J. C. HOLLEY.

WRENCH.

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1,367,969.

Patented Feb. 8, 1921.

Fig. 2.

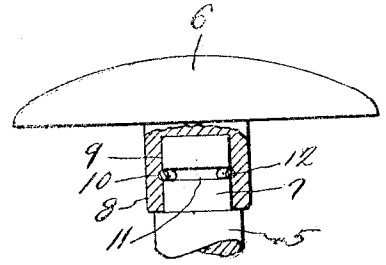
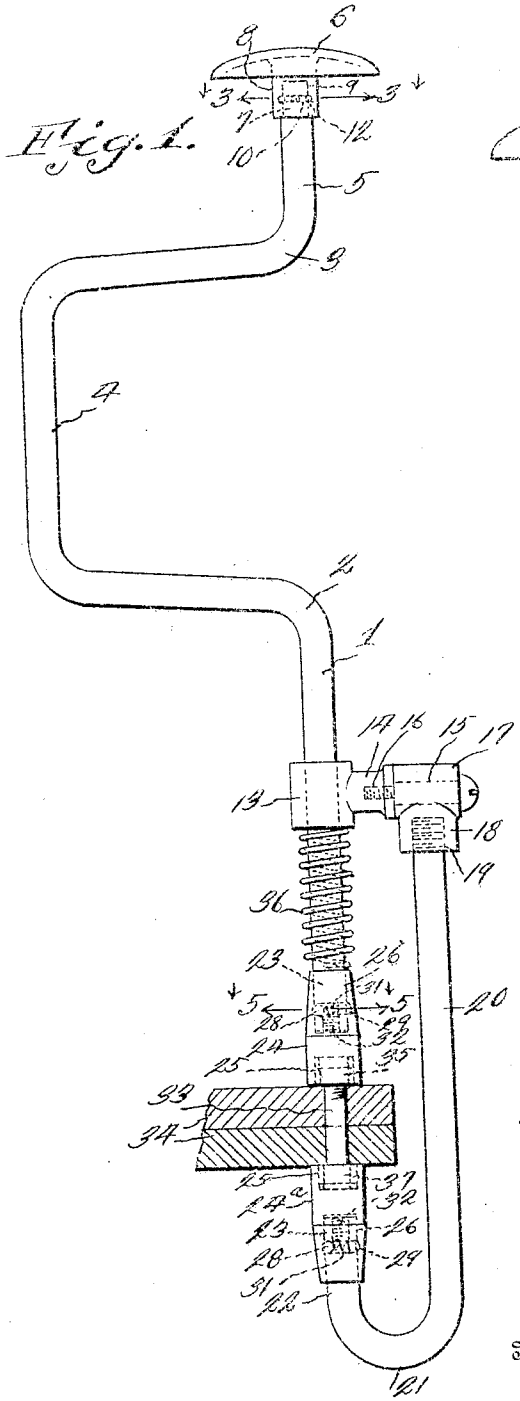


Fig. 1.



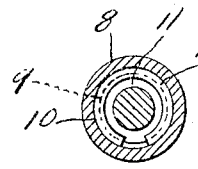


Fig. 3.

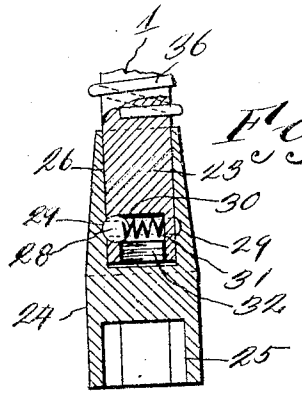


Fig. 4.

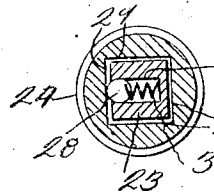


Fig. 5.

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WRENCH.

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To all whom it may concern:

Be it known that I, JAMES C. HOLLEY, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawing.

The invention relates to wrenches and has for its object to provide a socket wrench, wherein the handle thereof is formed in the shape of a brace, thereby increasing the leverage, when a nut is being placed on or removed from a bolt. Also to provide means slidably mounted on the shank of the wrench and adapted to engage the head of a bolt, when the nut is being removed from said bolt, said head engaging means being spring actuated and maintained in position by said spring. The wrench being particularly adapted for use in removing bolts and nuts from various parts of internal combustion engines, particularly engines of motor driven vehicles, wherein as a rule it is impossible to remove said nuts and bolts with conventional forms of wrenches.

A further object is to provide socket heads which are detachably held on the wrench, thereby allowing the substitution of various sockets, of standard sizes, for use when it is desired to remove various standard bolts.

A further object is to pivot the slidable arm, which carried the bolt head engaging socket, which is slidable on the shank of the wrench, thereby allowing the same to be moved to various positions to avoid parts of the machinery, when the wrench is being placed in position for use.

With the above and other objects in view, the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawings, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the drawings:

Figure 1 is a side elevation of the wrench, showing the same applied to a bolt and nut.

Fig. 2 is an enlarged detail view of the pivoted handle, part being broken away to show means of attaching the same.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is an enlarged sectional view of one of the detachable sockets, showing attaching means.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 1.

Referring to the drawings the numeral 1 designates the shank of the wrench, said shank being bent as at 2 and 3 so as to form the off set portion 4, which portion is adapted to be grasped by the hand of the operator when it is desired to impart a revoluble movement to the shank 1. The upper end of the wrench is provided with a portion 5, which portion is in axial alinement with the shank 1, said portion 5 having pivoted to its upper end a hand engaging member 6. A reduced portion is formed on the upper end of the portion 5, said reduced portion 7, being adapted to receive the integral sleeve 8 carried by the member 6. Sleeve 8 is provided with a cylindrical chamber 9, said chamber having a circumferential groove 10 in the wall thereof, which groove 10 is in registration with a groove 11 in the reduced portion 7, there being a split ring 12 disposed in said groove 11 and is adapted to spring outwardly so that it will also engage in the groove 10, thereby maintaining the member 6 on the portion 7.

Slidably mounted on the shank 1 is a sleeve 13, which sleeve is provided with a right angled lug 14, said lug having a shouldered screw 15 threaded therein as at 16. Pivotally mounted on the shank of the screw 15 is a sleeve 17, said sleeve being provided with a boss 18, which boss has threaded therein as at 19 a depending arm 20, said arm being in turn bent at 21, thereby forming an upwardly extending arm 22 in axial alinement with the shank 1. The ends of the shanks 1 and 22 are provided with square portions 23, said portions 23 being adapted to receive sockets 24 and 24ª, which sockets have recesses 25 therein which recesses are adapted to receive the nut on a bolt and the head of said bolt. Each socket 24 and 24ª is provided with square apertures 26, for the reception of the square portions 23, thereby preventing the rotation of the sockets on the shank 1 and the portion 22. Sockets 24 and 24ª are maintained on the squared portions 23, by means of spring actuated balls 28, which balls are held in

engagement with grooves 29 in the walls of the apertures 26. Balls 28 being disposed in recesses 30 and are engaged on their inner sides by springs 31, against the actions of which springs the balls are adapted to act when the sockets 24 and 24ª are being placed in position or being removed. Chambers 27 may be closed by means of plugs 32 threaded in the ends thereof, or in any other suitable manner.

When it is desired to remove a bolt 33, for instance from flanges 34 of an engine, the socket 24 is placed in engagement with the nut 35, the arm 20 being allowed to move upwardly under the influence of the coiled spring 36, until the socket 25 of the member 24ª is in engagement with the head 37 of the bolt 33. The coiled spring being in engagement with the sleeve 13, will force the same upwardly, thereby maintaining the sockets in engagement with the bolt head and the nut. While the parts are in the position the operator grasps the wrench by the member 6 with one hand and then with the other hand he imparts a revoluble movement to the shank 1, by means of the portion 4. It will be seen that the bolt will be prevented from turning and that the nut will be quickly and easily removed from the bolt. It will also be seen that by pivoting the arm 20, that the same may be moved to various positions when the wrench is being applied to a bolt and also allowing the use of the wrench where it is not necessary to hold the bolt head and allowing compact form for storage.

The invention having been set forth, what is claimed as new and useful is: —

1. A device of the character described comprising a brace having a sweep and shank, said shank having an end which is polygonal, said end being provided with a transverse opening, a spring pressed catch within the transverse opening, a laterally extended swinging arm slidably mounted on the shank, said arm having an upturned portion, the end of which is polygonal, a pair of interchangeable nut receiving socket heads, each having a polygonal aperture and a continuous groove therein for receiving the ends of the shank and swinging arm and their respective spring pressed catches, and a spring carried by the shank and bearing against the swinging arm for normally drawing the sockets toward each other.

2. A device of the character described comprising a brace having a sweep and shank, said shank having an end which is polygonal, said end being provided with a screw threaded opening, a threaded plug, closing said opening, a transverse opening in communication with the screw threaded opening, a spring pressed catch within the said transverse opening, a sleeve slidably mounted on the shank and provided with a right angled extension, a lug pivotally connected to said angular extension, an arm secured to one end of said lug and provided near its free end with an upturned portion and having the extreme end polygonal and formed with a transverse opening and a communicating screw threaded opening, a second spring pressed catch mounted in the last named transverse opening, and a threaded plug for normally closing said screw threaded opening, a pair of interchangeable nut receiving socket heads each being provided with a polygonous aperture for receiving the polygonous ends of the shank and the arm, said apertures having a series of grooves for engagement with the said spring pressed catches and a spring carried by the shank and secured at one end thereto and its free end bearing against the sleeve for normally drawing the sockets toward each other.

In testimony whereof I hereunto affix my signature.

JAMES C. HOLLEY