

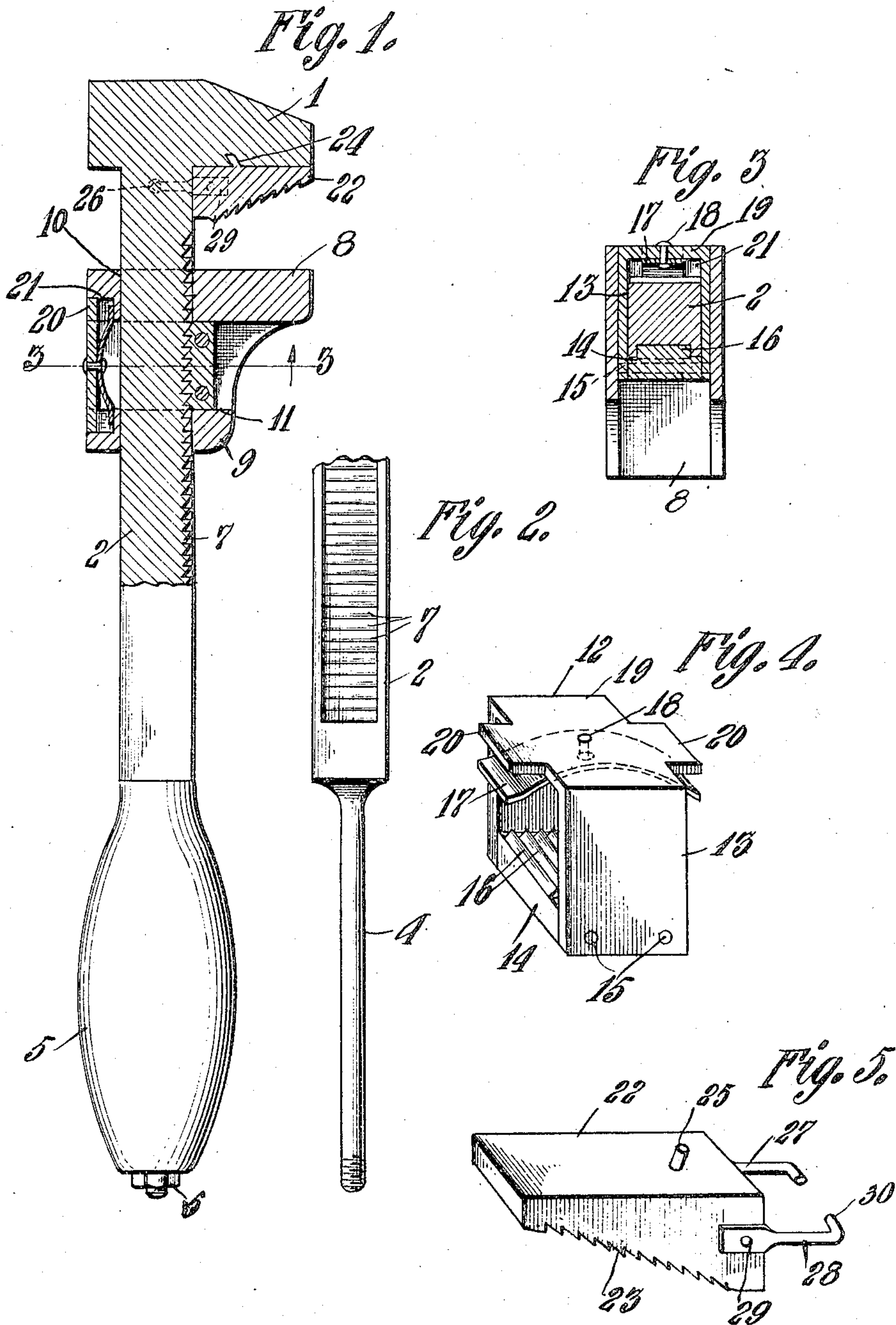
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WRENCH.

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934,589.

Patented Sept. 21, 1909.



Witnesses

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## WRENCH.

934,589.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed March 25, 1909. Serial No. 485,734.

*To all whom it may concern:*

Be it known that I, CHARLES E. BRADFORD, a citizen of the United States, residing at Lakeview, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to improvements in wrenches of the quick adjusting type.

One object of the invention is to provide a wrench of this character having an improved spring pressed pawl for the movable jaw whereby the improved wrench may be produced at less cost than similar devices heretofore used and will, at the same time, be stronger and more durable.

Another object of the invention is to provide an improved jaw attachment whereby a monkey wrench may effectively be used as a pipe wrench.

With the above and other objects in view the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described in the claims and illustrated in the accompanying drawings, in which—

30 Figure 1 is a side elevation of my improved wrench with parts in longitudinal section, Fig. 2 is a detail view of the inner face of the lower portion of the shank, Fig. 3 is a cross section taken on the line 3—3 in Fig. 1, Fig. 4 is a detail perspective of the spring pressed sleeve which carries the pawl, and Fig. 5 is a detail perspective of the jaw attachment.

My improved wrench embraces a stationary jaw 1 at one end of a shank 2 the major portion of which is preferably rectangular shape in cross section and the lower end of which is reduced to provide a shouldered stem 4 for the reception of a hand grip 5, the latter being retained upon the stem 4 by a nut 6 as is common in devices of this character. Formed upon the inner or bottom face of the shank 2 is a longitudinal series of transverse ratchet teeth 7 which are preferably cut in said face of the shank so as to lie beneath the plane thereof as clearly shown in Figs. 1 and 2 of the drawing. Each of the ratchet teeth 7 has its upper face disposed in a plane at right angles to the longitudinal axis of the shank 2 and its other face inclined downwardly and inwardly as shown. The wrench also comprises a movable jaw 8

which slides upon the shank 2 and has formed integral with it an enlargement or body portion 9. The latter has two intersecting openings or passages 10, 11, the former of which receives the shank 2 and the latter of which receives a pawl-carrying, spring pressed sleeve 12. This sleeve, as clearly shown in Fig. 4, is composed of a U-shaped plate 13 and a pawl block 14, the latter being arranged between the spaced side portions or arms of the U-shaped plate 13 and secured thereto by transverse rivets 15. Upon the inner face of the block 14 are formed a plurality of pawl teeth 16 which engage the ratchet teeth 7 on the shank and which are held in such engagement by means of a leaf spring 17 arranged beneath and secured by a rivet 18 to the portion 19 of the U-shaped plate 13. Said portion 19 of the U-shaped plate is formed on its side edges with longitudinally projecting tongues 20 which extend into and slide in recesses 21 formed in the outer or top face of the body portion 9 of the movable jaw as clearly shown in Fig. 1. The arrangement of the tongues 20 in the recesses 21 not only causes the pawl carrying frame to be more effectively guided in its sliding movement in the opening 11, but also protects the ends of the spring 17 which extend into and rest upon the bottom of the recesses 21.

From the foregoing it will be seen that the movable jaw member may be produced at a small cost since the two openings 10, 11, therein are cut clear through it and that the provision of the recesses 21 for the ends of the springs and the disposition of the protecting tongues 20 over said ends of the spring will effectively prevent injury to the spring and also prevent the entrance of dirt beneath the same.

To permit the monkey wrench above described to be effectively used as a pipe wrench, the jaw attachment 22 shown in Figs. 1 and 5 of the drawings may be applied to the stationary jaw 1. Said attachment 22 is in the form of a substantially triangular-shaped block having two flat faces to engage the flat inner face of the jaw 1 and the inner face of the shank 2, and an inclined face provided with serrations or teeth 23 whereby said jaw attachment may effectively grip a pipe or other object having a curved surface. The jaw block or attachment 22 is retained on the jaw 1 by providing in the latter a socket 24 to receive a rigid



stud 25 projecting from the top of the jaw block, and also by providing in the opposite sides of the shank 2 sockets 26 for the reception of spring catches 27 carried by the jaw block. Each of the catches 27, as is more clearly shown in Fig. 5, consists of a spring metal plate 28 having one end secured by a rivet 29 to the jaw block 22 and its other end bent inwardly at right angles to provide a catch finger 30 to enter one of the sockets 26 as indicated in dotted lines in Fig. 1. It will be seen that the catch plates 28 may be readily sprung apart so that their ends 30 may be engaged with or disengaged from the sockets 26 to permit of the quick and easy application of the jaw block 22 to the jaw 1 or its removal therefrom.

Having thus described the invention, what is claimed, is:

1. A wrench comprising a stationary jaw, a shank projecting therefrom and formed in its inner face with a longitudinal series of transverse ratchet teeth, a slidable jaw having its body portion formed with a longitudinal opening to receive the shank and a transverse opening intersecting the longitudinal one, the outer face of the body being formed with recesses communicating with said transverse opening, a pawl carrying sleeve sur-

rounding the shank and arranged in the transverse opening of the movable jaw, said sleeve having its outer portion formed with oppositely projecting tongues to enter and slide in said recesses, and a leaf spring secured within said sleeve and disposed beneath said tongues whereby the latter will protect the spring.

2. The combination with a wrench having a stationary jaw, a shank projecting therefrom and a movable jaw upon the shank and coacting with the stationary one, said stationary jaw being formed in its inner face with a socket and the shank being formed on opposite sides with sockets, of a jaw block having a roughened face, a stud projecting from said block to enter the socket in the stationary jaw and spring catches secured on opposite sides of the jaw block and having inwardly bent ends to enter the sockets in said shank whereby the jaw block is detachably secured to the stationary jaw.

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

CHARLES E. BRADFORD.

Witnesses:

FRANK YORKTHEIMER,  
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