

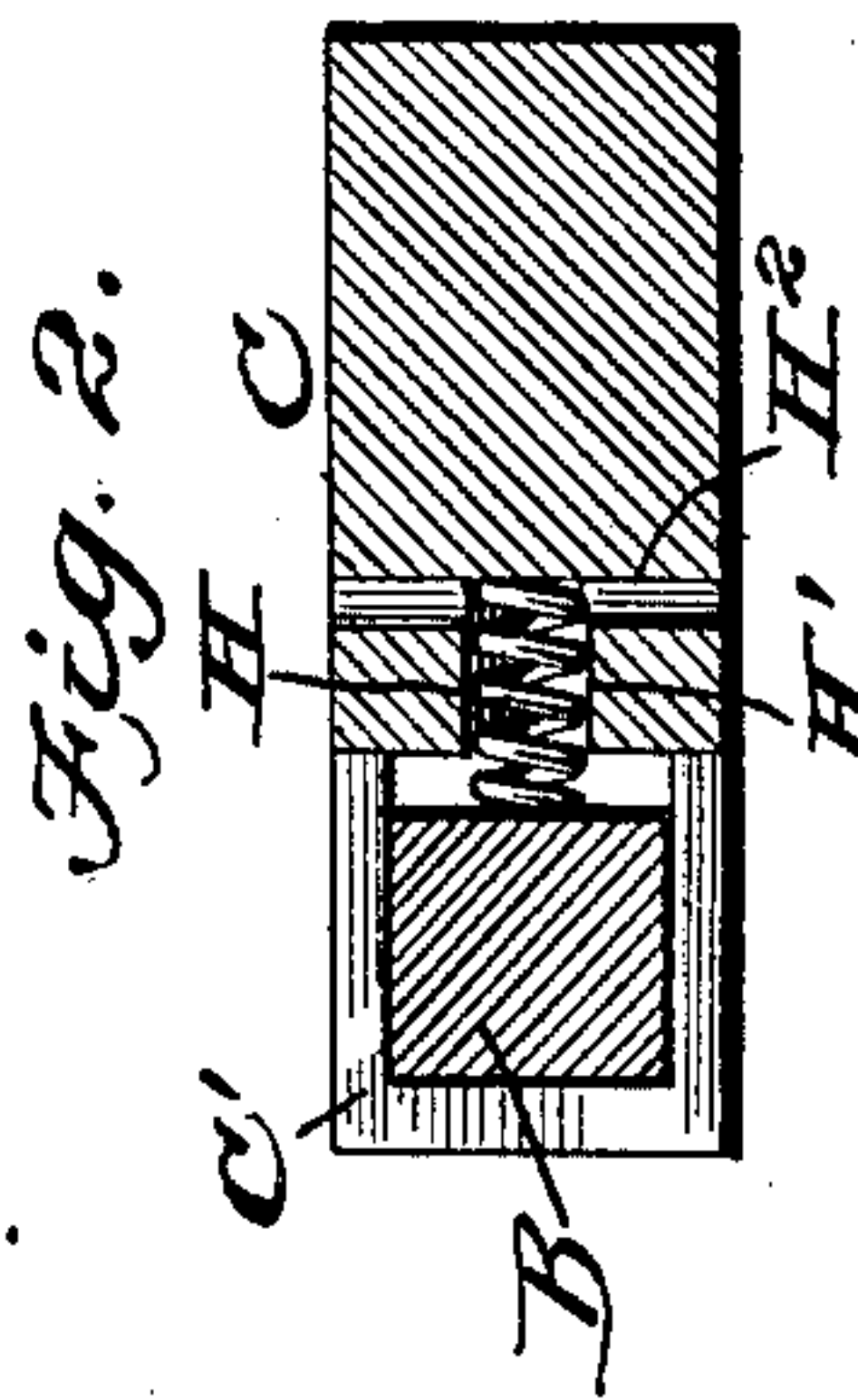
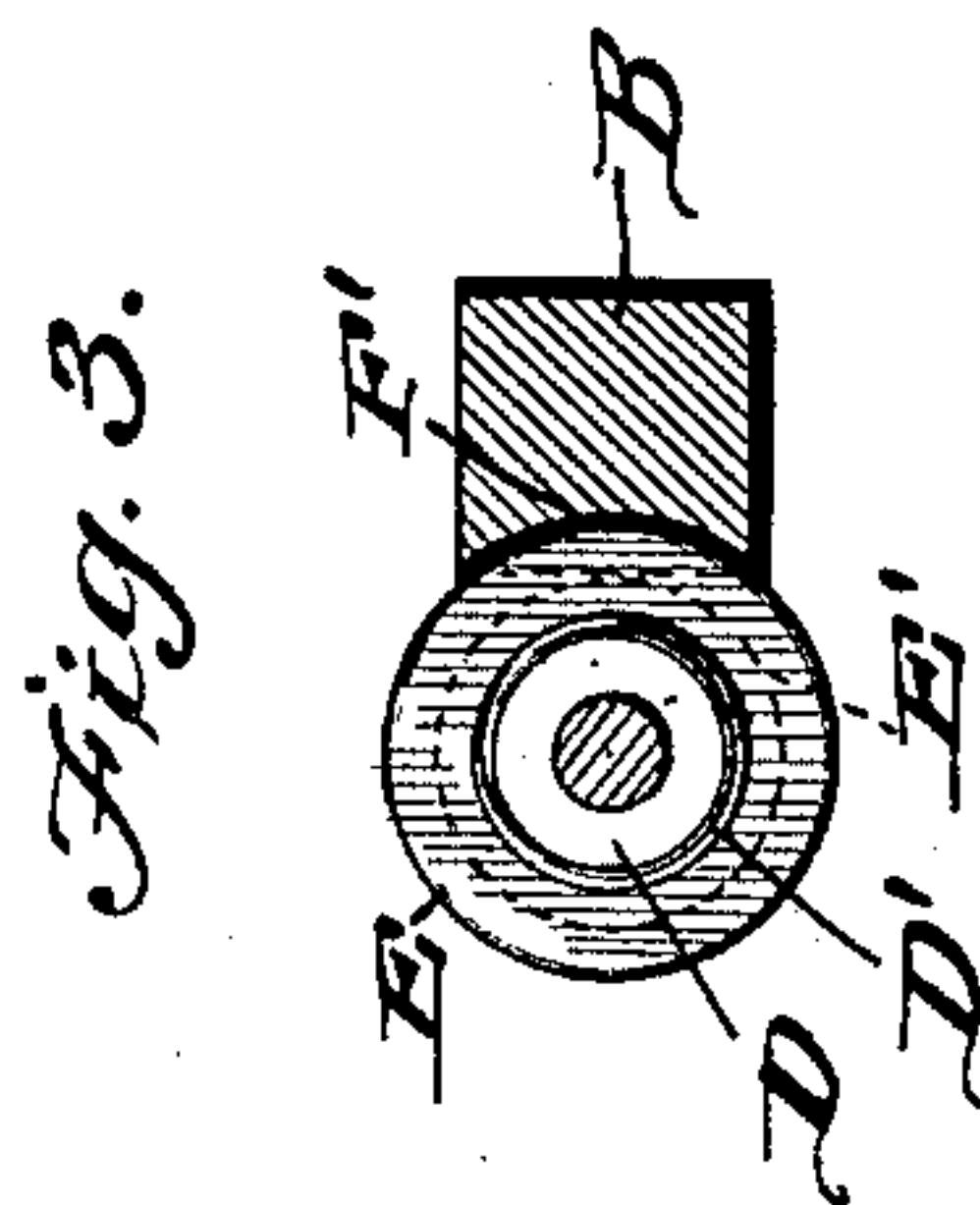
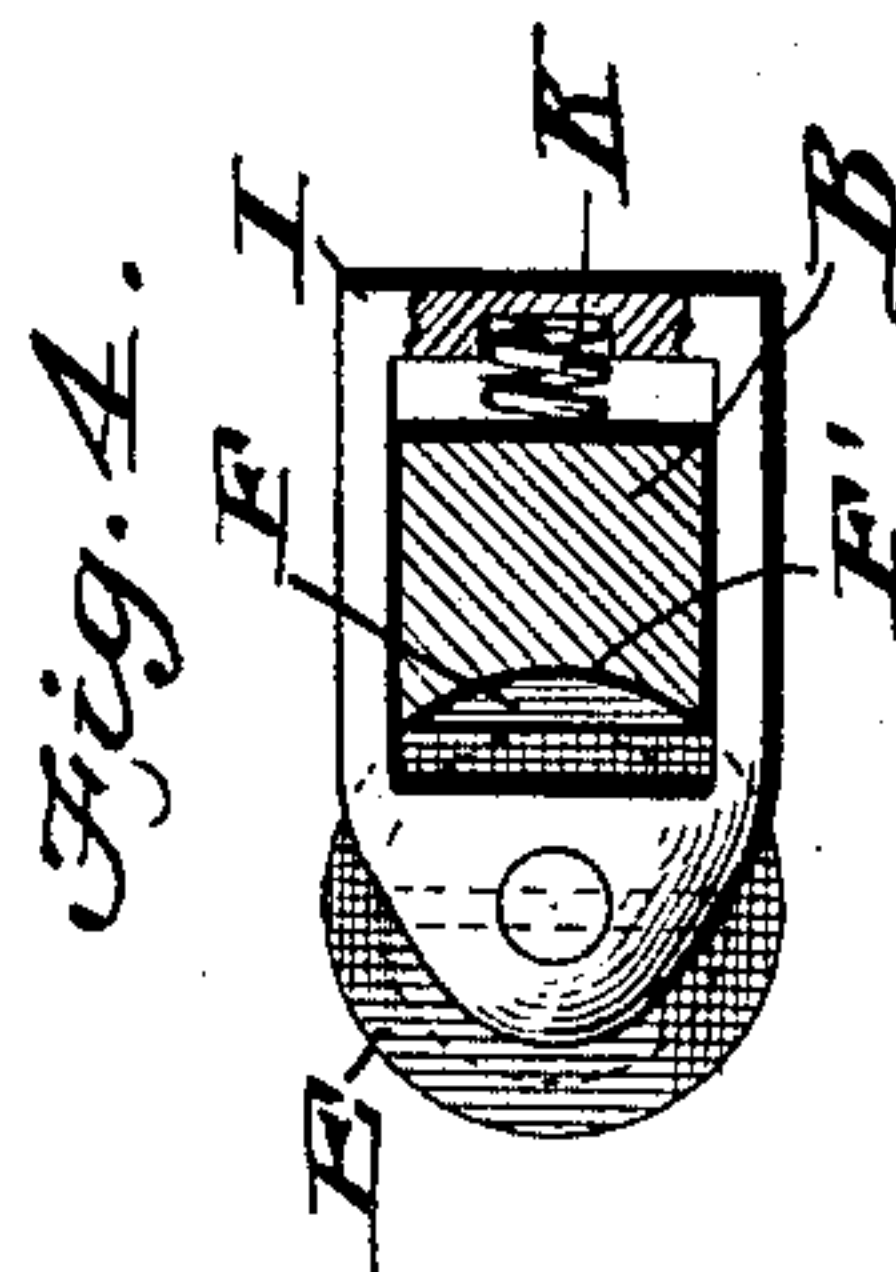
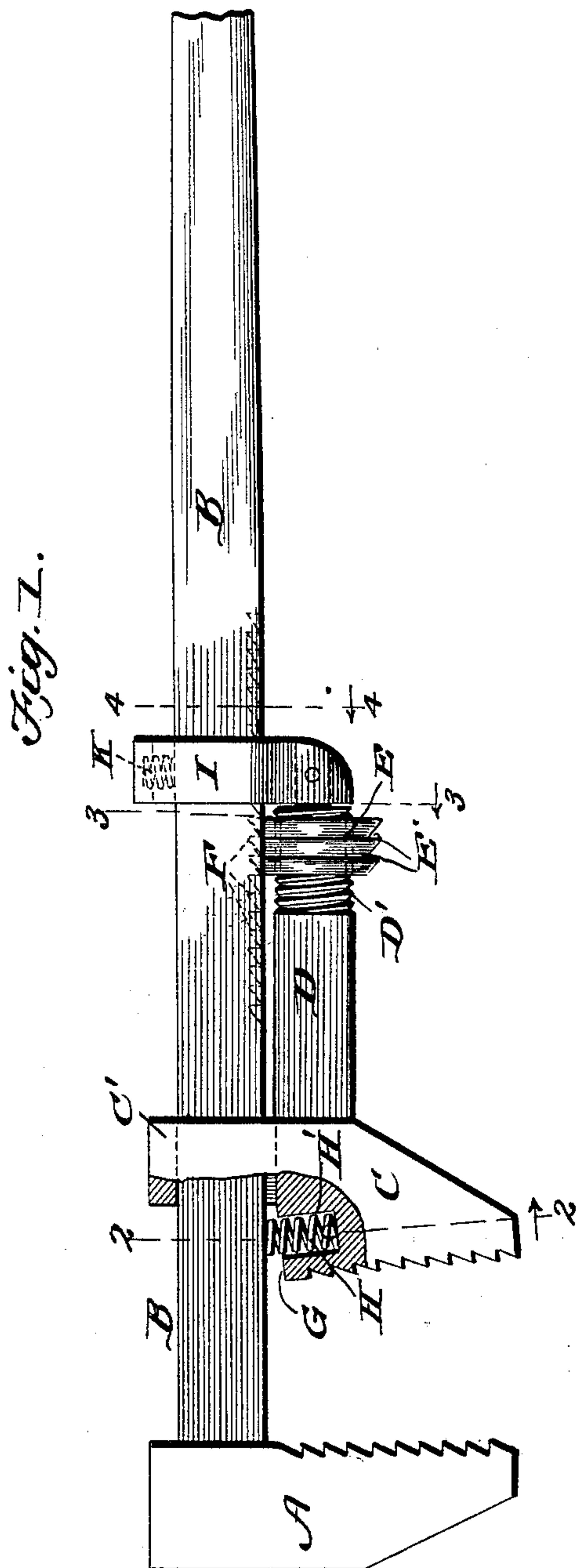
**No. 686,776.**

**Patented Nov. 19, 1901.**

**T. E. SMYTHE.  
WRENCH.**

(Application filed Mar. 1, 1901.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

THOMAS E. SMYTHE, OF GALION, OHIO.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 686,776, dated November 19, 1901.

Application filed March 1, 1901. Serial No. 49,456. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS E. SMYTHE, a citizen of the United States, residing at Galion, in the county of Crawford and State of Ohio, have invented a new and useful Wrench, of which the following is a specification.

This invention relates generally to wrenches, and more particularly to that class thereof known as "sliding-jaw" wrenches, the object being to provide a wrench of this kind which can be used either as a nut or pipe wrench and in which the movable jaw can be quickly and easily adjusted to or from the fixed jaw and an exceedingly accurate adjustment obtained.

With these objects in view the invention consists in providing a movable jaw with a rearwardly-extending bolt or threaded member adapted to have a nut screwed upon the threaded portion thereof, said nut being circular in form and having a series of circumferential ratchet-faced ridges adapted to engage ratchet-teeth cut upon the shank attached to the fixed jaw, whereby a quick and accurate adjustment of the movable jaw can be had.

The invention consists also in certain details of construction and novelties of combination, all of which will be fully described hereinafter and pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 is a side elevation, partly in section. Fig. 2 is a transverse section on the line 2 2 of Fig. 1. Fig. 3 is a transverse section on the line 3 3 of Fig. 1, and Fig. 4 is a section on the line 4 4 of Fig. 1.

In carrying out my invention I employ a fixed jaw A, having the shank B rigidly connected thereto by any suitable method. The movable jaw C slides freely upon the shank B and has the cuff or guide C' surrounding said shank in order to hold the movable jaw in its proper position. The opposing faces of the fixed and movable jaws are serrated or toothed, as shown, in order to secure a firm grip upon the object to be turned.

A bolt D is rigidly connected to the rear side of the movable jaw and extends rearwardly a considerable distance essentially parallel with the adjacent face of the shank, the rear end of said bolt being threaded, as shown at D', and a nut E is screwed upon the

said threaded end, said nut being circular in form and provided with a series of circumferential ratchet-grooves E', adapted for engagement with the ratchet portion F of the shank, the said shank being grooved longitudinally, as shown at F', for a considerable distance to the rear of the normal position of the movable jaw, and this longitudinally-grooved portion has the series of transverse ratchet-teeth F cut therein and is intended for engagement with the nut. By means of this construction it will be readily understood that the movable jaw can be moved along the shank to any approximate adjustment. The ratchet-faced nut is then brought into engagement with the ratchet-faced shank and all backward movement is thereby prevented. By rotating the nut upon the threaded end of the bolt the movable jaw is caused to move in either direction until the exact adjustment is obtained. In order to permit the nut to be thrown out of engagement with the shank, I cut away the forward end of the movable jaw, as shown at G, thereby permitting the movable jaw to be tilted and the nut elevated whenever it is desired to disengage it from the shank.

In order to normally hold the nut in engagement with the shank, I provide a coil-spring H, which is located in a recess H', bored into the end of the movable jaw, the outer end of said spring H bearing upon the shank and tending to throw the movable jaw and its bolt in such a position that the nut will be held in engagement with the shank. A transverse bore H<sup>2</sup> communicates with the recess H' and permits dirt and foreign substances to escape from the recess containing the spring. If desirable, the rear end of the bolt may be attached to the outer end of a sleeve I, sliding upon the shank, said sleeve having its opening considerably deeper than the depth of the shank, so as to permit the introduction of a coil-spring K between the bottom of the shank and the sleeve, the purpose of said spring being to hold the rear end of the bolt in close proximity with the shank, thereby insuring the engagement of the nut with the ratchet portion of said shank.

In adjusting the wrench it will of course be understood that slight pressure is applied to the sleeve I, thereby compressing the spring



K and throwing the bolt D, with its nut E, away from the ratchet portion of the shank, and the movable jaw can then be moved along to the approximate adjustment and afterward adjusted accurately by turning the nut.

It will thus be seen that I provide an exceedingly simple and efficient construction of wrench, whereby an exceedingly-accurate adjustment can be quickly and easily obtained.

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

15 1. In a wrench, a shank having ratchet-teeth and a fixed jaw, a bolt connected with said jaw, a sleeve slidable on the shank to which said bolt is connected, and a nut on the bolt, having circumferential ratchet-grooves to receive said ratchet-teeth, substantially as shown and described.

20 2. In a wrench, a shank having ratchet-teeth and a fixed jaw at one end, a sleeve slidable on the shank, the opening of the sleeve being deeper than that of the shank, a jaw slidable on said shank between the fixed  
25 jaw and said sleeve, having a cut-away portion, a bolt rigidly connected at its ends to said sliding jaw and sleeve, and a nut on the bolt, having circumferential ratchet-grooves to receive said ratchet-teeth, substantially as shown and described.

30 3. In a wrench, a shank having ratchet-teeth and a fixed jaw at one end, a sleeve slidable on the shank, the opening of the

sleeve being deeper than that of the shank, a jaw slidable on said shank between the  
35 fixed jaw and said sleeve, having a cut-away portion, a bolt rigidly connected at its ends to said sliding jaw and sleeve, a nut on the bolt, having circumferential ratchet-grooves to receive said ratchet-teeth, a spring bearing  
40 against said slidable jaw and shank, and a second spring bearing against the sleeve and shank, substantially as shown and described.

4. In a wrench of the kind described, the  
45 combination with the fixed jaw and shank, of the movable jaw sliding thereon, said jaw being cut away at its forward end and recessed to receive a spring, the rearwardly-extending bolt threaded at its rear end, the nut arranged  
50 upon said threaded end circular in form and having circumferential ratchet-teeth adapted to engage ratchet-teeth produced upon the adjacent face of the shank, and a sleeve sliding upon the shank and to which the rear end of  
55 the threaded bolt is attached, said sleeve having a transverse movement upon the shank and a spring interposed between the shank and sleeve to normally hold the rear end of the bolt in close proximity to the shank, sub-  
60 stantially as and for the purpose described.

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