

UNITED STATES PATENT OFFICE.

EDWIN L. WALTER, OF SCRANTON, PENNSYLVANIA.

SCREW AND DRIVER THEREFOR.

SPECIFICATION forming part of Letters Patent No. 748,241, dated December 29, 1903.

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To all whom it may concern:

Be it known that I, EDWIN L. WALTER, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Screws and Drivers Therefor, of which the following is a specification.

The primal intent of this invention is to insure firm and positive connection between a screw and its driver without necessitating the expenditure of a great amount of energy to hold the driver in engagement with the screw when turning same, thereby enabling a greater amount of energy to be utilized for effective work without useless labor and unnecessary fatigue of the operator.

The invention provides a novel form of interlocking joint between the screw and its driver, whereby a small amount of force serves to prevent slipping of the driver when in service. The joint comprises an axially-inclined slot in the head of the screw and a correspondingly-inclined point or bit at the end of the driver, whereby when the screw and driver are held in longitudinal alinement with the said inclined point fitted in the said axially-inclined slot they are interlocked and held against longitudinal displacement.

Within the purview of the invention the longitudinally-inclined point or bit of the driver may be an integral part thereof or formed with an attachment to be fitted thereto, the latter being of special advantage when the invention is applied to spiral-tool drivers operated by endwise pressure.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a screw and driver therefor embodying the invention, a portion of each being broken away. Fig. 2 is a perspective view of the screw-driver and spring attachment separated. Fig. 3 is a perspective

view of a screw-driver having the longitudinally-inclined point or bit integral therewith and showing the head of the screw. Fig. 4 is a side view of the interlocking joint formed between the screw and driver when fitted together. Fig. 5 is a view similar to Fig. 4, showing the manner of connecting or disconnecting the driver from the screw.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The screw 1 is provided with an axially-inclined slot 2 in its head, forming a part of the interlocking joint. The corner formed between the outer end of the head and the wall of the slot, forming an acute angle therewith, is cut away, as shown at 3, to prevent the formation of a sharp edge, which would be liable to turn when subjected to pressure incident to turning the screw either to tighten or loosen same. The inclination of the slot 2 may vary so long as it serves to interlock with the point or bit of the driver and prevent longitudinal displacement thereof when in service and properly applied.

The point or bit 4 of the driving-tool is longitudinally inclined to correspond with the axial inclination of slot 2, so as to interlock therewith and prevent longitudinal displacement of the driver when it and the screw are in axial alinement. A shoulder 5 is formed at the base of the longitudinally-inclined point or bit 4 to correspond with the cut-away portion 3 of the screw, thereby enabling a great amount of metal being provided adjacent to the point 4, whereby the driver is enabled to withstand the strain to which tools of this type are subjected when in active operation. The driving-point or bit 4 may be an integral part of the screw-driver or tool 6, as shown most clearly in Fig. 3, or may form part of an attachment 7, as indicated in Figs. 1 and 2. The attachment 7 comprises spring-arms 8 and 9, which are adapted to embrace opposite sides of the driving-tool 6 and which have inner lips 10 and 11 at their upper ends to come in contact with the sides of the driving-tool to hold the arms 8 and 9 a slight distance therefrom, as shown most clearly in Fig. 1. One of the spring-arms, as 8, has its inner lip 10 beveled to a chisel edge and adapt-

ed to enter an approximately V-shaped groove or notch 12 in a side of the driving-tool 6, so as to hold the attachment in place. Any suitable means may be provided to prevent lateral displacement of the attachment, and, as shown, a socket 13 is formed in the crotch of the attachment to receive the extremity or point of driving-tool 6. The spring-arms 8 and 9 exert a lateral pressure against opposite sides of the driving-tool, thereby tending to keep same in line with the screw when operating on the latter to drive it home or remove same, as may be required. The attachment 7 provides means for adapting a driving-tool to various sizes of screws without requiring a special tool for a particular size or a few sizes of screws. The attachment also enables the successful use of spiral-tool drivers, the spring-arms serving to hold the bit or driving-point 4 in engagement with slot 2.

To apply a driving-tool to a screw, both embodying the invention, it is necessary to incline the driving-tool, as indicated most clearly in Fig. 5, to facilitate and enable the entrance of the point or bit 4 into the inclined slot 2, the tool being gradually brought into longitudinal alinement with the screw as the point or bit 4 enters slot 2. When the tool is properly fitted to the screw and the interlocking joint formed, the driving-tool is in longitudinal alinement with the screw, as indicated most clearly in Fig. 4, and but very little force is required to hold the tool in alinement with the screw; and when the tool is in operation it is prevented from casual longitudinal displacement by means of the interlocking joint formed by the inclined elements 2 and 4, as herein described.

Having thus described the invention, what is claimed as new is—

1. In combination, a screw having an axially-inclined slot in its head, and a driver having a corresponding longitudinally-inclined point or bit, substantially as set forth.

2. In combination, a screw having an axially-inclined slot in its head, and having the upper end of the undercut wall beveled and a driver having a corresponding longitudinally-inclined point or bit provided at one side with a shoulder to match the beveled end of the undercut wall of the screw-head slot, substantially as described.

3. In combination with a screw having an

axially-inclined slot and a driving-tool, an attachment fitted to said driving-tool and provided with an inclined point or bit to make interlocking connection with the axially-inclined slot of the screw, substantially as specified.

4. In combination with a screw having an axially-inclined slot and a driving-tool, an attachment provided with spring-arms embracing opposite sides of the driving-tool and provided with a longitudinally-inclined point or bit to make interlocking connection with the axially-inclined slot of the screw, substantially as set forth.

5. In combination with a screw having an axially-inclined slot and a driving-tool, an attachment provided with spring-arms embracing opposite sides of the driving-tool and having inner lips at the ends of the spring-arms to bear against the sides of the driving-tool, said attachment having a longitudinally-inclined point or bit to make interlocking connection with the axially-inclined slot of the screw, substantially as described.

6. In combination with a screw having an axially-inclined slot and a driving-tool, an attachment provided with spring-arms embracing opposite sides of the driving-tool and having a socket in the crotch formed between said spring-arms to receive the end of the driving-tool and prevent lateral displacement thereof, said attachment having a longitudinally-inclined point or bit to make interlocking connection with the axially-inclined slot of the screw, substantially as specified.

7. In combination, a screw provided with an axially-inclined slot, a driving-tool having a notch or groove in a side, and an attachment comprising spring-arms to embrace opposite sides of the driving-tool, one of said arms having an inner lip to interlock with the groove or notch of the driving-tool to hold the attachment in place, said attachment having a longitudinally-inclined point or bit to make interlocking connection with the axially-inclined slot of the screw, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWIN L. WALTER. [L. S.]

Witnesses:

GLADYS L. THOMPSON,
IVAN HEIDEMAN.