

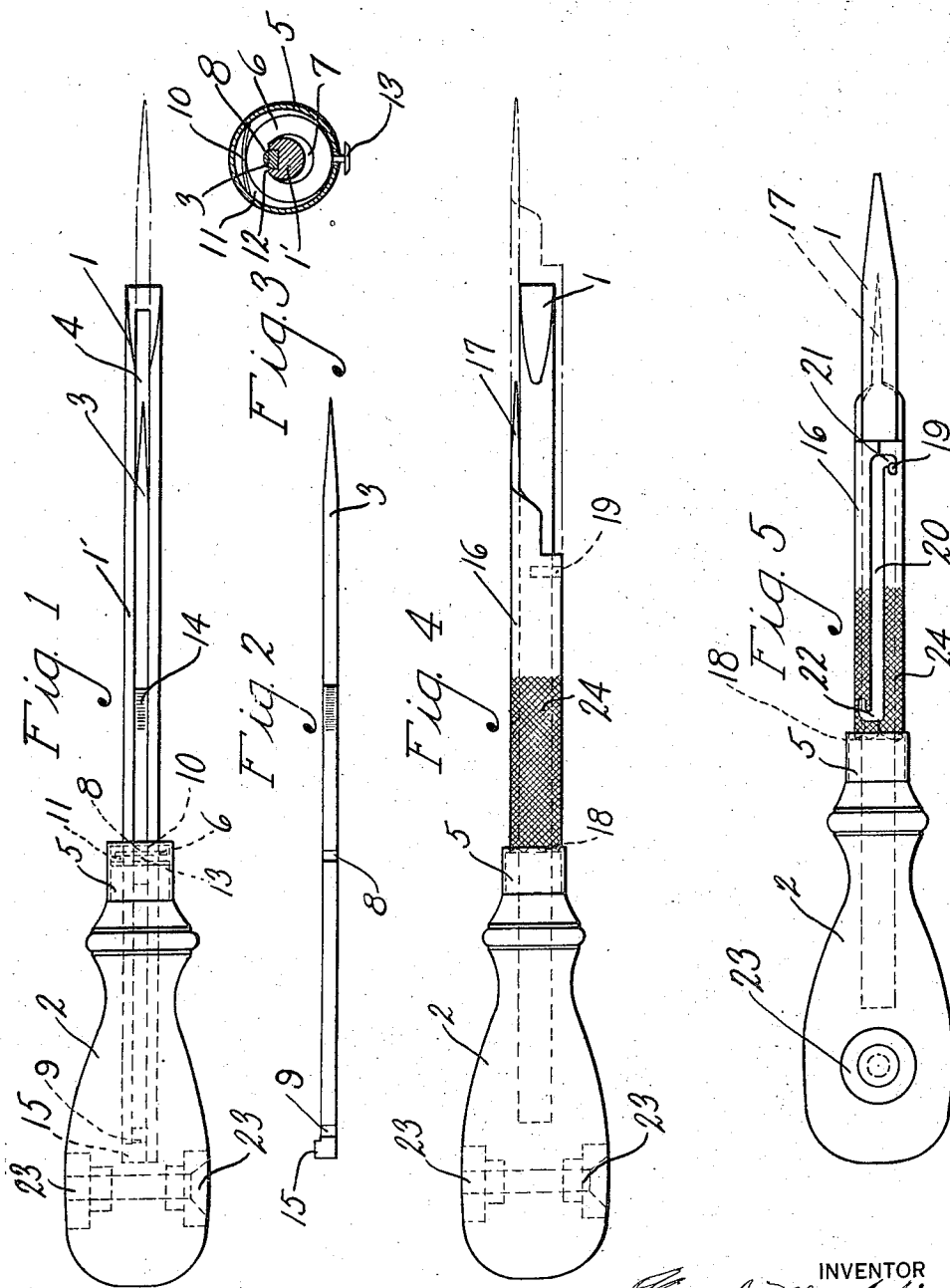
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COMBINATION SCREW DRIVER

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# UNITED STATES PATENT OFFICE.

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COMBINATION SCREW DRIVER.

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*To all whom it may concern:*

Be it known that I, EARL M. HILL, a citizen of the United States, residing in Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Combination Screw Drivers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a combination tool, having particular reference to a screw-driver and punch combined in such a manner one with the other as to effect a single tool having a punch for starting the hole for a wood screw and a screw-driver for seating or driving the screw home.

The advantage of such a tool will at once be obvious to those experienced in the use of wood screws and ordinary types of screw-driver. The usual method of seating a wood screw is to start the hole for the screw with any suitable pointed instrument, as a nail, then setting the screw in the wood with a hammer blow, and seating it with a screw-driver. This involves the use of a number of different tools, and at best is slow and inconvenient.

The tool of the present invention is at all times self-contained, and is designed to meet all ordinary requirements for setting and seating wood screws with ease and facility.

In the accompanying drawings:

Figure 1 illustrates a full-length view of the combination tool in one form of construction;

Fig. 2 is a detail view of part of the device shown in Fig. 1;

Fig. 3 is a detail view in cross-section of the device illustrated in Fig. 1; and

Figs. 4 and 5 illustrate full-length views of the tool in a modified form.

As here shown in Fig. 1 of the drawings, the combination tool consists of a screw-driver blade 1 having a handle 2 secured to its shank 1' in the usual manner. A punch 3 is combined with the screw-driver in a novel manner, the means employed consisting in forming a groove or spline 4 in the shank of the blade and extending this groove into the end of the shank secured in the handle, the punch 3 having a free sliding fit in the groove and having its outer face substantially flush with the periphery of the shank. A latching device is provided in the

ferrule 5 of the screw-driver handle, consisting of a lock washer 6 having an aperture 7 substantially larger in diameter than the shank of blade 1, thus providing for limited transverse movement of the washer relative to the shank and to the shank of punch 3, the latter being provided with notches 8 and 9 adapted to be engaged by the inner edge of the washer to lock the punch respectively in its retracted and projected positions. The lock washer is normally held in engagement with notch 8, when the punch is in its retracted position, by a flat spring 10 seated in an open space 11 in ferrule 5, the washer being of suitable diameter to permit of the required movement within the ferrule. The shank of the screw-driver blade is flattened sufficiently, as indicated at 12, to expose the notches 8 and 9 when the same are in register with lock washer 6 to permit the washer to engage the notches, the washer being provided with an outwardly projecting finger-piece 13 for actuating the washer.

Thus it will be seen that when the punch is in retracted position, as indicated in the full line drawing of Fig. 1, the lock washer will be in engagement with notch 8. When the punch is released, upon pressure being applied to finger-piece 13, the punch can be projected, as indicated by dotted outline in Fig. 1, the lock washer being then brought into engagement with notch 9, thus acting to hold the punch firmly in its projected position. A nurlled portion 14 on the shank of the punch projects sufficiently above the surface of the shank of the screw-driver blade to serve as a finger contact for moving the punch outwardly or inwardly as desired. This can also be done by gravity movement simply by manipulating the tool by its handle. A notch or shoulder 15 adapted to engage lock washer 6 is provided at the end of the shank of the punch to prevent the same moving outwardly beyond its normal projected position, the ferrule of the handle acting to retain the punch in the groove.

The modified construction of the tool shown in Figs. 4 and 5 is essentially the same in principle as that shown in Fig. 1, the principle consisting essentially in combining a punch with the screw-driver blade in a manner to provide for projecting and retracting the punch longitudinally of the

blade to permit of using the screw-driver and the punch independently of each other, and to lock the parts in their respective relations one with the other.

5 As here shown, the modified construction consists of a sleeve 16 arranged telescopically of the shank of the screw-driver blade, the forward end of the sleeve being pointed as at 17 to form a punch. The opposite  
10 end of the sleeve projects somewhat into the ferrule and butts against a spring washer 18 which exerts sufficient outward pressure on the sleeve to hold the same yieldingly against a stop pin 19 when the  
15 punch is in retracted position as shown in the full-line drawings. A slot 20 extending longitudinally of sleeve 16 and having offset lateral extensions 21 and 22 serves together with pin 19 to limit the longitudinal  
20 movement of the sleeve in both directions, the lateral extensions of the slot providing for limited turning movement of the sleeve on the shank of the blade and acting respectively with pin 19 to hold the  
25 sleeve in its retracted and projected positions. A nurlled portion 24 of the sleeve serves as a grip for the fingers for manipulating the sleeve.

30 Provision is also made in the handle of the combination tool for setting a screw in the hole made with the punch by blows struck with the handle, the screw being then seated with the screw-driver, the provision for setting the screw, as here shown, consisting of a metal reinforcement 23 inserted  
35 in the handle which re-inforcement may act as a hammer face.

Having described my invention, I claim:

1. A tool of the character described, including in combination with a handle, a  
40 shank secured in the handle having a longitudinal groove formed therein and extended into the handle, a member operable in said groove adapted to be projected and retracted therein, and means associated with  
45 said handle and adapted to engage said member to retain the same in said positions.

2. A tool of the character described, including in combination with a handle, a  
50 shank secured in said handle having a longitudinal groove formed therein and extended into said handle, a punch operable in said groove adapted to be projected and retracted slidably therein by gravity momentum imparted thereto from said handle,  
55 and a spring catch associated with the handle for retaining the punch in said positions.

3. A tool of the character described, including in combination with a handle, a  
60 shank having a longitudinal groove formed therein, a punch operable in said groove adapted to be projected and retracted therein longitudinally, the punch having notches adapted to be moved into said handle, means  
65 associated with said handle comprising an annular disk encircling said shank and acting under spring tension to engage said notches whereby to retain the punch in said  
70 respective positions, and a finger-piece extended outwardly of said handle for disengaging said disk from said notches.

In testimony whereof, I affix my signature.

EARL M. HILL.