C. B. SIMMONS.

HAND CONTROLLED TOOL.

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916,497.

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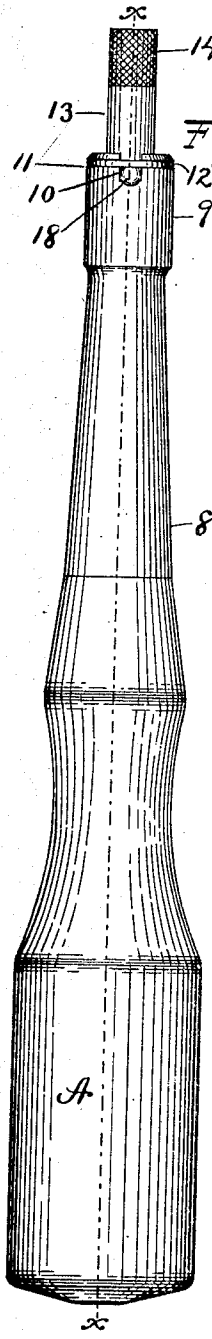


Fig. 1.

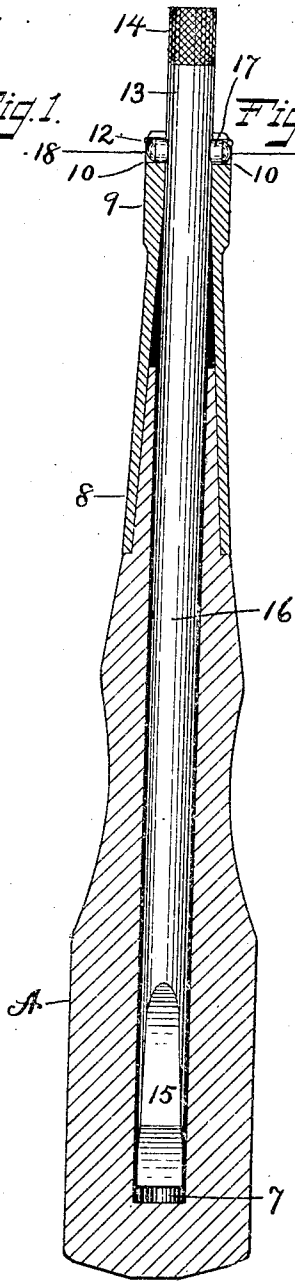


Fig. 2.

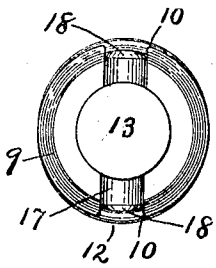


Fig. 3.

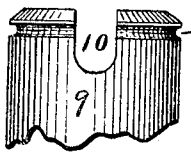


Fig. 4.

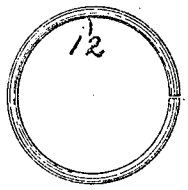


Fig. 5.

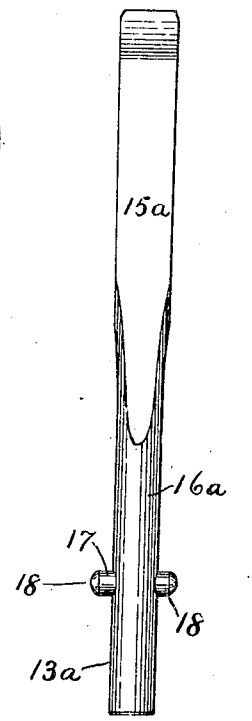


Fig. 6.

Witnesses.
S. H. Clarke.
P. J. Egan

Inventor.
Charles B. Simmons.
By James Shepard
Atty.

UNITED STATES PATENT OFFICE.

CHARLES B. SIMMONS, OF BRISTOL, CONNECTICUT, ASSIGNOR OF ONE-HALF TO I. S. BAILEY, OF PLANTSVILLE, CONNECTICUT.

HAND-CONTROLLED TOOL.

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Application filed October 30, 1907. Serial No. 399,936.

To all whom it may concern:

Be it known that I, CHARLES B. SIMMONS, a citizen of the United States, residing at Bristol, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Hand-Controlled Tools, of which the following is a specification.

My invention relates to improvements in screw drivers or analogous tools, and the main objects of my improvement are simplicity and economy in construction with convenience and efficiency in use, particularly with reference to inserting, holding, and detaching the tool or tools in and from the holder, and with reference to inserting the tool into its holder either end first.

In the accompanying drawing: Figure 1, is a side elevation of my screw driver, the tool being inserted in the holder with its tang projecting therefrom and the blade housed within the handle. Fig. 2 is a longitudinal section of the same on the line *x x* of Fig. 1. Fig. 3 is an enlarged view, showing the end face of the holder and tool, the larger part of the holder and handle in the distance being omitted from the said view. Fig. 4 is a side elevation of the outer end of the tool holder. Fig. 5 is a plan view of the split ring, or spring latch. Fig. 6, is a side elevation of a modified form of tool, which may be held by its tang in the holder shown in Figs. 1 to 5.

A, designates the handle which is preferably made long and provided with a central bore 7 that extends nearly its whole length. A combined ferrule 8 and tool holder or socket 9, is secured upon the smaller end of the handle in any ordinary manner. The tool holder or socket has a central longitudinal bore and is provided with cross slots 10 at its outer end, and with a peripheral groove 11 near the mouth of the slots 10. Within this groove 11 is a spring latch 12, in the form of a split-ring of resilient metal, preferably formed of spring wire. It may be slipped on over the end of the tool holder or socket and forced down into the groove, and should be so formed that it will be slightly under tension when in place. The groove 11 is so located that this spring latch crosses the outer ends of the cross slots 10 near their mouth.

The screw driver or analogous implement is formed with a round tang 13, which is preferably knurled or roughened near its end to furnish a convenient grasping portion 14. In the preferred form, the bit of the tool, as for example the screw driver blade 15, is made of a size that will pass through the central bore of the tool holder or socket 9, and the shank 16 which is between the tang and the blade is round and of the same size as the tang, so that the implement or tool may be formed of a round rod of metal.

Near the junction of the shank and tang, the tang is provided with a cross pin 17, of a size to fit into the cross slots and of an extreme length, a little in excess of the inner diameter of the spring latch 12 when the said latch is seated in its groove in the tool holder. The ends 18 of this cross pin are beveled or rounded off, as shown, so as to present an inclined face to the spring latch when the cross-pin is either above or below the said spring latch. The length of the cross pin 17 between its two beveled ends is less than the inner diameter of the spring latch and less than the extreme diameter of the socket 9 at the point where the groove for the spring latch is formed.

When the tool or implement is reversible, as shown in Figs. 1 and 2, it may be inserted blade end first so as to house the blade and shank of the tool. In so inserting the tool the beveled or rounded ends 18 of the cross-pin 17, engage the spring latch and then a little endwise pressure on the tool will slightly expand the latch or split ring, and let the cross-pin farther down into the cross-slots to pass the latch which latch will contract and come in front of the ends of the cross pin with sufficient force to prevent the tool from being accidentally withdrawn.

When it is desired to use the blade or bit, the tool is grasped by the tang and pulled out, the spring latch yielding under force to permit the cross pin to pass it. The tool is then reversed end for end and inserted in the tool holder by the tang, when it is held by the spring latch the same as before.

When not wanted for use, the tool may be reversed again so as to house the blade and shank within the handle. In this position

it is much shorter than when extended for use, and may be readily carried in one's pocket.

The tool is easily taken out and put in and is also efficiently held in place when inserted. This is of advantage when only a single tool is provided for one holder as for example, that shown in Figs. 1 and 2; but the same construction is adapted to hold a set of tools having each a like tang and cross pin and blades or bits of varying forms, whether or not the blades are larger than the tang as is the blade 15^a of Fig. 6. In such tools the shank 16^a may be of any desired length and the tang 13^a need not have the grasping surface hereinbefore described for the reversible tool, because the blade and shank are not to be housed in the handle with the tang projecting.

By my improvement the tools are easily detachable from the handle head or tool holder, either for substituting one tool for another or for changing the tool end for end. In either case the tool is readily inserted and when in place it is held against accidental detachment, all being accomplished by a simple and inexpensive construction.

I claim as my invention:

1. In a hand controlled implement, the combination of a tool having a tang, with a cross pin having beveled ends and mounted in the said tang, and a socket or tool holder having a bore to receive the said tang, cross slots near the outer end of the said bore, and a peripheral groove running into the said cross slots, and a spring latch within the said groove in position for being engaged by the beveled ends of the said cross pin.

2. In a hand controlled tool, the combination of a handle having a central longitudinal bore extending nearly its whole length, a socket or tool holder mounted on one end of the said handle and having a central bore to receive a tang, cross slots near the outer end of the said bore and a peripheral groove running into the said cross slots, a spring latch within the said groove, and a reversible implement having a bit, shank and tang with a cross-pin having beveled ends, the said cross-pin being fitted to the cross slots of the socket and the beveled ends of the cross-pin fitted to engage the said spring latch for holding the tool in place when it is inserted into the socket either end first.

3. In a hand controlled implement, the combination of a tool having a tang and a rigid projection on the said tang provided with a beveled end face, a socket to receive the said tang, and a spring latch mounted on the outside of the socket in the position for being engaged by the said beveled end face to force the latch outwardly and permit the said projection to pass the latch and for being engaged after passing the latch by the said beveled end face to yieldingly hold the tool in the socket.

4. A hand controlled implement comprising a socket having a central bore with cross slots through the outer end into the said bore and a peripheral groove crossing the said cross slots, a tool having a tang fitted to the said bore and having also a cross pin in the said tang with its ends projecting therefrom, the said ends being beveled and of a size to fit into the said cross slots, and a spring latch within the said groove, the extreme length of the said cross pin being a little in excess of the inner diameter of the said spring latch and its length between the said beveled ends being less than the inner diameter of the said spring latch and less than the extreme diameter of the said socket at the point where the said peripheral groove is formed.

5. In a hand controlled implement, the combination of a tool having a tang, with a socket or tool holder having a bore to receive the said tang, the said tool and socket being adapted for inserting the tool longitudinally into and out of the said socket and having means for preventing the rotation of the said tool within the said socket, and a spring latch mounted on the said socket and adapted to yield outwardly to let the tool pass into the said socket and then retract inwardly and yieldingly hold the tool within the said socket.

6. In a hand controlled implement, the combination of a tool having a tang with a projection extended laterally from the said tang and having a beveled outer end; a socket or tool holder having a bore to receive the said tang, a cross slot near the outer end of said bore that extends radially through the side wall of the said socket from the bore outwardly to the periphery, and longitudinally of the socket to its outer end, and a peripheral groove around the exterior of the said socket near the outer end of the said socket and outer end of the said cross slot therein; and a spring latch mounted within the said groove in position for being engaged by the beveled outer end of the said projection for forcing the said spring latch outwardly toward the mouth of the said groove to let the said projection pass the said latch and then to move inwardly toward the bottom of the said groove by its resiliency for engagement with the said beveled end of the said projection to yieldingly hold the tool within the said socket.

CHARLES B. SIMMONS.

Witnesses:
SAMUEL B. CATTIN,
CARLOS V. MASON.