

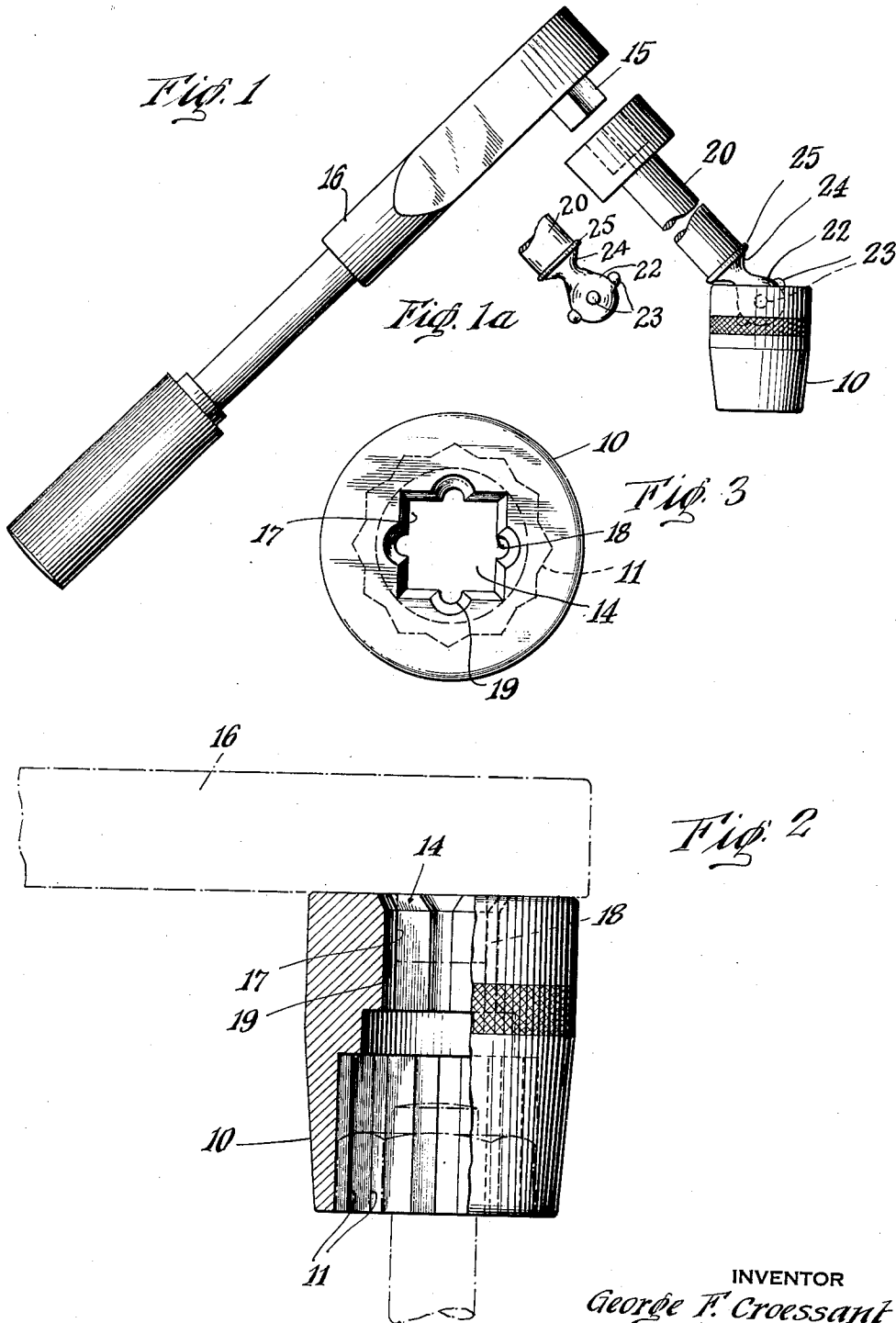
Aug. 29, 1933.

G. F. CROESSANT

1,924,089

EXTENSION FOR SOCKET WRENCHES

Filed Jan. 8, 1932



INVENTOR  
*George F. Croessant*  
BY *W. F. M. M. M.*  
ATTORNEYS

# UNITED STATES PATENT OFFICE

1,924,089

## EXTENSION FOR SOCKET WRENCHES

George Frederick Croessant, Wyomissing, Pa.

Application January 8, 1932. Serial No. 585,516

2 Claims. (Cl. 81-177)

My invention relates to socket wrenches and particularly to an extension member for a wrench socket which is adapted to be disposed in operating position at an angle to any of a plurality of interchangeable sockets each having a suitably shaped cavity for engaging nuts or bolt heads of various sizes.

In the drawing:

Figure 1 is a diagrammatic view of illustrating the extension member disposed at an angle to a socket to which it is adapted; and Fig. 1a of the extension socket end.

Figure 2 is an elevation, partly in section, of the socket.

Figure 3 is a plan view of the socket.

Referring to the drawing, the numeral 10 designates one of a plurality of wrench sockets which differ only in the size of a cavity 11 at one end which is shaped to fit over a nut or bolt head in order to tighten or loosen such fasteners. I prefer to form the cavity 11 with a serrated wall by cutting a double hexagonal bore in the socket with the apices of one hexagon lying intermediate the apices of the other hexagon as shown in Fig. 3. Such a cavity provides a plurality of nut engaging surfaces premitting ready application of the socket to a hexagonally shaped nut or bolt head without prolonged or burdensome manipulation to align the sides of the socket cavity with the sides of the nut or bolt.

At its opposite end socket 10 has a cylindrical recess or opening 14 the wall of which is provided with spaced longitudinal ribs 18 forming oppositely located half round grooves 19. An extension member for socket 10 comprising a spindle 20 has a recess 21 at one end for receiving the shank 15 of a handle 16, such as the ratchet handle disclosed in my copending application 530,453 filed April 16, 1931, and its opposite end has a substantially spherical head 22 of such size as to freely enter the opening 14 in socket 10. The spherical head 22 is provided with angularly disposed pairs of diametrical protuberances such as round ended pins 23 adapted to extend into the grooves 19 in the walls 17 and bear against the ribs 18 in socket opening 14 to provide an operating connection between spindle 20 and socket 10.

The neck 24 between the head and the body portion of spindle 20 is bevelled to permit the spindle to be inclined at an angle to socket 10 while maintaining the pins 23 in engagement with the grooves 18 for turning the socket. If desired, the opening 14 of socket 10 may be counter sunk to conform to the bevel of neck 24. Spindle 20 is also provided with a bead or flange 25 adjacent

bevelled neck 24 for limiting the engagement of head 22 with opening 14. The ribs 18 are squared up to also permit direct application of the shank of ratchet tool 16 to the socket.

The head 22 of spindle 20 may be inserted in opening 14 of socket 10 with the axes of the spindle and socket in alinement and the rounded pins 23 seated in grooves 19 in contact with ribs 18 for turning the socket to lighten or loosen nuts or bolts located where clearance at the sides of the latter precludes direct application of the shank of ratchet handle 16 to opening 14 of the socket.

Where obstructions above a nut or bolt prevent application of spindle 20 to socket 10 with their axes in alinement the head 22 of spindle 20 may be inserted in opening 14 of the socket 10 with the spindle shank at an angle to the socket, the inclination of the spindle being permitted by the bevel of the neck portion 24. The spherical head 22 and its pins 23 provide a universal joint connection between the socket and spindle 20 so that the spindle may be rotated without gyration of its axis as the pins 24 traverse or ride up and down in the grooves 19 of the socket on turning of the spindle to tighten or loosen a fastener.

What I claim is:

1. In a socket wrench: a socket member provided with a wrench-engaging opening and having an opening-bounding wall formed with grooves extending axially of said socket member from adjacent the outer end of said opening to provide longitudinal ribs on the interior surface of said wall; an extension member for turning said socket; a head on said member freely enterable in said opening; pins projecting from said head into said grooves for engaging said ribs to connect said socket member and extension member and permitting said extension member to be disposed for rotation at angles in planes transverse to the axis of said socket member, said pins traversing said grooves on rotation of said extension member when disposed at an angle to said socket member.
2. A socket wrench comprising a socket member provided with an opening the imperforate bounding-wall of which is formed with oppositely located grooves extending from adjacent the outer end of said opening to provide ribs extending longitudinally thereof; and an extension member having a spherical head freely enterable in said opening and provided with angularly disposed pairs of diametrically projecting pins on said head for engaging said ribs to connect said members.

GEORGE FREDERICK CROESSANT.