Oct. 14, 1924. 1,511,226

S. O. LAWRENCE

WRENCH

Filed Jan. 9, 1922

Fig. 1

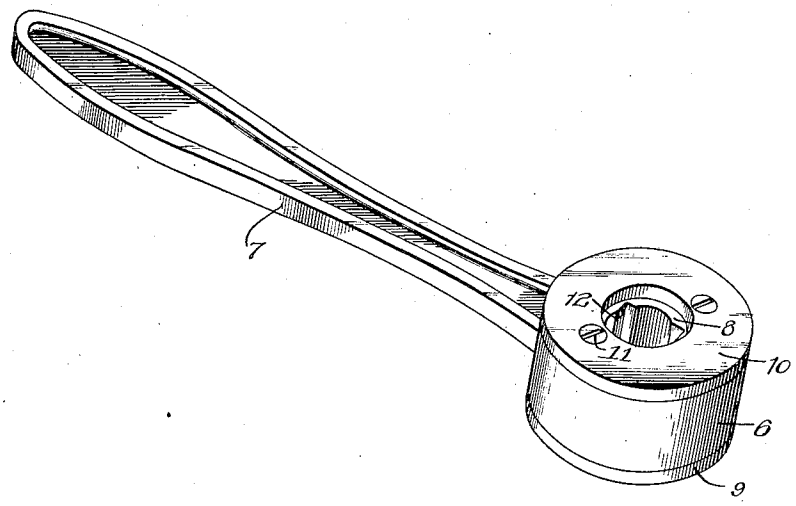


Fig. 5



Fig. 2

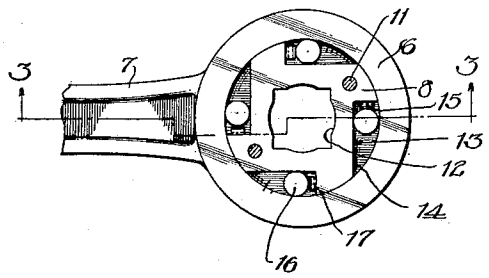


Fig. 3

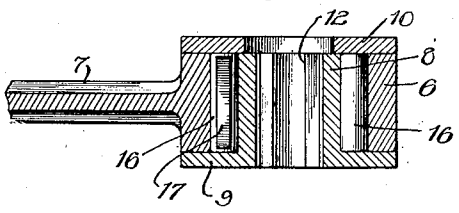
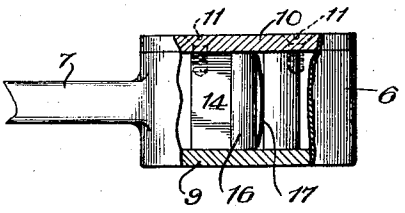


Fig. 4



Inventor:
Stanley O. Lawrence
By Fred Gerlach
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UNITED STATES PATENT OFFICE.

STANLEY O. LAWRENCE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE BECKLEY-RALSTON CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

WRENCH.

Application filed January 9, 1922. Serial No. 527,839.

To all whom it may concern:

Be it known that I, STANLEY O. LAWRENCE, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wrenches, of which the following is a full, clear, and exact description.

The invention relates to wrenches and more particularly to the ratchet type.

One object of the invention is to provide an improved ratchet wrench which is adapted to operate with the minimum lost motion during reversal of the stroke. Another object is to provide a wrench of this type which is simple in construction and efficient in operation.

In the drawings: Fig. 1 is a perspective of a wrench embodying the invention. Fig. 2 is a plan, the side plate being removed. Fig. 3 is a section taken on line 3—3 of Fig. 2. Fig. 4 is a side elevation, parts being shown in section. Fig. 5 is a detail of one of the springs for shifting the rollers.

The invention is exemplified in a wrench comprising relatively rotatable members. One of said members is provided with a cylindrical socket 6 and a handle 7 integrally formed with the socket and extending from one side thereof. The other of said members comprises a body 8 fitted to and in the inner periphery of the socket 6, a flange 9 integral with the body and projecting radially therefrom to lap one side of said body and a plate 10 secured to the body by screws 11 so that said member will be rotatable in and confined against longitudinal movement relatively to the socket 6. The body 8 is provided with an opening or socket 12 adapted to receive the polygonal portion of a socket wrench or nut. The construction illustrated is adapted more particularly for the operation of a series of wrench sockets provided with a polygonal portion of the same size. Body 8 is provided in its outer periphery with a series of pockets 13 each formed with surfaces 14 and 15 substantially at right angles to each other. A cylindrical roller 16 is provided in each pocket and is adapted to form a wedge between the surface 14 and the inner periphery of socket 6 to lock the members together for rotation in one direction and to automatically release the members so one may be rotated relatively to the other in reverse direction. In order to avoid lost motion, flat springs 17 are interposed between the surfaces 15 and the rollers 16 respectively, the pressure of the springs tending to yieldingly hold the rollers in wedging or operative position in the pockets 13. In many instances, for example where the stroke of the handle 7 must be short, it is of importance to avoid lost motion during the retractile stroke of the handle, and by employing these springs, this object is effectively attained.

The invention exemplifies a wrench of the ratchet type in which automatically acting rollers are used and in which substantial lost motion between the members is avoided. In practice, the members may be formed of forgings. By removing the screws 11, the members can be readily separated when desired.

The invention is not be be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a wrench, the combination of an outer member having a cylindrical opening extending completely and transversely therethrough and provided with a handle whereby it may be turned, an inner member fitting and rotatable in said cylindrical opening and provided with a socket extending transversely therethrough and pockets extending entirely across its periphery, rollers in the pockets for locking the members together for conjoint rotation in one direction, an integral outwardly extending flange at one side of the inner member lapping one of the outer faces of the outer member and forming a closure for one end of the pockets, and a removable plate secured to the other side of the inner member lapping the outer face of the other side of the outer member to hold the inner member in said opening, and forming a closure for the other end of said pockets.

2. In a wrench, the combination of an outer member having a cylindrical opening extending completely and transversely therethrough and provided with a handle whereby it may be turned, an inner member, fitting and rotatable in said cylindrical opening, and provided with a socket extending trans-

versely therethrough, and pockets extending entirely across its periphery, rollers in the pockets for locking the members together for conjoint rotation in one direction, an integral outwardly extending flange at one side of the inner member lapping one of the outer faces of the outer member and forming a closure for one end of the pockets, a removable plate secured to the other side of the inner member, lapping the outer face of the other side of the outer member to hold the inner member in said opening, and forming a closure for the other end of said pockets, and leaf-springs in said pockets and engaging the rollers to press them into operative position.

STANLEY O. LAWRENCE.