

M. D. GEE & J. A. FIELDS.
SCREW DRIVER.
APPLICATION FILED SEPT. 24, 1909.

1,015,555.

Patented Jan. 23, 1912.

2 SHEETS—SHEET 1.

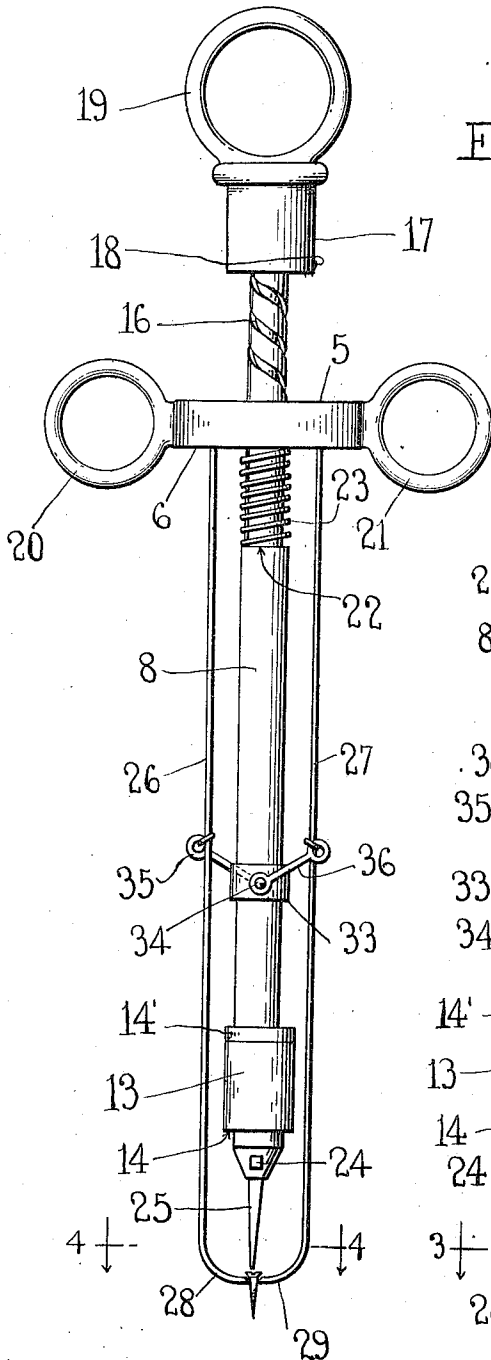


Fig. 1.

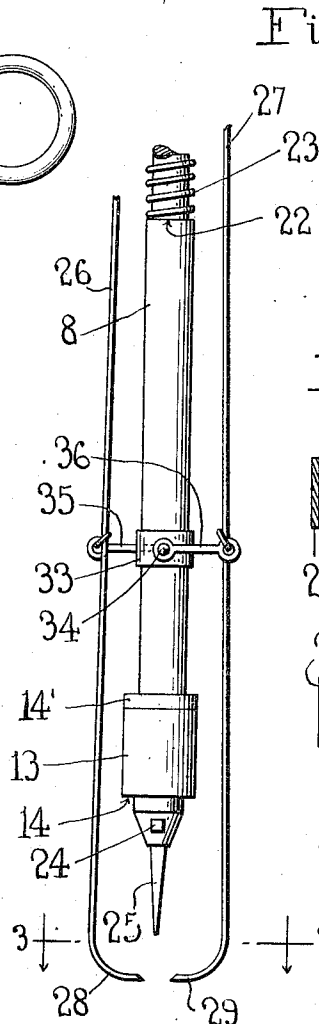


Fig. 2.

Fig. 3.

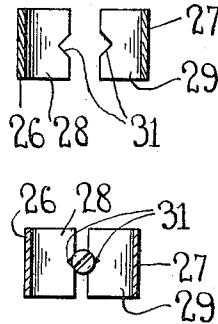


Fig. 4.

Witnesses

L. B. James.
M. J. Miller.

Inventors

Munson D. Gee
James A. Fields

By *Charles Chandler*

Attorneys

M. D. GEE & J. A. FIELDS.
 SCREW DRIVER.
 APPLICATION FILED SEPT. 24, 1909.

1,015,555.

Patented Jan. 23, 1912.

2 SHEETS—SHEET 2.

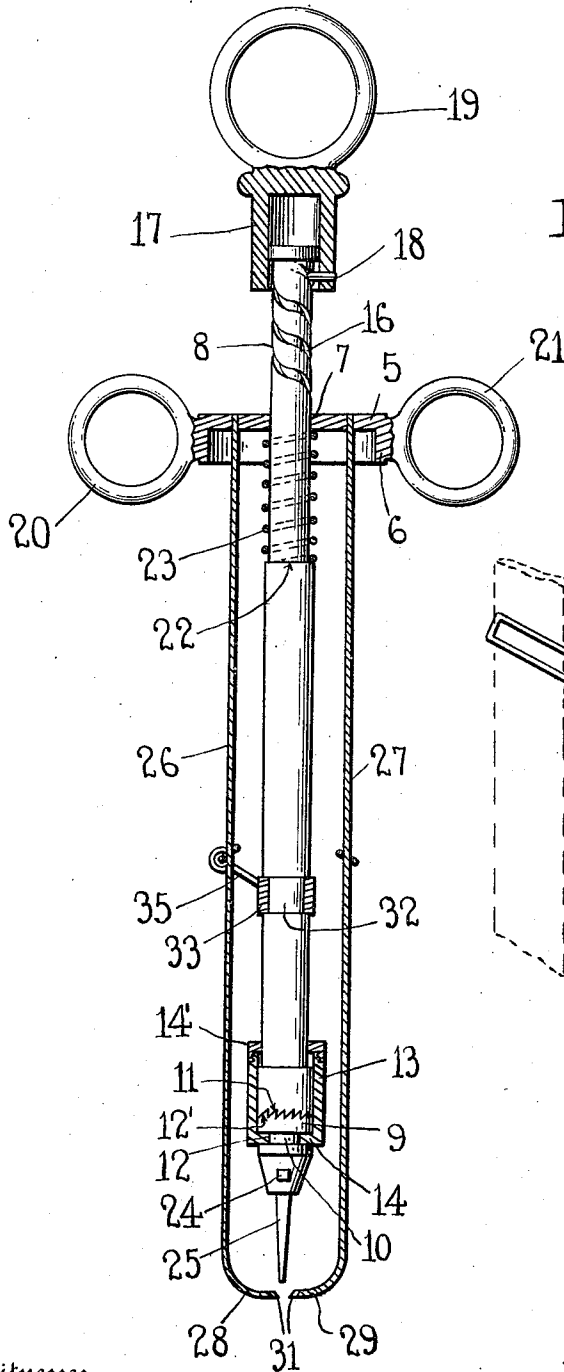


Fig. 5.

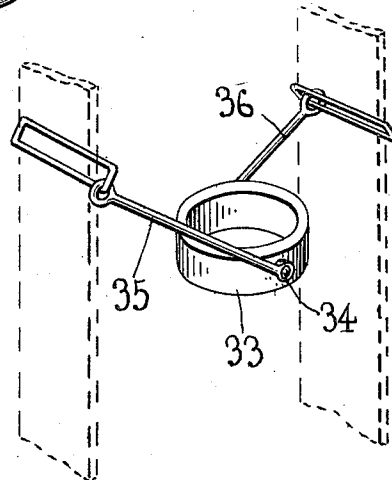


Fig. 6.

Witnesses
 L. B. James
 M. D. Miller.

Inventors

Munson D. Gee
 James A. Fields &

By

Charles H. H. H.

Attorneys

UNITED STATES PATENT OFFICE.

MUNSON D. GEE AND JAMES A. FIELDS, OF MOUNT OLIVE, INDIANA.

SCREW-DRIVER.

1,015,555.

Specification of Letters Patent.

Patented Jan. 23, 1912.

Application filed September 24, 1909. Serial No. 519,376.

To all whom it may concern:

Be it known that we, MUNSON D. GEE and JAMES A. FIELDS, citizens of the United States, residing at Mount Olive, in the county of Martin, State of Indiana, have invented certain new and useful Improvements in Screw-Drivers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in tools and has particular reference to that type of tools known as screw drivers.

The principal object of the device is the provision of a screw driver such as employed by watch-makers and others doing similar kind of work wherein comparatively small screws are employed to combine various parts.

It is well known that the usual practice among watch-makers is to first hold a screw positioned with a tweezer over the opening into which the said screw is to be inserted and when so held with the other hand to manipulate a screw driver to turn the screw. It is evident that this procedure necessitates the use of both hands.

The present invention therefore aims to remedy the inconvenience of using both hands by providing a construction adapted to grip the shank of a screw and hold the same positioned while the screw is being turned by a pressure of the same hand which holds the screw. This apparatus will permit a watch-maker for instance, to use both hands, whereby one hand may be employed in holding the watch to receive the screw while the other hand may be manipulated to position the screw and turn it as before stated.

With the above and other objects in view as will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claims, it being understood that various changes in the form, proportion, size and minor details of the device may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming part of the specification:—Figure 1 is an

elevation of the device and showing the holding members in one position. Fig. 2 is a similar view of the lower end portion of the device and showing the holders spread apart. Fig. 3 is a sectional plan view on the line 3—3 of Fig. 2 and showing the openings in the lower ends of the holder for the reception of the screw. Fig. 4 is a similar view taken on the line 4—4 of Fig. 1 and showing the lower ends of the holder in engagement with the screw. Fig. 5 is a longitudinal sectional view of the device. Fig. 6 is a detail perspective view of the collar and its connections.

Similar numerals of reference are employed to designate corresponding parts throughout.

What will subsequently be termed a supporting disk is designated in general by the numeral 5. This member is preferably circular in contour and is provided with a peripheral flange 6 and is centrally provided with an opening 7. Slidably fitted in the opening 7 is the upper section 8 of the turning shaft, the lower section of which is designated by the numeral 9. The lower section is considerably less in length than the upper section 8 and adjacent its lower end is reduced as shown at 10. A cap, corresponding to the diameter of the lower section, is removably secured to the reduced portion 10, whereby an annular groove 12 is provided. The upper face of the lower section 9 is provided with radial ratchet teeth forming a clutch surface 11 and the lower end of the upper section 8 is somewhat enlarged and its extremity is provided with similar ratchet teeth forming a clutch surface 12 cooperating with the clutch surface 11 to turn the lower section in one direction. The sections are united by means of a coupling sleeve designated in general by the numeral 13; the lower end of this coupling sleeve is provided with an inwardly extending annular flange 14 which seats in the annular groove 10 formed by the reduced lower end of the lower section. An annular cap 14' is threadable onto the upper end of the coupling sleeve and this cap is provided with a central opening which receives that portion of the upper shaft section 8 inwardly from the enlarged head. The length of the coupling sleeve is somewhat greater than the length of the head 13 so that the said head may have a sliding movement in the sleeve. The outer end of the upper

section 8 extending through the supporting disk 5 is provided with a spiral 16 and surrounding the spiral 16 is an operating sleeve 17. Formed on the inner wall of the sleeve is a radially extending pin 18 of a size to enter the spiral 16 and formed on the upper or closed end of the sleeve 17 is an eye 19 for the reception of the thumb or finger of the operator. Disposed at diametrically opposite points on the flange 6 of the supporting disk 5 are a pair of annular finger holds 20 and 21 by means of which the device may be grasped by the operator and securely held during the operation of turning the shafts 8 and 9.

It is obvious that when pressure is applied to the sleeve 17, either in an upward or downward direction the shaft 8 will be rotated by means of the inwardly projecting pin 18 which engages the spiral groove 16, this sleeve 17 being held against rotation by the thumb of the operator. A coil spring 23 surrounds the upper shaft section and has its lower terminal resting upon the shoulder 22 and its upper terminal against the under side of the plate 5, said spring acting to move the shaft section downwardly as will later appear.

It might here be stated that the lower end of the lower section 9 constitutes a socket for the bits to be employed and as usual is provided with a longitudinal bore and a radial opening communicating with said bore, the said radial opening receiving a set screw such as is shown at 24 to bind on the shank of the bit 25. Fixedly secured in a pair of diametrically opposite openings formed in the supporting disk 5 and extending parallel with the opening 7 thereof are, what will subsequently be termed, the upper end portions of a pair of resilient holders designated by the numerals 26 and 27. These holders extend parallel with the sections 8 and 9 and when the supporting disk 5 is in its normal position, that is at the lower end of the spiral 16, these holders will extend beyond the end of the bit 25 held by the lower section. The free ends of the holders 26 and 27 curve in opposite directions as shown in 28 and 29 and the edges of these curved ends are parallel and spaced from each other and are in alinement with the longitudinal central lines of the shaft sections 8 and 9, or substantially so. The edges are provided with inwardly extending notches 31, which receive the shank of the screw to be held.

In order that the holders may be parted simultaneously to receive the shank of the screw and then released to bind upon the same, the following construction is employed:—By referring now to Figs. 1, 2 and 5 it will be seen that formed in the upper section 8 of the shaft and adjacent the intermediate portion thereof is an annular

groove 32 and loosely fitted in this groove is a collar 33. Formed at opposite points on the outer face of the collar are lugs 34 which receive the inner ends of a pair of links 35 and 36, the latter being secured by the usual pivot pins. When the parts are in their normal positions as before described, the outer or opposite ends of the links 35 and 36 will extend oblique to the long axis of the section 8 and toward the supporting disk 5, and engage with loops carried by the holders 26 and 27 to which they are pivoted. With this construction it is obvious when the parts are in position as shown in Figs. 1 and 5 and the upper section 8 pulled outwardly by means of the ring 19 at the outer end of the operating sleeve 17, that this outward movement of the section 8 will carry with it the collar 33, whereby the links 35 and 36 will be moved to a position substantially at right-angles to the section 8, thus, owing to their resiliency, the free or lower ends will be spread apart as clearly shown in Fig. 2. When the holders are so positioned it is evident that the shank of a screw may be inserted between the free ends of the holders with the head of the screw lying well within the inner faces of the holders. When the ring 19 is released the spring 23 carries the upper section 8 to its original position, whereby the holders will move toward each other and bind on the shank of the screw but owing to the opening 31 in the edges of the holders this binding will not be sufficient to prevent the screw from being rotated. It will be observed when the parts are released as just described, that the bit 25 of the driver will bear on the head of the screw and enter the slot of the latter. By positioning the screw in the opening to receive it, it is evident that by pressing downwardly on the operating sleeve 17 that the sections 8 and 9 will be rotated and likewise the bit 25, whereby the screw will be turned home.

Thus it will be seen that we have provided a device which is comparatively simple in structure and inexpensive to manufacture, embodying few parts and these so arranged that the danger of derangement will be reduced to a minimum. It may be further observed with a device of this kind that a watch-maker may hold the work to be operated upon in one hand while with the other he may position and turn home the screw.

What is claimed is:—

1. The herein described tool comprising a supporting plate, a shaft mounted for longitudinal and also for revoluble movement therein and provided with a tool, holders connected to said plate, a collar connected to said shaft for longitudinal movement therewith and to turn with respect thereto and links pivotally connected to said collar and to said holders for the purpose set forth.

2. The herein described tool comprising a supporting plate, a shaft comprising upper and lower sections, the former mounted in said supporting plate for longitudinal and
5 revoluble movement, said upper section being provided with a spiral groove, an operating sleeve having a pin for engagement with said groove, the lower end of said upper section formed with a ratchet face, a similar
10 ratchet face formed upon the upper face of the lower section, a coupling sleeve for said sections, both of said sections being adapted to rotate in the same direction upon downward pressure upon the operating sleeve, the
15 upper section being capable of independent

rotation upon the release of pressure upon said sleeve, a collar connected to the last mentioned shaft, holders connected to the supporting plate, means connecting said collar and holders to contract the same upon
20 longitudinal movement of the upper shaft section.

In testimony whereof, we affix our signatures, in presence of two witnesses.

MUNSON D. GEE.
JAMES A. FIELDS.

Witnesses:

JAMES S. DOANE,
IRA L. FIELDS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."