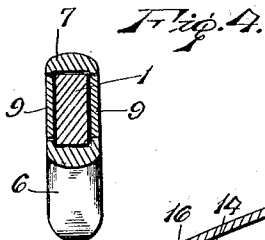
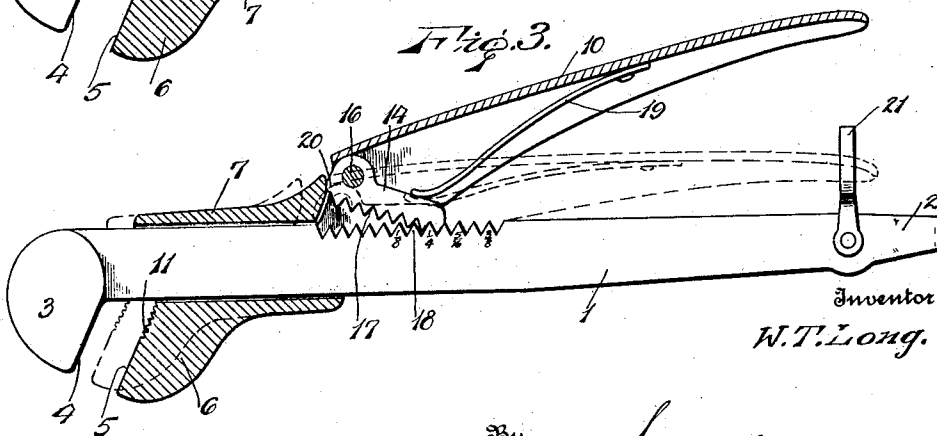
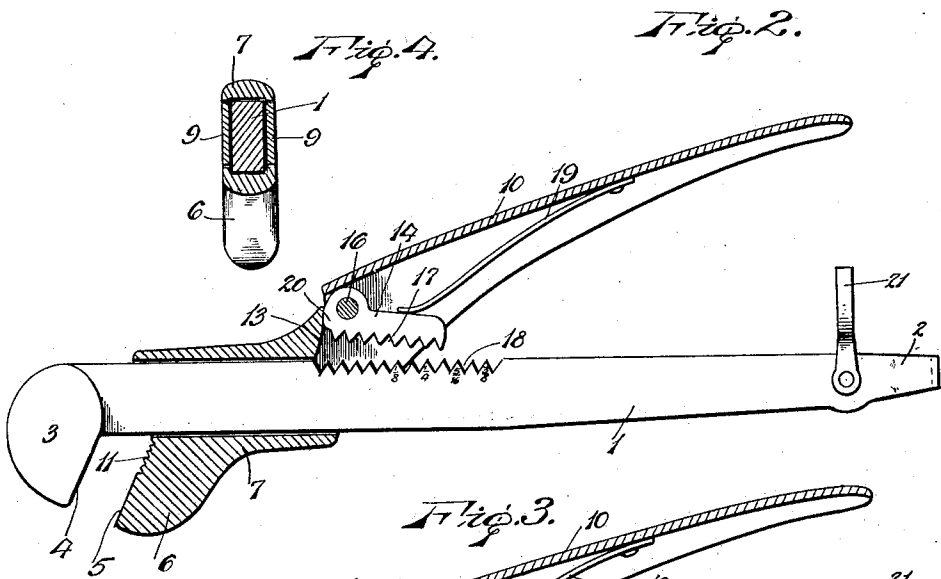
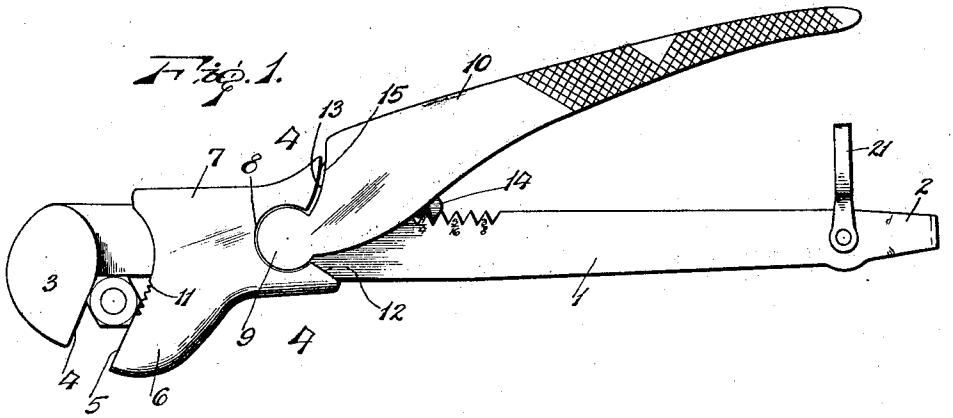


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WRENCH.

APPLICATION FILED APR. 15, 1921.

1,408,524.

Patented Mar. 7, 1922.



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WRENCH.

1,408,524.

Specification of Letters Patent.

Patented Mar. 7, 1922.

Application filed April 15, 1921. Serial No. 461,549.

To all whom it may concern:

Be it known that I, WILLIAM T. LONG, a citizen of the United States, residing at Puyallup, 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.

My present invention seeks to simplify the construction and render the operation of an adjustable wrench easier and more certain than similar devices heretofore produced. The invention seeks to provide a device in which the movable jaw may be brought quickly into position to approximately engage a nut and then by simple manipulation of a handle member be brought into active engagement with the nut or bolt head or other article to be held and quickly locked in such engagement. These stated objects and other objects which will incidentally appear in the course of the following description are attained in such a device as is illustrated in the accompanying drawings and the invention consists in certain novel features which will be hereinafter first fully described and then particularly pointed out in the appended claims.

In the drawings—

Figure 1 is a side elevation of a wrench constructed in accordance with my present invention;

Fig. 2 is a longitudinal section of the same showing the handle member and dog free of the shank;

Fig. 3 is a similar view showing the working positions of the dog by full and dotted lines;

Fig. 4 is a detail transverse section on the line 4—4 of Fig. 1.

In carrying out my invention, I employ a shank 1 which is reduced and tapered at one end to form a screw driver 2 and at its opposite end is constructed with a lateral integral head or jaw 3. As clearly shown in the drawings, the working face 4 of the fixed jaw is preferably disposed at an angle of about sixty degrees to the intersecting edge of the shank and the working face 5 of the movable jaw 6 is disposed at about the same angle so that a hexagonal nut may be firmly gripped in the wrench and the holding force applied to three faces of the nut, as will be readily understood on reference to Fig. 1. The movable jaw is preferably formed integral with a sleeve 7 which is

slidably fitted upon the shank 1 and in the rear end edges of the side walls of said sleeve are circular recesses 8 opening through the said end edges to be engaged by corresponding lugs 9 on the forward end of the handle 10 whereby the handle is pivotally engaged with the movable jaw. The working face of the movable jaw is shown as provided with a plurality of transverse ridges or teeth 11 whereby small objects may be gripped, and it will be readily understood that these ridges may be duplicated upon the fixed jaw so that the tool may be utilized as a pipe wrench. The rear end edges of the sleeve portion of the movable jaw are inclined downwardly and rearwardly below the recesses 8, as shown at 12, and are curved as shown at 13, above the said recesses so that freedom of movement of the handle member is permitted. The curved face 13 of the sleeve portion of the movable jaw also constitutes an abutment to co-operate with the dog 14, as will presently more fully appear. The handle member 10 may be formed from sheet metal and is substantially U-shaped or arched in cross section so that it will span the shank 1, the forward end edges of the handle member above the circular lugs 9 being concave, as shown at 15, so as to accommodate the curved face 13 of the movable jaw member. Within the handle member, adjacent the forward end thereof, I pivotally mount the dog 14, the pivot pin 16 being disposed transversely of the handle member immediately adjacent the forward end thereof, as clearly shown in Figs. 2 and 3, and the dog extending rearwardly from said pivot member and being provided on its working edge with a longitudinal series of transverse teeth 17 adapted to engage corresponding teeth 18 on the adjacent edge of the shank 1. The teeth 18 may be provided with figures or other indicators denoting the diameters of nuts or other articles which will be engaged by the jaws when the dog is set at various points along the shank. A leaf spring 19 is secured at one end within the handle 10 and its free end bears against the outer edge of the dog, as clearly shown in Figs. 2 and 3. It will also be noted upon reference to said figures that normally the forward end of the dog bears against the curved abutting face 13 of the movable jaw member.

The spring 19 tends to hold the dog against the shank and in engagement with the teeth 18 thereon. To set the tool, the free end of the dog is engaged with the properly marked tooth of the shank and pressure is then exerted to move the handle toward the shank, this movement causing the extended pivotal end 20 of the dog bearing against the face 13 of the movable jaw member to slide the said jaw toward the fixed jaw and grip the nut or other article to be held. It will be readily understood that the free end of the dog, by its engagement with the toothed portion of the shank, acts as a fulcrum about which the dog will rock or turn as the handle is pressed toward the shank and the pivot 16 will be consequently moved toward the front end of the shank or the fixed jaw. The handle, however, will swing about said pivotal connection as it is pressed toward the shank and the extreme forward ends of the handle constituting the lugs 9 will be caused to slide forwardly along the shank, and the movable jaw will thus be forced into binding engagement with the nut held against the fixed jaw. If it be desired to retain the tool in engagement with the nut while the operator may perform some other work, a holding bail 21 pivoted upon the shank may be swung over the free end of the handle, as shown by dotted lines in Fig. 3, so that the handle will be held against movement under the influence of the spring 19. When the nut or other article is to be released, the bail 21 is swung from over the end of the handle and the spring 19 then swings the handle away from the shank. This movement of the handle will obviously withdraw the movable jaw from the nut or from the fixed jaw and will continue until the forward end of the dog abuts the curved face 13 of the movable jaw member. If slight outward pressure be then applied to the handle member, the engagement of the forward end of the dog with the rear face 13 of the movable jaw member will cause the dog to rock about the pivot 16 and release its rear end from the toothed portion of the shank. If the stated pressure be maintained upon the handle, it, with the movable jaw, may be slid along the shank to any desired extent and the movable jaw thus initially adjusted, the final adjustment and gripping of the article to be held being accomplished by swinging the handle toward the shank in an obvious manner and

thereby effecting the previously described action of the dog and the jaw.

It will be readily noted from the foregoing description, taken in connection with the accompanying drawings, that I have provided in my present device an exceedingly simple tool which may be very quickly adjusted and brought into gripping engagement with a nut to be turned or an article to be held. The tool is free of all extraneous projections which tend to mar its appearance and are liable to be broken or otherwise damaged and decrease the efficiency of the tool. The few parts which are employed in the present tool are very compactly arranged and the dog and the spring for actuating the same are entirely housed within the handle. The setting of the movable jaw in its working position or the withdrawing of the same is accomplished by simple manipulation of the handle and it is not necessary to remove the hold upon the handle in order to manipulate any other parts prior to the adjustment of the tool through the action of the handle.

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

1. A wrench comprising a shank, a fixed jaw carried by the shank, a movable jaw slidably mounted on the shank, a handle pivotally engaged with the movable jaw, a dog pivotally mounted within the handle and adapted to engage the shank, means yieldably holding the dog to the shank, the forward end of the dog being arranged to abut the rear end of the movable jaw whereby extreme movement of the handle from the shank will release the dog from the shank.
2. A wrench comprising a shank, a fixed jaw carried by the shank, a movable jaw having a sleeve portion slidably encircling the shank and provided with open-ended recesses in its rear end, a handle spanning the shank and provided at its forward end with forwardly projecting circular lugs pivotally fitting within the said recesses, a dog pivotally mounted at its front end within the handle adjacent the front end of the same and having its free rear end adapted to engage the shank, the forward extremity of the dog being adapted to abut the rear end of the sleeve portion of the movable jaw, and a leaf spring secured in the handle and having its free end bearing upon the dog adjacent the rear end thereof.

In testimony whereof I affix my signature.

WILLIAM T. LONG. [L. s.]