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O. McP. HANSFORD.

WRENCH.

APPLICATION FILED JULY 2, 1906.

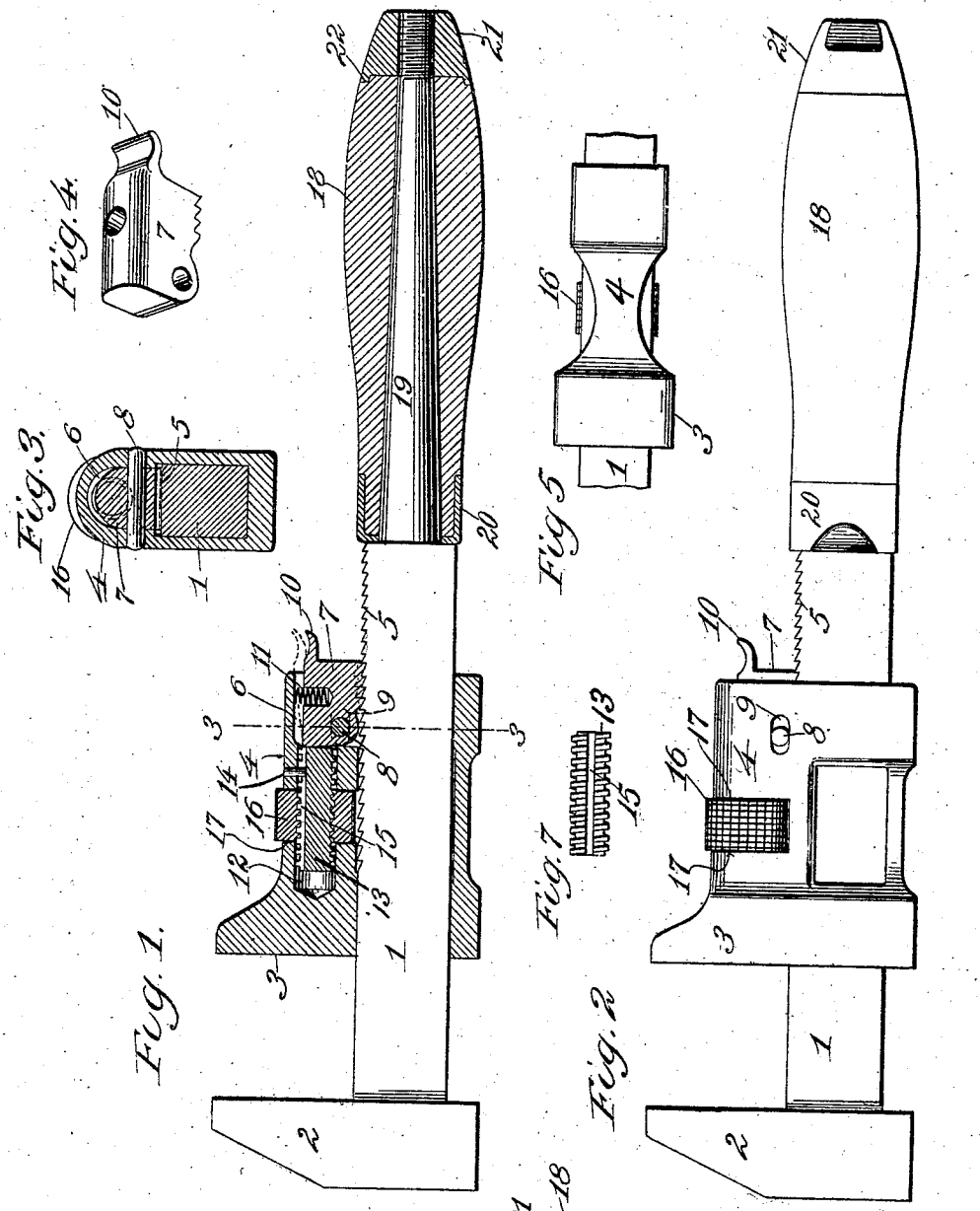


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5

Fig. 7

Fig. 6.

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WRENCH.

No. 857,237. Specification of Letters Patent. Patented June 18, 1907.

Application filed July 2, 1906. Serial No. 324,522.

To all whom it may concern:

Be it known that I, OTIS MCPHERSON HANSFORD, a citizen of the United States, residing at Americus, in the county of Sumter and State of Georgia, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to improve the construction, increase the efficiency, and simplify the operation of that type of wrenches having a sliding adjustment of the movable jaw regulated by a rack and pivoted catch, and having also a supplemental screw adjustment for effecting a fine adjustment of the wrench-jaws in addition to the main adjustment afforded by the rack and catch.

A wrench embodying my invention is illustrated in the accompanying drawings, which form a part of this specification.

Figure 1 is a central longitudinal section of said wrench, showing the wrench-bar or shank and fixed-jaw in elevation. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section on line 3—3 of Fig. 1. Fig. 4 is a detail perspective of the pivoted catch. Fig. 5 is a bottom plan view of the sliding jaw-frame. Fig. 6 is an end view of the wrench handle. Fig. 7 is a detail view of a non-rotatable screw incorporated in the jaw-frame.

Referring to said drawings by reference numerals, 1 designates the wrench-bar or shank, carrying at its end the fixed-jaw 2, and having slidably-fitted thereon the coacting movable jaw 3. Said movable jaw 3 is an integral part of a solid jaw-frame 4, which latter is slidably fitted on the shank or wrench-bar 1, affording an adequate bearing for the sliding-jaw 3, so that the latter is always held in proper relation to the fixed-jaw and in rigid engagement with the nut or other object to which the wrench is applied. It will be noted by reference to Figs. 2 and 5 that the sliding-jaw 3 is of greater width, or of a larger amount of metal, than the remaining portion of the jaw-frame 4, since it is desirable to construct the jaw-frame with as small an amount of stock or metal as practicable, while at the same time providing a larger amount of stock for the sliding-jaw, to make the same sufficiently strong and rigid.

The shank or wrench-bar 1 is provided on its upper side with a rack 5, the teeth of which are inclined forwardly or toward the direction of the fixed-jaw 2. The teeth of said rack 5 extend preferably from the handle of the wrench to a sufficient length along the wrench-bar or shank to allow the jaws of the wrench to be closed together and the sliding-jaw to be secured by the catch engaging with said rack.

In a socket 6 of the jaw-frame 4 is a pivoted catch 7, consisting of a stout block of metal having on its bottom face a plurality of teeth, preferably four in number, which are formed to engage with the teeth of the rack 5. Said catch 7 is pivoted on the transverse pin 8, which is entered through slots 9 in the sides of the jaw-frame 4 and is driven tightly through a hole in the catch 7, so as to prevent said pin 8 from pulling out. It will be observed that the pin 8 is located near the front lower corner of the catch 7. The rear end of said catch 7 may extend out at the mouth of the socket 6, and is provided with a finger-piece 10 for conveniently manipulating the catch. Said catch is normally held in engagement with the rack 5 by means of a suitable spring 11, a spiral spring being shown in this instance. Said spring 11 is shown seated in a socket in the top of the catch 7, behind the pivot-pin 8, and bears between the top of socket 6 and the said catch 7, forcing it in engagement with the rack. Said spring is preferably located directly or substantially directly over the teeth of the catch, so as to exert the power for holding the catch in engagement directly over its teeth.

In front of the socket 6, a longitudinal bore 12 is formed in the jaw-frame 4, and in said bore is a non-rotatable screw 13, which screw is shown held against rotation by means of a pin or dowel 14 inserted through the top of the jaw-frame 4 and engaging a longitudinal slot 15 in the screw. On the said screw 13 is a nut 16, which nut is arranged closely between the faces or sides of a

slot 17 cut in the jaw-frame 4, so that the nut may be readily engaged by the fingers, it being observed by reference to Figs. 2 and 3 that the nut projects out around the jaw-frame 4 to afford ready engagement by the fingers or by the thumb and forefinger of the operator's hand. The exterior of said nut is preferably milled or roughened to facilitate such engagement and manipulation of the nut. The rear end of the non-rotatable screw 13 abuts against the catch 7, above the pivot-pin 8 thereof, and in view of the fact that said pivot-pin 8 extends through the slots 9 in the jaw-frame 4, the effect of turning the nut 16 is to move the jaw-frame 4 with the sliding jaw 3 carried thereby the limits allowed by the length of the said slots 9. This provides a means for fine adjustment of the wrench in addition to the main adjustment afforded by the sliding jaw-frame and its rack and pivoted catch engagement. Furthermore, in view of the fact that the end of screw 13 bears against the catch above the pivot 8 thereof, it is obvious that upon turning the nut 16 to obtain a fine adjustment after having moved the sliding jaw along the shank, the pressure transmitted by the screw 13 against the catch 7 will tend to hold the teeth of said catch 7 all the more forcibly in engagement with the teeth of rack 5.

The operation will be apparent from the foregoing description, taken in connection with the drawings. For ordinary purposes, the sliding adjustment of the fixed-jaw 3, regulated by the rack 5 and catch 7, would be sufficient. To adjust the wrench, as in case of engaging a nut or other object, the operator holding the handle of the wrench can simply push forward the jaw-frame 4 with his thumb, or in such other manner as may be expedient, the catch 7 riding forwardly over the teeth of the rack, and engaging therewith as soon as the jaw-frame is released. But if a finer adjustment should be needed, it is simply necessary to turn the nut 16, which engages the non-rotatable screw 13, and the effect of turning said nut will be to move the entire jaw-frame 4 with the movable jaw 3 forwardly. To move back the sliding jaw 3, the catch 7 may be released or disengaged from the rack 5 by means of the finger-piece 10, and the jaw-frame 4 can be pulled back.

It will be observed that the mechanism of the wrench is exceedingly simple, strong and compact, and the operation is very convenient. Also, the sliding jaw 3 is strong and solid, and pressure transmitted through the jaw-frame 4 bears directly on the nut 16, screw 13 and catch 7, all of which parts are strong and solid and hold the sliding jaw in rigid engagement with the nut or other object to which the wrench may be applied.

In regard to the handle, as a preferred construction, the handle 18 is closely fitted on a tapered extension 19 of the wrench-bar or shank 1, the bore in the handle 18 being correspondingly tapered interiorly in order to provide a close fit or bearing for the entire length of the part 19, which tends to strengthen the handle. The handle is secured between a ferrule 20 fitted over the end thereof adjacent to the shank 1, and a nut 21 screwed on the end of the tapered part 19 and having a flange 22 overlying the reduced end of the handle, which construction avoids splitting or breaking.

I claim as my invention and desire to secure by Letters Patent of the United States:

1. A wrench comprising a shank or wrench-bar carrying a fixed-jaw, said shank having a longitudinal rack, a movable jaw-frame carrying a coacting movable jaw, said jaw-frame being slidably fitted on the shank or wrench-bar, a pivoted catch arranged in a socket in the jaw-frame and engaging said rack, and auxiliary adjusting means for effecting a fine adjustment, said auxiliary adjusting means being adjustably connected with the jaw-frame and bearing rearwardly against said catch but not positively connected thereto and adapted when manipulated to effect a forward movement of the jaw-frame and movable jaw.

2. A wrench comprising a shank or wrench-bar carrying a fixed jaw and having a longitudinal rack, a jaw-frame slidably-fitted on said shank and having a coacting movable jaw, a pivoted catch arranged in a socket in the jaw-frame and engaging said rack, a non-rotatable screw in said jaw-frame bearing against said catch, and a nut engaging said non-rotatable screw, said nut having an exposed periphery for engagement by the fingers and being fitted between the confronting walls of a slot or opening in the jaw-frame, and the pivot of said catch having slotted connections with the jaw-frame.

3. A wrench comprising a shank carrying a fixed jaw, a movable jaw-frame slidably-fitted on said shank and carrying a coacting movable jaw, a catch arranged in a socket in said jaw-frame and having teeth which engage said rack, said catch having a pivot pin with projecting ends fitted in slots in the jaw-frame, a non-rotatable screw in the jaw-frame bearing against said catch above its pivot, and a nut on said screw, said nut having an exposed periphery and being fitted between the confronting faces of a slot or opening in the jaw-frame.

4. A wrench comprising a shank or wrench-bar carrying a fixed jaw and having a longi-

tudinal rack, a jaw-frame slidably-fitted on said shank and having a coacting movable jaw, a catch consisting of a block pivotally arranged in a socket in said jaw-frame and having teeth for engaging said rack, the pivotal connection between said block and jaw-frame being slightly adjustable, and an adjusting-screw for said jaw-frame operatively connected therewith and arranged forwardly of said block and bearing thereagainst.

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

OTIS McPHERSON HANSFORD.

Witnesses:

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