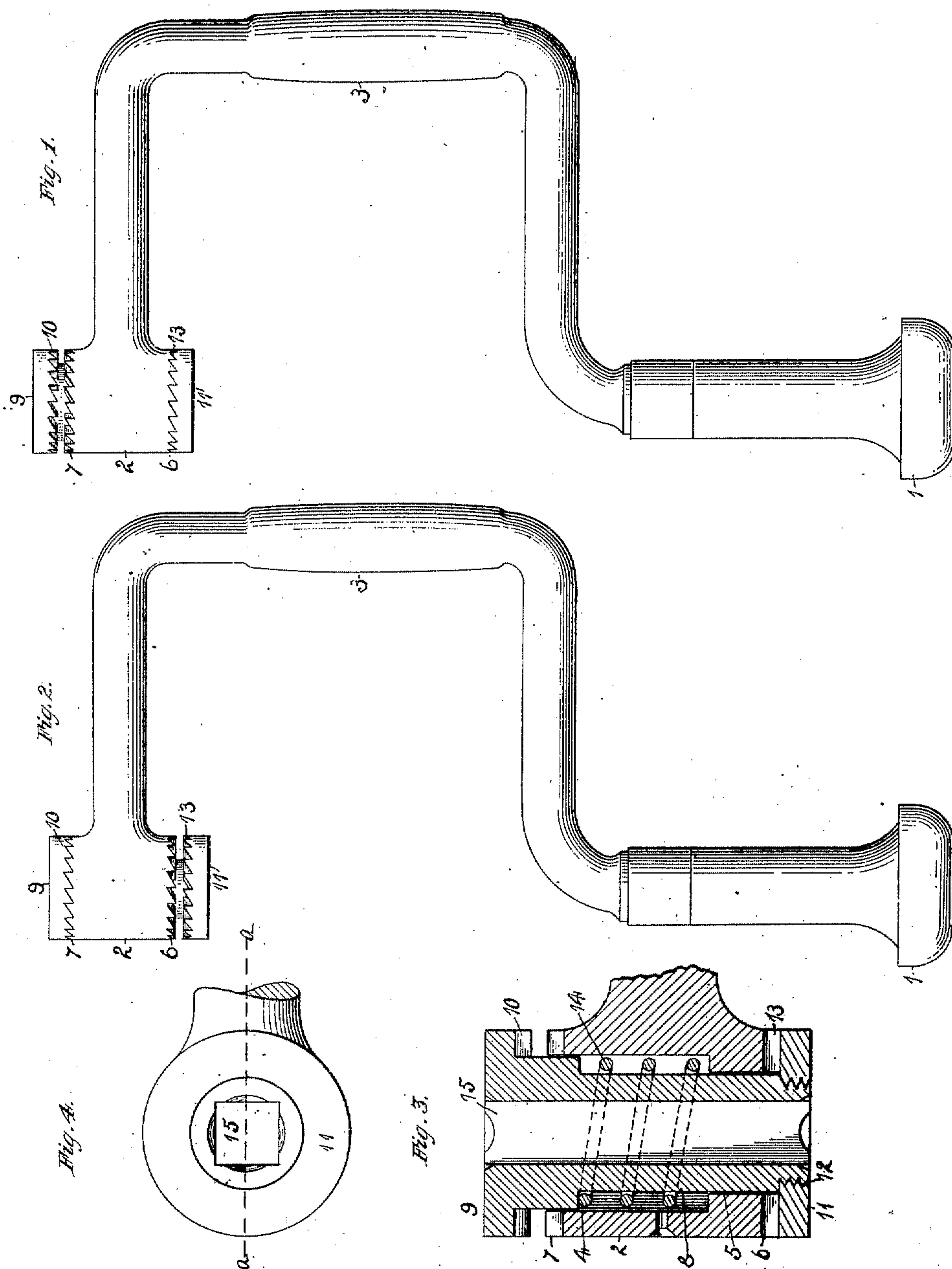


F. H. SERVATIUS.  
WRENCH.  
APPLICATION FILED JAN. 14, 1910.

982,886.

Patented Jan. 31, 1911.



Witnesses:  
W. G. How.  
E. Behel.

Inventor:  
Fred H. Servatius  
By A. O. Behel  
Atty.

# UNITED STATES PATENT OFFICE.

FRED H. SERVATIUS, OF ROCKFORD, ILLINOIS.

WRENCH.

982,886.

Specification of Letters Patent.

Patented Jan. 31, 1911.

Application filed January 14, 1910. Serial No. 532,749.

*To all whom it may concern:*

Be it known that I, FRED H. SERVATIUS, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

The object of this invention is to construct a ratchet wrench in which the handle may be given an oscillatory movement in tightening or loosening a nut.

In the accompanying drawings, Figure 1 is an elevation of my improved wrench in which a connection is formed to loosen a nut. Fig. 2 is a similar elevation in which a connection is formed to tighten a nut. Fig. 3 is a section on dotted line *a a* Fig. 4. Fig. 4 is an end view of the head showing the rectangular opening 15.

The wrench comprises the rest 1, head 2 and intermediate crank section 3. The head 2 has a central bore 4 having one end 5 of less diameter than the other end, forming an internal annular shoulder. One face of this head is formed with ratchet teeth 6 and the other face is formed with ratchet teeth 7. A cylindrical socket member 8 is rotatably mounted in the bore 4, and has a portion of less diameter that projects through said end 5. This member has an enlarged end 9 formed with ratchet teeth 10 that cooperate with the teeth 7 of the head. The other end of the socket member is formed with screw threads 12, and a holding plate 11 is screwed on to said end and is provided with teeth 13 that cooperate with the teeth 6. It will be observed by reference to Fig. 3 that by forming the socket member with two portions of different diameters, a peripheral shoulder is produced that is located in opposition to the internal shoulder of the bore. It will also be noted by reference to Fig. 3 that the portion of the socket member which is of larger diameter, is of less length than the portion of the bore which is of larger diameter, and thus a space is left within the head and around the socket member between the two opposing shoulders. In this space and surrounding the smaller portion of the socket member is a coiled spring 14, the ends of which respectively bear against the opposing shoulders. The action of this spring is to hold the ratchet teeth 13 of the plate 11 in engagement with the ratchet teeth 6 of the head 2, as illustrated in Figs. 1 and 3.

By pressing against the nut 1, the ratchet teeth 7 of the head 2, will be moved into engagement with the ratchet teeth 10 of the end 9, as shown in Fig. 2.

In use, the shank of a socket tool fitted to receive a nut is placed in the rectangular opening 15 in the cylindrical section 8, and the head is brought into engagement with the end 9 of the cylindrical section and by turning the crank portion 3 to the right the tool is rotated, which will turn a nut, a partial revolution may be given the crank portion as the nut becomes tight.

In loosening the nut, the spring 14 will force the head 2 into engagement with the plate 11. By turning the crank portion to the left, the tool will be rotated, or partially rotated, which will loosen the nut.

The connection of the cylindrical section with the head 2 is such that the axis of rotation and longitudinal movement of the cylindrical section is in line with the rest 1.

I claim as my invention.

A wrench comprising a rest, a head and a crank connecting the rest and head, said head having a bore therethrough, the bore having its end portions of different diameters, forming an internal annular shoulder, oppositely set teeth formed upon the ends of the head and surrounding the bore, a socket member rotatably mounted in the bore of the head and having portions of different diameters that are respectively located in the corresponding portions of said bore, forming a peripheral shoulder on the socket member, the portion of the socket member that is of larger diameter being of less length than the portion of the bore which is of larger diameter, leaving a space within the bore around the socket member and between the shoulders, and a coiled spring located in said space and bearing against the shoulders, said socket member having enlarged ends provided with teeth which cooperate with the teeth of the head.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRED H. SERVATIUS.

Witnesses:

A. O. BEHEL,  
E. D. E. N. BEHEL.