

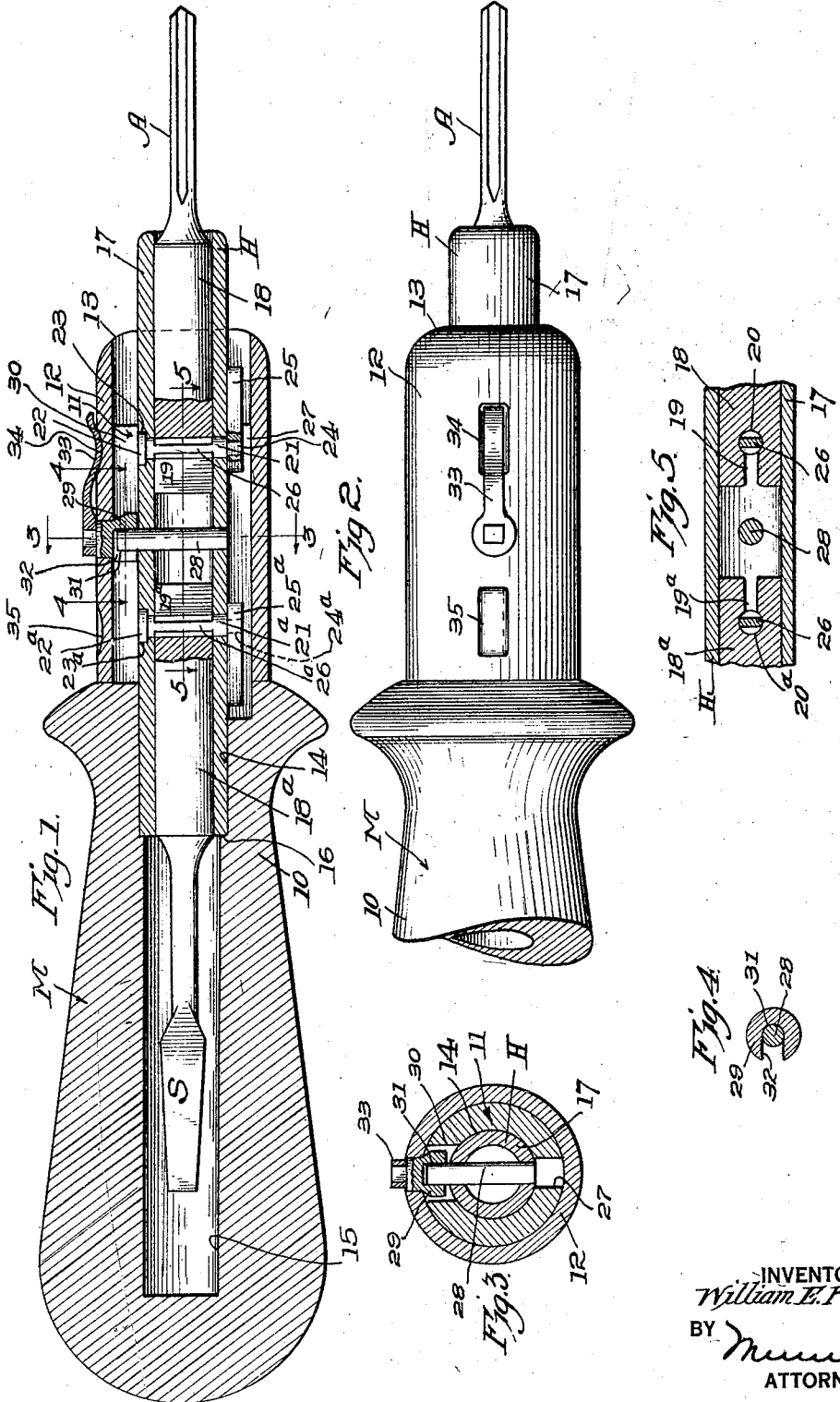
May 12, 1931.

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1,805,005

COMBINATION TOOL

Filed April 8, 1929



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COMBINATION TOOL

Application filed April 8, 1929. Serial No. 353,479.

My invention relates to and has for a purpose the provision of a tool of simple, substantial and relatively inexpensive construction embodying a plurality of instruments such as an awl and a screw driver for example, either of which can be firmly supported in a position for use while the other occupies a non-obstructing position, all in such manner as to permit the instruments to be changed about and secured against accidental displacement with the utmost ease and dispatch, thus providing a self contained tool by which the driving of wood screws in relatively hard materials will be greatly facilitated.

It is a further purpose of my invention to provide a combination tool embodying a holder with which the instruments are detachably associated in a manner to permit removal of the instruments with the utmost ease and their replacement with other forms of instruments for performing various operations.

I will describe only one form of combination tool embodying my invention and will then point out the novel features thereof in claims.

In the accompanying drawings:

Fig. 1 is a view showing in longitudinal central section one form of combination tool embodying my invention;

Fig. 2 is a fragmentary view in side elevation of a portion of the tool holder shown in Fig. 1;

Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 1, and

Figs. 4 and 5 are enlarged fragmentary sectional views taken respectively on the lines 4—4 and 5—5 of Fig. 1.

Referring specifically to the drawings in which similar reference characters designate similar parts in each of the several views, my invention in its present embodiment comprises a handle member designated generally at M, having a portion 10 thereof preferably formed of wood and shaped to be conveniently gripped in the hand. From the portion 10 projects a shank 11 receiving a metal ferrule 12. The ferrule is either a force fit on the shank or may be otherwise perma-

nently secured to the latter. The ferrule is cup shaped to provide a cap portion 13 covering the outer extremity of the shank 11; and to render the handle member hollow to receive an instrument holder H the portion 10, shank 11 and cap portion 13 of the ferrule are provided with an axial bore 14 terminating in the portion 10 in a second and reduced instrument receiving bore 15 to provide an annular shoulder 16 between the two bores constituting an abutment functioning in a manner to be hereinafter described.

The holder H is in the form of an open ended metal tube 17 of such uniform diameter throughout its length as to have a sliding fit within the bore 15 and to thus be capable of insertion from either end into the bore. The holder provides a support for a plurality of instruments such as an awl A and a screw driver S for example, the awl and screw driver having identical cylindrical shanks 18 and 18^a respectively, freely insertable into the holder from its ends.

To detachably connect the instruments to the holder so as to permit their removal for the substitution of other instruments, their shanks 18 and 18^a are provided respectively with slots 19 and 19^a extending longitudinally and diametrically from the outer ends of the shanks and terminating at their closed ends in enlarged portions 20 and 20^a of circular contour.

The holder H is provided with two locking devices, both of identical construction, and each adapted to co-act with the slotted portions of the shanks 18 or 18^a in a manner to detachably connect the respective instruments, so that a description of one locking device will suffice for both. To distinguish the parts of one locking device from those of the other, the numerals designating the parts of one device are provided with exponents.

Each locking device comprises a locking pin 21 rotatably mounted in the holder H transversely and diametrically thereof, and having a cylindrical head 22 seating in a pocket 23 in the holder so that the headed end of the pin will be disposed within the outer diameter of the holder. The opposite end of the pin is reduced and of angular form as in-

5 dicated at 24 to which is fixed by swaging or
 other suitable means an actuator in the form
 of an operating arm 25 by which the pin can
 be rotated. That portion of the length of the
 10 pin spanning the inner diameter of the holder
 is flattened as indicated at 26 by cutting away
 portions of its periphery at diametrically op-
 posed points so that when the pin is rotated
 15 90° from the position shown in Fig. 1, its
 flattened portion is presented edgewise to and
 capable of passing freely through the rela-
 tively narrow slot 19 or 19^a of the respective
 20 instrument shank 18 or 18^a and then into the
 enlarged portion 20 or 20^a. However upon
 rotating the pin to the position shown in Fig.
 1, the flattened portion 26 of the pin will co-
 act with the enlarged portion 20 or 20^a which-
 ever the case may be, to securely lock the re-
 spective instrument in a fixed position in the
 holder with the working part of the instru-
 ment projecting axially from an extremity of
 the holder.

In the position wherein the instruments are
 25 locked in the holder, the operating arms 25
 and 25^a for the respective locking pins 21 and
 21^a are disposed parallel with the length of
 the holder as shown in Fig. 1, and are received
 in a longitudinal groove 27 formed in the
 30 handle member when the holder is inserted
 from one end or the other into the handle
 member, so that the arms and hence the pins
 will be locked against accidental rotation, to
 insure that the instruments cannot become de-
 tached from the holder during use.

35 With the holder inserted into the handle
 member as shown in Fig. 1, one of the instru-
 ments A or S will be received in the axial
 bore 15 so as to be disposed within the handle
 member, while the other will project from the
 40 latter for use. It will be clear that the hold-
 er is thus reversible in the handle member end
 for end to expose either instrument for use.
 In the position shown in Fig. 1, the inner end
 of the holder abuts the shoulder 16 so as to
 45 definitely limit the inward movement of the
 holder; and to detachably secure the holder
 to the handle member with either instrument
 exposed from the latter for use, the holder
 is provided with a lateral projection in the
 50 form of a pin 28 extending transversely and
 diametrically through the holder medially be-
 tween its ends and projecting at one end from
 the outer periphery of the holder as shown in
 Figs. 1 and 3 for co-action with a socket mem-
 55 ber 29 rotatably mounted in the handle mem-
 ber M. When inserting the holder into the
 handle member the projecting end of the pin
 28 passes freely through a second longitudinal
 groove 30 formed in the handle member
 60 diametrically opposite to the groove 27.

The socket member 29 is provided with a
 cylindrical pocket 31 having a side entrance
 opening 32 adapted to be so alined with the
 pin 28 upon suitably rotating the socket mem-
 65 ber, as to permit the pin to pass through the

opening into the pocket when the holder is
 inserted from one end or the other into the
 handle member. However, when the socket
 member is partially rotated from this posi-
 tion it will be clear that withdrawal of the
 70 holder from the handle member will be posi-
 tively prevented as any effort to withdraw
 the holder will cause the pin to abut the side
 wall of the pocket 31 in the socket member.

To provide means for actuating the socket
 75 member 29, an operating lever 33 is fixed
 thereto exteriorly thereof and is of resilient
 material such as spring tempered metal so
 as to be normally urged against the pe-
 riphery of the ferrule 12, which latter is pro-
 80 vided with recesses 34 and 35, into either of
 which the lever 33 is adapted to snap and be
 releasably retained to latch the socket mem-
 ber against rotation. With the socket mem-
 ber latched in the position shown in Fig. 1,
 85 the holder H will be secured in fixed posi-
 tion in the handle member against with-
 drawal from the latter due to the co-action of
 the pin 28 and the side wall of the pocket 31
 of the socket member; whereas upon rota-
 90 tion of the socket member 180° from this po-
 sition by correspondingly rotating the lever
 33 so that the latter will snap into the rec-
 cess 35, the holder can be withdrawn from the
 handle member as the pin 28 is free to be
 95 withdrawn from the pocket 31 through its
 side entrance opening 32. It is to be noted
 that in applying the holder H with the in-
 struments A and S to the handle member M,
 the actuators 25 and 25^a are first rotated to
 100 positions parallel to the length of the holder,
 as shown in Figure 1, so that the pins 21 and
 21^a maintain the respective instruments con-
 nected to the holder. The holder is now in-
 serted into the handle member so that the ac-
 105 tuators 25 and 25^a enter the groove 27 in the
 handle member, and the pin 28 enters the
 groove 30, after which the lever 33 is rotated
 180 degrees to the position shown in Figure
 1, for co-action of the pin 33 with the socket
 110 member 29 in securing the holder to the
 handle member. The holder is free for re-
 moval from the handle member upon rotat-
 ing the operating lever 33, 180 degrees from
 the position shown in Figure 1; and after
 115 the holder has been removed from the handle
 member, the actuators 25 and 25^a are free to
 be rotated so as to permit the instruments A
 and S to be detached from the holder.

From the foregoing description it will be
 120 manifest that with two instruments such as
 the awl A and screw driver S secured in the
 holder as illustrated in Fig. 1, that either in-
 strument can be supported from the handle
 member in an exposed position for use, by
 125 the simple operation of reversing the holder
 H end for end in the holder, and that the
 latter can be latched and unlatched in either
 position by simply rotating the lever 33 until
 it snaps into either the recess 34 or 35. Also
 130

that the instruments can be readily detached from the holder and other instruments (not shown) with shanks identical to the shanks 18 and 18^a substituted therefor and positively locked to the holder against detachment from the latter when latched in the handle member in either of the positions of the holder.

Although I have herein shown and described only one form of combination tool embodying my invention, it is to be understood that various changes and modifications may be made therein without departing from the spirit of the invention and the spirit and scope of the appended claims.

I claim:

1. A tool comprising a hollow handle member, a holder having instruments on opposed extremities thereof and insertable from one extremity or the other into the handle member to accordingly dispose one instrument in the latter and expose the other instrument in a position for use or vice versa, and means for securing the holder in the handle member in either of its positions, comprising a projection on the holder, and a socket member movably mounted on the handle member and having an entrance opening through which the projection is insertable into the socket member when occupying one position, the projection abutting a wall of the socket member when occupying another position, to thereby prevent withdrawal of the holder from the handle member.

2. A tool comprising a hollow handle member, a holder having instruments on opposed extremities thereof and insertable from one extremity or the other into the handle member to accordingly dispose one instrument in the latter and expose the other instrument in a position for use or vice versa, and means for securing the holder in the handle member in either of its positions, comprising a projection on the holder, a socket member movably mounted on the handle member and having an entrance opening through which the projection is insertable into the socket member when occupying one position, the projection abutting a wall of the socket member when occupying another position, to thereby prevent withdrawal of the holder from the handle member, means for actuating the socket member, and means for releasably retaining the socket member in either of its above mentioned positions.

3. A tool comprising a hollow handle member, a holder having instruments on opposed extremities thereof and insertable from one extremity or the other into the handle member to accordingly dispose one instrument in the latter and expose the other instrument in a position for use or vice versa, and means for securing the holder in the handle member in either of its positions, comprising a projection on the holder extending laterally beyond the

latter, and a socket member mounted on the handle member for rotation about an axis at an angle to the length of the handle member and having an entrance opening so disposed in one position of the socket member as to permit insertion of the projection into the socket member, and so disposed in another position of the socket member as to prevent withdrawal of the projection from the socket member.

4. A tool comprising a hollow handle member, a holder having instruments on opposed extremities thereof and insertable from one extremity or the other into the handle member to accordingly dispose one instrument in the latter and expose the other instrument in a position for use or vice versa, and means for securing the holder in the handle member in either of its positions, comprising a lateral projection on the holder, a socket member rotatably mounted on the handle member and having an entrance opening so disposed in one position of the socket member as to permit insertion of the projection into the socket member, and so disposed in another position of the socket member as to prevent withdrawal of the projection from the socket member, a resilient lever fixed to the socket member for rotating the latter, and recesses in the handle member receiving the lever in said positions of the socket member to latch the latter against rotation.

5. A tool comprising a holder for a plurality of instruments, means for detachably connecting a plurality of instruments to the holder to project from opposite extremities of the latter, a handle member into which one extremity or the other of the holder is insertable to dispose one instrument in the handle member and expose the other instrument from the handle member in a position for use or vice versa, means for securing the holder to the handle member in either position of the holder, the first means including actuators, and the handle member being provided with means co-acting with the actuators to maintain the latter in positions wherein the instruments are maintained connected to the holder by the first means.

6. A tool comprising a tubular open ended holder into the opposite ends of which instruments are adapted to be inserted to project from the ends of the holder, rotatable means in the holder adapted to co-act with the instruments in detachably securing the latter to the holder, a hollow handle member into which one end or the other of the holder is insertable to accordingly dispose one instrument in the handle member and expose the other instrument from the latter in a position for use, means for securing the holder to the handle member in either position of the holder, and means on the handle member co-acting with the rotatable means to lock the latter against rotation when the holder is se-

cured in the handle member, to prevent detachment of the instruments from the holder.

7. A tool comprising a tubular open ended holder, a pair of instruments having shanks insertable into the holder, the shanks being longitudinally slotted from one extremity and the slots having enlarged portions, locking members rotatably mounted in the holder and co-acting with said enlarged portions of the slots when the members are rotated to one position, to lock the respective instruments to the holder, arms fixed to the locking members exteriorly of the holder for rotating the locking members, a handle member into which one end or the other of the holder is insertable to dispose one instrument or the other in the handle member and expose the other instrument from the latter for use, means for detachably securing the holder to the handle member, and means on the handle member for preventing rotation of the arms when the holder is secured to the handle member.

8. A tool comprising a tubular open ended holder, a pair of instruments having shanks insertable into the holder, the shanks being longitudinally slotted from one extremity and the slots having enlarged portions, locking members rotatably mounted in the holder and co-acting with said enlarged portions of the slots when the members are rotated to one position, to lock the respective instruments to the holder, arms fixed to the locking members exteriorly of the holder for rotating the locking members, a handle member into which one end or the other of the holder is insertable to dispose one instrument or the other in the handle member and expose the other instrument from the latter for use, and means for detachably securing the holder to the handle member, comprising a lateral projection on the holder intermediate its ends and extending laterally beyond the latter, a socket member mounted on the handle member for rotation about an axis at an angle to the length of the handle member and having an entrance opening so disposed in one position of the socket member as to permit insertion of the projection into the latter, and so disposed in another position of the socket member that the latter will prevent withdrawal of the projection, and means for rotating the socket member to either of its positions.

9. A tool comprising a tubular open ended holder, a pair of instruments having shanks insertable into the holder, the shanks being longitudinally slotted from one extremity and the slots having enlarged portions, locking members rotatably mounted in the holder and co-acting with said enlarged portions of the slots when the members are rotated to one position, to lock the respective instruments to the holder, arms fixed to the locking members exteriorly of the holder for rotating the locking members, a handle member into which one end or the other of the holder is insertable

to dispose one instrument or the other in the handle member and expose the other instrument from the latter for use, and means for detachably securing the holder to the handle member, comprising a lateral projection on the holder intermediate its ends, a socket member rotatably mounted on the handle member and having an entrance opening so disposed in one position of the socket member as to permit insertion of the projection into the latter, and so disposed in another position of the socket member that the latter will prevent withdrawal of the projection, a resilient lever fixed to the socket member, for rotating the latter, and recesses in the handle member receiving the resilient lever in said positions of the socket member to latch the latter against rotation.

10. A tool comprising a handle member, a tool holder insertable into the handle member and having a projection extending laterally therefrom, and a socket member mounted on the handle member for rotation about an axis angularly disposed with respect to the length of the handle member, the socket member having an entrance opening so disposed in one position of the socket member as to permit insertion of the projection into the socket member, and so disposed in another position of the socket member that withdrawal of the projection from the socket member will be prevented.

11. A tool comprising a holder for a plurality of instruments, means for detachably connecting a plurality of instruments to the holder to project from opposite extremities of the latter, a handle member into which one extremity or the other of the holder is insertible to dispose one instrument in the handle member and expose the other instrument from the handle member in a position for use or vice versa, means for securing the holder to the handle member in either position of the holder, the first means including actuators, and the handle member being provided with a groove receiving the actuator to maintain the latter in predetermined position for the purpose described.

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