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SCREW HOLDING SCREW DRIVER AND PICKUP TOOL

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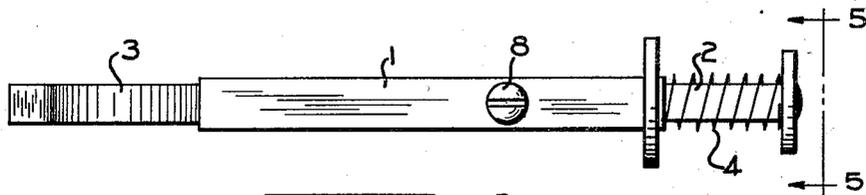


FIG-1

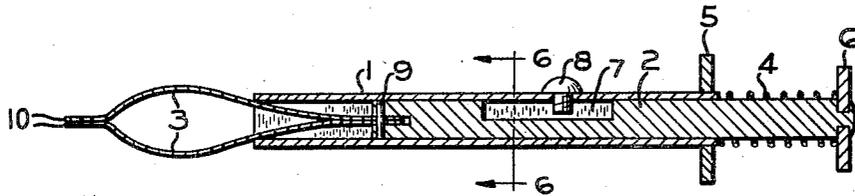


FIG-2

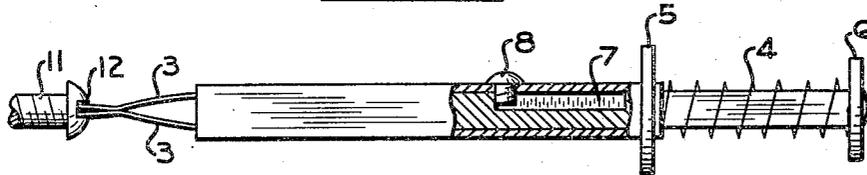


FIG-3

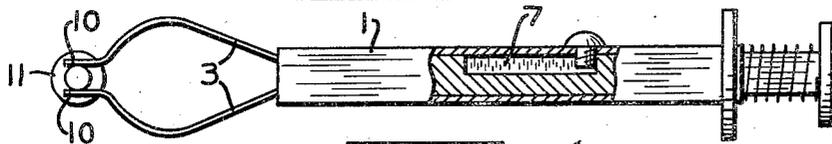


FIG-4

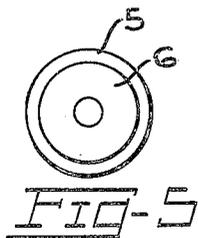


FIG-5

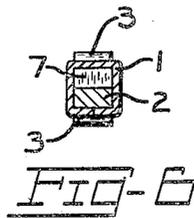


FIG-6

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SCREW HOLDING SCREW DRIVER AND PICKUP TOOL

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3 Claims. (Cl. 145—50)

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Our present invention relates to a tool of the screw driver type having a plurality of uses, as will be set forth hereinafter. This tool partakes somewhat of the nature of a compound tool, although in structure it can scarcely be said to be a compound tool. Among the objects of this invention are the provision of a simple, inexpensive tool which can serve both as tweezers and screw driver; the provision of a simple tool which can be used for handling small screws in places where it is difficult to use a screw driver of ordinary construction because of the difficulty in getting the hands into restricted places; the provision of a tool of the type indicated which is easily operated for the production of any of its intended functions; and such further objects, advantages, and capabilities as will hereafter appear and as are inherent in the construction disclosed herein. Our invention further resides in the combination, construction, and arrangement of parts illustrated in the accompanying drawings and, while we have shown therein what is now regarded as the preferred embodiment of this invention, we desire the same to be understood as illustrative only and not to be interpreted in a limiting sense. In the drawings annexed hereto and forming a part hereof,

Fig. 1 is a top elevation of a tool constructed in accordance with our present invention, the parts being shown in what may be called normal position;

Fig. 2 represents a longitudinal section of this tool in normal position;

Fig. 3 is a side elevation, partly broken away, showing this structure as supporting a screw, either when being inserted or removed;

Fig. 4 is a side elevation, partly broken away, showing this tool being used as tweezers;

Fig. 5 represents an end view of the structure shown in Fig. 1, taken in the direction of the arrows 5 in that figure; and

Fig. 6 represents a transverse section taken approximately along the plane indicated by the line 6—6, Fig. 2.

Reference will now be made in greater detail to the annexed drawings for a more complete description of this invention. Broadly, this tool comprises an external tubular body member 1, an internal body member 2, a pair of spring jaws 3, and spring means 4. As shown in Fig. 6, the body members 1 and 2 are non-circular in cross-section and fit one within the other in slidable relation. The body member 1 has a flange 5 projecting laterally therefrom which serves as a head therefor, while the body member 2 has a

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similar flange 6 secured to the exposed end thereof which serves as a handle or head against which pressure may be exerted to compress the spring which surrounds the body member 2 and is located between the flanges 5 and 6.

The body member 2 is provided in one surface, intermediate the ends thereof, with a depression 7, the ends of which cooperate with a screw 8 which serves as a stop to limit relative movement of the body members 1 and 2, in at least one direction. Preferably, we so construct this tool that the screw 8 serves as a stop in both directions of movement of the body parts.

Normally, the ends of the jaws 3 are in engagement and the inner ends thereof are inserted in a slot in the forward end of the body member 2, being held therein by a pin 9 which extends transversely through the body member 2 and the inner ends of the jaws 3, as shown in Fig. 2. The intermediate portions of these jaws are bowed in opposite directions so that when the body member 1 is moved forwardly with relation to the jaws, it will cause compression of the intermediate portions, forcing them toward each other and causing the ends 10 to separate slightly so that they will engage the side walls of the slot in a screw 11, as shown at 12. With a screw held in this position by the jaws 3, it is possible to line it up with a hole and screw it in without the necessity of touching it with a hand. This is a great advantage, as will be appreciated by any one who has tried to handle small screws, such as one-eighth by one-fourth inch ($\frac{1}{8}'' \times \frac{1}{4}''$). Of course this tool is not limited in use to screws of that size since it may be used with either large or small screws. However, it will be found to have especially great utility in working in places which are hard to get at.

In Fig. 4, we have shown this tool being used as tweezers. For this purpose, the heads 5 and 6 are moved toward each other, relatively, compressing the spring 4, and this permits the jaws to separate, since these are so bent at their inner ends as to cause them to move away from each other when the body member 2 is pushed into the body member 1, the jaws 3 spreading and remaining in contact with the forward end of the body member 1, as shown in Figs. 2 and 4. The jaws, after being spread, are applied to the object to be picked up and then the spring 4 is permitted to move the body member 1 forwardly on the jaws 3, which causes them to close on the article 11 which can then be picked up.

It will of course be understood that the specific description of structure set forth above may be

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departed from without departing from the spirit of this invention as disclosed in this specification and as defined in the appended claims.

Having now described our invention, we claim:

1. A tool for the purpose indicated comprising a tubular body of rectangular cross-section, having an outwardly extending flange at one end, a second body of rectangular cross-section slidably mounted within the first body, the second body projecting from one end of said first body, said projecting end portion having an outwardly extending flange, a compression spring surrounding the second body and abutting said flanges, said spring being adapted when compressed and released to cause relative longitudinal movement of the bodies, means for limiting relative longitudinal movement of said bodies in at least one direction, and a pair of curved spring jaws connected at one end to the other end of the second body and being of a size to slide within the first body, the other end portions of said jaws being flat and normally pressing against each other flatly when the spring is uncompressed, but the mid-portions, lengthwise of said jaws, being bowed outwardly away from each other an amount greater than the transverse distance across the first body, said jaws being capable, when partially withdrawn into the first body, of bending inwardly to slide within the first body and when so drawn into the first body having their exposed ends separated.

2. A screw driver comprising a tubular member, a plunger mounted within said tubular member for limited reciprocation therein, said plunger having one end thereof terminating within said tubular member and the other end extending beyond the end of said tubular member, spring means for urging said plunger in one direction in said tubular member, and a pair of opposed spring jaws secured to the end of the plunger within the tubular member, said jaws having flat opposed tips and being bowed apart between said tips and the ends secured to said plunger, said tubular member being of a length to contact the bowed apart portion of said jaws upon movement of said plunger toward the tips,

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said tubular member upon such movement of said plunger first moving said tips together into flat contact, the bowed portions being sufficiently curved so that, with the tips thereof in flat contact, the bowed portions external of said tubular member are spaced apart a distance greater than the opening in the end of the tubular member, whereby upon further movement of the plunger the end portions of the tips move apart.

3. A screw driver comprising a rectangular tube, a complementary rectangular plunger mounted for sliding movement within the tube, means for limiting the sliding movement thereof to limiting positions such that one end of said plunger is always extended beyond a first end of the tube and the second end of the plunger is always within the tube, a pair of spring jaws, with one end of each jaw secured to said second end of said plunger, said jaws having flat tips at their other ends spaced normally apart and in flat contact upon initial flexure of said jaws together, said jaws being bowed apart a distance greater with said tips in contact than the size of the opening in the second end of the tubular member, the jaws being moved together by contact of the tubular member with the bowed portions of said jaws into a position of flat contact of said tips upon initial movement, and, then, upon further movement, to a position with the end portions of said tips apart.

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RAY B. LAW.

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