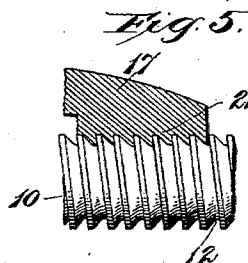
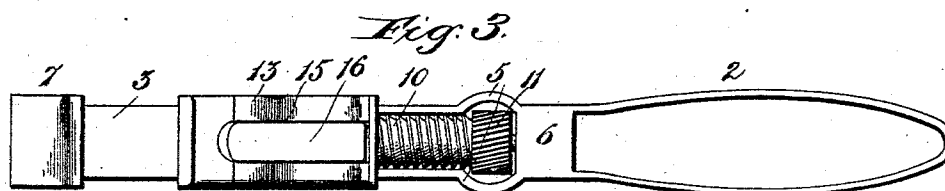
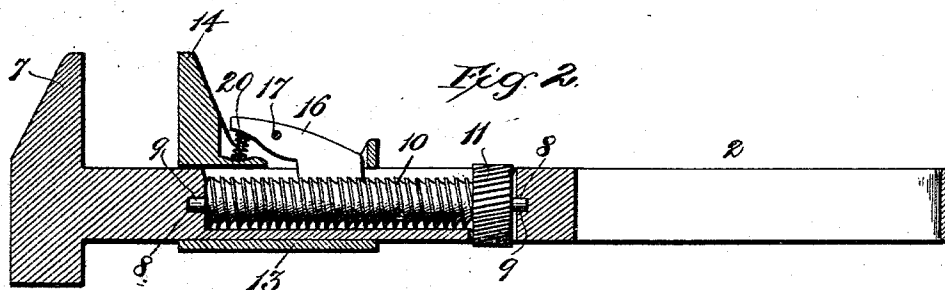
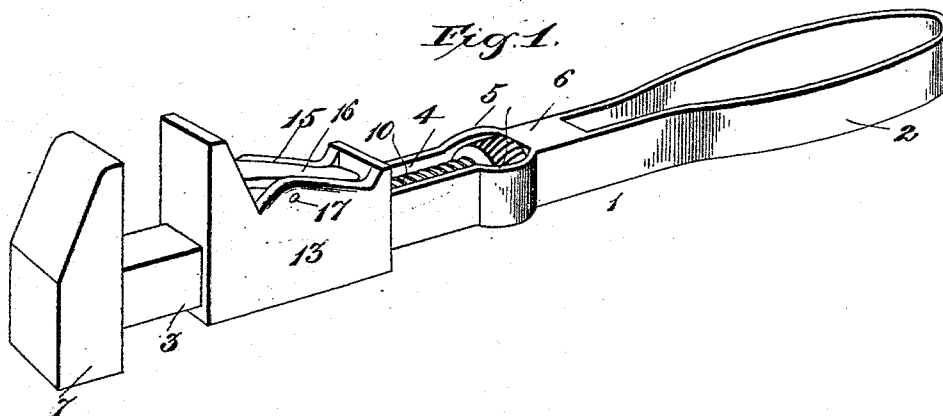


(No Model.)

W. H. HAIRE.
WRENCH.

No. 514,459.

Patented Feb. 13, 1894.



Witnesses:

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By *his* Attorneys,

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Inventor:

UNITED STATES PATENT OFFICE.

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 514,459, dated February 13, 1894.

Application filed April 19, 1893. Serial No. 470,978. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. HAIRE, a citizen of the United States, residing at Bristol, in the county of Sullivan and State of Tennessee, have invented a new and useful Wrench, of which the following is a specification.

My invention relates to improvements in wrenches for operating upon nuts; the objects in view being to provide a wrench of this class of light, economic, and compact construction; and to so construct the same as to adapt it for a ready coarse adjustment to fit different sized nuts and for a finer adjustment when so desired.

With these and other objects in view the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claim.

Referring to the drawings:—Figure 1 is a perspective view of a wrench embodying my invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a front elevation thereof. Fig. 4 is a detail in perspective of the locking pawl. Fig. 5 is an elevation of a portion of the feed-shaft and the pawl, the latter being shown in section, and the two parts being exaggerated.

Like numerals of reference indicate like parts in all the figures of the drawings.

In practicing my invention I provide a preferably cast-metal stock 1, the same being shaped at its inner end to form a suitable hand-hold or handle 2, which for the purpose of lightness is preferably open. Beyond the handle the stock is reduced to form in cross-section a rectangular shank 3, and said shank from a point near its outer end to a point near the handle is provided with a longitudinal slot or recess 4, which adjacent to the handle is bulged in opposite directions as at 5. Between the slot in the handle and the slot in the shank a bearing-wall or block 6 is located. The outer end of the shank is provided with the usual fixed head or jaw 7.

In the wall or bearing-block 6 and in the outer end of the slot 4 formed in the shank bearing cavities 8 are formed, and in these bearing cavities take the axial trunnions 9 formed at the opposite ends of a threaded feed-shaft 10. This threaded feed-shaft has

located thereon and at its inner end a milled nut 11, and beyond this nut the threads of the shaft occur. The nut is located between the bulges 5 of the side-walls of the shank, which bulges are provided for this purpose, the diameter of the nut being such that its periphery extends in front and in rear of the stock. The thread on the shaft is continuous, but, as best shown in Fig. 5, has its inner side inclined and slightly concaved, as indicated at 12, while its outer side or face is slightly under cut.

Mounted for sliding upon the shank 3 is the sleeve 13, the same being provided at its outer end with a movable jaw 14, and between the same and its inner end with an opening or slot 15. The opening or slot has its side walls extended, as shown in Fig. 1, and through the same and a pawl 16 is passed a pintle 17, whereby the pawl is pivoted within the slot. The outer end of the pawl is reduced, as shown in Figs. 2 and 4, forming a tail-portion 18, and upon its under side is provided at its point with a lug 19, between which and the sleeve there is interposed a light coiled-spring 20 which has a tendency to press the tail of the pawl outward and the inner end of the pawl inward. The inner face of the inner end of the pawl is provided with a segmental thread 21, which corresponds to the thread 12 of the feed-shaft, that is, is of the same shape though disposed inwardly in contradistinction thereto. When not otherwise influenced it will be seen that the thread of the pawl will engage with the thread of the shaft, and that by a rotation of the thumb-nut 11 the movable sleeve and its jaw may be fed to or from the fixed jaw 17, whereby a fine adjustment may be secured when desired, as when operating upon nuts of little difference in proportion. When, however, it is desired to move the sliding jaw to any considerable extent, the same may be pushed outward toward the fixed jaw, the inclined faces of the threads of the pawl and the shaft riding over each other. But on the other hand, when it is desired to move the sliding jaw inward to any extent the tail 18 of the pawl must be pressed inward against the spring and its thread disengaged with that of the shaft before the sliding movement can take place, and immedi-

ately upon being released a re-engagement occurs.

As best shown in Fig. 3, it will be seen that the diameter of the feed-shaft is the same as the width and depth of the slot in the shank, and that therefore the opposite sides and bottom of the feed-shaft will lightly bear upon the inner faces of the side-walls and bottom of the slot, so that the feed-shaft is steadied and supported throughout its length.

From the foregoing description in connection with the accompanying drawings it will be seen that I have provided a wrench of simple, economic, and compact construction, the same being capable of a ready adjustment both fine and coarse, and when adjusted being securely locked against slipping.

Various means may be provided for inserting the feed-rod or screw in the wrench-stock, said means readily suggesting themselves to the manufacturer of the device. As an example of such means I might suggest that the lower or inner end of the feed-rod or screw may be bored and a spring-pressed pin inserted therein so that after the outer trunnion has been inserted in its position in the outer bearing the spring-pressed pin may be in-

serted in the inner bearing; or, again, a bearing-screw may be inserted through the block and into a bearing in the inner end of the feed-rod, all as will be obvious.

Having described my invention, what I claim is—

In a wrench, the combination with a stock shaped at one end to form, and at a point beyond the same provided with a slot, and at its outer end with a head, the walls of the slot adjacent to the handle being bulged, a threaded shaft journaled in the ends of the slot, and a milled nut carried by the shaft, of a sleeve mounted upon the shank and provided at its outer end with a jaw and in rear of the same with an opening, a pawl having an inner threaded face for engaging the shaft, and a spring interposed between the outer end of the pawl and the sleeve, 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.

WILLIAM H. HAIRE.

Witnesses:

I. B. CHILDERS,
J. T. LE SUEUR.