E. H. BURNSON.

WRENCH.

APPLICATION FILED FEB. 21, 1918.

1,270,263. Patented June 25, 1918.

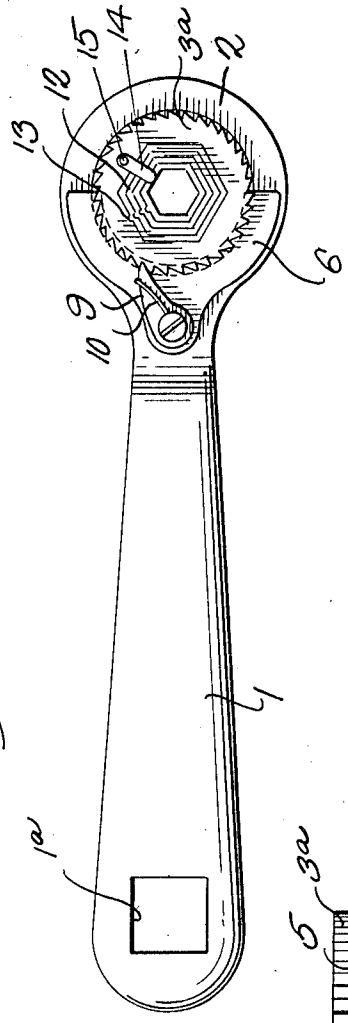


Fig. 1.

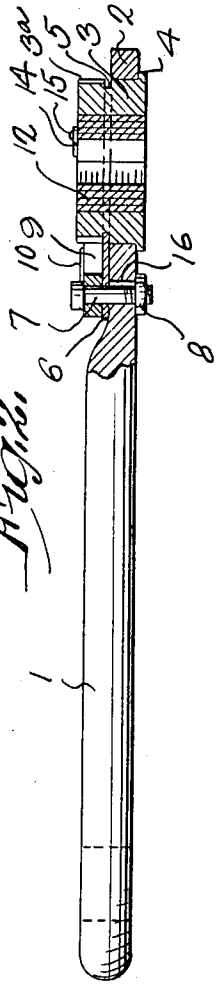


Fig. 2.

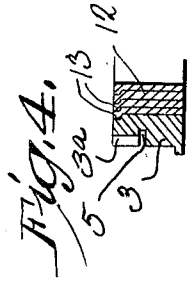


Fig. 4.

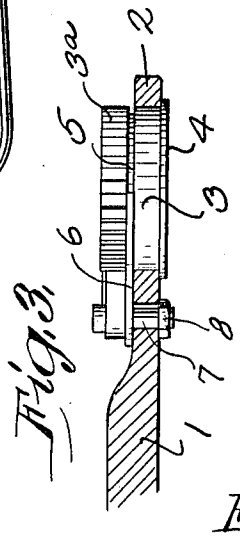


Fig. 3.

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WRENCH.

1,270,263. Specification of Letters Patent. Patented June 25, 1918.

Application filed February 21, 1918. Serial No. 218,541.

To all whom it may concern:

Be it known that I, ERICK H. BURNSON, a citizen of the United States, residing at Wahpeton, in the county of Richland and State of North Dakota, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to wrenches, and more particularly to a wrench of the socket type.

One of the main objects of the invention is to provide a wrench of the character stated of simple construction and operation which may be readily adjusted to accommodate nuts or taps of different sizes. A further object is to provide a rotatable head and means for imparting intermittent rotation thereto, this head having means for detachably supporting a plurality of socket members disposed in concentric relation so that, by removing some of the members, the sizes of the socket may be varied to suit circumstances. A further object is to provide a wrench of very compact construction which may be readily used in places where there is but slight room available. Further objects will appear from the detailed description.

In the drawings:

Figure 1 is a top plan view of a wrench constructed in accordance with my invention.

Fig. 2 is a side view, the supporting frame and socket head, and associated parts being sectioned.

Fig. 3 is a fragmentary side view the handle and supporting frame being sectioned, showing the socket heads and associated parts in elevation.

Fig. 4 is a fragmentary sectional view through the socket members.

The handle 1 is of substantially flattened elliptical cross section and tapers toward the annular supporting frame 2 formed integral therewith and provided at one end of the handle, the under face of this frame being in the plane of the under face of the handle. Frame 2 is adapted to snugly receive a cylindrical socket head 3 provided at its lower end with an outer peripheral flange 4 which engages the under face of frame 2 so as to positively limit the movement of the head through the frame. Head 3 is provided at its approximate center and in its outer face, with an annular groove 5. This annular groove is adapted to receive an arcuate locking plate 6 secured to handle 1 by means of a securing bolt 7 inserted therethrough and through the handle, a suitable nut 8 being threaded on the bolt beneath the handle. Plate 6 is so shaped as to fit snugly into groove 5 and extends substantially halfway around the head 3. By this means, the head is supported so as to be freely rotatable in frame 2, and may be readily removed from the frame by removing the plate 6. The portion of head 3 above groove 5 is cut to provide a ratchet member 3^a. This ratchet is engageable by a dog 9 which is loosely mounted on bolt 7 above plate 6, and is normally forced into engagement with the teeth of the ratchet by a leaf spring 10 secured in the head of bolt 7 and engaging the outer face of the dog. Socket head 3 is provided with a central hexagonal opening or socket which is adapted to receive a nut so as to turn the same when the wrench is operated. If it is desired to thread the nut onto a bolt, this is readily accomplished by placing head 3 over the nut with the dog 9 directed upwardly, after which rotation is imparted to the head by means of the handle 1 and the dog. By turning the wrench over, the nut may be threaded off of the bolt. as will be readily understood.

To permit the size of the socket of the head to be varied to accommodate taps of various sizes, I provide a plurality of socket members 12 which are disposed in concentric relation, fitting snugly into each other, the outermost member fitting snugly into the socket of head 3. To retain these members in the head, each of the members is provided at its upper end with an outwardly directed lug 13 which fits snugly into a corresponding recess in the upper edge of the preceding socket member, and the head 3 is also provided with a similar recess receiving a lug at the upper edge of the outermost socket member. A finger or latch 14 is rotatably mounted at one end on the upper face of head 3, by means of a screw 15 inserted through the same and secured in the head. The member 14 is adapted to be turned inwardly across the upper faces of the members 12 so as to prevent upward movement thereof. By this means, member 14 coöperates with the lugs to effectually secure the socket members against movement in either direction, so that the wrench may be used in the manner above described. If

it is desired to vary the size of the socket for receiving the nut, this may be readily accomplished by turning finger 14 in inoperative position and removing one or more of the members 12 until the socket is of desired size to receive the particular member which it is desired to operate. After the socket has thus been adjusted the wrench is used in the ordinary manner.

To insure that spring 10 will operate properly so as to hold dog 9 in engagement with the teeth of ratchet 3^a, the bolt 7 is provided, adjacent its lower end, with a radially projecting rib 16 which fits into a corresponding nut formed in the handle contiguous to the bore for receiving the bolt. This rib serves to effectually prevent rotary movement of the bolt thus maintaining the spring 10 in proper predetermined relation to dog 9. Handle 1 may be provided in its outer end with a suitable socket 1^a for receiving square nuts or taps, though this is not essential to the invention.

What I claim is:

1. In a wrench of the character described, a handle provided at one end with an annular supporting frame, a cylindrical socket-head rotatably mounted in said frame and provided at one end with an outwardly directed annular flange for positively limiting movement of the head through the frame, said head being provided intermediate its ends with an outer annular channel, a locking plate mounted on the frame and engaging into said channel so as to rotatably support the socket-head in the frame, the upper portion of the body of the socket head being cut to produce a ratchet member, a dog mounted on said locking plate for engagement with the ratchet member, a bolt inserted through said dog and the locking plate and removably secured to the handle, said bolt serving to detachably secure the plate to the handle and to rockably support the dog, and a spring secured in the bolt and engaging the dog so as to hold it in engagement with said ratchet member.

2. In a wrench of the character described, a handle provided at one end with an annular supporting frame, a socket head rotatably mounted in said frame, a plurality of socket members fitting snugly in the head and in one another, said socket members being provided with interengaging lugs and recesses, and the socket head being provided with a recess to receive a lug carried by the outermost one of said socket members, whereby movement of the socket members through the socket-head in one direction is positively prevented, and a securing member carried by the socket head and movable across the upper ends of the socket members so as to prevent movement thereof through the head in the other direction, said member being movable out of engagement with the socket members so as to permit removal of one or more thereof whereby the size of the socket produced in said socket head may be varied to accommodate nuts of different sizes.

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

ERICK H. BURNSON.

Witnesses:
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RUTH B. WHIPPS.

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