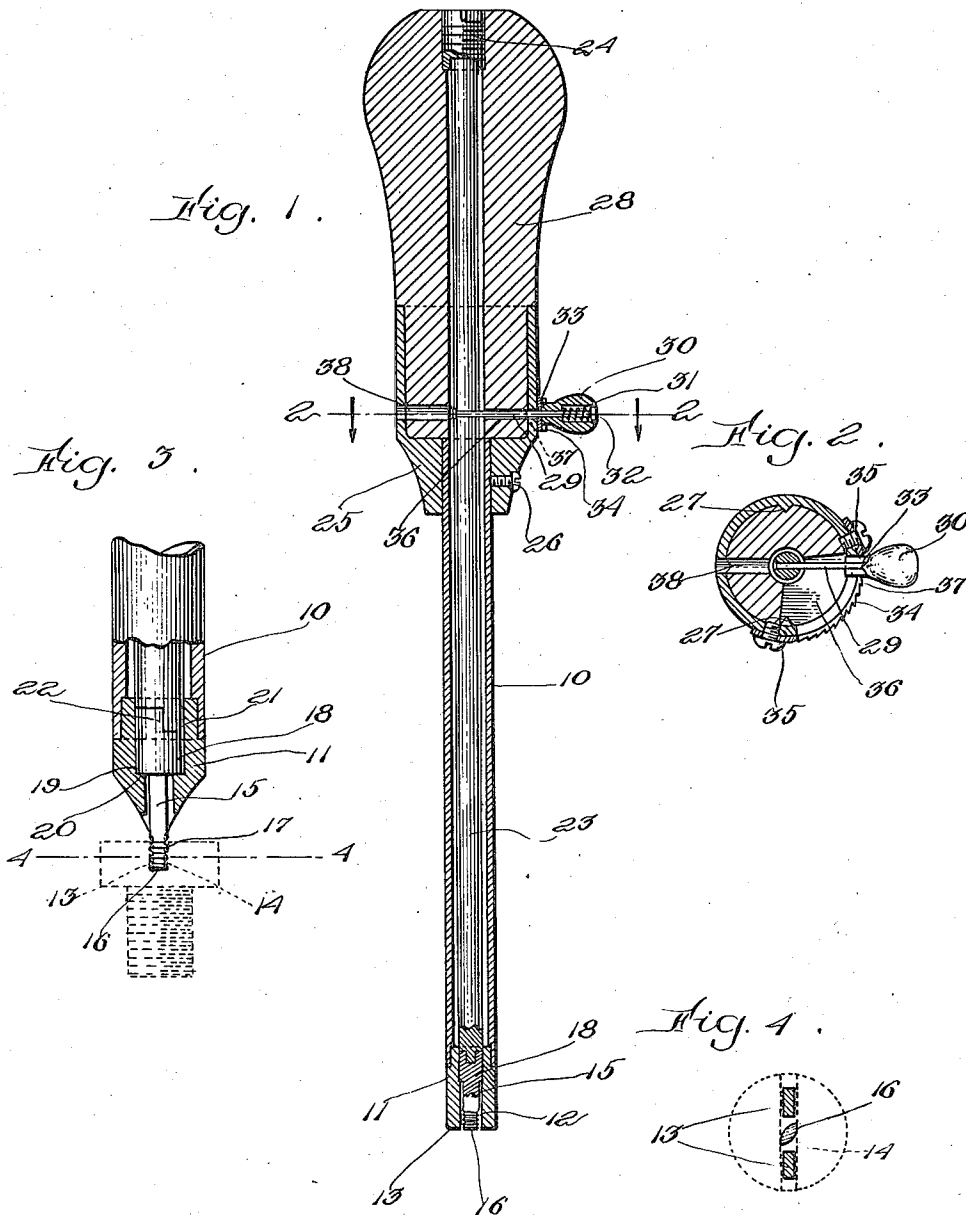


W. N. TITUS, JR.
SCREW DRIVER.
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1,063,304.

Patented June 3, 1913.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM N. TITUS, JR., OF WATERTOWN, MASSACHUSETTS.

SCREW-DRIVER.

1,063,304.

Specification of Letters Patent.

Patented June 3, 1913.

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To all whom it may concern:

Be it known that I, WILLIAM N. TITUS, Jr., a citizen of the United States, and resident of Watertown, county of Middlesex, State of Massachusetts, have invented an Improvement in Screw-Drivers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In the manipulation of screws and screw bolts, particularly machine screws, it is often desirable in withdrawing the screw from a place where it cannot be easily reached by the hand, and for inserting screws in inconvenient places, to have the screw or screw bolt held by the screw driver which is to turn it into place. Various implements have been devised for this purpose, but these have either been constructed to grasp the outside of the screwhead and hence not applicable to all shapes of head and of unwieldy size, or else they have not been adapted to firmly grip the screw. My invention provides a device adapted to attain the desired end by gripping the sides of the screwhead kerf by a wedging or camming member, preferably provided with teeth or serrations to bite into the stock of the head and hold the same with great force so that the screw bolt may be strongly held to the screw driver for removal or insertion as the case may be.

The invention will be better understood from the following detailed description, taken in connection with the accompanying drawings, and will thereafter be pointed out in the appended claims.

Figure 1 is a central vertical section through the device. Fig. 2 is a transverse section on line 2, 2 of Fig. 1. Fig. 3 is an enlarged detail partly in section of the operative end of the device, and Fig. 4 is a transverse section on line 4, 4 of Fig. 3.

A tubular member 10 has fixed thereto a bit end 11 formed with a round hole 12 lengthwise therethrough which divides the bit into two prongs 13 with a space 14 between them. Fitted through the hole 12 is a gripper piece 15 having its end projecting into the space between the bit prongs 13 of a flattened contour, shown as elliptical at 16. The portion 16 is of a thickness about the same, or slightly less, than that of the bit prongs 13 and its flattened sides are pro-

vided with serrations or teeth 17 adapted to bite into the sides of the screw bolt kerf, as shown in Fig. 3, when turned axially. The piece 15 is provided at its top with a head 18 providing an annular shoulder 19 adapted to rest and have bearing on an inwardly extending shoulder 20 on the part 11. This head 18 has a socket 21 adapted to interfit with a tongue 22 on the end of a turning rod 23 which extends through the tubular member 10 and through the handle of the device with its other end fitted to a removable bearing 24 in the end of the handle. The tubular member 10 has fixed to its upper end a sleeve holder 25 as by means of a clamp screw 26. This sleeve holder is provided with inwardly extending serrations or gripping portions 27 to firmly hold a handle 28 which is preferably of wood or fiber and adapted to be driven therein. The rod 23 has an operating member, shown as a stiff wire 29 fixed through a transverse aperture on the rod. This wire has slidably fitted thereon a knob 30, a spring 31 being housed in a recess of the knob and reacting against a head 32 on the wire 29 to press a tooth 33 on the knob into engagement with ratchet teeth 34 on a curved slotted plate fixed over an arcuate slot in the sleeve 25 by screw bolts 35. The handle 28 may have a portion cut out as shown at 36 to permit the operation of the wire 29, and the knob 30 has a slabbled down portion 37 guided in the arcuate slot of the sleeve 25. The wire 29 is fitted in the rod 23 so as to be removable, and upon taking out this wire and removing the bearing piece 24 the rod 23 can be taken out endwise, permitting the gripper piece 15 to drop out so that new gripper pieces can be easily inserted to replace broken or worn out ones whenever desired. An aperture 38 may be formed through the handle 28 and sleeve 25 in alinement with the wire 29 in one position to facilitate insertion and removal thereof.

The device may be used as an ordinary screw driver having no parts to interfere with its use for this purpose, there being no element of the gripping attachment in evidence, except the small knob 30; the gripping portion 16 lying flatwise in alinement with the bit prongs, the bit can be inserted in any screw bolt kerf which the bit will fit, and operated in the usual manner. When it is desired to use the device for gripping

screw bolts for removal or insertion, the bit is inserted in the kerf as usual, and the knob 30 turned so as to cant the gripping portion 16 and cause its teeth 17 to bite into the sides of the kerf, thus firmly gripping the screw driver to the screw bolt head. The wire 29 is preferably of stiff spring stock, such as piano wire and hence the knob 30 can be pushed so as to engage over a ratchet tooth 34 in position to cause a constant torque to be exerted on the gripping portion 16 by reason of the spring action of the wire 29. This is an important feature in practice, since it insures that the tight hold of the teeth against the walls of the kerf will be retained in the operation of the screw driver on the screw bolt, and this hold not be loosened by any relative working between the screw bolt and screw driver in operation. A further important point is that the several parts of the gripping device are housed within the implement, leaving no exterior projecting parts in the way, or liable to be broken.

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

1. A screw driver, comprising a bit, a handle, and means mounted to turn about the axis of the screw driver independently of the bit for gripping the walls of a kerf.

2. A screw driver, comprising a bit, a handle, and a turning member mounted to turn about the axis of the screw driver independently of the bit for gripping the walls of a kerf, having a laterally extending operating device.

3. A screw driver, comprising a bit, a handle, a turning device mounted to turn about the axis of the screw driver independently of the bit for gripping the walls of a kerf, provided with a laterally extending operating device, and means for locking said device in position to hold the grip-

ping device gripped against the walls of a kerf.

4. A screw driver, comprising a bit, a handle, a device mounted to turn about the axis of the screw driver independently of the bit for gripping the walls of a kerf, operating means for said device having provision to lock said device in kerf gripping position, said operating means being formed to exert a yielding pressure on the kerf gripping device.

5. A screw driver, comprising a handle, a bit, with an axial opening therethrough, a kerf gripping device mounted to turn about the axis of the screw driver in said opening independently of the bit, and means for operating said device.

6. A screw driver, comprising a bit, having an axial opening therethrough, a kerf gripping device mounted to turn about the axis of the screw driver in said opening independently of the bit and consisting of a flattened projection provided with gripping teeth disposed between prongs of the bit, and means for turning said gripping device.

7. A screw driver, comprising a handle, a bit having an opening therethrough axial of the tool, a kerf-gripping device mounted to turn about the screw driver axis in said opening independently of the bit, said device consisting of a wedging member having a transverse dimension in one direction somewhat greater than the thickness of the bit and in another direction not greater than said thickness, and means for turning said gripping device.

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

WILLIAM N. TITUS, JR.

Witnesses:

HARRY E. HALL,
C. L. ROGERS.