

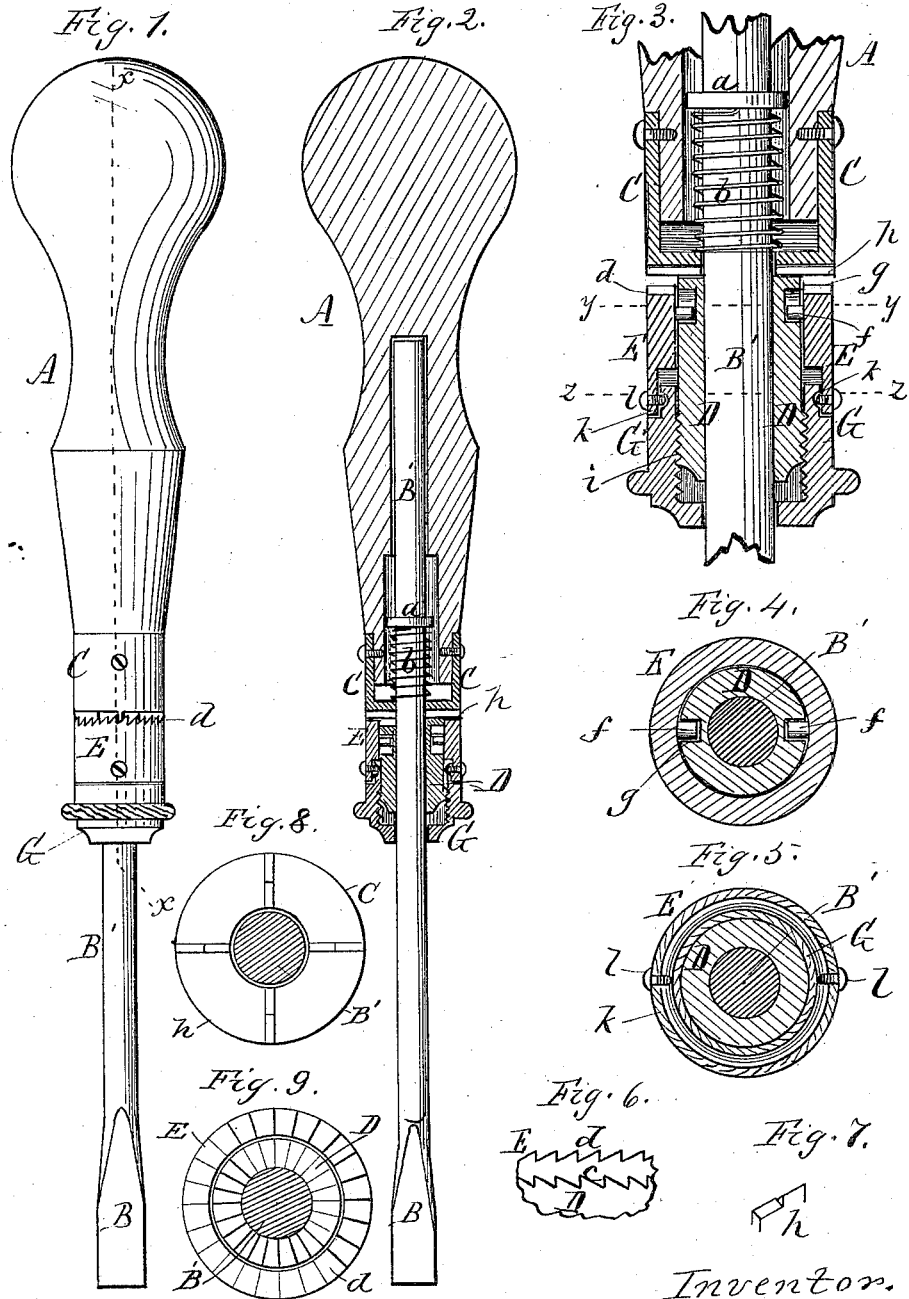
(No Model.)

C. F. SPENCER.

SCREW DRIVER.

No. 301,173.

Patented July 1, 1884.



Attest.  
R. E. White  
J. A. McGrath.

Inventor.  
Chas. F. Spencer,  
per R. F. Osgood,  
Atty.

# UNITED STATES PATENT OFFICE.

CHARLES F. SPENCER, OF ROCHESTER, NEW YORK, ASSIGNOR TO ORANGE W. MCKINNEY AND LOUIE O. MCKINNEY, BOTH OF SAME PLACE.

## SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 301,173, dated July 1, 1884.

Application filed September 4, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. SPENCER, of the city of Rochester, county of Monroe, and State of New York, (assignor to ORANGE W. MCKINNEY and LOUIE O. MCKINNEY, both of same place,) have invented a certain new and useful Improvement in Screw-Drivers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of a screw-driver showing my improvement. Fig. 2 is a longitudinal section of the same in line *xx* of Fig. 1. Fig. 3 is a similar section through the central portion on an enlarged scale. Figs. 4 and 5 are cross-sections of Fig. 3, respectively, in lines *yy* and *zz*. Figs. 6 and 7 are detail views. Fig. 8 is a bottom view of the ferrule C. Fig. 9 is a top view of the two collars D E.

My improvement relates to that class of screw-drivers in which reverse turning movements can be given to the blade for the purpose of either seating or unseating a screw.

The invention consists in a new arrangement of parts whereby the motion may be changed, as hereinafter more fully described and definitely claimed.

In the drawings, A shows the handle, of ordinary form. B shows the blade, and B' a shaft, which is a continuation of the blade, and extends up loosely into a socket in the handle, and has a certain degree of end movement therein, as will be presently described.

C is a ferrule permanently attached to the lower end of the handle by screws or otherwise, and provided with a hole in its bottom, through which the shaft or spindle passes loosely.

*a* is a shoulder on the shaft above the ferrule, and *b* is a coiled or other spring resting around the shaft between the shoulder and the closed bottom of the ferrule. The spring is attached at its upper end, but is free at its lower end, so that the spindle and handle can turn independently of each other. The connection between the handle and the shaft being a loose one, the handle can be raised on the shaft a limited distance, the spring compressing in that case, and this allows the teeth

or lugs to ride over the ratchets, as will be presently described.

D and E are two cylindrical collars, provided each with ratchet-teeth *c* and *d* at its top edge. These teeth stand reversely to each other, or point in opposite directions, as shown in the diagram Fig. 6. The inner collar, D, is made fast to or forms an integral part of the shaft B'. The collar E rests outside the other, but in close contact therewith, and has a free movement up and down. The two are connected by pins *f f* of the outer collar, which enter slots *g g* of the inner one, the slots being of such length as to allow the necessary vertical movement of the outer collar. The object of the pins and slots is to prevent the outer collar from turning around as it is moved up and down.

*h h* are sharp-edged teeth projecting downward from the bottom of the ferrule C, and engaging with the ratchet-teeth on the top of the collars, for the purpose of imparting motion thereto. These teeth *h h* are made wide enough to cover the width of both ratchets, and their edges are made one-half pointing one way and one-half the other way, as shown in the perspective view, Fig. 7.

G is a hollow nut passing loosely over the shaft B', and engaging with the lower end of the fixed collar D by a screw-thread, *i*, by which means as the nut is turned it will be raised or lowered on the collar. The upper edge of the nut fits within the lower edge of the outer collar, E, and has a circumferential groove, *k*, in which fit the ends of two screws, *l*, which pass through the collar. By this means it will be seen that the outer collar, E, will be thrown up and down with the nut.

The operation is as follows: To give the forward motion to drive a screw, the outer collar, E, is raised by turning the nut till its ratchet-teeth stand above and clear from the teeth on the inner collar. The teeth *h h* of the ferrule will then engage with the ratchet-teeth of the outer collar alone, and in going forward will drive the screw, and in going back will ride over the inclines of the ratchet-teeth to obtain a new hold, the spring in the handle allowing this action to take place. To unscrew a screw, the outer collar is lowered,

and the teeth *h h* then engage with the inner collar, operating in the same manner.

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

5 is—

In a screw-driver, the combination of the handle, the driver-shaft fitted loosely therein, the spring for throwing the shaft up, the two ratchet-collars, one permanently attached to  
10 the shaft, the other movable up and down, the ferrule at the bottom of the handle, provided with teeth that engage with the ratchet-teeth

of the collars, and a nut on the shaft, which screws upon the inner collar and is engaged with the outer collar, so as to give vertical  
15 movement to the latter, as herein set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CHAS. F. SPENCER.

Witnesses:

R. F. OSGOOD,

WM. J. McPHERSON.