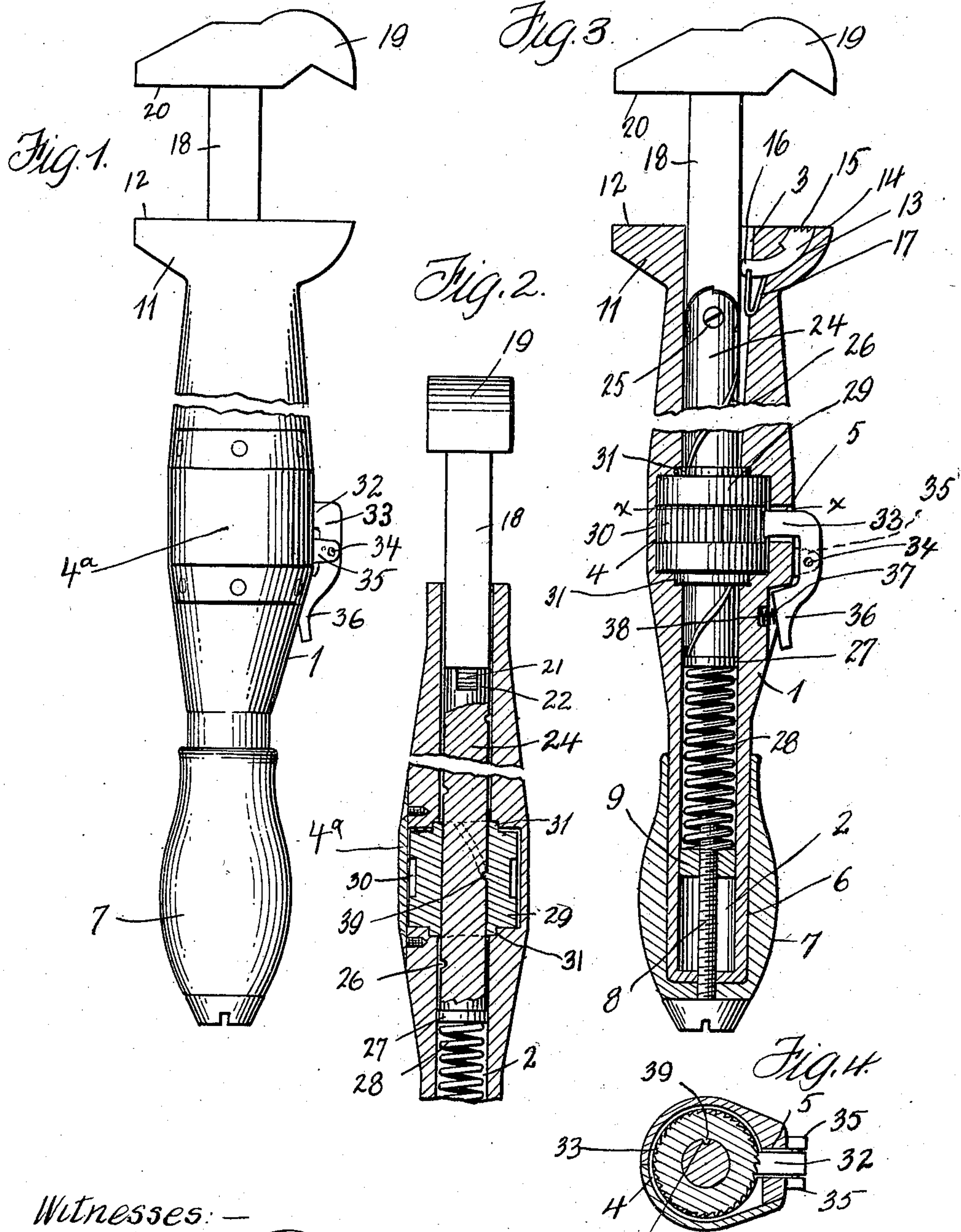


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WRENCH.  
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983,628.

Patented Feb. 7, 1911.



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# UNITED STATES PATENT OFFICE.

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## WRENCH.

983,628.

Specification of Letters Patent.

Patented Feb. 7, 1911.

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*To all whom it may concern:*

Be it known that I, ROBERT D. LINDSAY, a citizen of the United States of America, residing at Monaca, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to wrenches, and the object thereof is to provide a wrench as in a manner hereinafter set forth with means for adjusting the shank thereof to space the jaws with respect to each other and further with means as in a manner hereinafter set forth for retaining the shank in the position to which it has been adjusted.

Further objects of the invention are to provide an adjustable wrench which shall be comparatively simple in its construction, strong, durable, efficient in its use, conveniently manipulated and inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described and illustrated in the accompanying drawing, wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawing:—Figure 1 is an elevation of a wrench in accordance with this invention, Fig. 2 is a longitudinal sectional view of a portion of the handle and shank of the wrench, Fig. 3 is a longitudinal sectional view taken at right angles to the section shown in Fig. 2, and Fig. 4 is a transverse section on the line  $x-x$  of Fig. 3.

Referring to the drawings in detail, 1 denotes a body portion having extending entirely therethrough a longitudinal opening 2 which is enlarged at one end, as at 3. The body portion 1 intermediate its ends is formed with an annular recess 4 intersecting the opening 2. One wall of the recess 4 is formed by a removable plate or closure 4<sup>a</sup> whereby access can be had for positioning an element of the wrench within said recess 4 when occasion so requires. The body portion 1 is furthermore provided with a transversely-extending slot 5 disposed at right

angles with respect to the opening 2 which communicates with the recess 4.

One end of the body portion 1 is reduced, as at 6 and the said reduced end is inclosed by a handle 7 connected in position by an adjusting screw 8. Arranged within the opening 2 at the contracted end 6 of the body portion 1 is an adjustable disk 9, which is engaged by the screw 8 and the said disk 9 in connection with the screw 8 constitutes a means for increasing or decreasing the tension of a coil spring 28 which is mounted within the opening 2 and which will be hereinafter referred to. The other end of the body portion 1 is enlarged, as at 11 to provide a stationary jaw formed with a working face 12. One side of the stationary jaw 11 is provided with a curved recess 13 having mounted therein a gripping member 14 formed with a serrated outer face, as at 15. The inner end of the gripping member 14 extends into the enlarged portion 3 of the opening 2.

Mounted in the body portion 1 in proximity to the gripping member 14 is a spring 17, one end of the latter being connected to the inner end 16 of the member 14 and the function of said spring 17 is to retain the member 14 retracted. The inner end 16 of the member 14 abuts against the shank 18 of the wrench, which is arranged in the enlarged portion 3 of the opening 2. The shank 18 is rectangular in cross section to prevent the same from turning in the body portion 1.

Fixed to the outer end of the shank 18 is a jaw 19 having a working face 20 opposing the working face 12 of the jaw 11. The inner end of the shank 18 is formed with an apertured lug 21 extending in the bifurcated end 22 of a shifting member 24 of the shank 18. The member 24 is connected to the apertured lug 21 by a hold-fast device 25 and has formed in its periphery a spiral groove 26 of a length as to extend from one end to the other of the member 24 and the said member 24 is furthermore provided at that end opposite to which the shank 18 is connected with a disk 27 of greater diameter than the member 24. The disk 27 constitutes a stop for limiting the shifting movement in one direction of the member 24 in a manner to be presently referred to. The coil spring 28 is interposed between the disk 27 and the disk 9 and the said spring 28 when



released shifts the member 24 outwardly with respect to the body portion 1 whereby the shank 24 is carried therewith.

To prevent the shifting action of the member 24 by the spring 28 when the latter expands, a locking means is provided for said member which retains the spring 28 under a state of compression. The locking means for the member 24 consists of a sleeve 29 mounted in the recess 4 and having its periphery formed with teeth 30. The sleeve 29 surrounds the member 24 and is formed with bosses 31. Extending through the slot 5 and adapted to engage the teeth 30 is a right angularly disposed end 32 of a locking pawl 33, which is pivoted at 34 to laterally extending lugs 35 formed integral with the body portion 1. The locking pawl 33 has a depending extension 36 which bears against the spring 37 mounted in a pocket 38 formed in the body portion 1. The function of the spring 37 is to maintain the end 32 of the pawl 33 in engagement with the teeth of the sleeve 29 thereby locking the sleeve from rotative movement. The sleeve 29 has its inner face formed with an integral lug 39 which extends into the spiral groove 26 and which when the pawl 33 is released from the teeth 30 causes said sleeve 29 to rotate when the member 24 is shifted due to the expanding action of the spring 28. As the lug 39 travels through the groove 26, it is obvious that the sleeve 29 will rotate when the member 24 is shifted. When the pawl 33 engages with the teeth 30, the member 24 is locked from movement.

The disk 27, as before stated, constitutes a stop for limiting the outward movement of the member 24 and its function is obtained by the engaging of the disk 27 with one of the bosses 31 of the sleeve 29.

When the wrench is used, the shank 18 engaging with the inner end 16 of the member 14 forces said member 14 outwardly so as to grip the material which is clamped between the jaws 11 and 19.

It will be assumed that the elements of the wrench are in the position shown in Fig. 3. The spring 28 is held under a state of tension owing to the engagement of the angular end 32 of the pawl 33 with the teeth 30 of the sleeve 29. When the end 32 of the pawl 33 is shifted out of engagement with the teeth 30, the spring 28 is released and the expanding action thereof will force the member 24 outwardly carrying the shank therewith. During this movement of the member 24, the sleeve 29 will be rotated. Pressure is then applied to the jaw 19 to move it into engagement with the article to be clamped and after the jaw has been shifted to the desired position, the pawl 33 is released so that the end 32 thereof will engage one of the teeth 30 whereby the jaw 19 will be locked in position.

What I claim is:—

1. A wrench comprising a body portion, a shiftable member mounted therein, a shank connected to said member and provided with a jaw, said body portion formed with a jaw, a spring engaging said member and having a normal tendency to project it, said member provided with a spiral groove, a toothed sleeve surrounding said member and provided with a lug engaging in said groove and adapted to be rotated when the member is projected by said spring, and means carried by the body portion and engaging said toothed sleeve to arrest the movement thereof, thereby preventing the shifting of said member by the spring.

2. A wrench comprising a body portion, a shiftable member mounted therein, a shank connected to said member and provided with a jaw, said body portion formed with a jaw, a spring engaging said member and having a normal tendency to project it, said member provided with a spiral groove, a toothed sleeve surrounding said member and provided with a lug engaging in said groove and adapted to be rotated when the member is projected by said spring, means carried by the body portion and engaging said toothed sleeve to arrest the movement thereof, thereby preventing the shifting of said member by the spring, and a spring controlled gripping member carried by the jaw of the body portion.

3. A wrench comprising a body portion, a shiftable member mounted therein, a shank connected to said member and provided with a jaw, said body portion formed with a jaw, a spring engaging said member and having a normal tendency to project it, said member provided with a spiral groove, a toothed sleeve surrounding said member and provided with a lug engaging in said groove and adapted to be rotated when the member is projected by said spring, means carried by the body portion and engaging said toothed sleeve to arrest the movement thereof, thereby preventing the shifting of said member by the spring, and means carried by said member and adapted to engage said sleeve for limiting the shifting movement of said member by said spring.

4. A wrench comprising a pair of jaws, one of which is adjustable, a spring controlled means for moving said adjustable jaw, a toothed sleeve surrounding said spring controlled means, means whereby said sleeve is rotated when said spring controlled means is actuated, and means engaging with said toothed sleeve for locking it and said spring controlled means whereby the adjustable jaw is prevented from movement.

5. A wrench comprising a pair of jaws, one of which is adjustable, a spring controlled means for moving said adjustable jaw, a toothed sleeve surrounding said



spring controlled means, means whereby said sleeve is rotated when said spring controlled means is operated, means engaging with said toothed sleeve for locking it and said spring controlled means whereby the adjustable jaw is prevented from movement, and a spring controlled gripping member carried by the stationary jaw adapted to be engaged by said spring controlled means.

10 6. A wrench comprising a stationary and an adjustable jaw, a shank connected to the adjustable jaw, a spring actuated slidable member connected to the shank for moving it, a toothed sleeve surrounding said member, means whereby said sleeve is rotated  
15 when said member is actuated, and means engaging with said sleeve to prevent rotative movement thereof whereby said adjustable jaw is held from movement.

20 7. A wrench comprising a stationary and

an adjustable jaw, a shank connected to the adjustable jaw, a spring actuated slidable member connected to the shank for moving it, a toothed sleeve surrounding said member, means whereby said sleeve is rotated  
25 when said member is actuated, means engaging with said sleeve to prevent rotative movement thereof whereby said adjustable jaw is held from movement, and a spring controlled gripping member carried by said  
30 stationary jaw and adapted to be engaged by said shank whereby the gripping member is moved to operative position.

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

ROBERT D. LINDSAY.

Witnesses:

S. J. McROBERTS,  
J. R. MALLARD.