April 12, 1949. J. W. SEAMANS 2,466,745

COUNTERSINKING APPLIANCE

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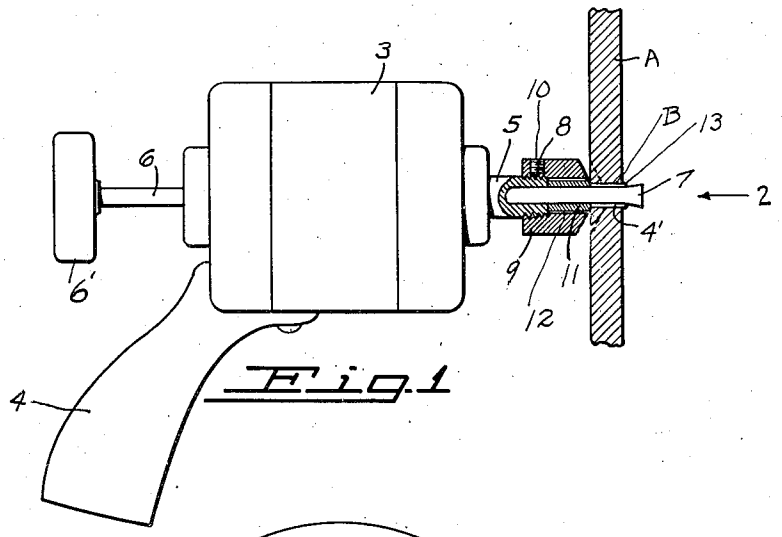


Fig. 1

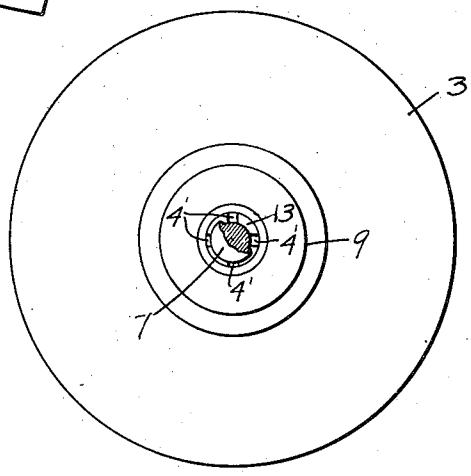


Fig. 2

INVENTOR.
JAMES W. SEAMANS
BY Edward C. Healy
ATTORNEY

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COUNTERSINKING APPLIANCE

James W. Seamans, San Leandro, Calif.

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1 Claim. (Cl. 77—2)

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This invention relates to improvements in hand operated appliances utilized in countersinking holes provided in metal plates and has particular reference to means carried by the appliance adapted to guide the bit of the device to a positive countersinking position and to temporarily retain the appliance in said position during the countersinking operation.

The principal object of the invention is the provision of a slotted sleeve carried by the appliance and capable of being expanded and contracted by the simple manipulation of a handle controlled shaft to thus readily and easily perform the desired countersinking of the hole.

An additional object of the invention is the provision of a machine screw or like fastening means for detachably securing a bit to the motor shaft, to thus permit replacement of the bit when the same becomes worn or dull.

A further object of the invention is the provision of an appliance of the character described that is economical to manufacture, simple in construction, strong, durable and highly serviceable in use.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawing forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a side elevational view of the appliance constructed in accordance with my invention, disclosing the same in a countersinking position relative to an opening formed in a metal plate, the plate or the work and a portion of the appliance being shown in section, and

Fig. 2 is an end elevation of the appliance per se, the stub shaft of the device being shown partly in section and partly in elevation.

Referring to the drawing the reference character A indicates a metal plate having a hole B that is to be provided with a flaring enlargement of the upper part thereof to thus receive the head of a bolt or the like. The numeral 3 indicates a motor housing having a handle 4 that serves as a comfortable and convenient means for retaining and guiding the appliance to the work. Positioned within a hollow motor shaft 5 of the motor and capable of being longitudinally moved therethrough is an elongated non-rotatable stub shaft

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6 having a manipulating knob 6' at one end and a flared portion 7 at the opposite end.

To the externally threaded end 8 of the motor shaft I provide or propose to threadedly secure a bit 9. A set screw 10 serves as a medium for detachably retaining the bit on the said shaft, which bit can be replaced when the same becomes worn or dull. A resilient sleeve 11 slotted as at 4' encompasses the stub shaft 6 and has its outer periphery spaced from an internal bore 12 of the bit 9. It will be noted that the front portion 13 of the sleeve 11 is of a smaller diameter than the main body thereof, thus readily allowing the reduced front portion to enter the hole B that is to be countersunk. Since the flared end 7 of the stub shaft is of a smaller diameter than the opening B, the said flared portion is capable of entering and expanding the sleeve when it is desired to retain the appliance to the work during the countersinking operation.

In the use of the appliance the same is grasped by the handle 4 and is positioned at right angles to the plate A. Slight pressure exerted on the knob 6' will cause the stub shaft to enter the opening B and the flared portion 7 will pass through the hole and it will first assume the position illustrated in Fig. 1. When thus positioned a rearward pull on the knob 6' of the stub shaft 6 will cause the flared extremity 7 to enter and expand the reduced portion 13 of the sleeve 11. The appliance then being moved toward the work will be in a positive countersinking position. The rotation of the bit 9 under the influence of the motor driven shaft 5 will effect an enlargement of the hole B to produce the required flaring expanse of the latter to subsequently receive the head of a bolt.

After the countersinking operation has been performed, pressure exerted on the knob 6' will cause the stub shaft 6 to move forwardly in the resilient sleeve with a resultant normal contraction of the latter. A rearward pull on the handle 4 will then cause the sleeve 12, the flared extremity 7 of the stub shaft and also the bit 9 to move as a unit out of engagement with the work A.

From the foregoing description considered in connection with the accompanying drawing it will be obvious that I have devised an unique appliance that can be readily guided to and retained

in the work during the countersinking operation thus relieving the necessity of a worker attending the appliance during the countersinking operation.

It is obvious that the stub shaft could likewise be externally threaded adjacent the knob portion thereof and could threadedly engage the internal threads of the motor shaft.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the shape, size, material and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention, I claim:

A portable countersinking appliance comprising a motor housing having a hollow motor shaft provided with an externally threaded end, a bit encompassing said shaft, a set screw for detachably securing said bit to said shaft, a sleeve positioned within said bit and including a main body portion and an integrally formed reduced resilient slotted front portion, and a stub shaft movable through said motor shaft, said stub shaft having a knob at one end and a flared portion at its opposite end capable of contracting and expanding said sleeve to retain said appliance in a fixed position in a plate opening.

JAMES W. SEAMANS.

REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
1,721,310	Miller	July 16, 1929