

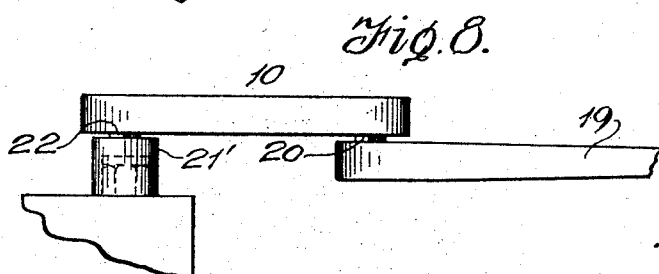
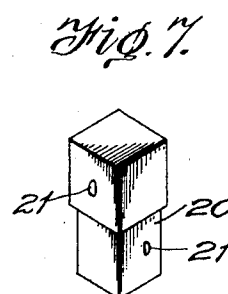
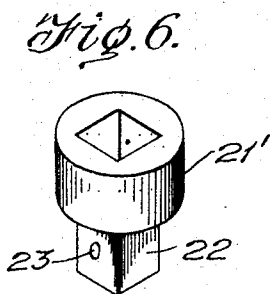
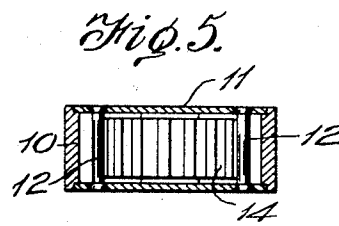
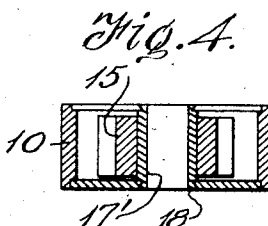
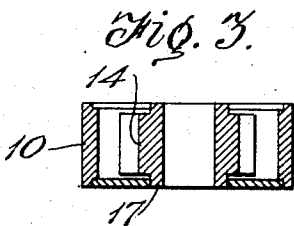
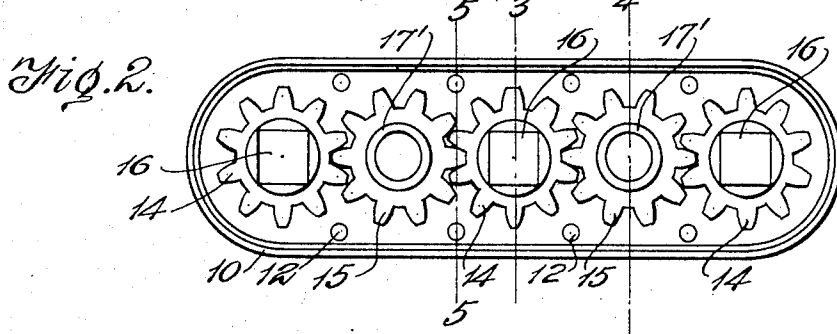
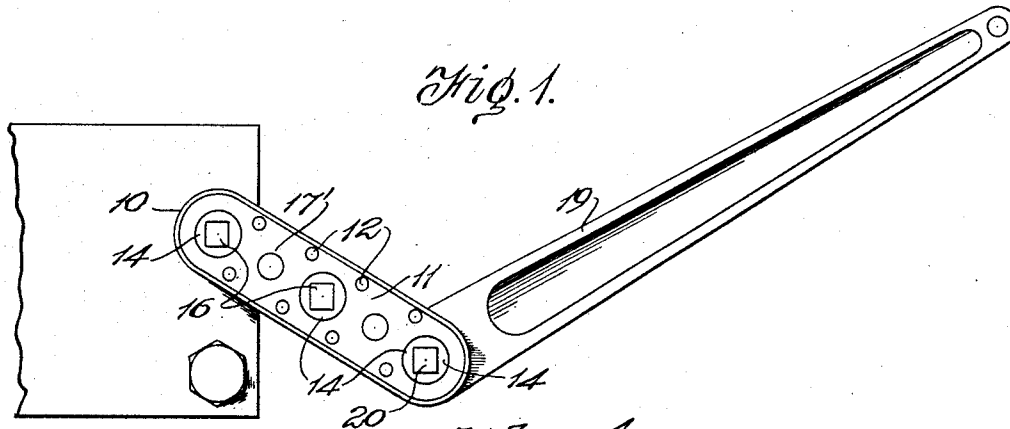
March 3, 1931.

F. A. SLAZES

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WRENCH

Filed March 12, 1930



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WRENCH

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The object of the invention is to provide a wrench consisting of a plurality of rotary members of which one may be applied to a bolt or nut to be removed and another have applied to it a conventional ratchet handle, so that the nut or bolt, ordinarily inaccessible to the conventional wrench, may be readily removed; to provide a wrench in which the nut or bolt turning member is insured turning movement in the direction in which the applied ratchet handle operates in order that the operator may not have to determine how to apply the handle other than if it were directly applied to the nut or bolt; to provide a wrench construction susceptible of being anchored with a punch or pin when applied to its work thus preventing its lateral or swinging movement during the operation of the attached handle; and to provide a construction of the kind indicated which is of simple form and, therefore, of a kind to be cheaply manufactured and marketed at low cost.

With this object in view, the invention consists in a construction and combination of parts of which a preferred embodiment is illustrated in the accompanying drawings:

Figure 1 is a plan view of the invention, showing the latter applied as a means for removing a cap screw inaccessible to the conventional wrench.

Figure 2 is an enlarged plan view of the invention with the cover member removed.

Figures 3, 4 and 5 are sectional views on the planes indicated by the lines 3—3, 4—4 and 5—5 respectively of Figure 2.

Figure 6 is a perspective view of a socket member applicable to the device.

Figure 7 is a perspective view of a plug member by means of which the ratchet handle is applied.

Figure 8 is a partial side view of the wrench shown in Fig. 1.

The invention comprises the elongated case 10 having the cover plate 11 seated in a rabbet formed at the upper edge of the bounding wall, the cover plate being secured to the case by means of pins 12 which extend through the bottom wall of the case and

through the cover to which they are secured by being peaned over.

The case encloses a plurality of gears, those indicated at 14 being work gears and those indicated at 15 being idler gears. The number of gears to be employed may be varied at will but they should consist always of an odd number, so that the work gears will have the same direction of movement, adjacent work gears being operatively connected by an intermediate idler gear.

The work gears are formed with polygonal sockets 16 preferably square, these sockets extending clear through the gears at the hub portions 17 of the latter which are journaled in the bottom wall and cover plate respectively of the casing.

The idler gears are formed with circular apertures which constitute bearings by means of which they are rotatably mounted on the hollow studs 17' which extend through and are peaned over, as indicated at 18, to the bottom wall of the casing and which effect a loose connection with the cover 11.

The ratchet handle 19 which is of conventional form may be operatively connected with any one of the gears 14 by means of the plug 20, this latter being provided with spring-pressed balls 21 engageable in seats in the work gears and in the ratchet handle, so that when inserted in the two, the plug may retain its position therein.

When the ratchet handle is applied to any one of the work gears any one of the other may be applied directly to the work if the eye 16 agrees with the shape and dimensions of the nut or bolt to be removed, but if not, the socket 21', suited to the particular bolt may be applied to the desired gear, the shank 22 of the socket being inserted in the eye of the gear, and the ball 23 retaining the socket in engagement with the gear, the ball 23 being spring-pressed and engageable in a seat as in the case of the balls 21.

The ratchet handle need be only of the kind to operate the ratchet in one direction but the advantages of double ratcheting movement may be secured by merely turning it over on the stud by which it is connected with the wrench.

In using the device, the connection of a work gear with a particular nut may be effected and the ratchet handle applied as it would ordinarily be applied for removing or attaching a belt or nut and if it is turned in the direction that it would be if applied directly to the nut, the work gear of the invention will turn in the direction to apply the proper turning movement to the bolt or nut, by reason of the intervening idler gear connections between the work gears.

If the position of the work is such that a lateral rest is not provided for the wrench, such a rest may be secured by means of a punch, pin or bolt inserted through the hollow stud of one of the idler gears and allowed to engage the nearest abutment.

The invention having been described, what is claimed as new and useful is:

1. A wrench comprising an elongated case, a train of gears rotatably mounted in said case, alternate gears being formed with polygonal sockets opening on opposite sides of the case, and hollow studs extending through the case on which the intermediate gears are journaled.

2. A wrench comprising an elongated case having a cover seated in a rabbet in the upper edge of the bounding wall thereof, fasteners extending through the cover and the bottom wall of the case, a train of gears disposed within the case, hollow studs extending through the cover and the bottom of the case, alternate gears having hubs journaled in the cover and the bottom of the case respectively, the intermediate gears being journaled on said hollow studs, said first named gears being formed with work engaging sockets.

In testimony whereof he affixes his signature.

FRANK A. SLAZES.

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