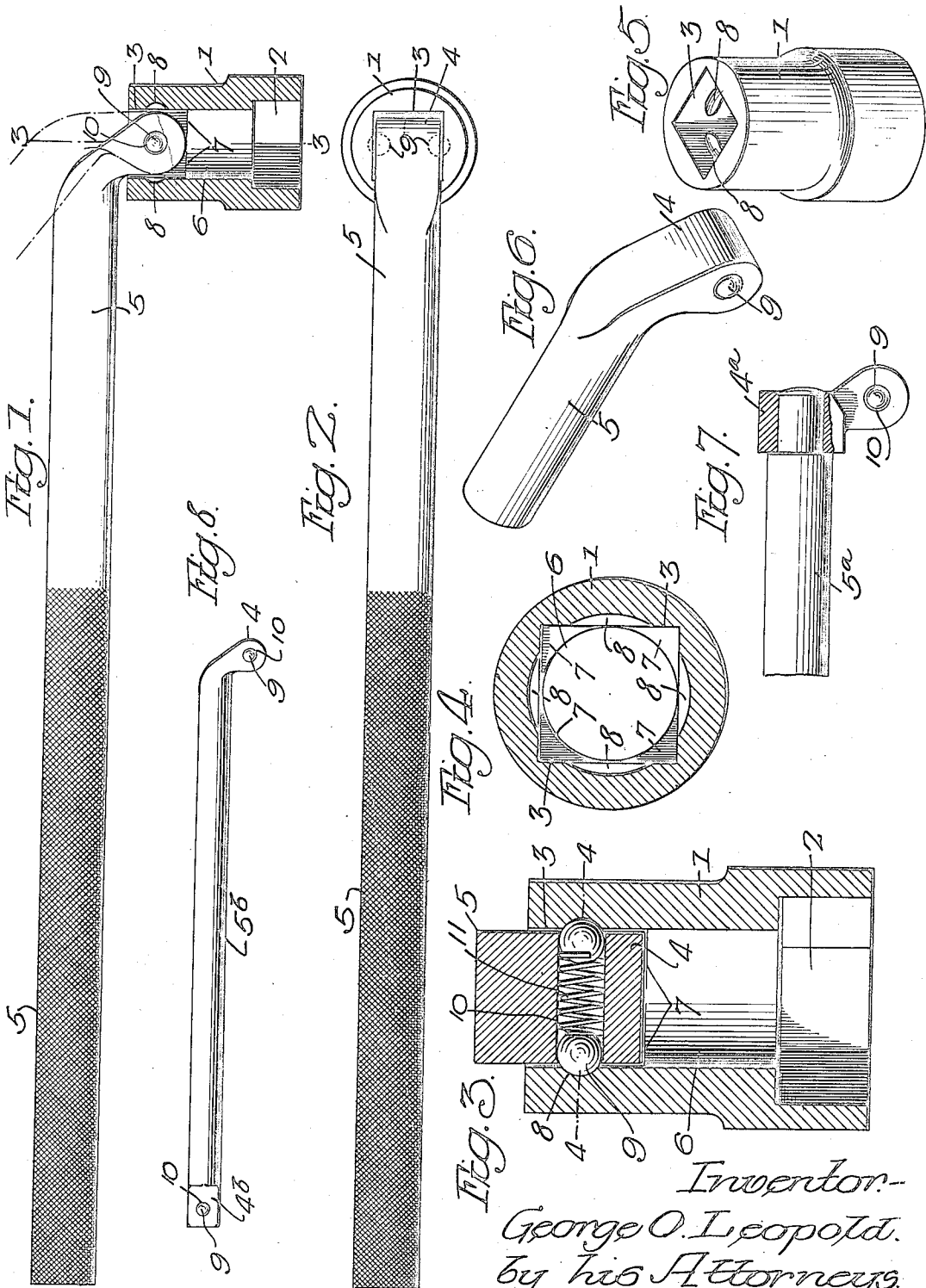


G. O. LEOPOLD.
 SOCKET WRENCH.
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SOCKET WRENCH.

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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.

The object of my invention is to provide a socket wrench with a detachable handle, which can be pivotally attached to the socket member.

In the accompanying drawings:

Fig. 1 is a side view of my improved socket wrench showing the socket member in section;

Fig. 2 is a plan view;

Fig. 3 is an enlarged sectional view on the line 3—3, Fig. 1;

Fig. 4 is a sectional plan view on the line 4—4, Fig. 3, with the handle removed;

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

Fig. 6 is a perspective view of one end of the handle; and

Figs. 7 and 8 are views illustrating modifications of the invention.

Referring to the drawings, 1 is a socket having a shaped cavity 2 in one end to fit a nut, or bolt, and having a rectangular opening 3 at the opposite end to receive the angular head 4 of a handle 5. The two cavities 2 and 3 are connected by a cylindrical section 6, which forms shoulders 7 at the bottom of the cavity 3.

In the four walls of the cavity 3 are recesses 8, shaped as shown in Figs. 3 and 4. Carried by the head 4 of the handle are balls 9 which, when the head of the handle is in position in the cavity 3 of the socket, extend into opposite recesses 8 and hold the handle to the socket. The head of the handle is rectangular in cross section to fit the cavity 3 in the socket so that the socket must turn with the handle, the balls 9 acting as pivot members to allow the handle to be turned thereon to clear any obstruction. In the present instance, the extent of movement is shown by dotted lines in Fig. 1.

The balls 9 are located in a transverse recess 10 in the head 4 of the handle and be-

tween the balls is a coiled spring 11, which holds the balls yieldingly in the projected position. This spring yields when the head 4 is forced into the socket, or when it is removed therefrom. The balls are held in place by upsetting the metal at the edges of the recess 10 to form slight internal flanges.

It will be understood that there may be a series of sockets each having a different sized or shaped cavity 2 to fit nuts of different sizes and shapes.

In Fig. 7, a head 4^a is shown, which is made separate from the handle 5. The handle is forced into the head and preferably riveted.

In Fig. 8, a handle 5^b is illustrated having a head at each end, the head 4 being angular and similar to that shown in Fig. 1, but the head 4^b is on a line parallel with the handle so that, after a nut has been started in a difficult plate, the handle can be reversed and the nut removed with very little effort.

I claim:

1. The combination in a socket wrench, of a socket member having a cavity with recesses in the walls thereof; and a handle having an angular head adapted to the cavity and having spring-pressed pivot members extending into the recesses in the walls of the cavity and holding the handle to the socket member, yet allowing it to turn on the pivot members.

2. The combination in a socket wrench, of a socket member having a cavity at one end shaped to receive a nut and having a rectangular cavity at the opposite end to receive the head of a handle, said last mentioned cavity having recesses in all four walls; a handle having an angular head; a transverse recess in the head flanged at each end; and two balls and a coiled spring in the recess, said spring tending to project the balls beyond the surface of the head.

3. A handle for a socket wrench having a body portion and a head at one end, said head having a transverse recess; two balls in the recess; and a spring located in the recess between the two balls, the head being

shaped to allow it to turn freely on the balls as pivots when located in a socket wrench.

4. The combination in a socket wrench, of a socket member having a cavity; a handle having a head adapted to the cavity; and yielding means carried by the head for pivotally holding the head in the cavity of

the socket member, the head being shaped to allow the handle to have a limited movement on the pivots, the yielding pivots allowing the handle to be forcibly removed from the socket member, when desired.

GEORGE O. LEOPOLD.