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F. W. PETERS

2,158,728

TOOL HANDLE

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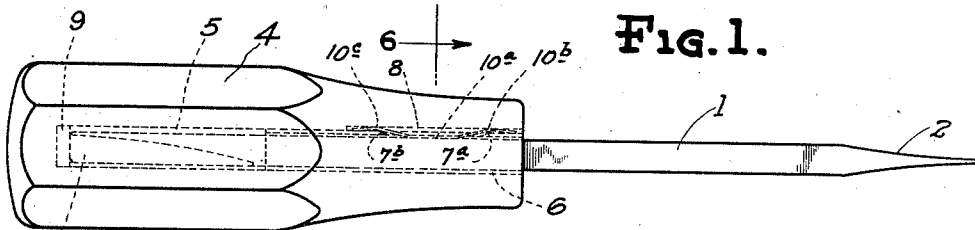


FIG. 1.

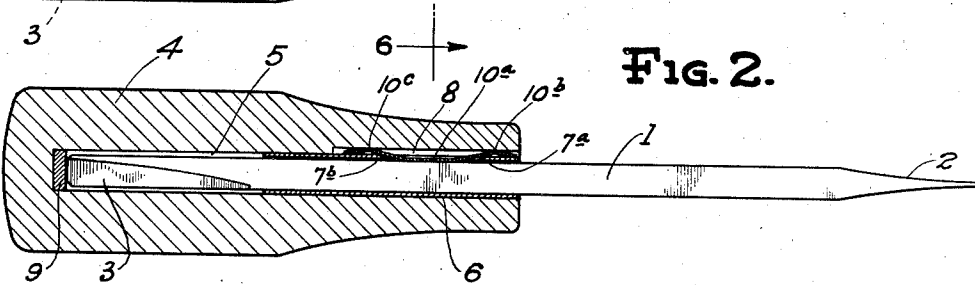


FIG. 2.

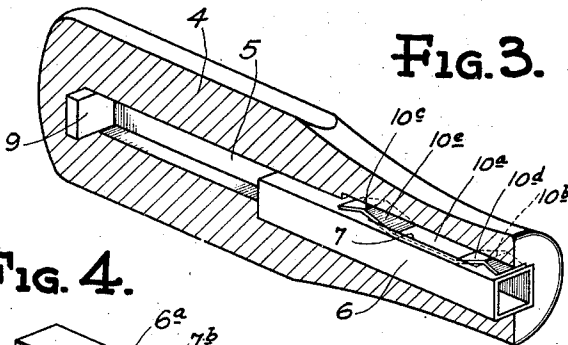


FIG. 3.

FIG. 4.

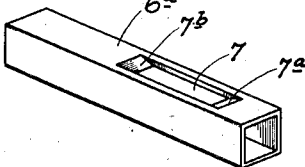
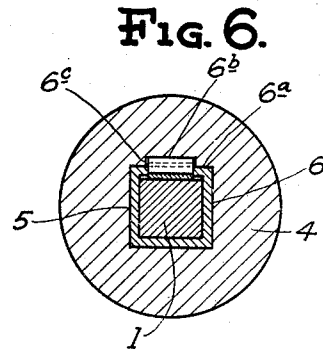


FIG. 6.

FIG. 5.

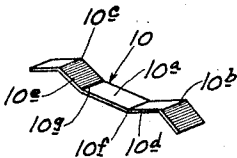
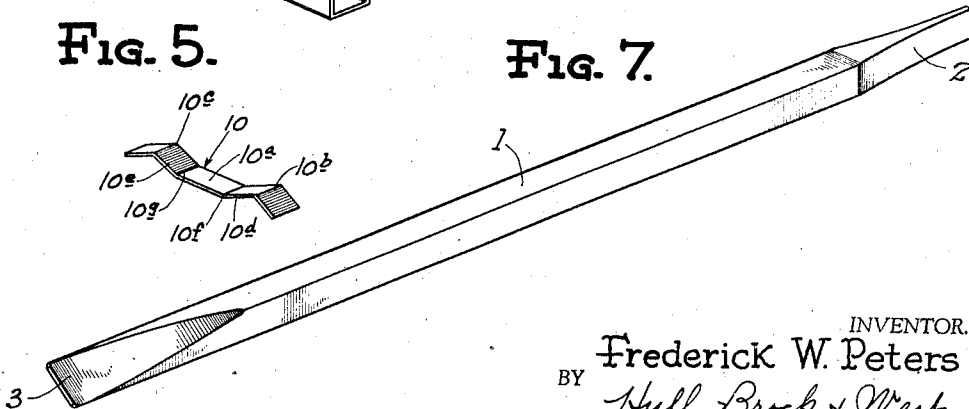


FIG. 7.



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TOOL HANDLE

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Application October 6, 1938, Serial No. 233,579

1 Claim. (Cl. 279-102)

This invention relates to tools, and more particularly to the means for removably securing the shanks of tool implements within the handles therefor. It has for its general object to provide means whereby the implements may be secured firmly within their respective handles while enabling the former to be readily and conveniently removed.

Further and more limited objects of the invention will be set forth in the detailed description which follows and in connection with the drawing forming part hereof, wherein Fig. 1 represents a side elevation of a tool comprising a handle constructed in accordance with my invention; Fig. 2 a central longitudinal section through the handle, the implement being shown in elevation; Fig. 3 a sectional detail in perspective through the handle and the parts associated therewith for securing the shank of the implement in position; Fig. 4 a detail in perspective of the sleeve forming part of the implement-retaining means; Fig. 5 a detail in perspective of the spring forming part of the implement-retaining means; Fig. 6 a detail in section taken on the line 6-6 of Fig. 1; and Fig. 7 a detail in perspective of an implement employed with the handle.

Describing the parts by reference characters, 1 denotes the shank portion of a tool implement, such as a screwdriver, the said shank being provided with wedge-shaped ends 2 and 3, the former preferably being of a size to cooperate with screws varying in size from No. 5 to No. 8 and the latter being of a size adapted to operate upon screws varying in size from No. 8 to No. 16. It will be noted that the shaft is angular in section, preferably square.

4 denotes the handle, which is provided with a bore 5 for the reception of a portion of the shank and either end of the implement 1. The bore is also shown as square in cross section and is of sufficiently larger cross sectional area than the cross sectional area of the shank 1 to enable it to receive within the front portion thereof a sleeve 6, preferably of metal, the bottom and sides of the sleeve fitting snugly against the bottom and sides of the bore and the rear portion of the top of the sleeve fitting snugly against the corresponding portion of the upper wall of the bore. The upper wall 6^a of the sleeve is provided with a slot 7 of less width than the said wall, the front and rear walls defining the said slot being beveled upwardly, as shown at 7^a and 7^b. The front wall 7^a is shown as located adjacent to the front of the sleeve and the front end

of the handle. The front portion of the upper wall of the bore comprises the side portions 6^a which constitute continuations of the rear portion of said wall and a wall 6^b located above the side portions 6^a and connected therewith by short vertical walls 6^c, the construction providing a recess 8 extending rearwardly from the front of the handle bore above the upper wall of the sleeve and beyond the rear end of the slot and being preferably of substantially the same width as the slot.

9 denotes a metal block which extends across the rear end of the bore 5 and which forms a solid abutment for the end of the implement 1 within said bore.

Cooperating with the slot 7 and with the inclined walls 7^a and 7^b and with the upper wall 6^b of the recess 8 is a slidable locking member indicated generally at 10. This locking member is preferably in the form of a spring made of flat stock and having an intermediate depressed flat body portion 10^a of less length than the length of the slot 7 and upwardly bowed ends 10^b and 10^c connected with said depressed body portion by inclined portions 10^d and 10^e, respectively. The sleeve may be retained in place within the bore 5 by being press-fitted within the said bore.

With the parts assembled as shown in Fig. 3 and prior to the insertion of the shank of the implement within the handle, the central portion 10^a of the spring will project slightly below the slot 7, with a small clearance between the tops of the bowed ends 10^b and 10^c and the upper wall of the recess 8. However, when the shank of the implement 1 is inserted into the sleeve, the corner 10^d between the front bow and the body 10^a of the spring will, as the shank is pushed rearwardly into the sleeve, be engaged by the shank and, due to such frictional engagement, the spring will be moved bodily rearwardly until such time as the top of the rear bow 10^c will be wedged into locking engagement with the upper wall of the recess 8, through the action of the inclined surface 10^e upon the inclined wall 7^b which will press the corner 10^d between the body 10^a and the rear bow into firm frictional engagement with the top of the shank. The frictional grip exerted by the spring upon the shank of the implement 1 will be sufficient to prevent the implement from dropping out or from being released by a swinging movement of the tool. However, by grasping the shank firmly and exerting a slow straight pull upon the same, the implement may be removed without difficulty from

the handle, it being noted that, as the implement is pulled outwardly or forwardly, the spring will be moved forwardly until the bow 10^b at the front of the spring is tightly wedged against the upper wall of the recess 8 through the action of the inclined wall 7^a upon the inclined surface 10^d of the spring.

The sliding movement of the spring within the slot 7 is facilitated by the use, in the construction of the handle, of material having a smaller coefficient of friction than that which exists between the spring and the shank of the tool. The material which I prefer to use for the handle is what is known to the trade as "acetate" material, being similar in appearance to Celluloid but without the inflammability and liability to explosion of the latter material.

I have found that the action of the spring is facilitated by making the angular upward deflection of the walls 10^d and 10^e and the angular downward deflection of the extreme ends of the bowed portions of the spring not materially greater than 5° with respect to a plane extending through and constituting an extension of the middle portion 10^a of the spring. In actual constructions which I have built, very satisfactory results have been obtained wherein the slot 7 was $\frac{1}{2}$ " wide and $\frac{7}{8}$ " long, wherein the spring was $\frac{1}{8}$ " wide, with the central portion thereof $\frac{3}{8}$ " long, and with the bowed ends each $\frac{1}{8}$ " long; and also wherein the recess 8 was slightly in excess of $\frac{1}{2}$ " in width and $\frac{1}{2}$ " deep.

The sleeve 6 not only cooperates in locking implements in place within the handle, but also strengthens the handle at the place where its

cross section is usually diminished and where the strain incidental to the use of the implements is greatest.

For convenience of description the wall of the bore which is provided with the recess 8 has been referred to hereinbefore and will be referred to in the claim as the "top" or "upper" wall and the wall of the sleeve which is provided with the slot 7 will also be referred to as the "top" or "upper" wall of said sleeve.

Having thus described my invention, what I claim is:

A tool comprising an implement having a shank and a handle, the said handle having a bore provided with a recess extending longitudinally thereof, a sleeve fitted within the said bore, the said sleeve being provided with a slot extending longitudinally thereof and in register with said recess, the walls defining the ends of the said slot being beveled rearwardly and forwardly toward the outer wall of the said recess, and a spring having a central body portion located within the slot and being of less length than the length of the said slot, said spring having bowed end portions extending from the body portion thereof the extreme ends of which end portions are adapted to ride upon the sleeve in front and at the rear of the said slot, respectively and adapted to be forced into engagement with the wall of the recess in register with the said slot by the action of the inclined walls at the front and rear ends of the said slot upon the corresponding inclined portions of the bowed ends of said spring.

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