Oct. 5, 1948. J. MAJESKI, JR 2,450,734

SCREW DRIVER

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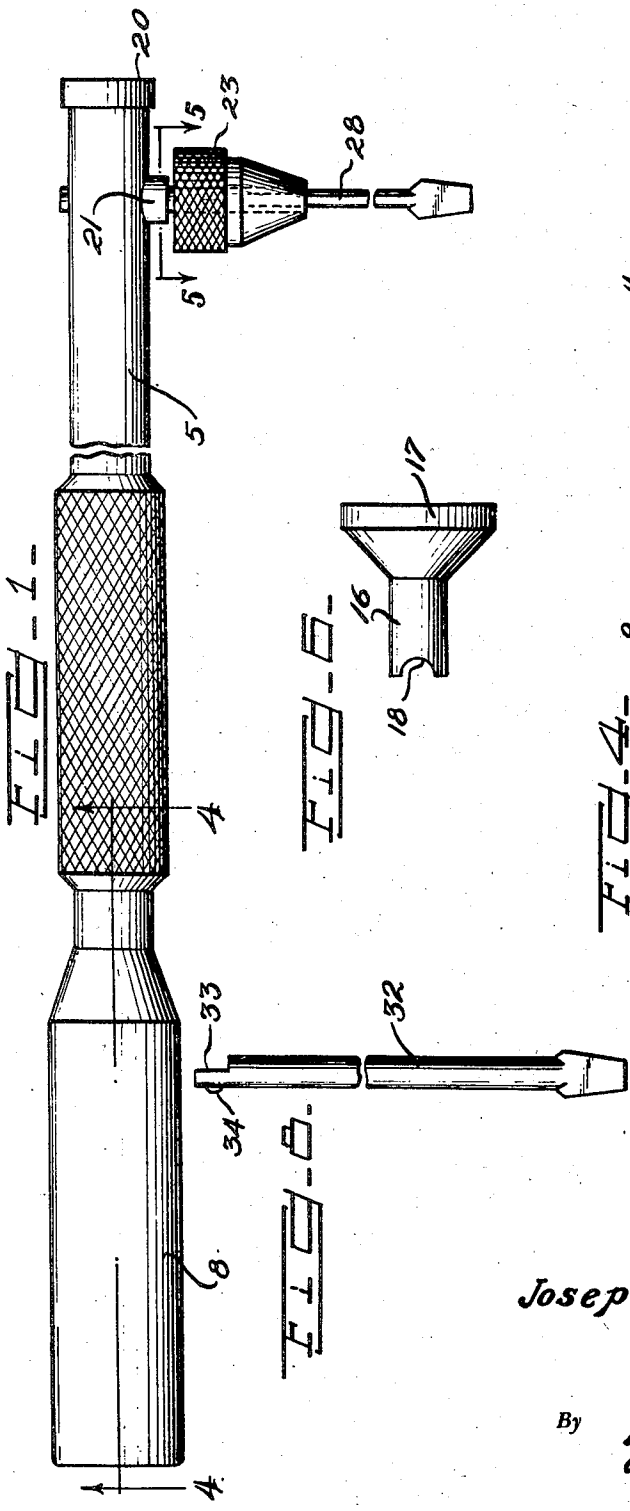


FIG. 1.

FIG. 6.

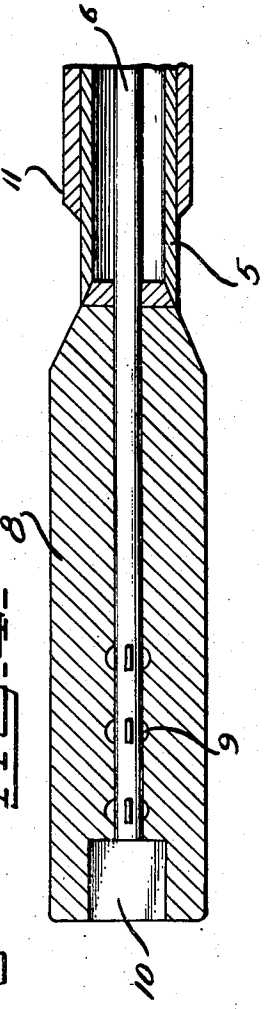


FIG. 4.

FIG. 8.

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FIG. 3.

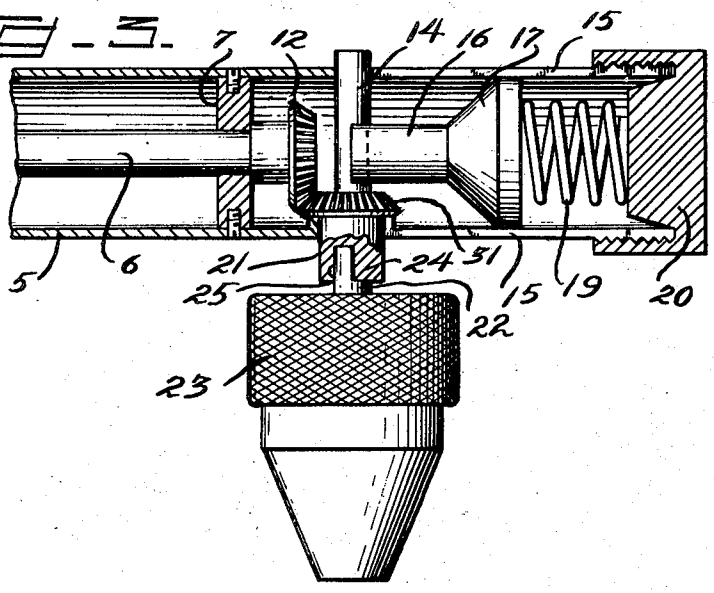


FIG. 2.

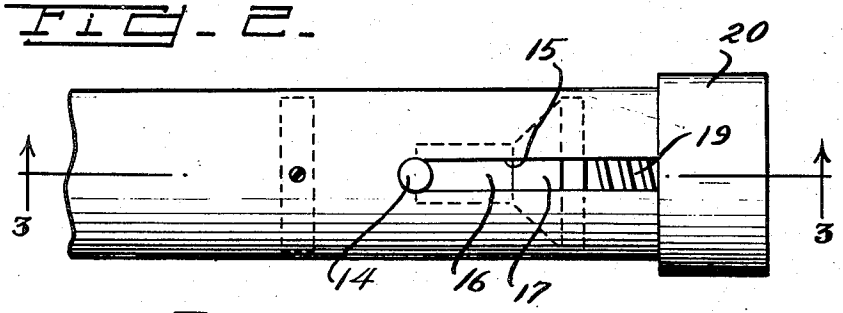


FIG. 1.

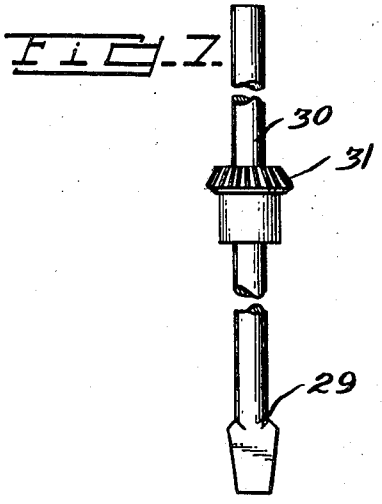
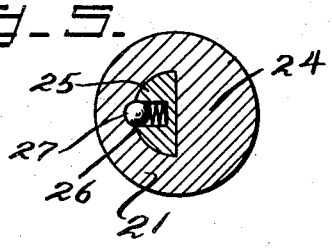


FIG. 5.



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SCREW DRIVER

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Application August 29, 1946, Serial No. 693,735

3 Claims. (Cl. 74—417)

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The present invention relates to new and useful improvements in screw drivers and more particularly to a tool of this character in which the blade of the screw driver projects laterally from the handle thereof for use in places which are ordinarily not easily accessible to conventional types of screw drivers and in which the blade is operated by gearing from a shaft journalled in the handle.

An important object of the present invention is to provide a screw driver of this character in which the blade of the screw driver is mounted in a chuck detachably connected to a lateral shaft journalled in the outer end of the handle of the screw driver and in which the lateral shaft is easily removable to interchangeably position other types of shafts and tools therein.

A still further object of the invention is to provide a tool of this character of simple and practical construction, which is efficient and reliable in use, relatively inexpensive to manufacture and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which—

Figure 1 is a side elevational view.

Figure 2 is a fragmentary top plan view of the outer end of the handle of the tool.

Figure 3 is a longitudinal sectional view taken on a line 3—3 of Figure 2.

Figure 4 is a fragmentary longitudinal sectional view of the handle taken on the line 4—4 of Figure 1.

Figure 5 is a transverse sectional view of the adaptor taken on the line 5—5 of Figure 1.

Figure 6 is a side elevational view of the removable bearing for the transverse shaft.

Figure 7 is a view in elevation of a screw driver blade integrally connected with the transverse shaft, and

Figure 8 is a similar view of a detachable blade.

Referring now to the drawings in detail wherein for the purpose of illustration I have disclosed a preferred embodiment of the invention the numeral 5 designates a tubular shaft housing in which a longitudinal shaft 6 is journalled in bushings or the like 7, the rear end of the shaft projecting rearwardly of the housing 5 and is secured in a handle 8 extending rearwardly of the housing by means of laterally projecting lugs 9 on the shaft and imbedded in the handle. The rear end

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of the handle 8 is formed with a square socket 10 by means of which a power operated flexible shaft (not shown) may be connected to the handle for driving the shaft 6. The rear portion of the housing 5 is formed with a hand grip 11 by means of which the same is held stationary during rotation of the shaft and the handle 8.

To the front end of the shaft 6 is secured a bevel gear 12 engaging a similar gear 31 secured to a transverse shaft 14 which projects laterally outwardly at opposite sides of the housing 5.

The transverse shaft 14 is removably mounted in the outer end of the housing 5 by way of a pair of longitudinally extending slots 15 in the housing and the transverse shaft 14 is secured with the gear 31 in engagement with the gear 12 by means of a removable bearing 16 formed with a head 17 at its outer end, the bearing having a groove 18 formed at its inner end in which the shaft 14 is seated and is held in engagement with the shaft by means of a coil spring 19 engaging the head 17 and placed under tension by a cap 20 threaded on the rear end of the housing 5.

The outer end of the shaft 14 is formed with a collar 21 constituting an adaptor in which the shank 22 of a chuck 23 is detachably engaged. The collar 21 is formed with a semi-cylindrical recess 24 and the end of the shank 22 is formed with a semi-cylindrical extension received in the recess 24 to rotatably connect the shank 22 with the shaft 14.

The extension 25 is provided with a spring projected ball 26 engaged in a recess 27 in the collar 21 to releasably secure the shank to the collar, the chuck being released from the shaft by pulling the chuck outwardly therefrom. The chuck 23 is adapted to receive the shank of a screw driver blade 28 therein for locking in the chuck in a conventional manner to thus provide a driving connection for the blade.

Accordingly, in the operation of the device by rotating the shaft 6 either manually by means of the handle 8, or mechanically by means of a flexible drive shaft connected in the socket 10 the shaft 6 will be rotated and which in turn will drive the transverse shaft 14 through the gears 12 and 31 whereby to rotate the screw driver blade 28 or other tool mounted in the chuck 23.

The transverse shaft 14 may be removed from the end of the shaft housing 5 by removing the cap 20 whereupon the spring 19, bearings 16 and the shaft 14 may be removed from the end of the housing. If desired, a screw driver blade of a type shown at 29 in Figure 7 of the drawings may then be mounted in the housing 5 through the

slots 15, the shank 30 of the blade 29 having a bevel gear 31 suitably secured thereto or cast integrally therewith for engaging the gear 12, the blade 29 thus being driven without use of the chuck 23.

Also as illustrated in Figure 8 of the drawings, the screw driver blade 32 may be formed with a semi-cylindrical extension 33 having the spring projected ball 34 for mounting directly in the collar 21 without necessitating use of the chuck 23.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the construction, operation and advantages of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

I claim as my invention:

1. A tool of the class described comprising a shaft housing, a shaft journalled longitudinally therein, said shaft being rotated from one end, longitudinal slots formed in the end of the housing remote from said one end, a transverse shaft journalled in the housing and removable therefrom by way of the slots, said transverse shaft being adapted to be equipped with a tool and means operatively connecting the transverse shaft with said longitudinal shaft.

2. A tool of the class described comprising a shaft housing, a shaft journalled longitudinally therein, said shaft being rotated from one end, longitudinal slots formed in the end of the housing remote from said one end, a transverse shaft journalled in the housing and removable therefrom by way of the slots, said transverse shaft being adapted to be equipped with a tool, means operatively connecting said transverse shaft with said longitudinal shaft, a removable bearing in the housing for the transverse shaft and spring means in the housing maintaining the bearing in engagement with the transverse shaft.

3. A tool of the class described comprising a shaft housing, a shaft journalled longitudinally therein, said shaft being rotated from one end, longitudinal slots formed in the end of the housing remote from said one and, a transverse shaft journalled in the housing and removable therefrom by way of the slots, said transverse shaft being adapted to be equipped with a tool, means operatively connecting said transverse shaft with said longitudinal shaft, a removable bearing in the housing for the transverse shaft, spring means in the housing maintaining the bearing in engagement with the transverse shaft and supporting the transverse shaft in operative position, a cap threaded on said remote end of the housing and retaining the spring means in assembled relation in the housing.

JOSEPH MAJESKI, JR.

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