Dec. 6, 1932. W. W. McKEE 1,890,227

AUTO CRANK SHAFT WRENCH

Filed Aug. 28, 1931

Fig. 1

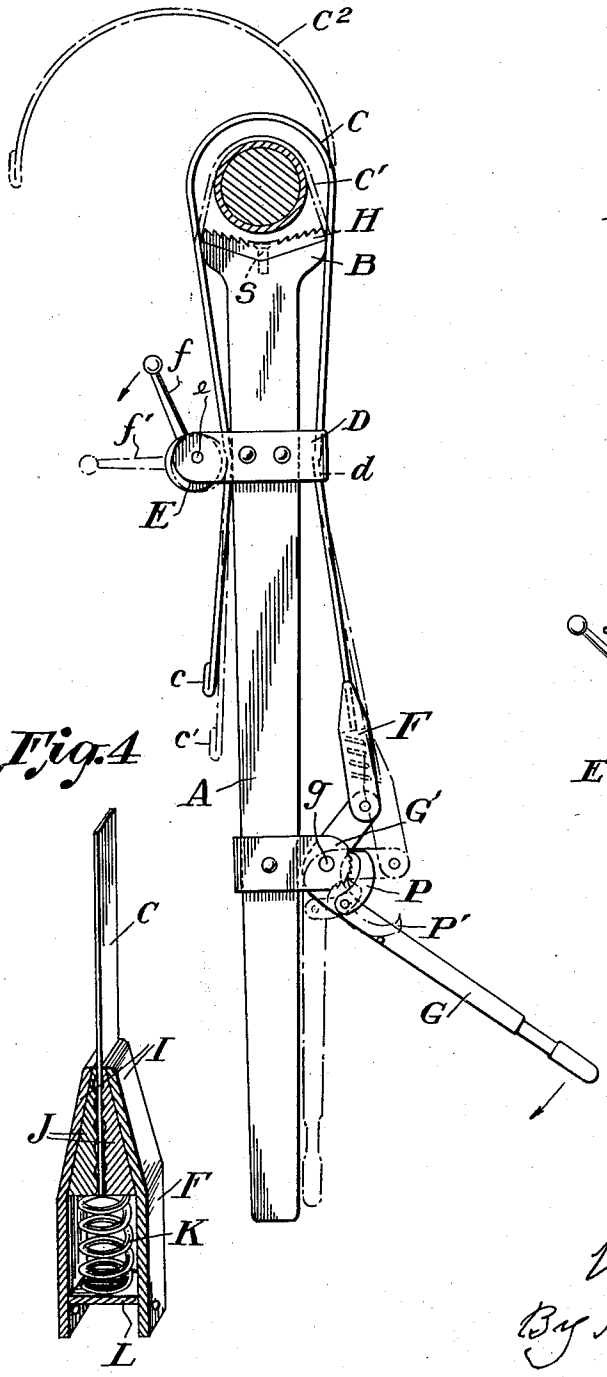


Fig. 3

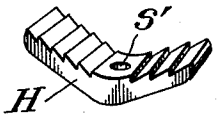


Fig. 2

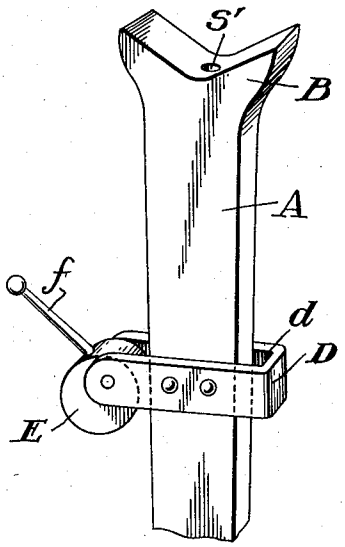
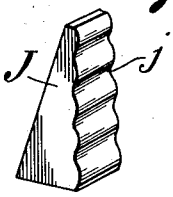


Fig. 4

Fig. 5



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UNITED STATES PATENT OFFICE

WELDON W. McKEE, OF WOOSTER, OHIO

AUTO CRANK SHAFT WRENCH

Application filed August 28, 1931. Serial No. 559,952.

My invention relates to improvements in wrenches, and its principal object is to provide a wrench adapted to use particularly in repairing auto crank shafts and the like, where, for want of sufficient room, it is difficult to operate a wrench of the usual character. In adjusting the bearings and removing the connecting rods and pistons, it is frequently necessary to rotate the auto crank shaft backward and forward after the oil pan and oil lines have been removed. This can only be accomplished by means of a wrench which has gripping means adapted to engage the shaft between journals and without using the motor crank, rotate the shaft in both directions without removing the wrench therefrom and making repairs and adjustments of the shaft and its bearings without having to get from underneath the car during the operation.

A further object of my invention is to afford better means for adjusting and applying the gripping means to the position and size of the crank shaft or rod to be manipulated by the wrench.

A still further object is to provide improved means for attaching and manipulating the metal strap employed in its connection with the wrench handle, and for disengaging the strap from its grip and for renewing the latter when outworn, or when altered conditions require a change thereof.

It consists of the novel elements and combinations thereof hereinafter set forth and stated in the appended claim, all of which are illustrated by the accompanying drawing, in which similar letters and figures of reference indicate like parts.

In the drawing—Fig. 1 is a side view of one embodiment of my invention, illustrating in full and dotted lines the operating mechanism thereof. Fig. 2 is an enlarged perspective view of the gripping end of the wrench handle, detached; and Fig. 3 is a like view of extra gripping jaws that may be applied thereto.

Fig. 4 is a detail view, partly in section, showing means for detachably securing one end of the metal strap employed to the strap-tightening lever; and Fig. 5 is a detail perspective view of one of the pair of clamping wedges employed for the same purpose.

In the drawing the reference letters A, B, and C, indicate the wrench handle, its head, and the metal strap, respectively, employed in the structure of my invention, and D indicates a U-shaped metal bar attached transversely to the handle to support and control said strap, as hereinafter explained.

To grip and securely hold the free end of the strap C the rocker eccentric E is pivotally mounted between the ends of said U-shaped support D on the pivot *e*, and adapted to be rocked manually by the bar *f* in the direction of the arrow, whereby the said strap may be drawn down towards the head B sufficient to bring the latter into close proximity to the auto crank shaft, or other rod to be actuated by the wrench, and be permanently held in such position, when tightened thereon by action of the hand lever G as hereafter explained.

In applying the wrench to the shaft C′, the strap C, which is thin and flexible, is first disengaged at its free end from the eccentric E, and turned upwardly, as at C2, until it encircles the shaft C′, and then drawn down upon the wrench head B, and locked between the eccentric and the adjacent side of the handle A, by the detachable arm *f*, thereby holding the head against the shaft either tightly or in such near proximity thereto as may be desired, to allow free movement of the handle until the strap is drawn taut upon the shaft by the hand lever G, as hereafter explained.

To rotate the shaft in one direction only, the strap must be loosened so that the handle A may swing freely in one direction, and tightened so as to grip the shaft and rotate it in the opposite direction, the handle being suspended on the shaft during such movements.

For such purpose, among others, the opposite end of the strap is firmly secured to the short arm of the hand lever G, by means of the strap gripping member F, shown in Fig. 4, which consists of a hollow frame I, having its opposite sides beveled inwardly and adapted to enclose a pair of wedge-shaped gripping jaws J, J, having matched lateral furrows *j*,

shown in Fig. 5, between which the strap end is gripped. The gripping jaws are held in position to impinge upon the strap and tighten thereon by a spiral spring K, seated on a floor member L, substantially as shown.

By the means stated, provision is made for readily detaching the strap, as is sometimes necessary for its renewal or change of size or texture, or otherwise adapting the wrench to particular conditions in different makes of automobiles and auto shafts.

The clip F is pivotally operable by the hand lever G, which is pivotally mounted between the ends of a U-shaped support G', firmly attached to the handle, and may be temporarily held in any required tension by means of a ratchet and pawl P, shown in Fig. 1 or equivalent means. The strap extends upwardly thru the loop *d* of the support D, whereby the strap is constantly held in close relation to the head of the wrench. The position and form of the support D may, of course, be varied to suit changed conditions. In cases where the shaft to be rotated has a polished surface, which might be injured by the jaw teeth of the member H, the latter may be removed by withdrawal of the set screw S; or the angle of the jaws may be modified to adapt the wrench to rotate shafts of varying thickness.

Altho the particular object of my wrench is for use in the repair and adjustment of auto crank shafts and bearings, it is apparent that it may also be adapted to rotate rods of a different character in a similar manner, and I do not wish to limit my claim to mere matter of form which may be modified within the scope of my invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is—

In a wrench of the character described, the combination with a handle, a pair of angular jaws at its head, a support member attached to the handle below its head, an eccentric rocker pivotally mounted in said support and an opening thru said support opposite said eccentric, a thin flexible strap adapted to be adjustably and detachably secured between said eccentric and said handle at one end, and a clip fastener adapted to engage the other end thereof, means including a pair of wedge-shaped members slidingly operable in said clip to grip said strap between them, and means, including a hand lever pivotally operable on said handle, and engaging said clip, to control the tension of said strap, substantially as set forth.

In witness whereof, I hereunto set my hand this 26th day of August, A. D. 1931.

WELDON W. McKEE.