No. 845,978. PATENTED MAR. 5, 1907

F. D. RAPPELEE.

SCREW DRIVER ATTACHMENT.

APPLICATION FILED DEC. 7, 1906.

Fig. 1.

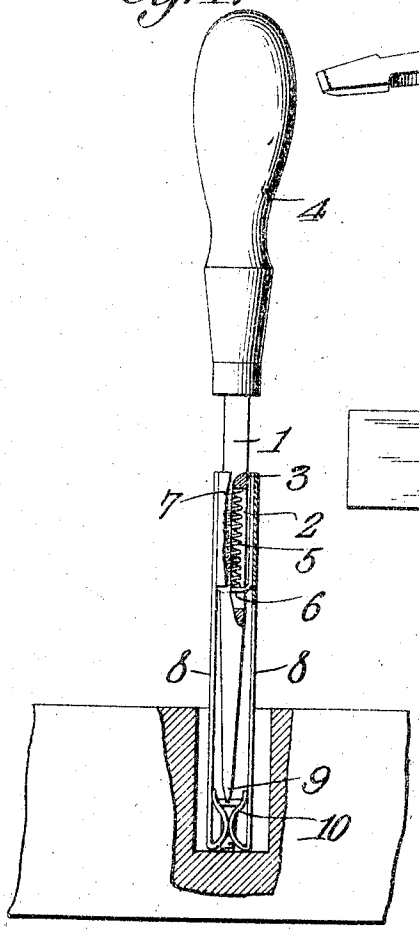


Fig. 2.

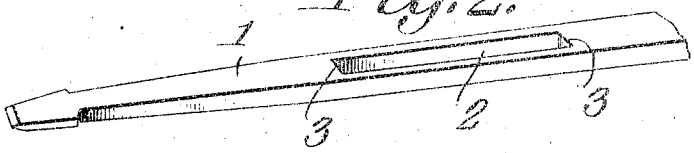
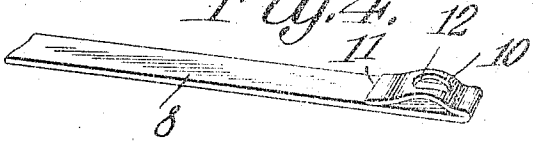


Fig. 4.



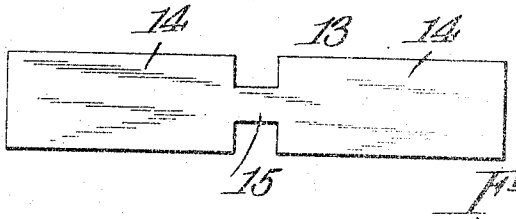


Fig. 5.

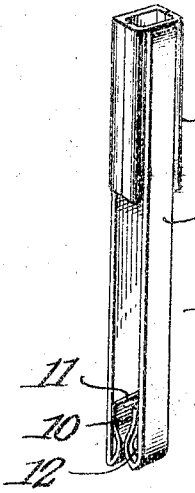


Fig. 3.

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FRANCIS DELOS RAPPELEE, OF GREEN BAY, WISCONSIN.

SCREW-DRIVER ATTACHMENT.

No. 845,978. Specification of Letters Patent. Patented March 5, 1907.

Application filed December 7, 1906. Serial No. 346,777.

To all whom it may concern:

Be it known that I, FRANCIS DELOS RAPPELEE, a citizen of the United States, residing at Green Bay, in the county of Brown and State of Wisconsin, have invented a new and useful Screw-Driver Attachment, of which the following is a specification.

This invention relates to screw-drivers of that type having spring-jaws for holding a screw in operative relation with the blade for the purpose of placing or taking out a screw in regions where the operator is unable to reach with both hands and in countersunk holes, depressions, or the like into which the fingers cannot be inserted for the purpose of taking hold of the screw.

The invention has for one of its objects to improve and simplify the construction and operation of devices of this character so as to be comparatively simple and inexpensive to manufacture, thoroughly reliable and efficient in use, and capable of being readily adjusted to or detached from a screw.

A further object of the invention is the provision of a pair of screw-holding jaws which are sleeved to the blade of the screw-driver and acted on by a spring for causing the jaws to hold the screw in engagement with the end of the blade, the tips of the jaws being so shaped that they can be readily engaged over a screw that is partly drawn out, so that the screw will not drop when completely removed.

With these objects in view and others, as will appear as the nature of the invention is better understood, the invention comprises the various novel features of construction and arrangement of parts, which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a front elevation of a screw-driver, partly broken away and showing the same in the operation of inserting or withdrawing a screw. Fig. 2 is a perspective view of the screw-driver blade, drawn on an enlarged scale, the tang end thereof being broken away. Fig. 3 is a perspective view of the spring-jaws and the blade-encircling sleeve. Fig. 4 is a perspective view of one of the spring-jaws. Fig. 5 is a plan view of the metal blank from which the blade-embracing sleeve is formed.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawing, 1 designates the blade of the screw-driver, which is of ordinary construction, except that adjacent the middle of the blade a longitudinal slot 2 is provided having flat end walls 3. The blade in the present instance is of the tang type and is provided with a handle 4; but it is to be understood that the screw-holding attachment can be used on screw-driver blades intended for braces. In the slot 2 is arranged a helical compression-spring 5, which abuts at one end the upper end wall 3 of the slot. The lower end of the spring bears on the cross-piece 6 of the sleeve 7, to which the spring screw-holding jaws 8 are attached. The sleeve 7 encircles the blade 1 at the slot 2, so as to form a housing or keeper for the spring, so that the latter is permanently held in the blade. The jaws 8, which are leaf-springs of suitable metal, are long enough to normally project beyond the point 9 of the blade 1, so that they can grip the shank of the screw while the point 9 is seated in the slot of the screw-head, as shown in Fig. 1. The jaws 8 are normally under a tension, which operates to hold them in contact, so as to firmly retain the screw. The ends of the metal strips of which the jaws are made are bent inwardly in the shape of a bow, as indicated at 10, the extremities of the bowed portions being compressed in contact at 11 with the body portions of the jaws. These bowed portions form the gripping-faces of the jaws, and they are each provided with elliptical openings 12 for receiving the shank of the screw. The opposed gripping-faces diverge outwardly, so as to constitute a mouth for facilitating the insertion of a screw.

The sleeve 7 and jaws 8 may, if desired, be made in one piece. In the present instance they have been shown as separate parts, such as punchings. The blank 13, Fig. 5, from which the sleeve 7 is formed, comprises two plate portions 14 of rectangular shape and connected by the neck 15, which constitutes the cross-piece 6 in the finished sleeve. In forming the sleeve the blank 13 is inserted into the slot 2 of the screw-driver blade by holding the blank in such a way that its width will be longitudinal of the slot. The blank is then moved inwardly until the neck 15 is at the slot 2 and then the blank is

turned a quarter of a revolution on its longitudinal axis. The plates 14 are then bent upwardly on opposite sides of the blades, so as to form a U-shaped structure. The long edges of the plates are then bent toward each other and the edges soldered. The sleeve thus formed is a rectangular box-like structure open at its top end and having the cross-piece 6 at its lower end extending transversely through the slot 2. Before the forming of the sleeve is finished the spring 5 is inserted. The jaws 8 are cut from strip metal of suitable dimensions, and their upper ends are soldered or otherwise suitably secured to the sides of the sleeve.

To insert a screw into the jaws, the gripping ends of the latter are spread slightly apart by resting the head of the screw against the portions 10 and applying a longitudinal pressure on the screw and screw-driver in a direction toward each other, so that the shank of the screw can be placed between the jaws and engaged in the openings 12 of the gripping-faces. The screw is then adjusted so that the point 9 of the blade will enter the slot of the screw. The screw is thus firmly held on the blade and can be inserted in a countersunk opening, depression, or the like or at any other desired point where the hand of the operator cannot reach. As the screw is driven in the tips of the jaws 8 will come into contact with the object and the jaws and sleeve will be gradually moved upwardly on the blade against the tension of the spring 5. This upward movement of the jaws will continue as the screw is driven in until the point 9 protrudes beyond the tips of the jaws, thereby enabling the screw to be driven home without the jaws interfering. To take out a screw, the screw-driver is placed so that the jaws come in contact with the object holding the screw and then pressure is applied to the handle, so that the blade 2 will be protruded between the jaws and engaged in the slot of the screw. The screw is then turned to draw it out, and as the screw moves outwardly the jaws 8 advance by virtue of the tension of the spring 5 and simultaneously spread apart until finally they pass over the head of the screw and grip the shank thereof. The screw can then be completely withdrawn while the jaws are firmly holding the same.

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely illustrative and that various changes may be made, when desired, as are within the scope of the claims.

What is claimed is—

1. In a device of the class described, the combination of a blade having a longitudinal slot, a helical compression-spring therein, a sleeve movable on the blade and arranged to form a housing for the spring, a cross-piece at one end of the sleeve which extends through the slot and bears against one end of the spring, leaf-springs disposed on opposite sides of the blade and connected with the sleeve and means on the free ends of the springs having opposed gripping-faces diverging outwardly to form a mouth.

2. In a device of the class described, the combination of a blade having a longitudinal slot, a helical compression-spring therein, a sleeve on the blade forming a housing for the spring, a cross-piece attached to the sleeve and extending through the slot at one end of the spring, a pair of parallel members connected with the sleeve and extending beyond the point of the blade, and screw-holding means on the ends of said members.

3. In a device of the class described, the combination of a blade, a pair of jaws, and means for movably mounting the jaws on the blade, each jaw comprising a strip of spring metal convexedly bent inwardly and backwardly at its end to form a gripping means.

4. In a device of the class described, the combination of a blade, a pair of jaws movable thereon, and elastic means for normally holding the jaws extended beyond the point of the blade, the said jaws comprising strips of spring metal having their ends bent backwardly and curved toward each other to form gripping-faces for holding a screw.

5. In a device of the class described, the combination of a blade, a sleeve thereon, a spring in the sleeve for yieldingly holding the latter in position on the blade, and a pair of jaws attached to the sleeve, said jaws comprising strips of spring metal having a tension normally holding the jaws together, the outer ends of the strips being bowed and bent backwardly and provided with openings at the middle of the bowed portions for gripping the shank of the screw.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses

FRANCIS DELOS RAPPELEE.

Witnesses:
HARVEY R. BARNARD,
EDWARD J. NEWSCHWANDE.