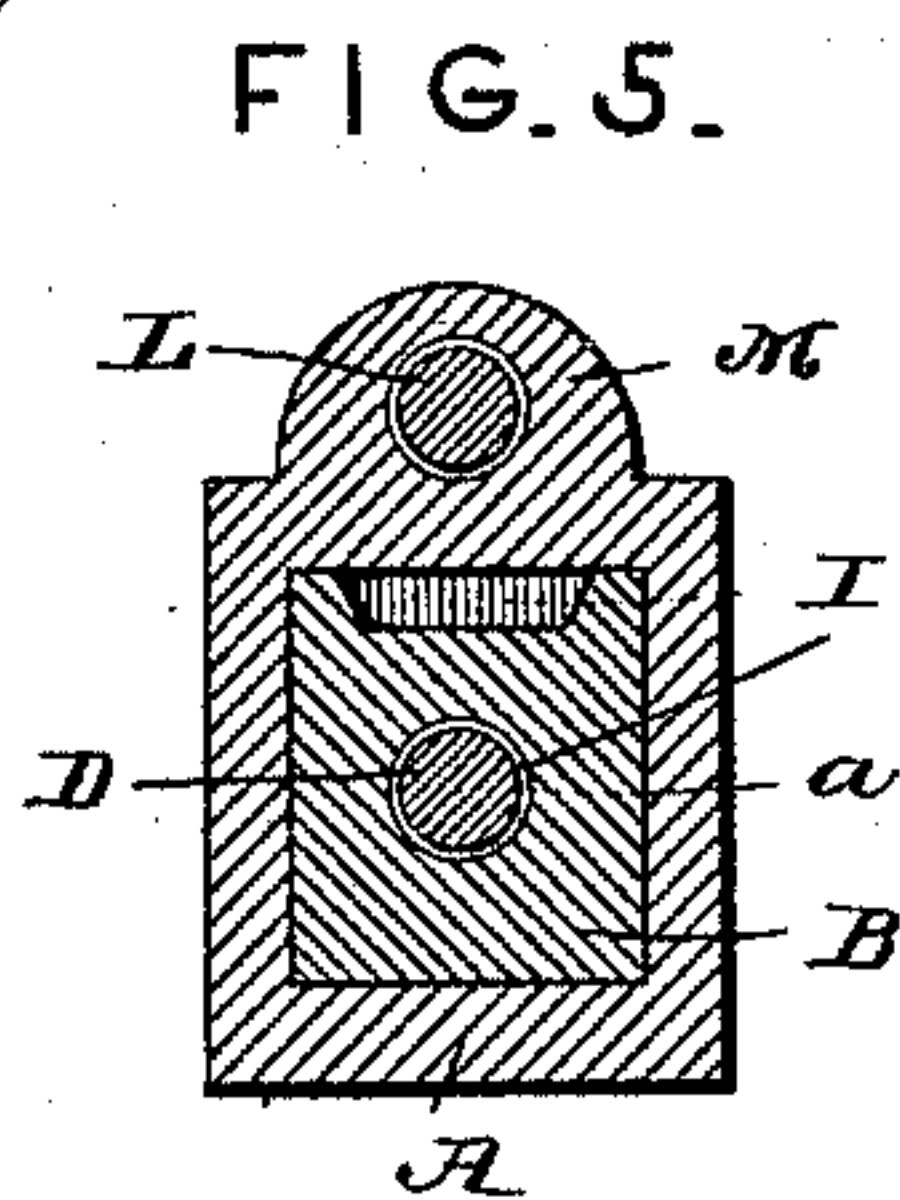
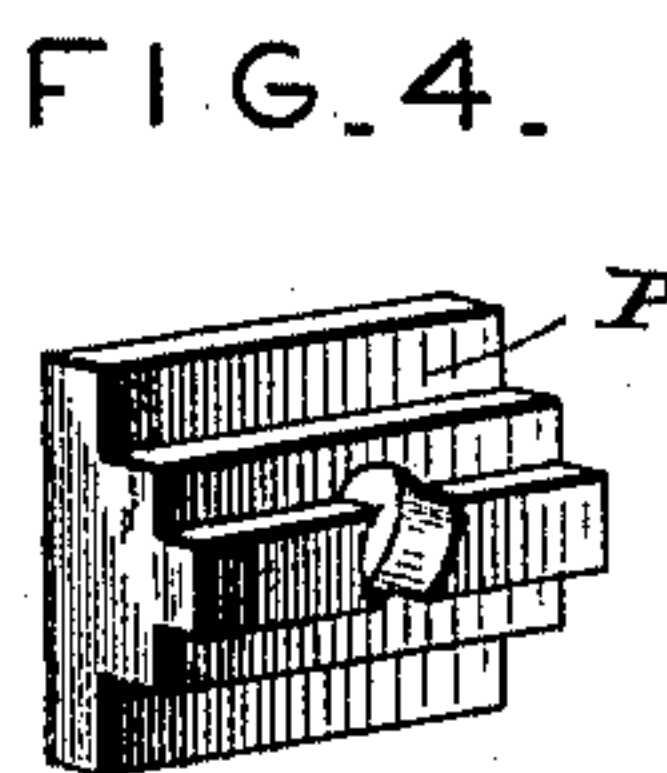
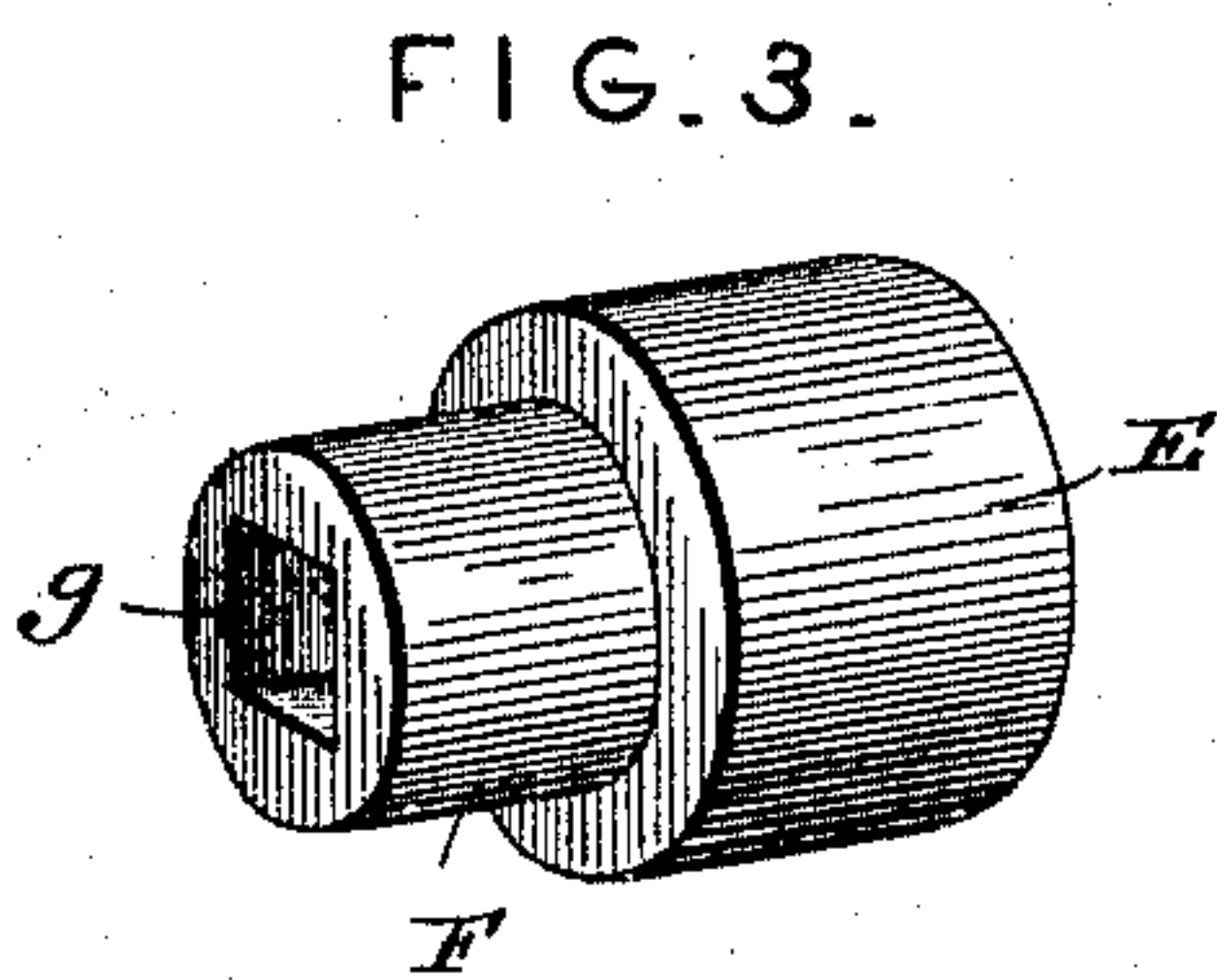
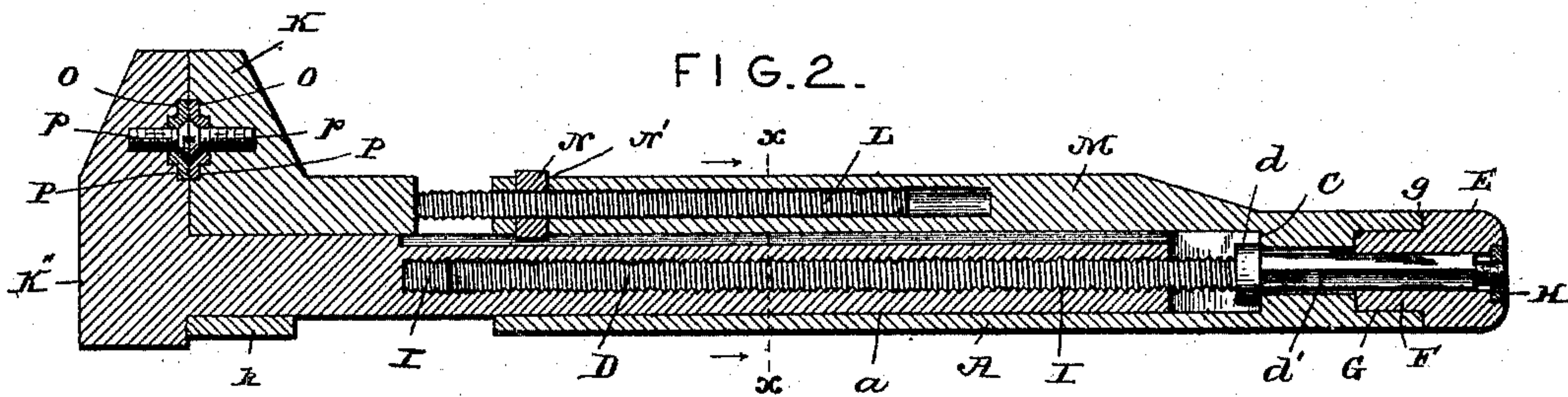
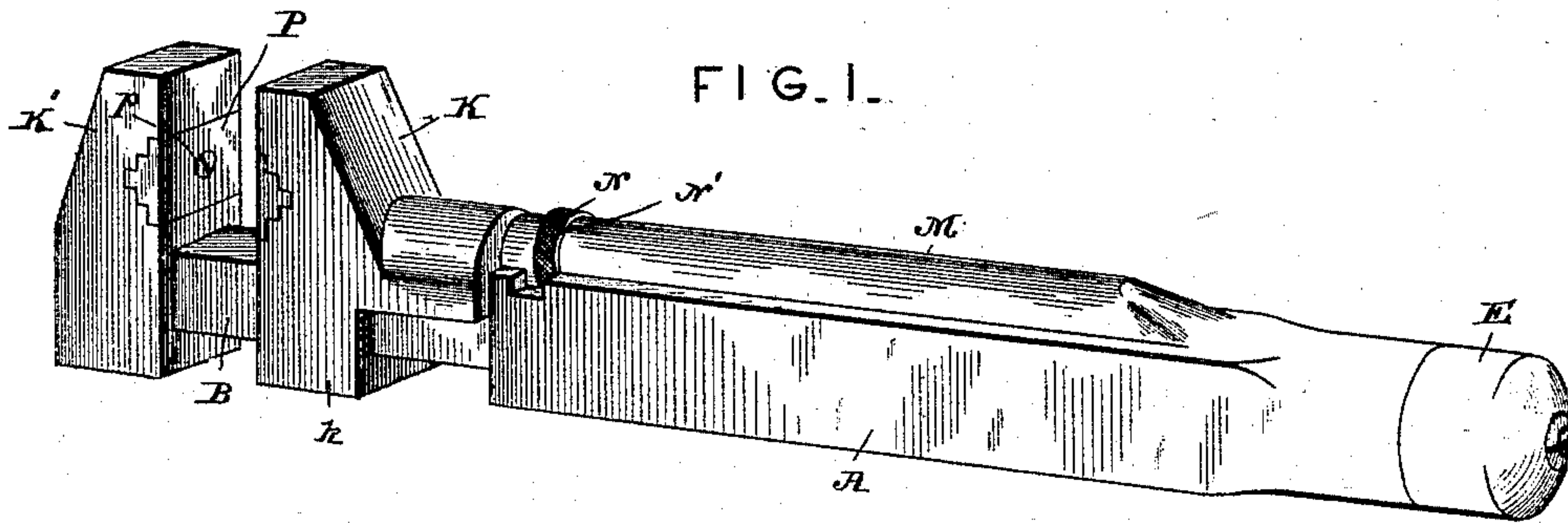


(No Model.)

W. H. T. KING.  
WRENCH.

No. 496,941.

Patented May 9, 1893.



Witnesses

Harry L. Amer.

*[Signature]*

Inventor

Will H. T. King.

By his Attorneys,

*Calhoun & Co.*



# UNITED STATES PATENT OFFICE.

WILL HENRY THOS. KING, OF DALLAS, TEXAS.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 496,941, dated May 9, 1893.

Application filed July 29, 1892. Serial No. 441,592. (No model.)

*To all whom it may concern:*

Be it known that I, WILL HENRY THOS. KING, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented a new and useful Wrench, of which the following is a specification.

My invention relates to improvements in wrenches, the object of the improvement being to provide a wrench having both jaws movable and capable of a separation about equal to the length of the handle; to provide a wrench having both jaws movable, in which the head or nut for operating the upper jaw is swiveled and forms a part of the handle; and to provide a nut-wrench which, by a simple and easily accomplished adjustment, may be converted into a pipe-wrench.

Further objects of my invention will appear in the following description, and the novel features are particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a side view of a wrench embodying my improvements. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail view of the adjusting head detached. Fig. 4 is a similar view of one of the filling-blocks detached. Fig. 5 is a transverse sectional view on line  $x-x$  of Fig. 2.

The handle A is hollow throughout, the bore  $a$  therein being angular to fit the angular shank B, which fits for sliding therein. At the lower end, or adjacent to the lower end, of the bore in the handle is an annular shoulder C, surrounding a reduced portion of the bore  $a$  through which passes the adjusting-screw D, having a collar  $d$  to bear and operate upon the upper side of said shoulder, as shown in Fig. 2.

The head E is of the same shape, diameter, and style as the adjacent portion of the handle, and it fits snugly against the lower end of the same so that its surface is flush throughout with that of the handle. This head is provided with a round boss F, which fits in a similarly-shaped socket G, in the end of the handle below the above-mentioned shoulder, the upper end of said boss bearing against the lower surface of the shoulder.

The adjusting-screw is provided below its collar  $d$  with a squared portion  $d'$ , which fits in a squared perforation in the head and boss,

said perforation  $g$  being axial to enable the screw to be turned by the operation of the head. The end of the screw, below its squared portion, is threaded to receive a nut H, which fits in a countersunk opening in the end of the head, whereby it is flush with the surface of the latter. The upper jaw of the wrench is secured rigidly to the upper end of the above-described shank B, the latter being axially bored and threaded, as shown at I, to receive and engage the adjusting-screw. The lower jaw K is provided with a yoke  $k$  to slide upon the shank of the upper jaw K', and is also provided with a depending threaded stem L, which fits in a sheath M, at the front side of the handle, and is engaged by a thumb-nut N, arranged in a transverse recess N', near the upper end thereof. The inner or binding faces of the jaws are provided with transverse toothed cavities or channels O, which are aligned with each other and are adapted, when exposed, to serve as the means for gripping pipes, rods, &c.

P P are filling-blocks, having one of their sides cut to conform to the teeth or serrations of the cavities or channels, and having flat outer surfaces to lie flush with the faces of the jaws, whereby, when in place, the faces of the latter are unbroken. These filling-blocks are secured in place by means of screws  $p p$ , which take into perforations in the jaws.

When the filling-blocks are in position, as shown in Fig. 1, the wrench is in condition for use as a nut-wrench, and by simply removing the filling-block it may be converted into a serviceable pipe or rod wrench.

From the above description it will be seen that the head by which the upper jaw is operated (through the shank and adjusting-screw), is stationary, and conforms in contour, as well as in size, to the handle and forms a continuation or extension thereof, so as to present no uneven or rough projection to catch and chafe the hands and interfere with the ready manipulation of the wrench. It will be noted, furthermore, that the length of the shank is such as to extend nearly to the lower end of the handle, and the adjusting-screw, which extends above the upper end of the handle, is capable of projecting the upper jaw a distance equal to the length of



said shank, so that the jaws may be separated a distance about equal to the length of the handle. Furthermore, the lower jaw is capable of an adjustment which is but little less than that of the upper jaw, and therefore, by adjusting both jaws outward, the length of the handle or the length of the leverage of the wrench is increased.

The manner of mounting the shank in the handle prevents displacement or straining of the parts, and gives the upper jaw, even when extended to the limit of its movement, a steady and effective purchase.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a wrench, the combination of a hollow handle, a swiveled adjusting screw mounted axially therein, a sliding shank carrying the upper jaw, fitting in the handle and provided with a tapped bore to receive the adjusting screw, a movable lower jaw mounted to slide upon said shank, and means for adjusting the lower jaw independently of the upper jaw, substantially as specified.

2. In a wrench, the combination with a hollow handle a shank fitting to slide therein, an upper jaw fixed to said shank, and an adjusting screw swiveled axially in the handle and engaging an axial threaded bore in the shank, of a movable lower jaw, mounted to slide upon the shank of the upper jaw, and means to adjust said lower jaw independently of the upper jaw, substantially as specified.

3. In a wrench, the combination of the hol-

low handle, the swiveled head, the adjusting-screw carried by said head, the shank fitting in the handle and bored to engage the screw, said shank carrying the upper jaw, and the lower jaw provided with a yoke to slide upon said shank, and having a depending threaded stem fitting in a sheath on the handle and engaged by a thumb-nut, whereby the lower jaw may be extended approximately to the end of the said shank, in any position of the latter, substantially as specified.

4. In a wrench, the combination with the jaws having the faces provided with cavities or serrations to engage pipes, rods, &c., of filling-blocks adapted to be secured therein and having smooth outer faces to lie flush with the faces of the jaws, substantially as specified.

5. In a wrench, the combination with the jaws provided with transverse toothed or serrated cavities or channels, of the filling-blocks having toothed or serrated inner sides to fit in said cavities or channels, and smooth outer sides to lie flush with the faces of the jaws, and means to secure said filling blocks in the cavities or channels substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILL HENRY THOS. KING.

Witnesses:

T. B. SALMONS,  
J. N. LARKIN.