

(No Model.)

J. H. LYON.
SCREW DRIVER.

No. 464,574.

Patented Dec. 8, 1891.

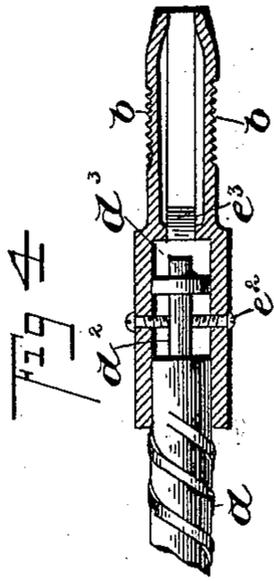


Fig. 1.

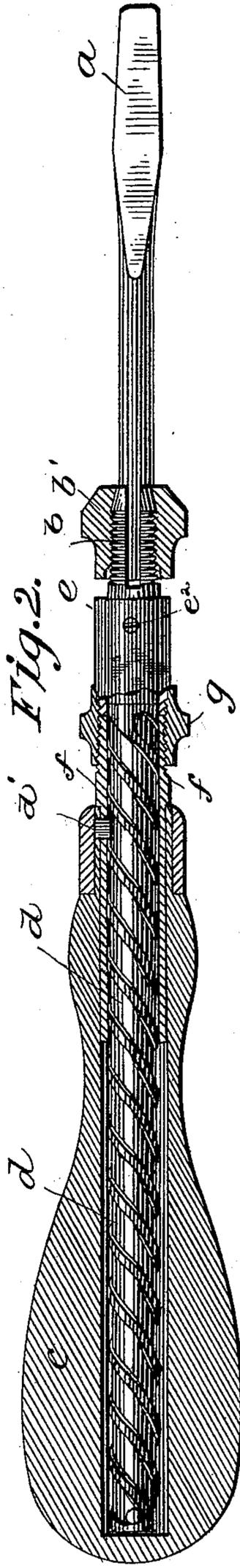


Fig. 2.

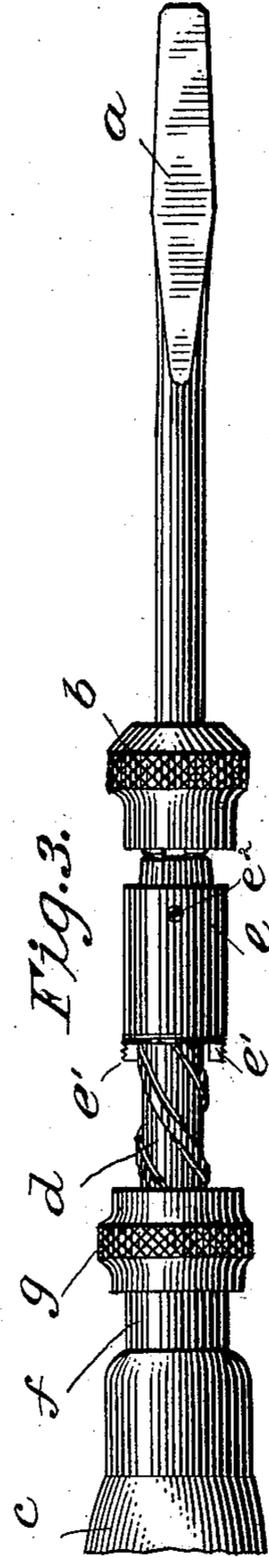


Fig. 3.

Witnesses:
Thos L Miller
Harry B. Lester

Inventor:
James H. Lyon

UNITED STATES PATENT OFFICE.

JAMES HOWARD LYON, OF NEW LONDON, CONNECTICUT.

SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 464,574, dated December 8, 1891.

Application filed November 13, 1890. Serial No. 371,383. (No model.)

To all whom it may concern:

Be it known that I, JAMES HOWARD LYON, a citizen of the United States, residing in the city and county of New London, and State of Connecticut, have made certain new and useful Improvements in Screw-Drivers, of which the following is a specification, reference being had to the accompanying sheet of drawings, in which—

10 Figure 1 is a side view of a screw-driver embodying said improvement, the connecting-nut *g* being shown in longitudinal section. Fig. 2 is a longitudinal sectional view of said screw-driver with its several parts in the same positions as in Fig. 1—that is to say, in the positions assumed when about to be used as an ordinary driver—and Fig. 3 shows the same as arranged for use as a spiral driver. Fig. 4 is a longitudinal sectional view of the chuck-jaws *b* and the collar or ferrule of which they are parts, and shows, also, the end of the spiral section *d*.

My invention relates, particularly, to the class of screw-drivers in which a spiral or screw of considerable pitch is employed to rotate the head or chuck that carries the driver proper in manner substantially as explained in Patent No. 268,938, issued December 12, 1882, to Alban H. Reid.

30 In using drivers of this class it frequently becomes necessary to operate them with one hand only—as, for example, in places where there is little room—and at such times the weight of the driver proper and of the chuck that supports it serves to withdraw said driver and the attached spiral from the handle, and when extended renders it extremely awkward to operate the driver. Such a result is quite likely to occur when not anticipated, and frequently by this sudden extension of the driver injury is done to furniture or other objects with which the tool is thus suddenly brought in contact.

My invention seeks to provide a coupling or union by means of which the extensible driver-section may be firmly connected with the handle-section and the whole made to serve as an ordinary screw-driver.

50 Referring to the drawings, the letter *a* indicates the screw-driver proper, *b b'* a chuck for holding the same, and *c* the handle-section, the latter being bored throughout its length,

or nearly so, to receive a spirally-ribbed section *d*, which is connected with the chuck, as described below, and is adapted to move longitudinally within the recessed handle. A pin or lug *d'*, secured to the handle or to one of its rigid parts, projects into the groove between the spiral ribs of section *d*, and it will be obvious that if the handle be held firmly and the spiral section moved lengthwise therein the latter will be caused to rotate. Attached to the outer end of the spiral section is a ferrule *e*, having projecting exteriorly-threaded jaws *b*, which with a milled nut *b'* provide a chuck to hold the screw-driver blade *a*. That portion of the spiral section *d* within the ferrule *e* is turned down in part, as at *d²*, and into the annular groove thus provided project one or more screws *e²*, the groove being of such length that the spiral section may have considerable lengthwise movement in the ferrule. The extreme end of the spiral section is formed with a projecting transverse rib *d³*, which when forced forward in the ferrule may enter a corresponding recess *e³* at the base of the chuck-jaws *b*, and thus serve as a clutch to cause said spiral section and the chuck to rotate together. When the driver is in use, pressure on the handle will at once force rib *d³* into its recess *e³* and cause the driver-blade *a* to rotate; but when the handle is withdrawn the annular groove *d²* allows the said rib to leave the recess, as in Fig. 4, and the chuck and the driver-blade remain at rest, while the handle is drawn off from the spiral. When the handle is again forced forward, the described clutch is again brought into service, and it will be understood that continued forward and backward movement of the handle on the spiral section *d* will result in rotating the driver-blade intermittently in the same direction. The construction thus far described is shown in screw-drivers of this class now in common use, and I make no claim thereto. The ferrule *e* is provided with lugs *e'*, and secured to the handle-section is a similar ferrule *f*, provided with recesses or notches into which the said lugs may enter when the ferrules are brought together. (See Fig. 1.) The periphery of ferrule *f* and of such portions of *e'* as enter said ferrule are screw-threaded, as shown. A nut *g*, with milled periphery, is located on the ferrule *f* and

adapted to be screwed lengthwise thereon. When it is desired to use the screw-driver in connection with the described spiral section, the nut *g* is screwed toward the handle *c* until it leaves the lugs *e'*, as in Fig. 3, when the spiral may be readily drawn from the handle. When, however, it is desired to use it as an ordinary screw-driver, the spiral is forced into the handle as far as it will go, the lugs *e'* being made to enter the described notches in ferrule *f*, and the nut *g* is then screwed along said ferrule until it reaches and covers the threaded lugs *e'*, when the two ferrules *e* and *f* are securely clamped together and the handle and driver-blade become practically as rigidly connected as if the latter was driven into the former. Instead of the slight lugs *e'*

one-half of ferrule *e* could project and be threaded, the abutting end of ferrule *f* being similarly formed to interlock therewith. 20

What I desire to claim by Letters Patent is—

In combination with the handle and blade of a screw-driver, threaded ferrules secured to said handle and blade, respectively, having interlocking lugs and recesses, as set forth, and a nut located on one of said ferrules adapted to be screwed forward over the companion ferrule, substantially as and for the purpose specified. 25

JAMES HOWARD LYON.

Witnesses:

THOMAS L. MILLER,
HARRY B. LESTER.