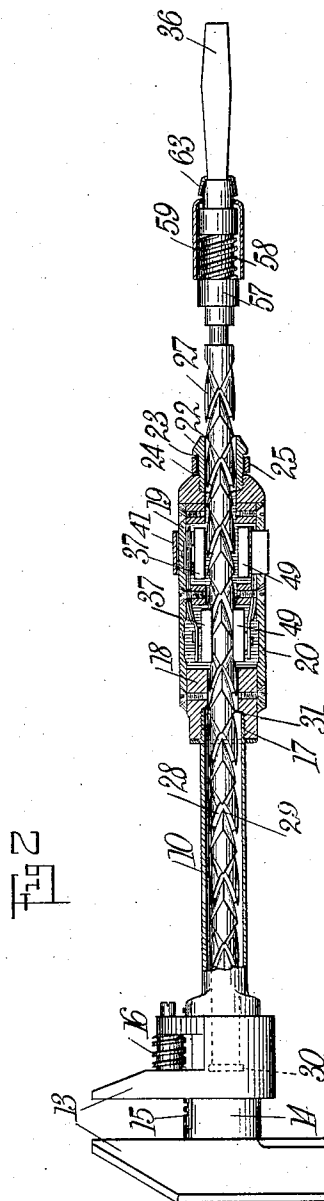
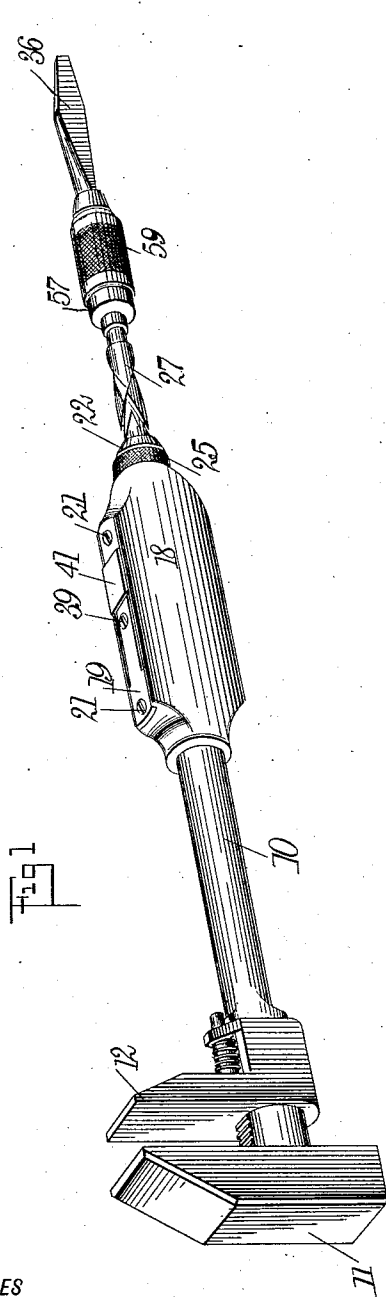


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M. WOLIN.
SPIRAL TOOL DRIVER.
APPLICATION FILED JULY 27, 1911.

Patented Apr. 30, 1912.
2 SHEETS-SHEET 1.



WITNESSES
C. J. Hachenberg
W. S. Orton.

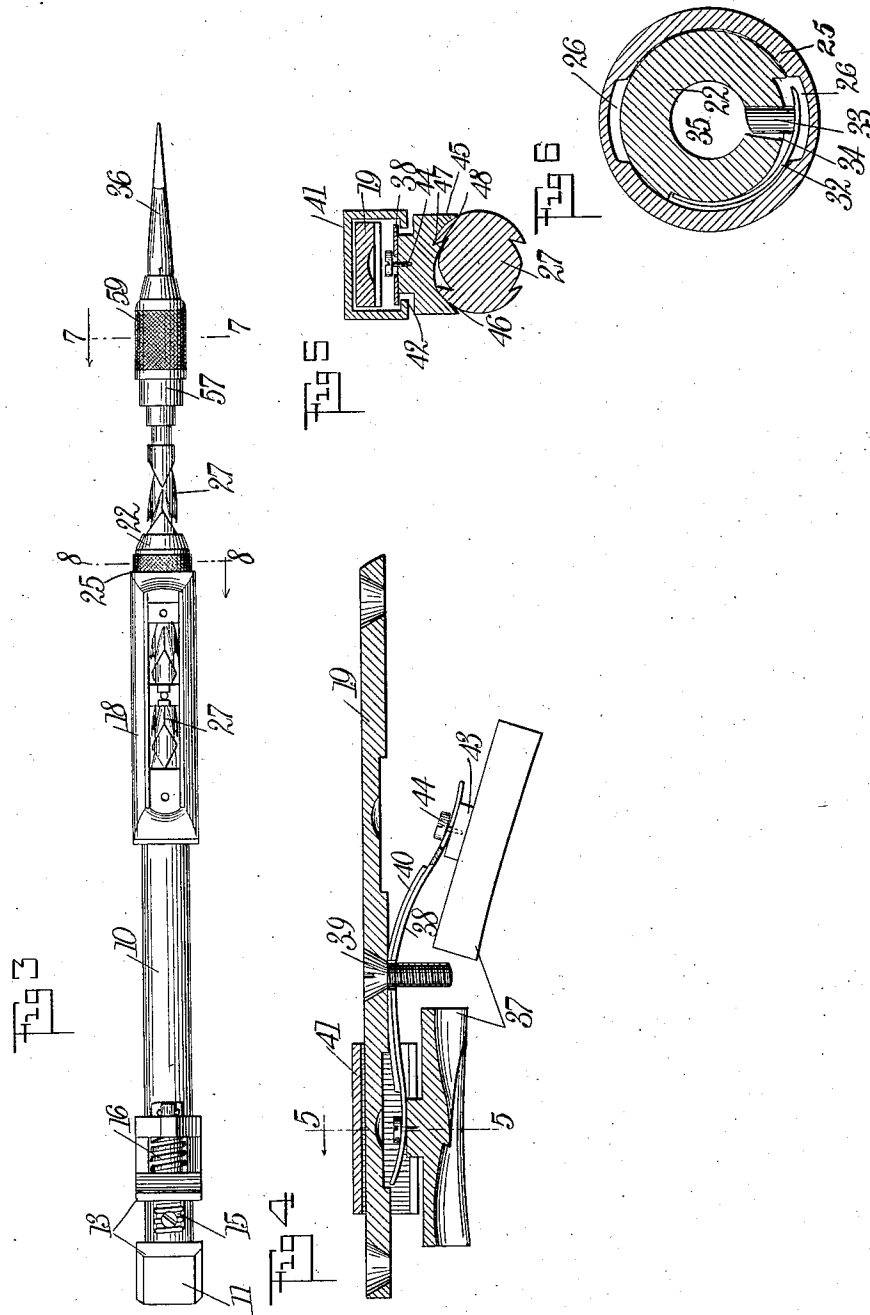
INVENTOR
Max Wolin
BY Munn & Co.
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UNITED STATES PATENT OFFICE.

MAX WOLIN, OF NEW YORK, N. Y.

SPIRAL TOOL-DRIVER.

1,024,960.

Specification of Letters Patent.

Patented Apr. 30, 1912.

Application filed July 27, 1911. Serial No. 640,830.

To all whom it may concern:

Be it known that I, MAX WOLIN, a subject of the Czar of Russia, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Spiral Tool-Driver, of which the following is a full, clear, and exact description.

My invention relates in general to a new form of spiral screw-driver.

The object of my invention is to provide a spiral screw-driver which may be arranged to rotate a tool in either direction.

I attain the above outlined objects by disposing within a shank a spirally grooved rod which may be either locked to the shank or connected thereto by means of keys engaging one or the other of the grooves, so that pressure on the shank will cause the grooved rod and the tool, carried thereby, to rotate either in a clockwise or anti-clockwise direction.

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.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which—

Figure 1 is a perspective view of a tool showing a preferred embodiment of my invention; Fig. 2 is a side elevation of the same, parts being broken away to show the internal mechanism; Fig. 3 is a top plan view looking down upon the device shown in Figs. 1 and 2; Fig. 4 is an enlarged side elevation partly in section of the top of the key box showing the spiral-engaging keys mounted thereon; Fig. 5 is a transverse sectional view taken on the line 5—5 of Fig. 4 and looking in the direction of the arrow; Fig. 6 is a transverse sectional view taken on the line 8—8 of Fig. 3 and looking in the direction of the arrow.

As shown in the several figures, a hollow tubular shank 10 has mounted upon one end thereof, a common form of monkey wrench 13, which monkey wrench comprises a jaw 11, mounted centrally upon said shank and adapted to naturally fit in the hand to form

a leverage handle to rotate the screw-driver hereinafter described. The end of the shank opposite the jaw 11 is screw-threaded, as shown at 17, which screw-threaded end engages a hollow key box 18 of the general flat construction shown in Fig. 1, the top and bottom of which are closed, respectively, by means of plates 19 and 20, which plates are fastened to the box by means of screws 21. The end of the box opposite the end in which the shank 10 is threaded, has threaded therein, a sleeve 22, the outer end of which is enlarged to form a shoulder 23 between which shoulder and the end 24 of the box, is disposed a milled ring 25, which ring has diametrically disposed recesses 26 (see Fig. 6) for a purpose hereinafter described. Disposed within said shank 10 and the bore of the box 18, is a rod 27 having two long spiral undercut grooves recessed therein, one groove 28 moving clockwise about the rod and another groove 29 moving anti-clockwise about said rod, looking at the latter from the tool end. The inner end of the rod 27 has a cap 30 thereon to engage with a shoulder 31 in the bore of the box 18, to prevent its entire withdrawal from the shank and box.

To lock the rod 27 in position relative to the box 18, there is mounted on the outer circumference of the sleeve 22 a flat spring 32 having one end rigidly affixed to said sleeve and extending partly about its periphery, the free end of which has projecting inwardly therefrom, a pin 33 passing through a diametrically extending aperture 34 through the sleeve 22 at right angles to the bore 35 of said sleeve. The tendency of this spring is to maintain the pin 33 out of engagement with the rod 27, as shown more particularly in Fig. 6, but rotating the ring 25 will press the pin 33 out of the recess 26 through the aperture 34, into engagement with the groove 28 or 29 of the rod 27 which slides in the bore 35. It will be seen that the pin 33 engaging the rod 27 will lock said rod in the casing or box 18, so that the tool may be used the same as the ordinary screw-driver.

Using the device as a spiral screw-driver and desiring to rotate the screw-driver tool 36 in a clockwise direction, a connection is made between the groove 28 and the casing 18; one means for making this connection is herein described and consists of an upper pair of keys 37, which keys are mounted on

opposite ends of a longitudinally extending flat spring 38, which spring is fastened to the top plate 19 by means of screw connections 39. The tendency of the spring 38 reinforced by an auxiliary spring 40, is to force the keys 37 into engagement with the grooves 28 or 29. One of the keys is held out of engagement with the grooves by means of a keeper 41, which keeper is of the general rectangular construction shown more particularly in Fig. 5, and rides on the plate 19, the under surface of which has a slot 42 extending lengthwise thereof, through which slot extends a stud 43, which stud is integral with and extends from the upper surface of the key 37. The spring 38 is housed within the keeper 41 and is rigidly affixed to the stud 37 by means of a screw 44. The under surface of the key 37 has two grooves extending parallel to each other and diametrically across the length of the key. One groove 45, shown in Fig. 5, extends beneath the other groove 46, to form an undercut 47, into which undercut is disposed the undercut edge 48 of the groove 28 or 29. It will be seen that by this construction, the engagement of the key with the groove will cause the rod 27 to rotate as pressure is applied on the shank 10.

The arrangement of the keys 37 hereinbefore described in detail for the top of the key box, is duplicated on the opposite bottom side, the keys 49 being similar in construction and function to the keys 37. As the keys, as shown more particularly in Fig. 4, are reversed in position, it will be seen that moving the keeper 41 to the right or left, will engage one or the other of the spirals depending on the direction in which it is desired to rotate the rod 27 and its attached screw driver or tool 36. In other words, the left-hand keys engage one spiral

while the right-hand keys engage the other spiral. Where the two keys are provided to engage each groove, as shown in Fig. 2, four spirals are used, one pair moving clockwise and another pair moving anti-clockwise, the members of each pair being disposed on diametrically opposite sides of the rod at one hundred and eighty degrees to each other.

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

1. In a spiral screw-driver, a hollow holding box, a rod having right and left-handed spiral grooves therein passing through said box, a longitudinally-extending spring mounted in said box, a key carried by each end of said spring, each key adapted to engage within one of said spiral grooves, a keeper slidably mounted on said box, engaging said spring to maintain one of said keys out of engagement with its groove in the rod.

2. In a spiral screw-driver, a rod having a right and left-handed undercut groove arranged spirally thereon, a box surrounding said rod, an engaging key carried by said box, the rod-engaging surface of said key having two grooves therein extending parallel to each other and diametrically across the length of the key, one groove extending beneath the other to form an undercut, said undercut adapted to engage the undercut of the groove in the rod.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MAX WOLIN.

Witnesses:

WARREN S. ORTON,
PHILIP D. ROLLHAUS.