 22, of a smaller caliber. Either end will take two sizes of square nuts, so that one of the heads or socket members of my wrenches will accommodate four variations of nuts or bolt-heads. It is understood, of course, that other variations and sizes may be provided *ad libitum*.

In the operation of the wrench it is understood, of course, that the dog 5 is pulled over the stubs or teeth 4 with a sliding motion, the said stubs sliding in the sloped groove 16, causing the dog to be compressed against the spring 6 by sliding over the stubs when the handle is operated in the direction in which the stubs strike the slope of the dog in the vicinity of the point 17, while it engages with the stubs and tends to turn the socket member when the handle is driven in such direction as to bring the point 18 first into engage-

ment with the stubs aforesaid. When it is desired to reverse the direction in which the socket member is turned, the dog 5 is drawn downward by grasping the peg 19, which is fitted into an eye 20 of the small end 7 of the dog. Then the dog is drawn downward, compressing the spring 6 until the lips 14 and 15 clear the stubs aforesaid. In this position the dog is turned half-way around, so that the peg 19 takes the position shown in dotted lines of Fig. 1. In either position of the dog it is apparent that a reverse motion may be given to a nut or bolt by inverting the wrench as a whole, while in addition thereto the larger set to which the socket 21 is adapted may be turned in either direction by reversing the dog as aforesaid, and likewise with the smaller set, which are capable of being turned only by the portion 22 of the socket member 3 aforesaid.

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

1. In a wrench of the kind described, the combination with a handle member having a ring integrally made on one end thereof, and a recess opening into said ring, a toothed ratchet-wheel socket member revolubly fitted into said ring, in combination with a cylindrical dog arranged to slide in the recess aforesaid, and to engage with the ratchet member aforesaid, the said dog being provided with lips projecting over the teeth of the ratchet-wheel member aforesaid for the purpose of retaining it in its position, substantially as and for the purpose specified.

2. In a ratchet-wrench of the kind described having a handle with a ring on one end thereof, and a ratchet-wheel member fitted within said ring, teeth of the said ratchet resting on a shoulder of the ring, a recess within the handle, and a dog slidable in said recess and revoluble therein, the said dog engaging with the teeth aforesaid and having lips extending to both sides of the teeth of the ratchet-wheel member, substantially as and for the purpose specified.

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

JAMES W. MUSKETT.

Witnesses:
CARL S. REPLOGLE,
C. S. WOODRUFF.