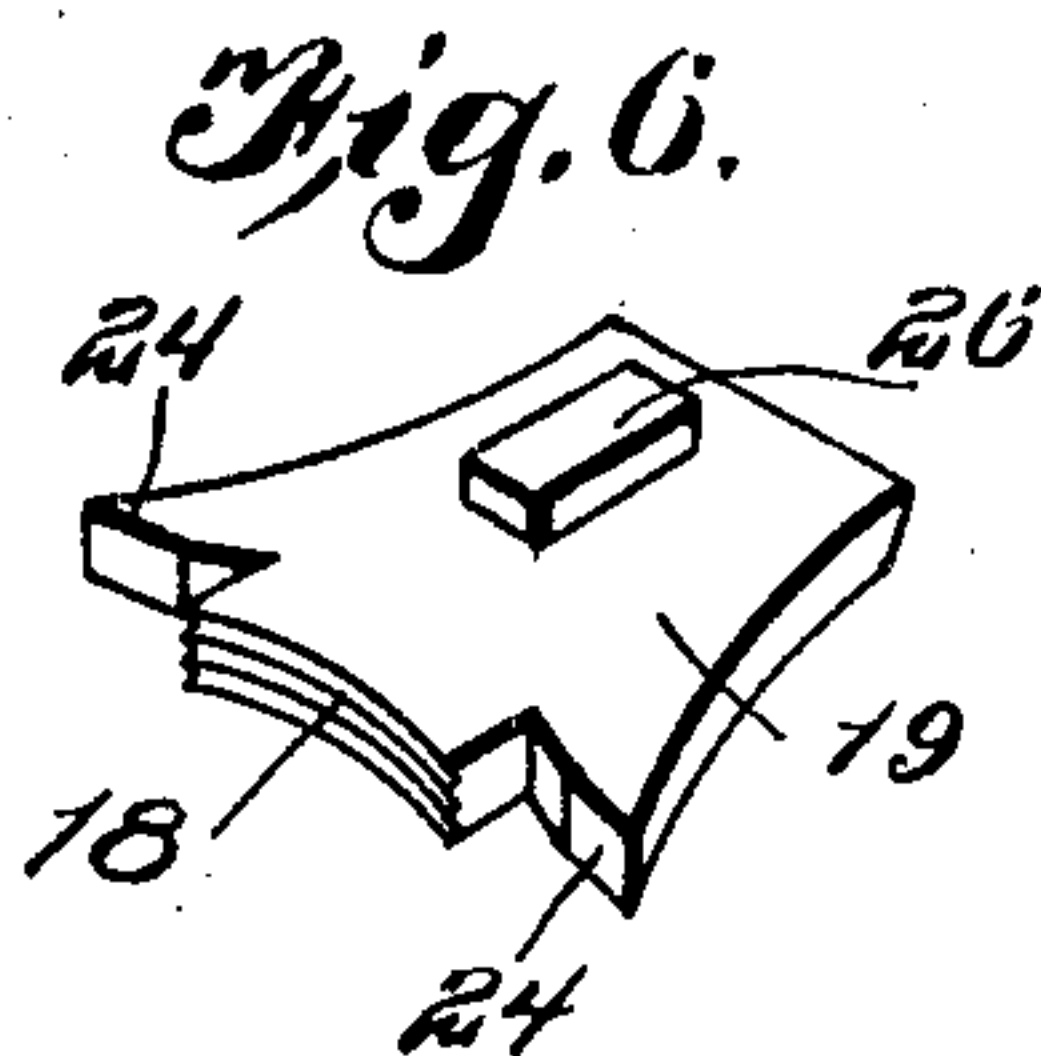
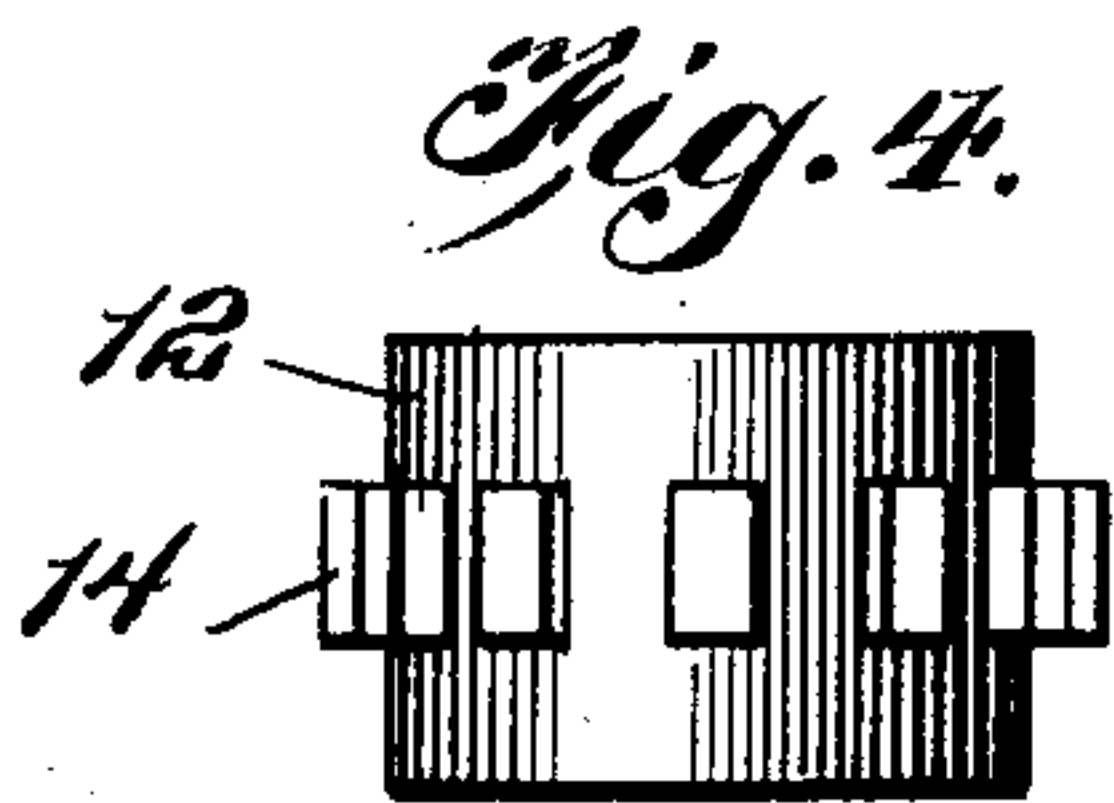
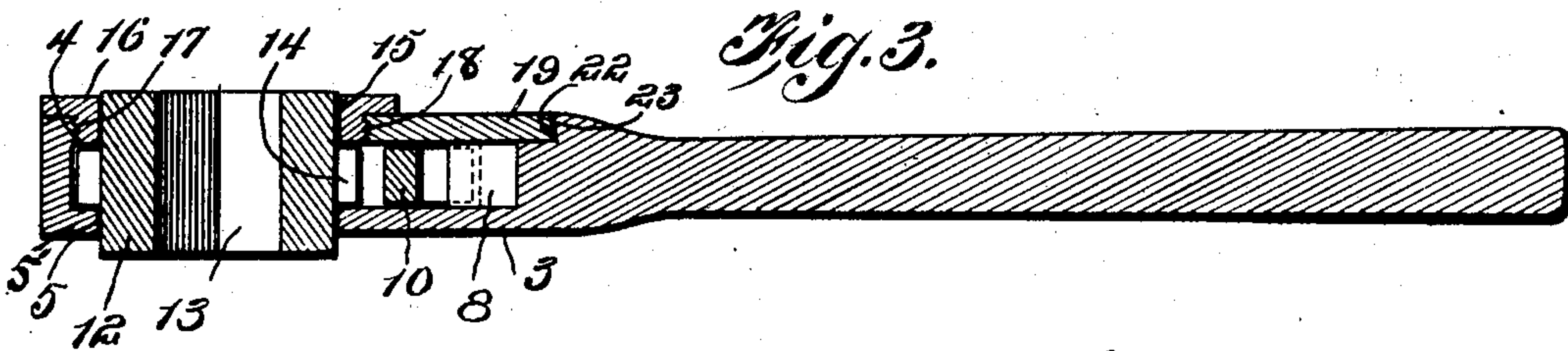
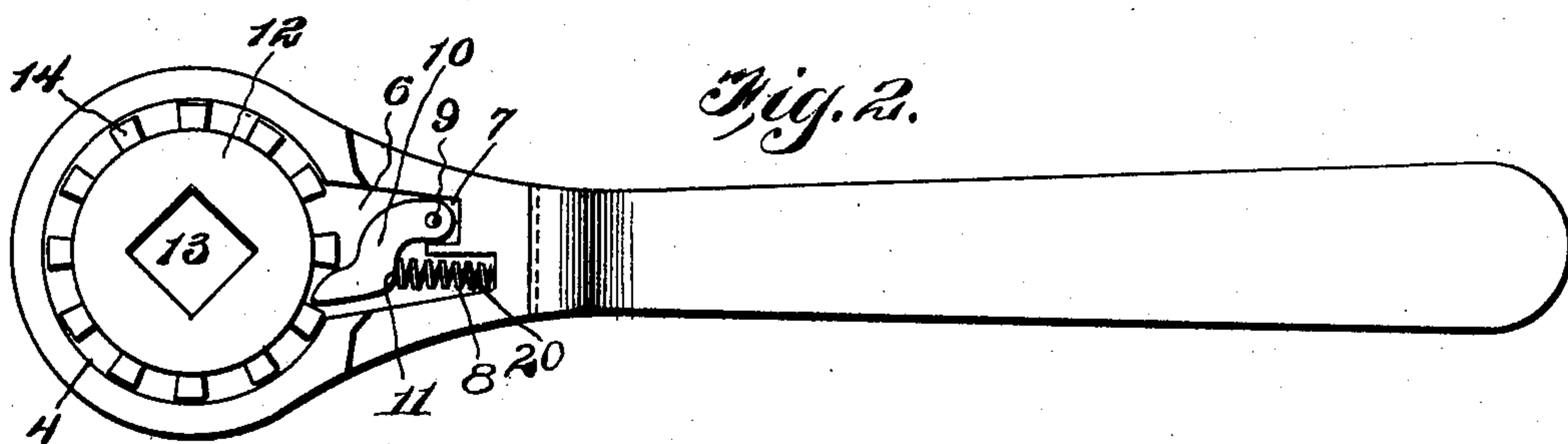
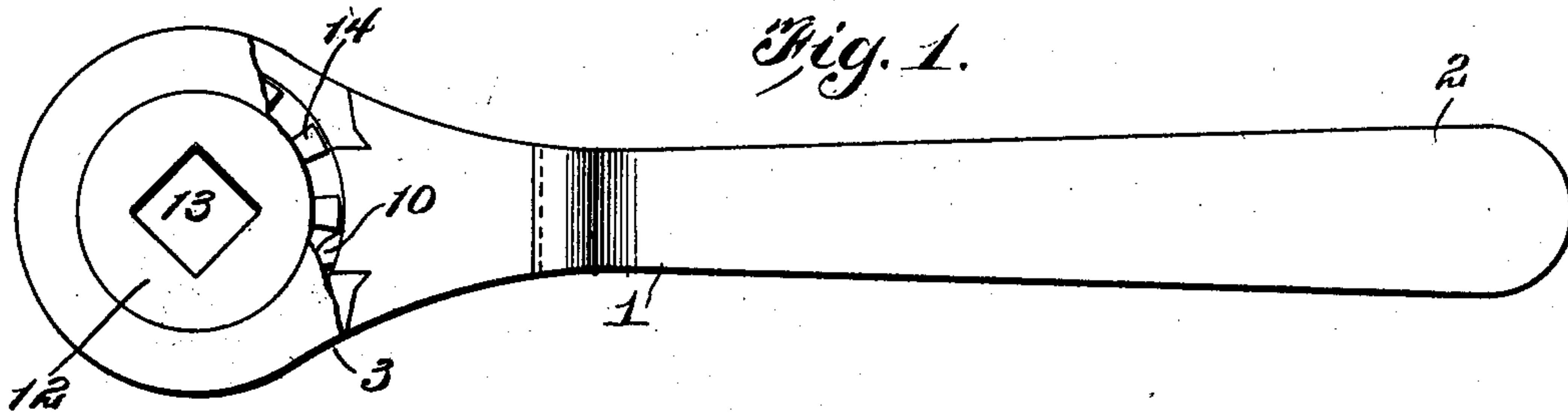


No. 896,607.

PATENTED AUG. 18, 1908.

W. L. ZELLER.  
RATCHET WRENCH.  
APPLICATION FILED MAR. 5, 1908.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WILLIAM L. ZELLER, OF SPRING BAY, ILLINOIS.

## RATCHET-WRENCH.

No. 896,607.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed March 5, 1908. Serial No. 419,370.

*To all whom it may concern:*

Be it known that I, WILLIAM L. ZELLER, a citizen of the United States, residing at Spring Bay, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Ratchet-Wrenches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to ratchet wrenches, and has for its object to provide, in a wrench of this kind, a new improved form of pawl-mounting mechanism, and also to provide novel and efficient means for holding the various parts together.

Herein is described a preferred embodiment of my invention. While I have described the minute details, I do not wish to limit myself to these, as the details of size and construction may be varied without departing from the spirit and scope of the invention.

In the annexed drawing forming part of this specification and in which like reference characters refer to like parts throughout the several figures, Figure 1 is a top plan view of my device, parts being broken away; Fig. 2 is a top plan view with the casing plate removed; Fig. 3 is a longitudinal sectional view; Fig. 4 is a side elevation of the rotating head; Fig. 5 is a side elevation of the threaded annulus; and Fig. 6 is a perspective view of the casing plate.

Referring to the drawings, wherein the various sizes shown are for illustrative purposes only and not drawn to any particular scale, as shown, the wrench comprises a shank, 1, having a handle, 2, at one end and an enlargement, 3, at the other. Said enlargement is provided with an opening 5 extending transversely therethrough and having an annular recess 4 formed by an inturned flange 5' at one end of the enlargement and communicating with said opening 5. Communicating with said recess 4 is a recess, 6, with a pair of smaller recesses, as 7 and 8, communicating therewith. In said smaller recess, 7, is pivotally mounted, as at 9, a pawl, 10. Said pawl extends diagonally across the recess, 6, and is provided with a shoulder, 11, opposite the smaller recess, 8. Rotatably mounted in the opening, 5, is a rotating head, 12, provided with an angular socket, 13, and peripheral teeth, 14, which project into the

annular recess 4. The body portion of the head 12 projects downwardly through the opening 5 and upwardly through an opening 15 in an annulus 16 screw threaded into engagement with threads 17 formed on the inner face of the wall of the opening 5 at the end opposite the inturned flange, and threads 18, in the end of a casing plate, 19, to be described. By this arrangement the rotating head 12 is provided with annular bearings consisting of the inturned flange and the annulus.

In the recess 8 is seated a coil spring, 20, adapted to press the pawl 10 into engagement with the teeth 14 of the head 12. To hold the pawl 10 and the spring 20 in place, there is provided a casing plate, 19. This plate consists of a body portion provided at its rear part with a beveled portion 22 adapted to seat under an undercut portion 23 of the enlargement 3. Near the forward end of said plate are provided laterally extending shoulders, 24, adapted to engage correspondingly shaped shoulders, on the enlarged portion 3 and there are also provided threads, 18, on the plate 19 as above described. It will be seen that the plate 19 is held in place by means of the beveled portion 22 and the shoulders 24 and the forwardly screw-threaded projecting portion 18. The plate 19 is first put in place and the annulus 16 screwed in place thereafter. It will be noticed that the angular opening 13 extends entirely through the reduced head 12, thus providing wrench-receiving openings on both sides of the head.

The operation of my device is as follows: The angular opening 13 is fitted on the nut and the handle 1 is rotated in a left-hand direction, carrying with it, by means of the pawl 10, the rotating head 12. After the handle has been rotated in this direction as far as convenient, the direction of this rotation is reversed, the pawl 10 riding over the teeth 14, as is apparent. The operation is then repeated until the nut has been turned as far as desired.

When it is necessary to remove the nut, the wrench is simply reversed, which reversal will change the direction of rotation of the rotating head 12.

In order that the wrench may be used with different sized nuts, a plurality of rotating sockets is provided, each having an opening of a different size or shape. By unscrew-

ing the threaded annulus, the rotating head in the wrench may be removed and another substituted.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent, is:

A wrench comprising a handle having an enlarged portion provided with an annular opening and a recess communicating therewith, a rotating head provided with peripherally projecting teeth mounted for rotation in said opening, a plate adapted to cover said recess and provided with a rearwardly extending beveled portion adapted to lock under an undercut portion of said enlargement and being provided also with a for-

wardly extended threaded portion, an externally threaded annulus adapted to be screwed into said opening to engage the walls thereof and the threaded portion of said plate, a flange on said annulus adapted to overlap the end of said plate, and a spring-pressed pawl in said recess adapted to engage said teeth.

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

WILLIAM L. ZELLER.

Witnesses:

THERESA MERDIAN,  
C. N. BARNES.