Aug. 12, 1930. E. M. JOY 1,772,950

NAIL DRIVER AND SET

Filed Feb. 8, 1927

Fig. 1.

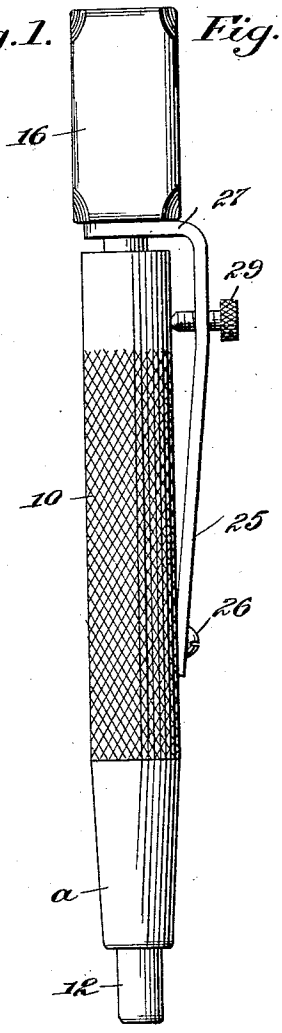


Fig. 2.

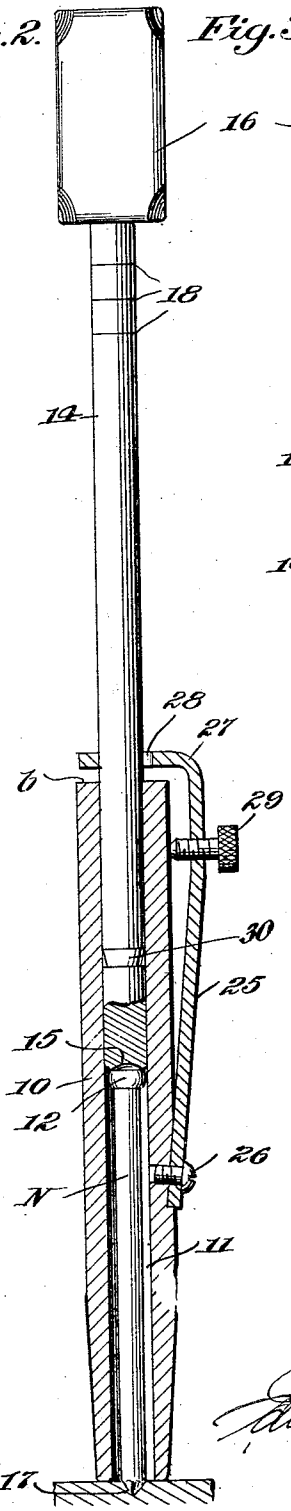


Fig. 3.

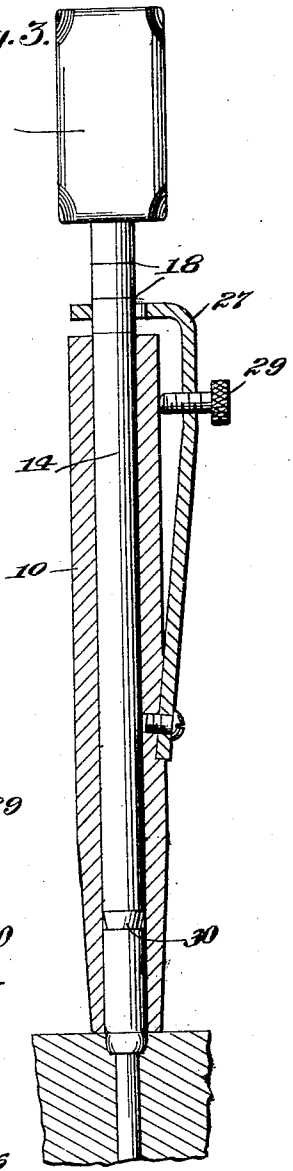


Fig. 5.

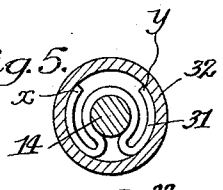
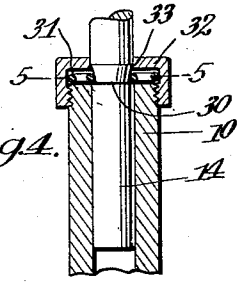


Fig. 4.



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UNITED STATES PATENT OFFICE

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NAIL DRIVER AND SET

Application filed February 8, 1927. Serial No. 166,772.

The present invention relates to nail driving tools and sets as set forth and described in my Patent No. 1,575,582, wherein the tool comprises the body member or barrel having a bore therein through which a driving pin extends and is freely slidable therein and may be removable therefrom.

In the use of such a tool in vertical or inverted positions the driving pin may drop out of the barrel causing considerable inconvenience as can be readily appreciated; yet, on the other hand it is highly advantageous in having the driving pin so that it may be readily removed from the barrel.

With these ends in view, the object of the present invention is to overcome the above draw-backs by the provision of simple, economical and efficient means by which the driving pin may be held, when desired, within the barrel at all times.

With the above and other objects in view, the invention resides in sundry details of construction, combination and arrangement of parts hereinafter more fully described and pointed out in the appended claims.

In this specification and the annexed drawings, the invention is disclosed in the form in which it is considered to be the best, but the invention is not limited to such form because it is capable of being embodied in other forms; and it is to be understood that by and in the claims following the description herein, it is intended to cover the invention in whatever form it may embody within the scope thereof.

In the drawings which show the preferred embodiment as at present devised:

Figure 1 is an elevation of the tool in its normal position and equipped with the present invention;

Figure 2 is a vertical section of the tool shown in Figure 1 but showing the same in position for use when driving a nail in place;

Figure 3 is a view similar to Figure 2 after the nail has been driven in place;

Figure 4 is a longitudinal fragmentary sectional view of a modified construction; and

Figure 5 is a transverse sectional view taken substantially on line 5—5 of Figure 4.

Referring in detail to the drawings, the tool to which the present invention is applicable comprises an elongated body member or barrel 10 having a longitudinal bore 11 therethrough, preferably of the same diameter throughout (but not necessarily so), a driving pin 14 slidably disposed in the bore to reciprocate thereon so that when a nail N is inserted in one end of the barrel, as shown in Figure 2, blows from a hammer or other suitable instrument on the end 16 of the driving pin will cause the nail to be driven into a suitable object without being bent.

In order to retain the driving pin 14 within the barrel against accidently falling out, particularly when the tool is used in inverted position, friction means are provided to normally engage with the pin 14 for holding it in any desired position in the barrel.

This friction means may be of any desired type or construction, but the retaining finger or member 25 shown in Figures 1 to 3 is considered an economical construction.

This retaining member 25 consists of an elongated resilient strip of metal arranged in a general longitudinal direction with respect to the barrel 10 of the tool having one end suitably secured to the barrel, such as by the screw 26 tapped into the body of the barrel. The other end portion 27 of said strip 25 is extended at substantially right angles to overlie the end *b* of the barrel 10, and is provided with opening 28 larger than the diameter of the driving pin 14 and through which the pin passes. Intermediate the end of the retaining finger 25 a thumb screw 29 is threaded therethrough and has its free end bearing against the exterior surface of the barrel 10 of the tool.

It will be obvious that by a suitable adjustment of the screw 29, the finger 25 will be sprung laterally with respect to the barrel 10 and a portion of the edge of the opening 28 will be brought to bear against the driving pin 14 to frictionally bind thereagainst. The degree of frictional contact between the edge of the opening 28 and the driving pin is regulated by the screw 29 thereby admitting of sufficient adjustment to permit the pin to be frictionally held in adjusted position, and follow the nail being driven, or to bind the

pin against movement or to release the same by free sliding movement or removable.

A suitable shoulder 30 is provided on the pin near the nail engaging end 15 thereof and preferably takes the form of an annular notch or groove for the purpose of engaging the edge of the opening 28 in retaining finger 25, when the pin is substantially withdrawn from the bore 11 of the barrel and when the retaining member is in binding engagement with the pin, as will be readily understood, thus preventing accidental withdrawal of the pin from the barrel.

This construction possesses another advantageous feature, due to the resiliency of the finger 25, in cushioning to some degree the blows of the hammer on the head 16 of the driving pin, when the latter reaches a point near the upper end *b* of the barrel, thus offering considerable resistance to any blow which would tend to drive the head 11 against the end *b* of the barrel and mar the woodwork against which the end *a* of the barrel may engage. Suitable indicating marks 18 are provided on the driving pin 14 to co-operate with the edge of the opening 28 to indicate the position of the nail engaging end 15 of the driving pin 14.

In some instances the thumb 29 may be eliminated, and the pressure of the handle of the user in grasping about the barrel 10 will cause the edge of the opening 28 to bind against the pin, or vice-versa.

In Figures 4 and 5 is shown a modified frictional means engaging the pin 14. This modified means comprises a piece of resilient material, bent to form a resilient loop 31, as clearly shown, disposed in a thimble-cap member 32, having a central opening therein 33. The cap is threaded or otherwise secured on the end *b* of the barrel and the pin 14 passes through the opening 33 and through the spring loop 31. The ends *x* and *y* of the loop member are bent upon themselves to engage the side walls of the cap to produce a resilient contraction in the loop 31 which is designed to be of less diameter than the diameter of the pin, and thereby partially obstructs the opening 33 in the cap and exerts a frictional binding pressure on the side of the pin. In this form of the invention the groove 30 is used on the pin with which the loop 31 will engage and prevent withdrawal of the pin from the barrel.

From the above it will be obvious that a very economical and efficient means has been provided for frictionally binding the driving pin in the barrel of tools of the herein described character and which is readily adjustable to meet the needs of the workman, may be readily removed from the tool as found desirable, and may be replaced if broken.

What is claimed is:

1. A tool of the character described comprising a barrel, a driving pin slidable within the barrel, a resilient spring loop mounted on the barrel at the end thereof through which said pin is inserted to normally exert frictional pressure against the side of the pin to hold the same in adjusted positions in the barrel, and means for retaining said loop in position.

2. A tool of the character described comprising a barrel, a driving pin slidable within the barrel, a resilient spring loop mounted on the barrel at the end thereof through which said pin is inserted to normally exert frictional pressure against the side of the pin to hold the same in adjusted position in the barrel, and a removable cap holding said loop in position on said end of the pin.

3. A nail driver and set comprising a barrel, a driving pin slidably mounted within the barrel, a resilient compression spring mounted on the barrel at the end thereof through which the pin is inserted and wholly within the interior of the tool to exert frictional pressure against the side of the pin to hold the same in adjusted postions in the barrel, and a collar on the barrel at said end thereof for retaining said spring in position on the barrel.

In testimony whereof I have hereunto set my hand.

ERNEST M. JOY.