July 10, 1934. N. P. ANDERHOLM 1,965,917

COMBINATION TOOL

Original Filed Sept. 12, 1931

Fig. 1.

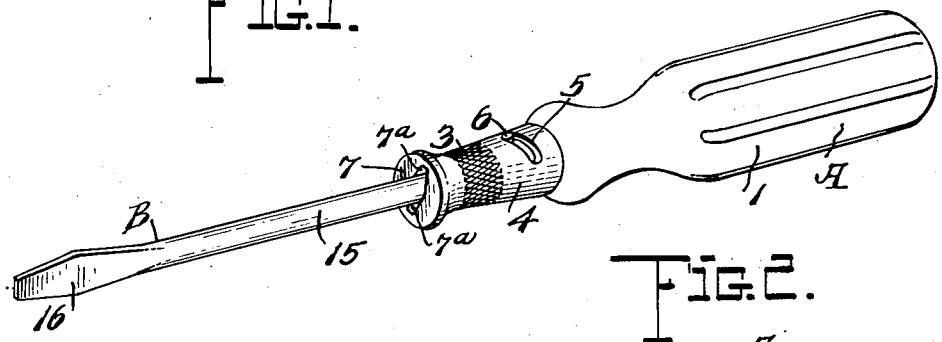


Fig. 2.

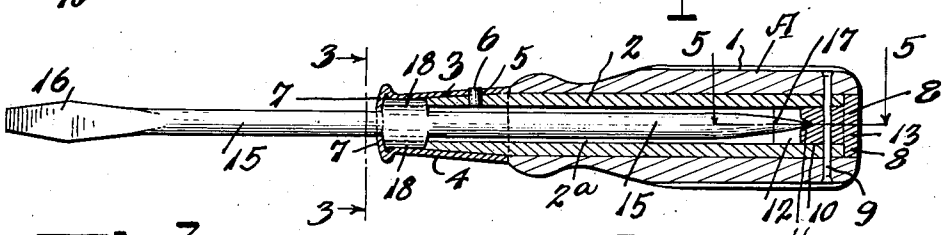


Fig. 3.

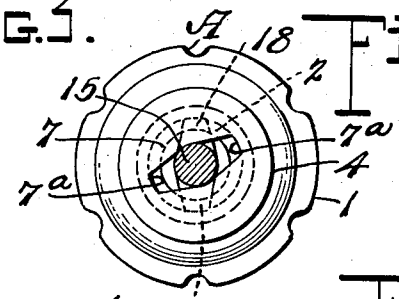


Fig. 4.

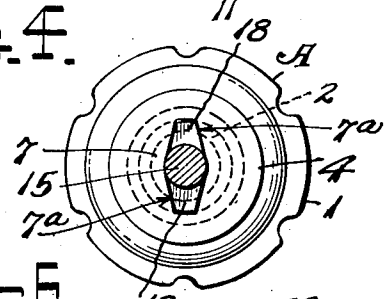


Fig. 5.

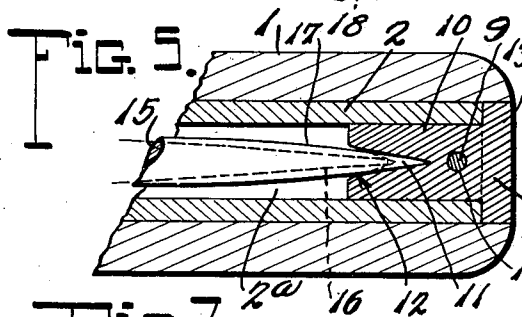


Fig. 6.

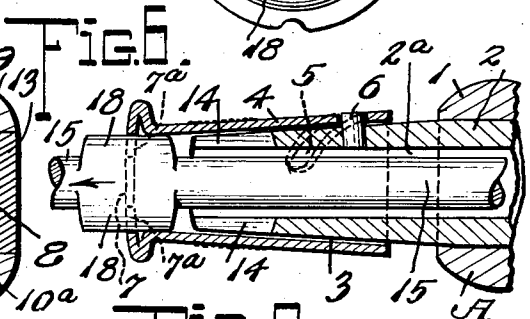


Fig. 7.

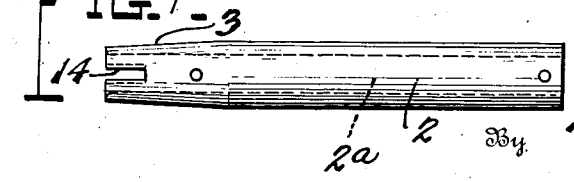
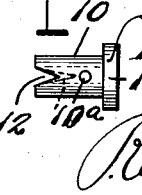


Fig. 8.



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UNITED STATES PATENT OFFICE

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COMBINATION TOOL

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Application September 12, 1931, Serial No. 562,562
Renewed December 29, 1933

6 Claims. (Cl. 7—15)

The present invention relates to a combined tool, and particularly to a novel holder construction characterized in that it is capable of removably receiving a reversible tool to present either end of the same in position for use. However, it is to be understood that the invention is not to be restricted to use with reversible tools, as it is equally well adapted for use with interchangeable tools of different sizes or characters.

It is an object of the invention to provide means for rigidly, but removably, interlocking various tools in a holder adapted for hand manipulation, said means being simple in construction and quickly operable.

A further object of the invention is to provide cam means for maintaining the tool in operative position in the holder so as to preclude relative movement between the tool and holder.

A still further object of the invention is to provide a tool holder which comprises few parts so as to minimize manufacturing costs, said parts primarily consisting of a handle member, a ferrule, and a tool socket member positioned within the handle.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawing:

Fig. 1 is a perspective view of my invention;

Fig. 2 is a longitudinal vertical sectional view through the form as shown in Fig. 1;

Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 2 and showing the rotatable ferrule member in tool retaining position;

Fig. 4 is a view similar to Fig. 3 except that it discloses the ferrule in inoperative or tool releasing position;

Fig. 5 is an enlarged fragmentary sectional view on the line 5—5 of Fig. 2;

Fig. 6 is an enlarged fragmentary vertical longitudinal sectional view through the central position of the tool and holder as seen in Fig. 2 and disclosing the ferrule in its tool releasing position and the tool partly removed from the holder;

Fig. 7 is a side elevation of the tool socket member, and

Fig. 8 is a side elevation of the tool supporting member.

Like reference characters refer to like parts in the several figures of the drawing in which A designates the tool holder generally while B indicates the combination or removable tool. The tool holder A comprises a hollow handle member 1 closely surrounding the tool socket member 2. The forward end of the tool socket member is somewhat tapered as indicated at 3 to receive the tool retaining ferrule member 4 as clearly seen in Figs. 1 and 2 of the drawing. The ferrule member 4 is provided with a cam slot 5 cooperating with the projecting pin 6 carried by the tool socket member 2. The ferrule member 4 is provided at 7 with an abutment flange, said flange having diametrically opposite notched portions 7a for purposes that will later be explained. The rear portion of the handle member extends slightly beyond the tool socket member as seen in Figs. 2 and 5 thus forming a circular recess into which the tool supporting member 8 is inserted. The tool socket member is provided with a central bore or recess 2a into which the rear portion of the tool B is inserted. This recess 2a also is adapted to receive the reduced shank of the tool supporting member 8. Cooperative relation between the handle member, the tool socket member and the tool supporting member is effected by the pin or fastening member 9 which is riveted or otherwise secured in the handle member 1.

The tool supporting member as seen in detail in Figs. 2, 5 and 8 comprises a shank portion 10 having a central conical bore 11 and V-shaped notch 12 extending therefrom and is, of course, apertured at 12 to receive the cross pin 9 before referred to and is provided with a flange or concentric head 13 which rests against the end of the tool socket member 2. The forward end of this tool socket member is provided with tool engaging means in the form of transverse notches 14 to engage the tool B to prevent rotation thereof when positioned within the holder A.

The tool B as shown in the drawing comprises a central shank portion 15 terminating at one end in the screw driver bit 16. On the other end of the shank portion is formed an ice pick or gimlet 17. The shank portion is provided intermediate its ends with projections or laterally extending lugs 18 arranged to be moved into operative relation with the tool engaging means or notches 14 in the forward end of the tool socket member 2. Referring to Fig. 2 of the drawing it will be observed that when the tool B is inserted in the tool handle A and the rotatable tool retaining ferrule 4 is shifted to the position shown the camming slot 5 will move the ferrule rearwardly and at the same time shift the position of the notches 7a in the abutment flange out of alignment with the lugs 18 on the tool itself thus causing the abutment flange to engage the ends of the lugs 18 and move the tool rearwardly towards the tool supporting member. The tapered portion 17 forming a supplemental tool when the tool is reversed now rests in the conical shaped recess 11 in the tool supporting member and firmly holds the tool in aligned position as clearly seen in the drawing. When it is desired to remove the tool from the holder either to reverse the same or for the insertion of the new tool the ferrule member is rotated to the left, this manipulation causing the pin 6 to engage the

walls of the slot and move the ferrule member forwardly from the position shown in Fig. 2 of the drawing to the position shown in Fig. 6. As the pin 6 reaches the end of the slot 5 the notches 7a in the abutment flange 7 align with the transverse notches 14 in the tool socket member and at this time the engagement with the ends of the lugs 15 on the tool is broken and the tool B may be readily removed from the holder A.

When the tool is reversed the screw driver portion being inserted in the tool socket member and the ice pick or gimlet disposed in operative position the screw driver bit portion is disposed in the V-shaped notches 12 thus firmly positioning the tool in the handle, the notches 12 functioning in addition to the transverse notches 14 to prevent any rotation of the tool with respect to the handle. This arrangement is shown in dotted lines in Fig. 5.

While I have disclosed a tool of the reversible type I am not desirous of limiting my invention to this type of construction since the holder is applicable to various types of tools having a similar shank construction.

While the specific details of construction have been herein shown and described, the invention is not confined thereto as changes and alterations may be made without departing from the spirit thereof as defined by the appended claims.

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

1. A tool holder comprising a handle member, a tool socket member positioned within the handle member and rigidly connected thereto, said socket member having means for engaging a tool carried thereby to prevent relative rotative movement of the socket member and tool, a ferrule associated with the handle member, and means cooperating with the ferrule and with the socket member for releasably interlocking the tool within the socket member against relative longitudinal movement.

2. A tool holder comprising a handle member, a tool socket member positioned within the handle member and rigidly connected thereto, said socket member having means for engaging a tool carried thereby to prevent relative rotative movement of the socket member and tool, a ferrule associated with the handle member, and cam means cooperating with the ferrule and with the socket member for releasably interlocking the tool within the socket member against relative longitudinal movement.

3. A device of the class described, comprising a handle, a tool socket member fixedly positioned therein and leaving a portion protruding from the handle for receiving a removable tool adapted to be inserted in said socket member and having a projection thereon, said socket member having a notch in the forward edge thereof for receiving the tool projection, a ferrule carried by the protruding portion of the socket member, said ferrule having a cam slot therein, a pin on said socket member arranged to extend into said cam slot in the ferrule, and said ferrule having an abutment flange arranged for engagement with said projection incident to rotation of the ferrule whereby to force said tool into the socket and maintain the same in operative position.

4. A device of the class described, comprising a handle, a tool socket member fixedly positioned therein and having a tapered portion protruding from the handle for receiving a removable tool adapted to be inserted in said socket member and having a projection thereon, said socket member having a notch in the forward edge thereof for receiving the tool projection, a tapered ferrule carried by the protruding portion of the socket member, said ferrule having a cam slot therein, a pin on said socket member arranged to extend into said cam slot in the ferrule, and said ferrule having an abutment flange arranged for engagement with said projection incident to rotation of the ferrule whereby to force said tool into the socket and maintain the same in operative position.

5. In a device of the class described, a handle member, a tool socket member fixedly secured therein and having a tapered portion protruding from the forward portion thereof for receiving a reversible combination tool having a central shank portion removably insertable in said socket member to present either end of the tool in position for operation, and having laterally extending lugs on said shank portion, said tapered portion having a transverse notch in the end thereof for receiving said lugs, a tapered ferrule cooperating with the tapered portion of said socket member and having a cam slot formed therein, said ferrule having a lateral flange at the forward end thereof defining an aperture through which either end of the tool and the lugs on the shank may be inserted when properly aligned but which is adapted to prevent withdrawal of the tool incident to a partial rotation of the ferrule, and a pin carried by the socket member and extending into the cam slot in the ferrule to effect a tightening of the tool in the socket and maintain the same in interlocked relation with the lugs in the notch when the ferrule is rotated.

6. In a device of the class described, a handle member, a tool socket member fixedly secured therein and having a tapered portion protruding from the forward portion thereof for receiving a reversible combination tool having a central shank portion removably insertable in said socket member to present either end of the tool in position for operation, and having laterally extending lugs on said shank portion, said tapered portion having a transverse notch in the end thereof for receiving said lugs, a tapered ferrule cooperating with the tapered portion of said socket member and having a cam slot formed therein, said ferrule having a lateral flange at the forward end thereof defining an aperture through which either end of the tool and the lugs on the shank may be inserted when properly aligned but which is adapted to prevent withdrawal of the tool incident to a partial rotation of the ferrule, a pin carried by the socket member and extending into the cam slot in the ferrule to effect a tightening of the tool in the socket and maintain the same in interlocked relation with the lugs in the notch when the ferrule is rotated, and a supporting member positioned in the rearward end of the handle member, said supporting member being formed to receive either end of the tool and cooperating with the socket member to maintain the tool rigid in the socket member during manipulation of the same by the handle member.

NELS P. ANDERHOLM.