

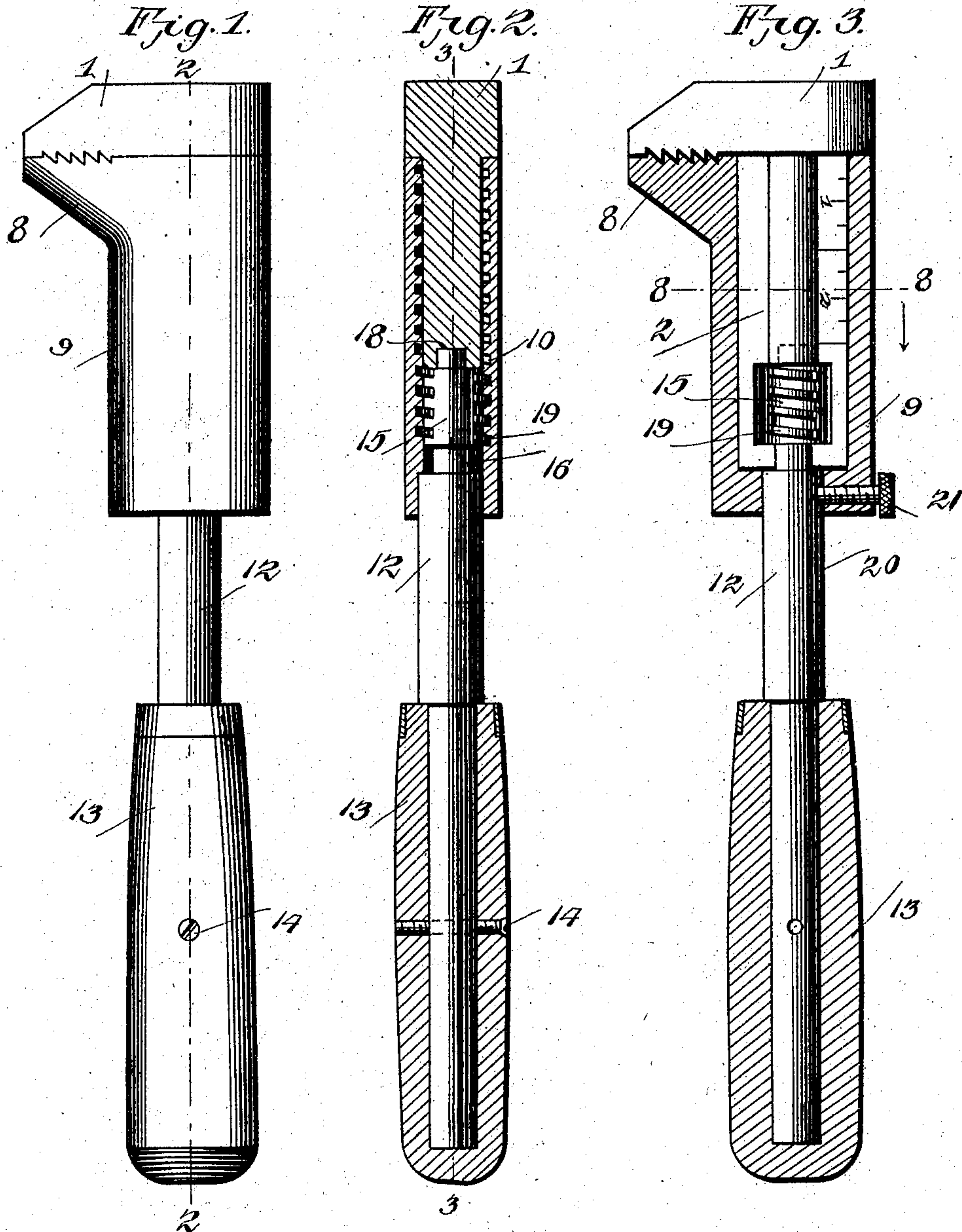
No. 815,872.

PATENTED MAR. 20, 1906.

J. A. SMITH.  
WRENCH.

APPLICATION FILED DEC. 27, 1904.

2 SHEETS—SHEET 1



Inventor  
J. A. Smith

Witnesses  
Frank W. Hough

J. J. Elmore

By

Victor J. Evans  
Attorney

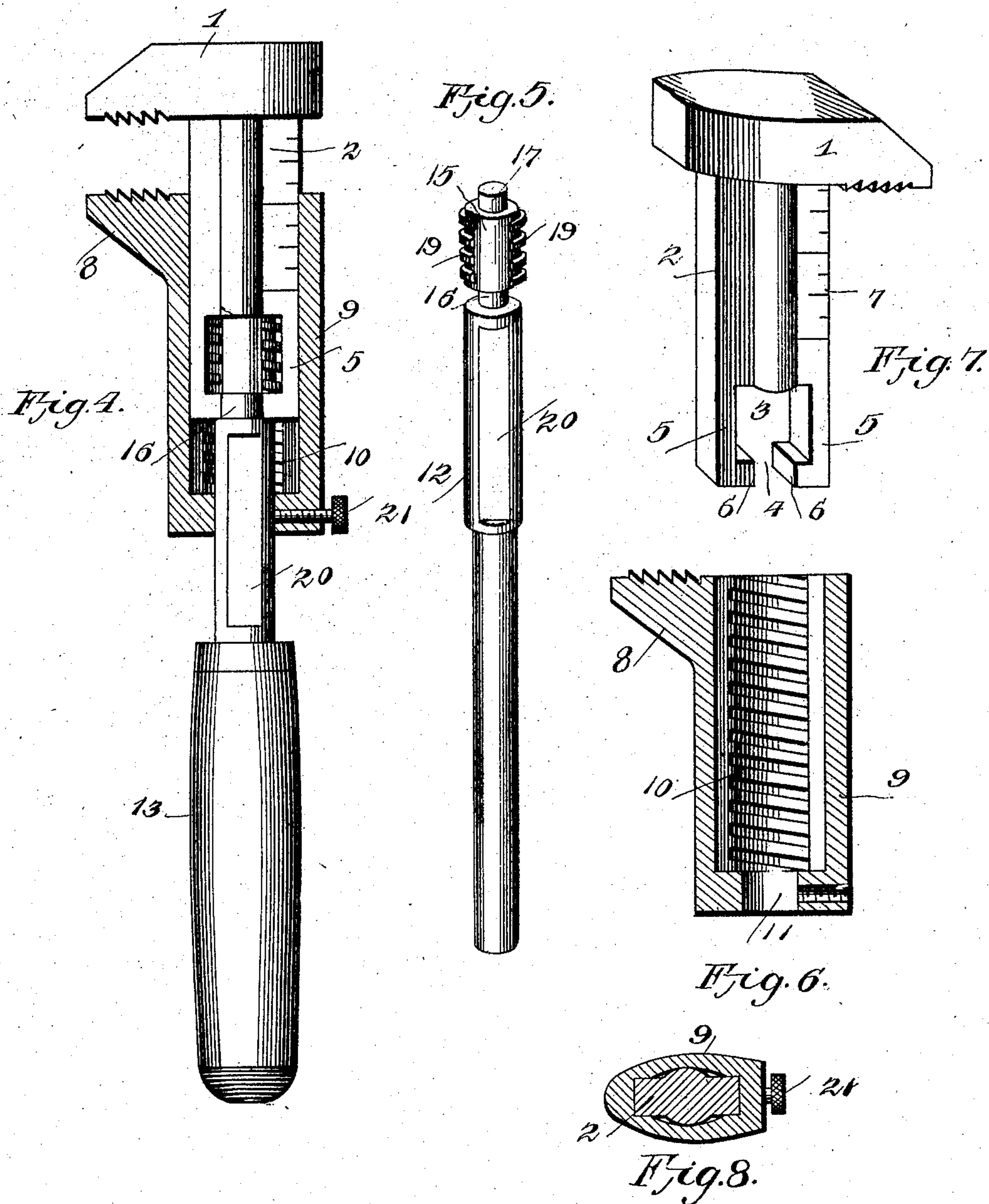
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# UNITED STATES PATENT OFFICE

JED A. SMITH, OF LIGONIER, PENNSYLVANIA, ASSIGNOR OF ONE-HALF  
TO ROBERT S. BLESCH, OF LIGONIER, PENNSYLVANIA.

## WRENCH.

No. 815,872.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed December 27, 1904. Serial No. 238,347.

*To all whom it may concern:*

Be it known that I, JED A. SMITH, a citizen of the United States, residing at Ligonier, in the county of Westmoreland and State of Pennsylvania, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to wrenches, and has for its objects to produce a simple inexpensive device of this character which may be readily adjusted for engagement with a tap or pipe and fixed when circumstances require, in its adjusted position, and one in which the parts of the wrench may be quickly disconnected or associated.

To these ends the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation of a wrench embodying the invention. Fig. 2 is a longitudinal section taken on the line 2 2 of Fig. 1. Fig. 3 is a longitudinal sectional elevation, the section being taken on the line 3 3 of Fig. 2. Fig. 4 is a view similar to Fig. 3, showing the shank of the wrench turned to releasing position for permitting adjustment of the movable jaw. Fig. 5 is a perspective view of the rotary member or shank. Fig. 6 is a detail sectional view of the movable jaw. Fig. 7 is a perspective view of the fixed jaw. Fig. 8 is a detail transverse section taken on the line 8 8 of Fig. 3 and viewed in the direction of the arrow.

Referring to the drawings, 1 designates the fixed head of the wrench, which is provided with a stem or shank 2, provided at its rear end with a substantially rectangular recess or seat 3 and an opening 4 communicating with said recess, thus presenting a pair of parallel spaced engaging arms 5, provided with in-turned fingers 6, there being arranged upon one side face of the shank suitable graduations 7, indicating inches and fractions thereof.

Arranged for sliding movement upon the shank 2 of the fixed jaw is a movable jaw 8, having a tubular portion or sleeve 9, in which the shank 2 fits, said sleeve being provided upon its opposite side faces with a longitudinal series of screw-threads, while the rear end wall of the sleeve is centrally perforated, said perforation being in alinement with the opening 4, between the engaging arms 5, and

adapted as a bearing for a rotary actuating member or shaft 12, upon the rear end of which is fixed a handle 13, secured in place by means of a transverse fastening member or screw 14. The shaft 12, which constitutes, in effect, a continuation of the shank 2, is provided at its forward end with an engaging portion or head 15, of substantially elliptical form in cross-section, adapted to seat within the recess 3 between the arms 5, there being formed upon the shaft in rear of the head 15 a reduced cylindrical bearing portion 16, which fits within the openings 4, and in advance of said head a cylindrical projection 17, adapted to enter a corresponding bearing socket or seat 18, formed in the rear end of the shank 2, the parts 16 and 17 constituting journals on which the member 12 rotates.

The head 15 is provided at opposite points with two sets of longitudinal screw-threads 19, adapted to mesh, respectively, with the series of threads 10, formed within the sleeve 9, attention being directed to the fact that the threads 19 are disposed at opposite ends of the major axis of the elliptical head, while the faces of the head opposite the ends of the minor axis are free from teeth, whereby the teeth 19 may be thrown into and out of engagement with the corresponding teeth 10 by a partial rotation of the head 15.

The shaft or shank 12 is provided with a flattened portion or face 20, disposed in alinement with one of the smooth faces of the head 15 and adapted for engagement by a locking member in the form of a screw 21, tapped transversely through the sleeves 9 adjacent its rear end, whereby the sleeve may after adjustment of the movable jaw be fixed in its adjusted positions.

In practice when it is desired to adjust the wrench for engagement with a pipe or nut the member or shank 12 is turned to disengage the teeth 19 from the teeth 10, whereupon the movable jaw may be moved freely longitudinally of the shank to the desired position, which may be determined by the graduations 7. Having been moved to the proper position, the jaw is again fixed against movement by turning the member 12 in the reverse direction to effect interengagement of the teeth 19 and 10, after which operation, if it be desired to employ the wrench for a considerable time upon nuts or pipes of a uniform size, the set-screw 21 may be manipulated to



lock the member 12 against further movement. For disconnecting the parts of the wrench the screw 14 is removed, thus permitting removal of the handle 13 from the shank  
5 12. The latter may then be forced forwardly through the sleeve 9 until the recess 3 and head 15 are exposed, whereupon by a lateral movement of the parts the head may be readily unseated from the recess, it being understood, of course, that the projection 17  
10 will have sufficient play in the socket 18 to permit proper movement of the parts for disconnection. For assembling the parts a reversal of this operation is resorted to.  
15 From the foregoing it is apparent there is produced a simple, inexpensive, interchangeable wrench which may be readily and quickly adjusted to the desired size and one in which after adjustment the parts may be firmly secured in their adjusted positions. In attaining these ends it is to be understood that  
20 minor changes in the details herein set forth

may be resorted to without departing from the spirit of the invention.

Having thus described the invention, what 25 is claimed as new, and desired to be secured by Letters Patent, is—

In a wrench, a jaw having a shank provided with a pair of spaced engaging arms having terminal inturned fingers, a relatively 30 movable jaw having an internally-threaded sleeve adapted to receive the shank, and a rotary shaft having a head disposed between and engaged by the arms within the sleeve, said head being provided with threads adapted 35 for engagement or non-engagement with the threads in the sleeve.

In testimony whereof I affix my signature in presence of two witnesses.

JED A. SMITH.

Witnesses:

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J. A. GASTEIGER.