No. 662,966. Patented Dec. 4, 1900.

S. B. J. ROBERTSON.

WRENCH.

(Application filed Apr. 16, 1900.)

(No Model.)

Fig. 1.

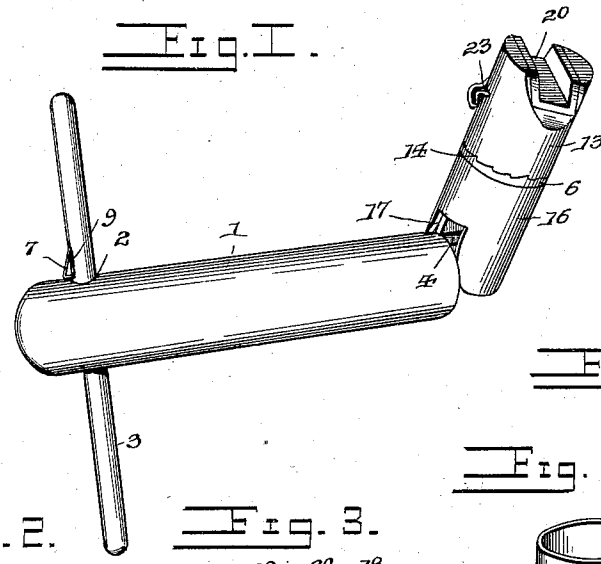


Fig. 4.

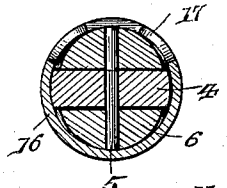


Fig. 8.

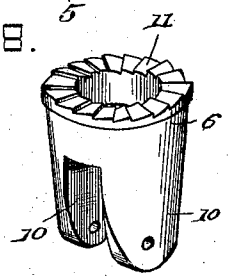


Fig. 5

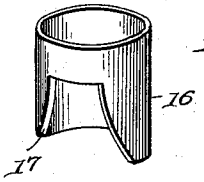


Fig. 2.

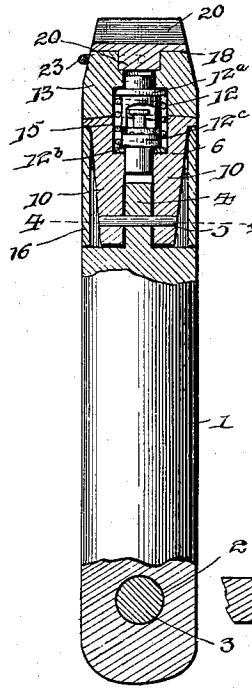


Fig. 3.

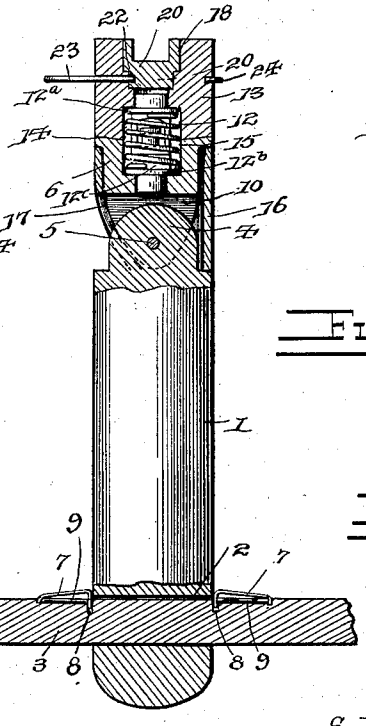


Fig. 6.

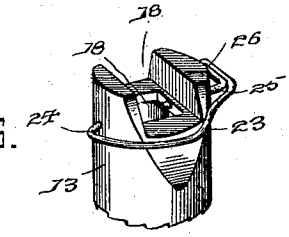
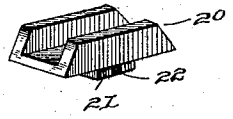


Fig. 7.



Witnesses
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By his Attorneys,
C. A. Snow & Co.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

SAMUEL B. J. ROBERTSON, OF LUTCLER, LOUISIANA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 662,966, dated December 4, 1900.

Application filed April 16, 1900. Serial No. 13,087. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL B. J. ROBERTSON, a citizen of the United States, residing at Lutcler, in St. James parish and State of Louisiana, have invented a new and useful Wrench, of which the following is a specification.

The invention relates to improvements in wrenches.

The object of the present invention is to improve the construction of nut-wrenches and to provide a simple and comparatively inexpensive one adapted to have its nut-engaging portion arranged at different angles to its handle portion, whereby it may be conveniently operated on tire-bolts, pulley-bolts, and the nuts of other bolts not accessible with an ordinary wrench or inconvenient to operate with the same.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a wrench constructed in accordance with this invention, the nut-engaging portion or jaw being arranged at an angle to the handle portion. Fig. 2 is a longitudinal sectional view, the nut-engaging portion or jaw being in alinement with the inner portion of the shank or stock. Fig. 3 is a longitudinal sectional view taken at right angles to Fig. 2. Fig. 4 is a transverse sectional view on line 4 4 of Fig. 2, the rotary sleeve being arranged for locking the nut-engaging portion or jaw in alinement with the inner portion of the shank or stock. Fig. 5 is a detail perspective view of the rotary sleeve. Fig. 6 is a detail perspective view of the jaw of the wrench. Fig. 7 is a similar view of the removable socket. Fig. 8 is a detail perspective view of the socket.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a shank or stock provided at its inner end with a transverse opening 2 for the reception of a removable handle 3 and provided at its outer end with a perforated ear 4 for the reception of a pivot 5, which hinges a ratchet block or piece 6 to the shank or stock. The handle 3, which is disposed transversely of the inner end of the shank or stock, is provided at opposite sides of the same with depressible spring-catches 7, which secure the handle in the opening of the said shank or stock. Each catch is constructed of a single piece of resilient wire or other suitable material, which has its outer end secured to the handle, and its inner end is bent inward at right angles and extends into a socket 8 of the handle and forms a shoulder for abutting against the shank or stock. The handle is grooved at 9 to receive the body portion of the catch when the same is depressed to permit the handle to be withdrawn from the opening of the shank or stock.

The ratchet block or piece, which is rounded and slightly tapered, as illustrated in Fig. 8 of the accompanying drawings, is bifurcated to provide oppositely-disposed ears or portions 10, which lie upon opposite sides of the perforated ear of the shank or stock and which are perforated to receive the pivot 5. The ratchet block or piece is provided at its outer end with an annular series of ratchet-teeth 11 and is connected by a stem 12 with a nut-engaging jaw 13, having ratchet-teeth 14 at its inner end to engage those of the ratchet block or piece, and the handle is adapted to be partially rotated to operate the jaw. By oscillating or reversely rotating the shank or stock the nut-engaging jaw may be continuously rotated. The stem, which is composed of inner and outer sections, has its ends arranged in central recesses of the ratchet block or piece 6 and the jaw 13. The inner ends of the sections of the stem are swiveled together and are capable of a limited longitudinal movement on each other and are adapted to be rotated freely. One of the sections of the stem is provided with a fixed collar or flange 12^a, located adjacent to the socket or female portion of the swivel-joint and having one end of a coiled spring 15 secured to it. The other end of the coiled spring is secured to a loose collar or flange 12^b, mounted on the other section of the stem and abutting against a fixed collar or flange 12^c, which is located adjacent to the inner portion of the male portion of the swivel-joint. The coiled spring is disposed on the inner portions of the sections and extends over the swivel-joint and connects the two sections, limiting their outward or longitudinal movement and permit-

ting them to rotate freely. The jaw is adapted to be arranged at an angle to the shank or stock, as illustrated in Fig. 1 of the accompanying drawings, to enable the wrench to be introduced into a recess or cavity for operating on a nut which is not accessible with an ordinary wrench, and the hinged connection between the ratchet-piece and the shank or stock permits this arrangement. The ratchet block or piece 6 is locked in alinement with the shank or stock by a rotary sleeve 16, arranged on the adjacent portions of the block or piece and the shank or stock, which are recessed for its reception, as clearly illustrated in Figs. 2 and 3 of the accompanying drawings, and one side of the sleeve 16 is cut away to form a recess 17, which is adapted to be brought opposite one edge of the perforated ear 4, to permit the block or piece 6 to swing on the pivot 5. The sleeve is adapted to be rotated to bring the recess at either edge of the perforated ear, and the said recess may be arranged at an intermediate point to locate solid portions of the sleeve at opposite sides of the joint, whereby the ratchet-piece will be locked rigid with the shank or stock and will be prevented from swinging in either direction.

The jaw or nut engaging portion is provided at its outer end with a nut-receiving socket 18, consisting of a recess or bifurcation having a central extension 19 and adapted to receive a removable socket-piece 20, and the latter, which is provided with a shank 21 to engage the portion 19 of the socket 18, is adapted to receive a nut, and it may be readily removed to enable socket-pieces having sockets of different sizes to be employed, whereby the wrench is adapted for operating on different nuts. The removable socket-piece is provided at one side of its shank with a depression 22, adapted to be engaged by a catch 23, whereby the socket-piece is retained in the nut-engaging portion or jaw. The catch, which is constructed of spring-wire or other resilient material, consists of a curved body portion or yoke having one end 24 engaging a socket or recess at one side of the jaw, and its other end extends through a perforation of the opposite side of the jaw and forms an engaging portion 25 to interlock with the depression of the removable socket-piece. The catch is provided at the side of the jaw with an extension or handle 26, formed by looping the wire, as clearly shown in Fig. 6 of the accompanying drawings.

It will be seen that the wrench is exceedingly simple and inexpensive in construction, that its engaging portion or jaw, which may be locked in alinement with the shank or stock, is adapted to be arranged at an angle to the same at either side thereof to enable it to operate on nuts which are not readily accessible with the ordinary wrench, and that by reversely oscillating or partially rotating the shank or handle portion of the wrench the jaw may be continuously rotated. It will also be apparent that the socket-piece is readily removable and that it may be quickly changed to adapt the wrench for operating on nuts of different sizes.

Changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What is claimed is—

1. A wrench comprising a stock or shank, a jaw hingedly connected with the same and adapted to be arranged at an angle, and a rotary sleeve mounted at the joint and provided with a cut-away portion or recess adapted to be arranged at either side of the joint, to permit the jaw to be disposed at an angle and capable of being carried away from such positions to lock the jaw rigid with the shank or stock, substantially as described.

2. A wrench comprising a shank, a ratchet-piece hinged to the shank, a jaw provided with ratchet-teeth arranged to be engaged by those of the ratchet-piece, and a rotary sleeve mounted on the shank and arranged to lock the ratchet-piece rigid with the same, and adapted to release the ratchet-piece to permit the jaw to be arranged at an angle, substantially as described.

3. A wrench comprising a shank, a jaw, and a handle extending through an opening of the shank and provided at opposite sides with depressible rigid catches detachably retaining the handle in the said opening, substantially as described.

4. A wrench comprising a shank having a socket, a removable socket-piece fitting in the socket and adapted to receive a nut, and a catch consisting of a yoke-shaped body extending around one side of the jaw and having one end fitted in a recess thereof, the other end of the yoke being extended through the adjacent side of the jaw and detachably engaging the socket-piece, said yoke being provided with a handle located at the engaging end and adapted to be drawn outward to release the removable socket-piece without detaching the catch, substantially as and for the purpose described.

5. A wrench comprising a shank, a jaw provided with ratchet-teeth, a ratchet-piece connected with the shank and adapted to interlock with the teeth of the jaw, a stem composed of inner and outer swivel-sections connected respectively with the ratchet-piece and the jaw, and a coiled spring arranged on the inner ends of the sections and fixed to one of them and adapted to turn on the other, said spring serving to connect the sections, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SAMUEL B. J. ROBERTSON.

Witnesses:
JOSEPH DAMARÉ,
HENRY L. HIMEL.