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A. T. LOCHNER

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SCREW DRIVER

Filed May 22, 1926

Fig. 1.

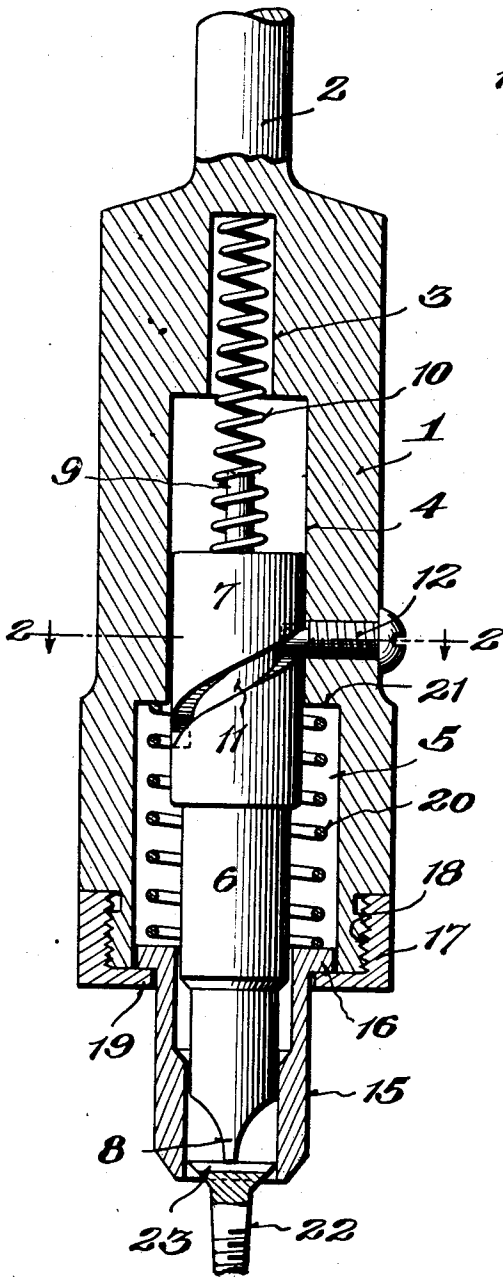


Fig. 2.

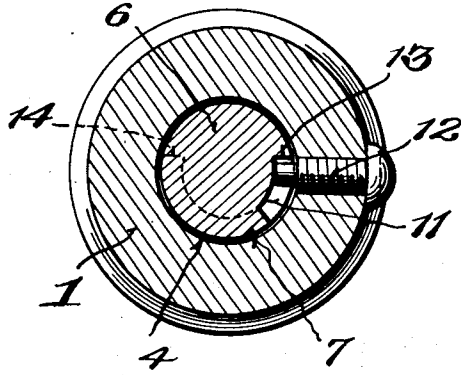
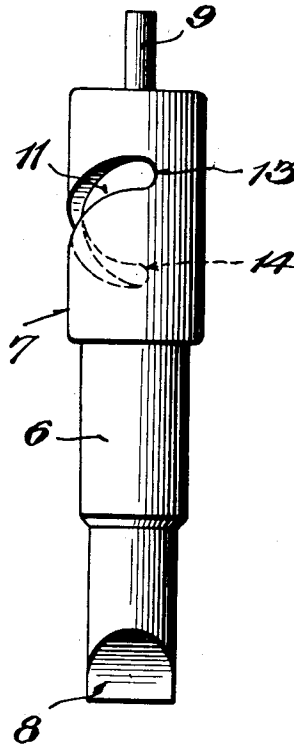


Fig. 3.



WITNESS:-

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SCREW DRIVER.

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This invention is a screw driver and has for its object to provide for automatically seating the bit of the driver in the groove in the head of a screw, which has been initially set in a piece of work, prior to the application of power to the tool for rotating the same to work the screw into the work.

In carrying out this object of the invention, provision is made to automatically rotate the driver bit by the operation of pressing the same against the head of the screw until the bit finds and enters the seat or groove in the head of the screw, after which the bit is automatically engaged with the rotatable part of the tool to rotate therewith and drive the screw home in the piece of work.

With these and other objects in view, the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and particularly pointed out in the appended claim, it of course being understood that changes in the form, proportion, size and minor details may be made, within the scope of the claim, without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:

Figure 1 is a longitudinal sectional view of a screw driver of the present invention; the bit being in elevation.

Figure 2 is a cross sectional view on the line 2-2 of Figure 1.

Figure 3 is a side elevation of the bit.

The tool body 1, of the present invention, has a shank 2 at one end for connecting the tool body with a hand operated brace or a power driven device for rotating the tool body. A longitudinal bore extends throughout substantially the length of the body and opens through the end thereof opposite the shank. This bore has three sections 3, 4 and 5 progressing in diameter in the order named.

Mounted to rotate and to slide endwise in the bore of the body is a cylindrical bit member 6 having an inner end portion 7 of a size to have a working fit within the intermediate bore section 4. The outer end of the bit has a blade terminal 8 to fit the groove or seat in the head of a screw in the usual manner. At the inner end of the bit there is a reduced stem 9 to fit within one end of a helical spring 10 which bears at its front end against the rear end of the bit and at its rear end against the rear end wall of the bore

in the tool body. The inner bore section 3 is of a size to receive the spring with a working fit so as to maintain the spring in proper alinement with the bit.

A spiral groove 11 is provided in the bit member, to receive the inner end of a pin 12 which is in the form of a screw occupying a screw threaded opening extending diametrically in the tool body. Relative endwise movement between the tool body and the bit will effect a rotation of the bit through the cooperation of the pin or projection 12 engaging the spiral walls of the groove. The ends of the groove are closed to form shoulders or abutments 13 and 14 to limit rotation of the bit within the tool body and to inter-engage the body and the bit for simultaneous rotation for driving home the screw.

An open ended finder sleeve 15 is mounted in the open end portion of the bore in the tool body. This sleeve has an external annular flange or shoulder 16 at its inner end having a working fit in the bore. A nut 17 is fitted to the externally screw threaded portion 18 of the tool body, and this nut has an internal annular flange 19 which engages across the outer side of the flange 16 on the finder sleeve to retain the sleeve on the tool body. A helical spring 20 surrounds the bit portion within the bore portion 5 and bears at its rear end against the shoulder 21 at the rear end of the bore portion 5 and at its front end against the inner or rear end of the finder sleeve 15 to yieldably hold the sleeve at its forward limit.

In using the device upon a screw 22 which has been initially set into a piece of work by means of a hammer, the tool is applied so as to set the finder sleeve 15 over and around the head of the sleeve until the blade portion 8 of the bit strikes the head of the screw. Further endwise movement of the tool presses the blade against the screw which results in an endwise yielding of the bit against the pressure of the spring 10. As the bit yields rearwardly, it is also compelled to rotate to the left until the blade 8 comes into alinement with and drops into the groove or seat 23 in the head of the screw, whereupon rotation of the bit is stopped. When rotation of the bit ceases, endwise movement of the tool ceases, whereupon the tool body is rotated to the right, and when the pin or projection 12 engages the shoulder 14, or closed end of the spiral groove, the tool body and the bit will turn together and the screw will be sent home

in the usual manner. When the finder sleeve 15 engages the surface of the work, it yields against the spring 20 without rotating, thereby permitting the screw to be sent home without danger of the rotating tool body damaging the surface of the work. When the tool is removed from the screw, the springs 10 and 20 automatically project the bit and the finder sleeve to their normal position in readiness for another operation of the tool.

What is claimed is:

A screw driver comprising a tool body provided at one end with a driving shank, said body having a longitudinal bore opening through the opposite end of the body and having three sections progressing in diameter from the inner to the outer end of the bore, a bit mounted for endwise and rotary movement within the bore and having a rear portion fitting the intermediate bore sec-

tion and provided with a spiral groove extending substantially 180° and terminating at opposite ends in stop shoulders, a pin extending through the body with its inner end having a working fit in the groove, a spring seated in the inner section of the bore and bearing against the rear end of the bit, a finder sleeve rotatable and slidable within the open end of the bore, embracing the outer end of the bit and provided with an external annular flange within the bore, a nut provided upon the forward end of the body and having an internal flange overlapping the flange of the finder sleeve, and a helical spring within the forward section of the bore embracing the bit and bearing at one end against the rear end of the front bore section and at its forward end against the rear end of the finder sleeve.

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