

(No Model.)

O. L. NEAL.  
SCREW AND DRILL TOOL.

No. 348,765.

Patented Sept. 7, 1886.

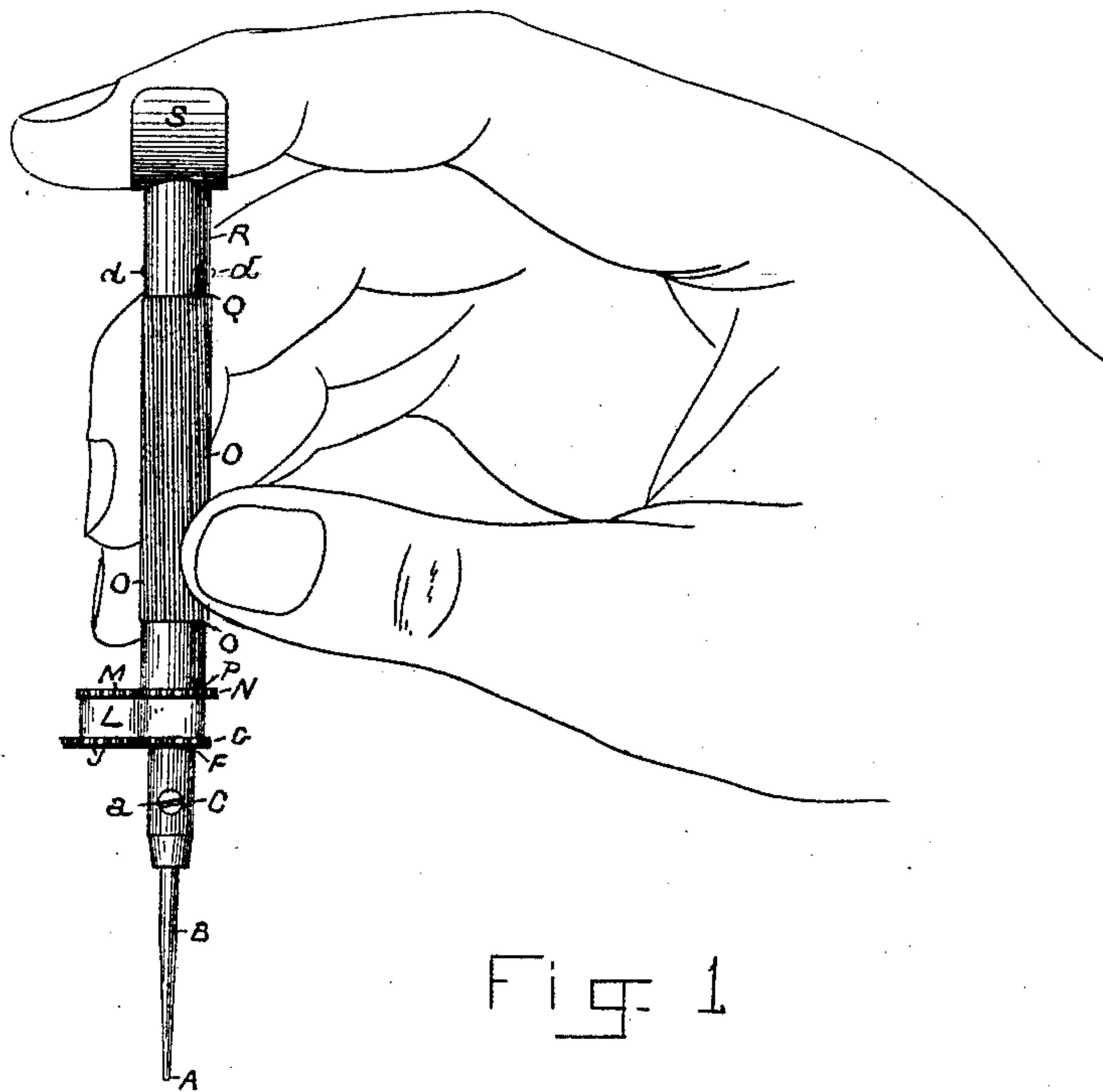


Fig. 1

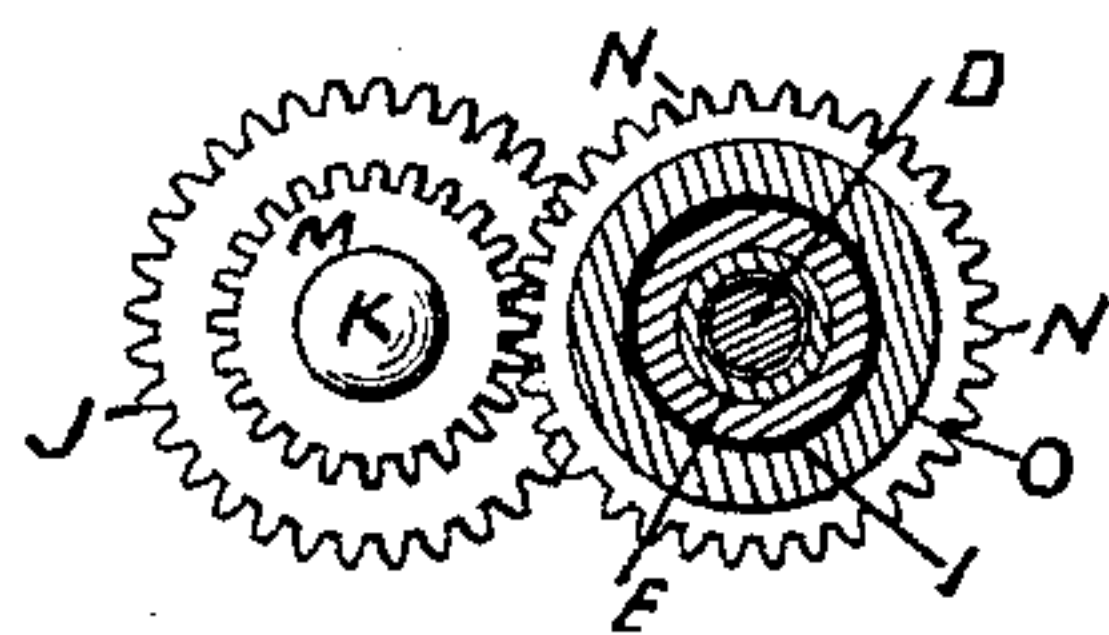


Fig. 3.

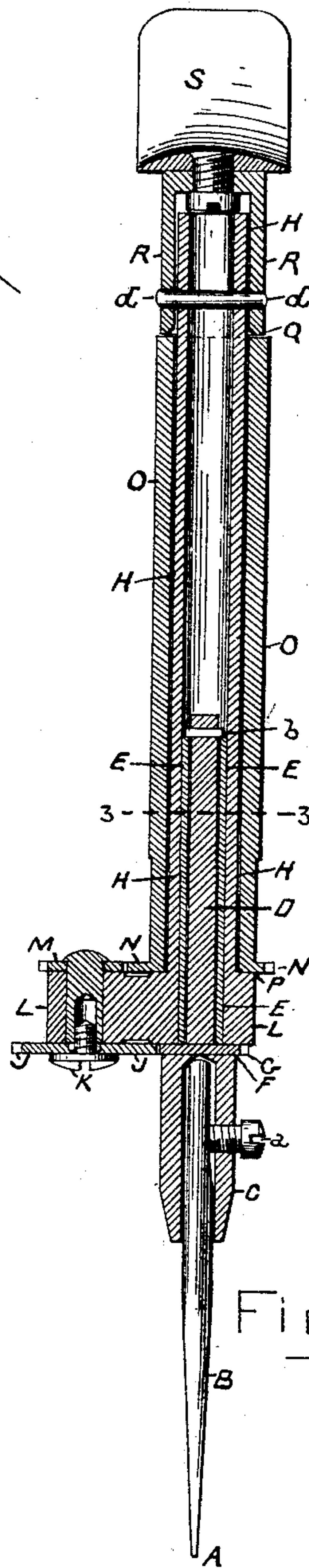


Fig. 2.

WITNESSES:  
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# UNITED STATES PATENT OFFICE.

OLIVER L. NEAL, OF WALTHAM, MASSACHUSETTS.

## SCREW AND DRILL TOOL.

SPECIFICATION forming part of Letters Patent No. 348,765, dated September 7, 1886.

Application filed April 27, 1886. Serial No. 200,343. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER L. NEAL, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Screw, Drill, and other Tool Drivers, of which the following is a full, clear, and exact description.

This invention more particularly relates to that class of tools—as, for instance, screw-drivers and drills—in which the tool is secured in a socket or holder and through said holder rotated.

The improvements of this invention consist in a construction, substantially such as hereinafter described, of the holder whereby, as may be described, a greater or less number of rotations of the tool from the rotation of the holder may be secured.

The invention is illustrated in the accompanying drawings in connection with a screw-driving tool, and Figure 1 is an elevation showing the tool as grasped by the fingers of the hand and as the same is to be used. Fig. 2 is a central longitudinal section on an enlarged scale. Fig. 3 is a cross-section on line 3 3, Fig. 2.

In the drawings, A represents the blunt chisel-like end of a shank, B, which shank in the use of the tool is entered into the nick of the screw-head to be turned by it. This shank B is secured by a set-screw, *a*, in a socket or head, C, at one end of a spindle, D, which is surrounded by a loose sleeve, E, confined against lengthwise movement on the spindle between a shoulder, F, provided with a pinion-wheel, G, and a cross-pin, *b*, of the spindle.

The tool-carrying spindle D and its sleeve E are incased in a tube or barrel, H, which the sleeve fits friction tight, and so inserted the pinion-wheel is meshed with a gear-wheel, J, of a stud, K, turning in bearings of a yoke, L, attached to said barrel H, and having a pinion gear-wheel, M, meshing with a gear-wheel, N, at one end of a longitudinally-milled sleeve, O, the body or handle proper of the screw-driver. The sleeve O is free to turn upon and incases the barrel H, and it is confined end to end thereon between a shoulder, P, of the yoke L, and the shoulder or end Q of a cap, R, fastened by a cross-pin, *d*, to and capping the barrel H. This cap R has a concave cross-piece,

S, for a rest of the forefinger of the hand, with the thumb and second finger grasping the handle O on its opposite sides, Fig. 1. The handle, grasped by the thumb and second finger of the hand and the forefinger on the rest S, as above stated, on being turned through its gear-wheel N, meshing with the pinion M of the stud K, rotates said pinion and stud, and the so turning of the stud through its gear J, meshing with the pinion G of the spindle D, to which the shank B, having the chisel-like end A, is attached, turns said shank, and thus with said chisel end inserted in the nick of a screw-head the screw is turned, and in the same direction as that in which the handle O of the screw-driver is turned.

A screw-driver constructed as described, with a proper relative arrangement of the gear and pinion wheels G J M N, enables a screw operated upon by it, as above stated, to be given a greater or less number of turns than that given the handle R. As most preferable, the said train of meshing wheels between the handle O of the driver and the spindle D, to which the tool is attached, is to be such as to secure from the turning of said handle an increased number of turns of the tool or rather of the screw with which the chisel-like end A of the tool is engaged, the advantages of which are obvious. The meshing wheels described, however, may be arranged for a reduced number of turns to be given to the screw as compared with the number of turns of the handle O, such arrangement requiring only a change in the meshing wheels by a substitution of others for them, and so that the turns, which are required for the screw from the turning of the handle, will be secured.

The chisel-like end A may be dispensed with and other well-known forms for securing an engagement between it (or, in other words, the screw-driver and the screw to be turned by its use) substituted therefor, and the invention herein described is also applicable as well to drills, reamers, and countersinks as to screw-drivers, and also to other tools.

Having thus described my invention, I claim—

1. In combination, a tool, such as a screw-driver, drill, &c., carried by a spindle, D, incased and turning in a barrel, H, a handle, O,

turning upon said barrel, and a train of meshing wheels connecting the tool and said handle, substantially as described, for the purpose specified.

- 5 2. In combination, a tool, such as a screw-driver, drill, &c., carried by a spindle, D, incased and turning in a barrel, H, a handle, O, turning upon, and a finger-rest, S, attached to, said barrel, and a train of meshing wheels connecting the tool and handle, substantially as  
10 described, for the purpose specified.

3. In combination, a tool, such as a screw-driver, drill, &c., carried by a spindle, D, a

sleeve, E, in which said spindle turns, a barrel, H, fitting said sleeve friction tight, a handle, 15 O, turning on said barrel H, and a train of meshing gears connecting the tool and handle, substantially as described, for the purpose specified.

In testimony whereof I have hereunto set 20 my hand in the presence of two subscribing witnesses.

O. L. NEAL.

Witnesses:

ALBERT W. BROWN,  
KATE E. BELLOWS.