C. A. HERMAN.

SCREWDRIVER.

APPLICATION FILED JUNE 28, 1919.

1,362,697. Patented Dec. 21, 1920.

Fig. 1.

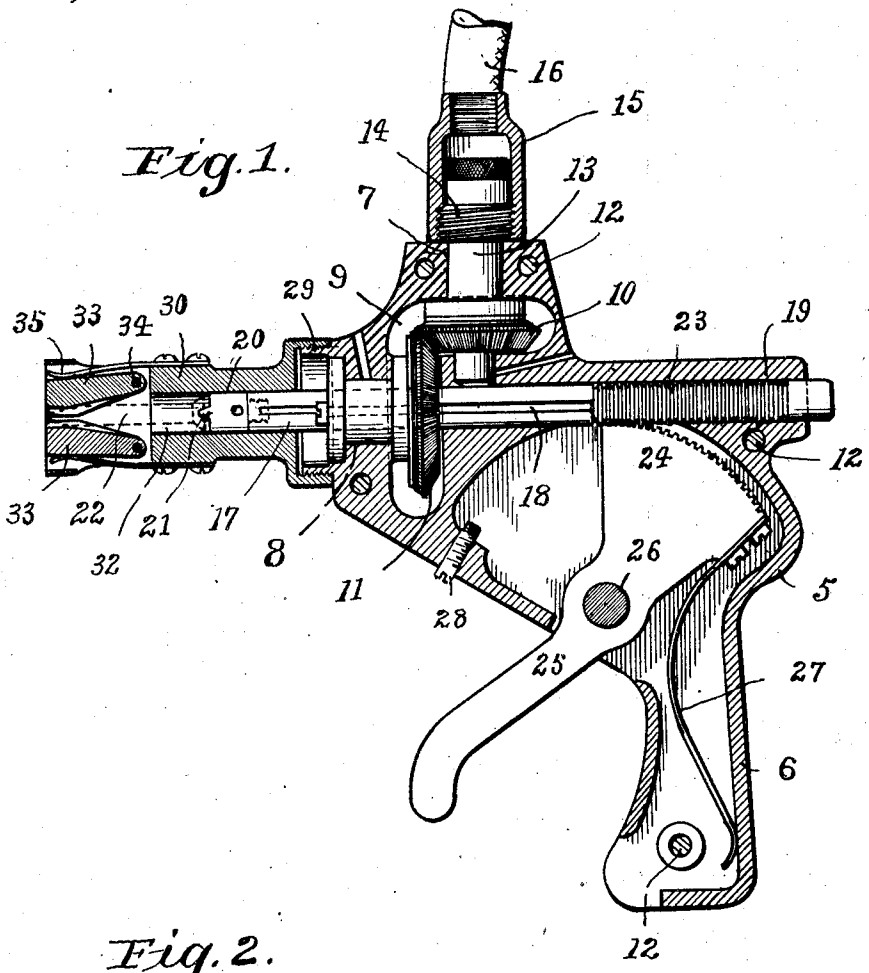
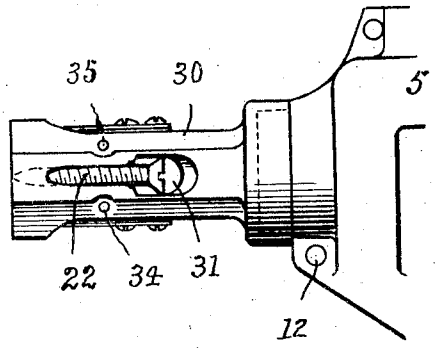


Fig. 2.



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CLAUDE A. HERMAN, OF BRIDGEPORT, CONNECTICUT.

SCREWDRIVER.

1,362,697. Specification of Letters Patent. Patented Dec. 21, 1920.

Application filed June 28, 1919. Serial No. 307,269.

To all whom it may concern:

Be it known that CLAUDE A. HERMAN, a citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, has invented certain new and useful Improvements in Screwdrivers, of which the following is a specification.

My invention relates to new and useful improvements in automatic power driven screw drivers, such as are used for driving wood screws, in furniture, boxes and similar kinds of work, when positioned within the working radius of a flexible driving shaft.

The object of the invention is to provide a simple and effective tool of the above class, in which screws can be inserted and quickly driven, and further so that when completely driven, will be automatically released and the screw driver positioned to receive another screw for a further operation.

With these and other objects in view the invention resides and consists in the construction and novel combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departure from the spirit or sacrificing any of the advantages of the invention.

Similar characters of reference denote like or corresponding parts throughout the several figures of the accompanying drawings forming a part of this specification, and upon which,

Figure 1 shows a central vertical section through my improved form of screw driver complete, and

Fig. 2 is a side view of the forward end of the holder showing the opening through which the screws to be driven are inserted in the screw driver.

Referring in detail to the characters of reference marked upon the drawings, 5 represents a housing including a hollow handle portion 6, an upper bearing 7 and a forward bearing portion 8. This housing is preferably made of two parts, which are substantially alike in construction, and which besides the hollow handle portion also includes a pocket 9 to accommodate the pinions, 10 and 11. These two side portions may be secured together by screws 12 as shown.

A short spindle 13 is journaled in the bearing 7 and is provided with a threaded hub portion 14 to which the coupling 15 of a flexible shaft 16 is attached. The bevel pinion 10 is secured to this spindle and is operatively positioned within the pocket 9 to mesh with and drive the second bevel pinion 11 loosely keyed to the shaft 17. This shaft as will be noted is provided with a key way 18 which permits it to be moved longitudinally through the bevel pinion 11 and within the bearings 8 and 19 formed in the housing. To the forward end portion of this shaft I threadably attach a removable end piece 20 having a tang end 21 to engage the slot in the head of the screws 22. Several of these end pieces, of different sizes, are provided with each screw driver to accommodate screws of different lengths. The rear end portion of the shaft is provided with a series of annular grooves to form a rotary rack 23 which is engaged by a segment 24 formed in the upper end portion of a lever 25.

This lever is pivotally mounted upon a stud 26 and is provided with a spring 27 which normally holds the lower end of the handle 25 in the position shown in Fig. 1. An adjustable screw 28 mounted in the housing serves as a stop against which the forward end of the lever strikes and by means of which the movement of the lever and the screw driver shaft are limited for the purpose of insuring the releasement of the screw when the same has been driven in.

The forward hub portion 29 of the housing is threaded as shown for the attachment of the threaded end of the removable holder 30 in which the screw driver end 21 of the reciprocating shaft operates. An opening 31 is formed in the side of this holder so that screws may be inserted and positioned in the bore 32 of the holder in the manner indicated by the dotted lines in Fig. 1. A pair of spring actuated jaws 33 are pivotedly mounted on pins 34 in a pocket formed in the forward end of the holder and are positioned opposite to each other and are normally held closed as indicated in Fig. 1 by the springs 35 secured to the top and bottom side of the holder.

The faces of the jaws which are adjacent each other are concaved to receive the screw,

and the rearward portions of the faces diverge from each other to freely receive the pointed end of the screw and driving spindle 21, the pointed end of the screw being adapted to open the jaws to allow free passage of the screw head. These jaws are so positioned and tensioned as to properly support and guide the screws and to permit them to be run out therebetween when the instrument is operated.

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

1. In a screw driver of the class described, a housing including a hollow handle portion, a shaft rotatably and slidably mounted in the housing, means for rotating the shaft, an operating lever pivotally mounted in the hollow handle portion and adapted to slide the shaft forward while being rotated, said operating lever being positioned in close proximity to the handle portion whereby it can be conveniently actuated to slide the shaft, and a screw holder in which the forward end of the shaft operates.

2. In a screw driver of the class described, a two piece housing consisting of two substantially similar members adapted to be removably secured to each other and including a hollow handle portion, a shaft rotatably and slidably mounted in the housing, means for rotating the shaft, an operating lever pivoted in the hollow handle portion and positioned in close proximity to the handle portion whereby it can be easily actuated to slide the shaft while being rotated, and a screw holder in which the forward end of the shaft operates.

3. In a screw driver of the class described, a housing including a hollow handle, a shaft rotatably and slidably mounted in the housing, means for rotating the shaft, separate means for causing the shaft to be slid forward while being rotated, and a screw holder in which the shaft operates, said means for causing the shaft to slide forward including an operating lever pivoted in the hollow handle and engaging a rotary rack on the shaft, a flat spring engaging the hollow handle and operating lever to normally hold the shaft in rearward position, and an adjustable stop adapted to engage the operating lever to limit the forward sliding movement of the shaft.

Signed at Bridgeport in the county of Fairfield and State of Connecticut this 26th day of June, A. D. 1919.

CLAUDE A. HERMAN.

Witnesses:
C. M. NEWMAN,
LILLIAN M. ALLING.