

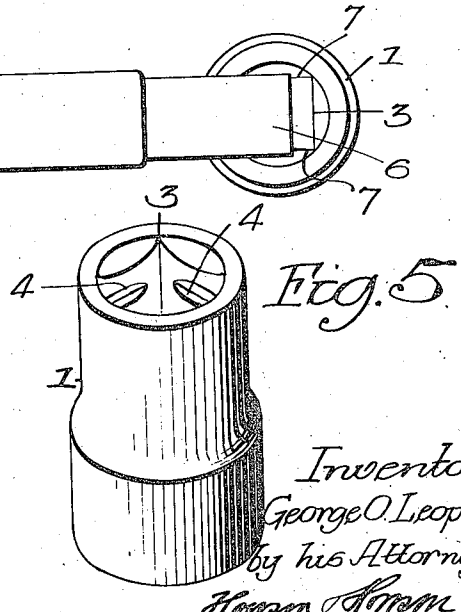
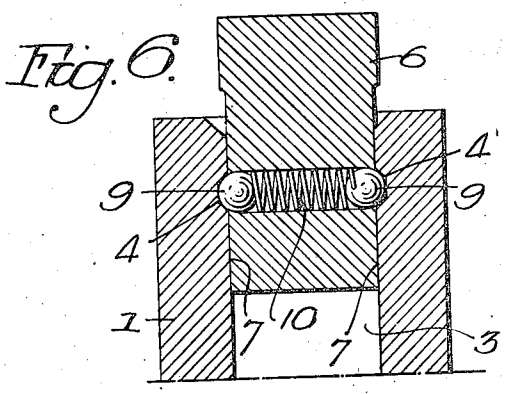
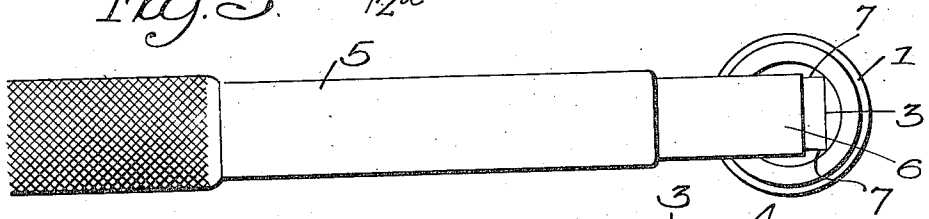
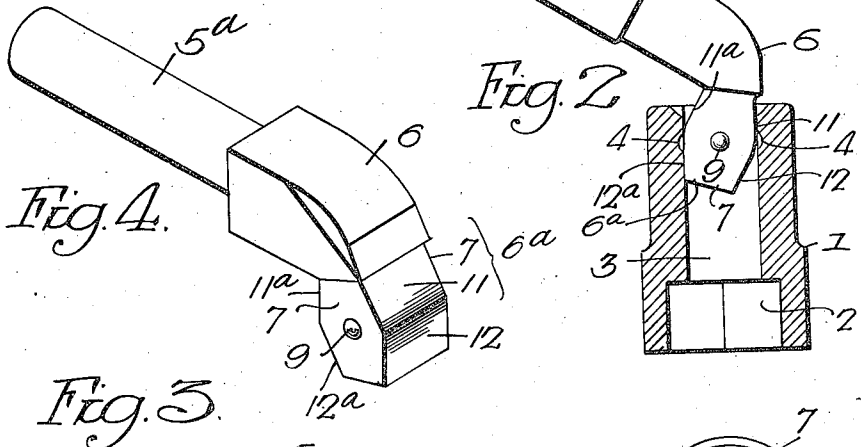
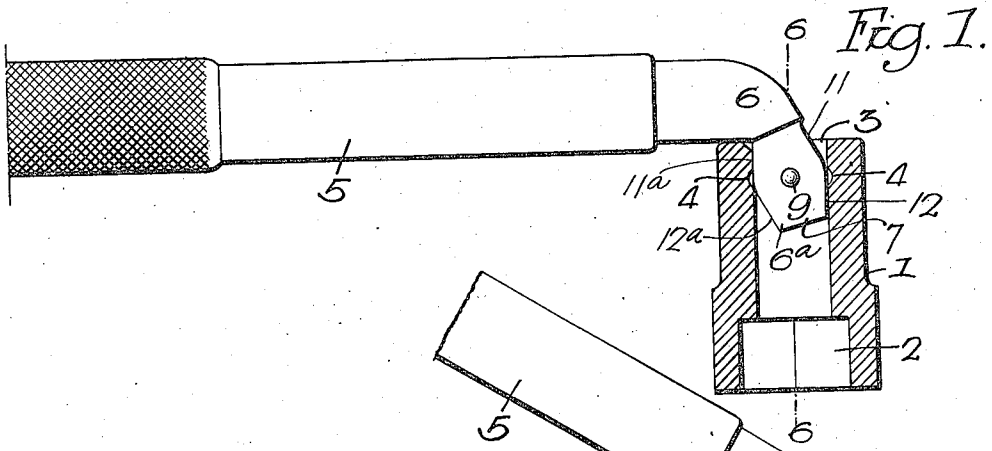
Oct. 2, 1923.

1,469,662

G. O. LEOPOLD

SOCKET WRENCH

Filed March 10, 1922



Inventor:  
George O. Leopold,  
by his Attorneys,  
Hiram Brown

# UNITED STATES PATENT OFFICE.

GEORGE O. LEOPOLD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO NORTH BRO.'S M'FG CO., OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

## SOCKET WRENCH.

Application filed March 10, 1922. Serial No. 542,661.

*To all whom it may concern:*

Be it known that I, GEORGE O. LEOPOLD, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain improvements in Socket Wrenches, of which the following is a specification.

My invention relates to certain improvements in socket wrenches of the type illustrated in my application for patent, Serial No. 517,018, filed November 22, 1921.

The object of my present invention is to improve the construction of the wrench handle so that it will have a better grip on the socket than in the previous application. This object I attain by extending the bearing surface of the handle as fully described hereinafter.

In the accompanying drawings:

Fig. 1 is a side view, partly in section, illustrating my improved socket wrench and showing the handle in one position;

Fig. 2 is a view, similar to Fig. 1, with part of the handle broken away, and showing the handle in another position;

Fig. 3 is a plan view of Fig. 1;

Fig. 4 is a detached perspective view of the head of a handle;

Fig. 5 is a detached perspective view of the socket; and

Fig. 6 is an enlarged sectional view on the line 6-6, Fig. 1.

Referring to the drawings, 1 is the socket member of a wrench having a rectangular, or other shaped, socket 2 for the head of a bolt. In the end opposite from the socket is a rectangular opening 3. In each side wall of this portion of the socket is a recess 4, as shown clearly in Figs. 5 and 6.

5 is the handle of the wrench, which, in the present instance, is made of tubing. 6 is a head having a shank 5<sup>a</sup> adapted to be driven into the tubular portion of the handle and projecting at an angle from the head is a many-sided portion 6<sup>a</sup>, which is adapted to fit in the rectangular opening of the socket. The flat sides 7 of the portion 6<sup>a</sup> fit snugly against the walls of the opening. In the portion 6<sup>a</sup> of the head is a transverse cavity in which are the balls

9. The balls are confined in the cavity by flanging the walls, as indicated in Fig. 6. The balls are held yieldingly in the projected position by a spring 10 within the cavity. When the head is in the socket member, the balls align with the recesses 4 in the walls

of the socket member and yieldingly retain the head of the handle in the opening in the socket, yet allowing the handle to be turned freely on the balls as a pivot from the position shown in Fig. 1 to that shown in Fig. 2. By exerting a pull on the handle it can be readily withdrawn from the socket, as the spring will allow the balls to yield.

It will be noticed that the head is so shaped as to form angular surfaces 11 and 11<sup>a</sup> above the balls of the pivot and angular surfaces 12 and 12<sup>a</sup> below the pivot. The surfaces 11<sup>a</sup> and 12 rest against the walls of the socket when in the position shown in Fig. 1, and the surfaces 11 and 12<sup>a</sup> rest against the walls of the socket when moved to the position shown in Fig. 2.

By shaping the head in the manner shown, the surfaces 7 are extended so as to provide a greater bearing surface of the handle against the socket when the socket is turned by the handle, thus materially increasing the strength of the tool. The portion 6<sup>a</sup> of the head is firmly seated against the walls of the socket when in either of the extreme positions.

I claim:

1. The combination in a socket wrench, of a socket having a rectangular opening therein; a handle having a head portion set at an angle; and yielding pivots in the head arranged to enter recesses in the socket, said head portion being of a size to fit laterally in the socket and having angular faces above and below the pivots arranged to bear against the walls of the socket when the handle is moved to either of its two extreme positions.

2. The combination in a socket wrench, of a socket having a rectangular opening therein; recesses on the walls of the opening; a handle having a head provided with an angular portion shaped to fit laterally in

the rectangular opening in the socket; and  
spring-pressed balls projecting beyond the  
two flat faces of the head and extending  
into recesses in the walls of the opening in  
the socket and forming pivots, the said ex-  
tension of the head having four angular  
faces at right angles to the side faces, two  
of said faces being above the pivots and two  
below the pivots so that, when the handle  
is turned to extreme positions on the balls  
as pivots, these surfaces bear against the  
walls of the socket. 10

GEORGE O. LEOPOLD.