

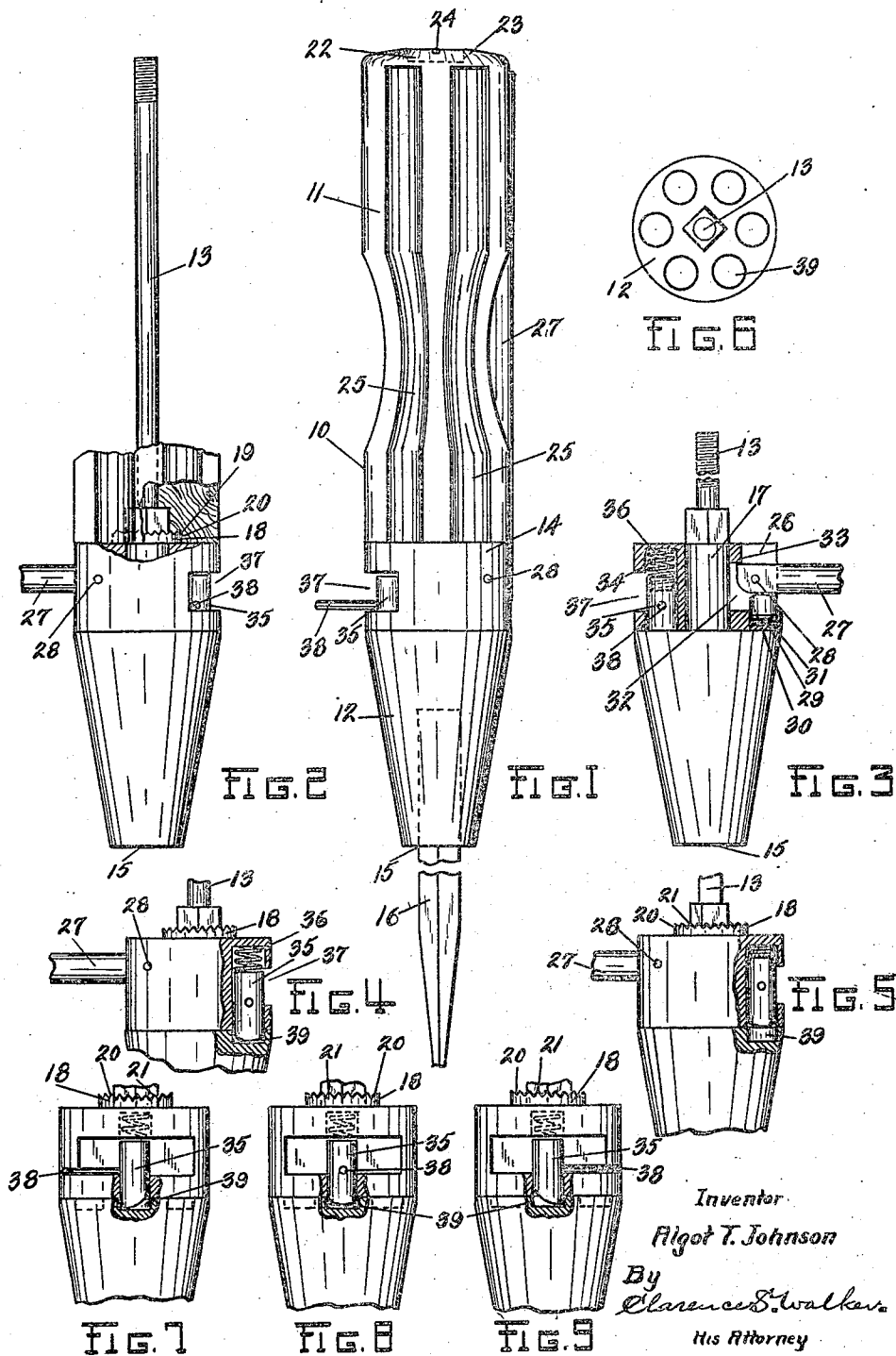
Oct. 21, 1924.

1,512,176

A. T. JOHNSON

TOOL

Filed Dec. 17, 1923



UNITED STATES PATENT OFFICE.

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TOOL.

Application filed December 17, 1923. Serial No. 681,282.

To all whom it may concern:

Be it known that I, ALGOT T. JOHNSON, a citizen of the United States, residing at the city of Jamestown, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Tools, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to an improvement in tools, and more particularly to a tool adapted to be used either in the ordinary way or operated by a ratchet mechanism.

The primary object of this invention is to provide a tool of this type adapted to be used either in the ordinary way or operated by means of a ratchet, the moving parts being held rigidly in position when used in the first manner by the means employed in operating it in the second manner.

A further object of this invention is the provision in such a tool of a reversible pawl which can be employed for actuating the tool in either direction or for locking the tool against relative rotation.

Other objects will appear from a consideration of the following specification taken in connection with the drawings, which form a part thereof, and in which—

Fig. 1 is a front elevation of a tool embodying this invention when adapted to be used in the ordinary way;

Fig. 2 is a similar view partly in section of the tool when adapted to be operated by ratchet mechanism;

Fig. 3 is a sectional view showing the parts in a ratchet operating position, partly broken away to illustrate the engagement of the reversible pawl with the socket piece;

Fig. 4 is a fragmentary view similar to Fig. 3 showing the pawl in the opposite position;

Fig. 5 is view similar to Fig. 4, showing the pawl raised as it travels from one socket to another;

Fig. 6 is a plan view of the socket piece illustrating the arrangement of the pawl receiving sockets; and

Figs. 7, 8 and 9 are views partially in section illustrating the three positions which may be assumed by the pawl.

Referring to the drawings, the reference numeral 10 is employed to designate a screw driver embodying this invention and comprising a handle 11, a socketed tip 12 rigidly secured to the handle by a rod 13 and an

intermediate collar 14 adapted, under certain conditions as will be described later, to be rotated between said handle and tip. In the member 12 is provided a socket 15 of the well known type here shown holding a screw driver blade 16. The particular blade shown was arbitrarily selected for the purpose of illustration, and it will be understood that any type of blade may be used as desired.

The collar 14 is rotatably mounted on a boss 17 projecting from the upper face of the tip 12 and internally threaded to receive the rod 13. The upper end of the boss 17, which projects above the collar, is preferably squared to receive a flanged disk 18 and hold it against rotation. When the parts are assembled, the disk 18 is received in a recess 19 of the handle. The flange 20 of the disk is provided with serrations 21, which enter the wood of the handle and prevent any turning of the handle relative to the tip 12. A suitable ring nut 22 engages the top of the rod 13, which terminates in a recess 23 in the handle. The upper face of the nut 22 is slotted, as at 24, in order to facilitate tightening and loosening.

In the side walls of the handle 11 are formed a plurality of equally spaced vertical slots 25. Six of these slots are shown, but it is obvious that the number might be varied, if desired. In the collar 14 is formed a vertical pocket 26 which forms a continuation of any one of the slots 25 with which it is brought into alinement. Pivotaly mounted in the pocket 26 is an arm or lever 27 held in place by a pin 28. In the bottom of the pocket 26 is formed a recess 29 for a plug 30 normally held by a spring 31 in engagement with the inner end of the lever 27. The lever 27 swung upon the pin 28 lies in the slot 25 in alinement with the pocket 26 and is yieldingly held in that position by the engagement of the plug 30 with the bottom of the lever. When the parts assume this position, as shown for example in Fig. 1, the collar 14 is held against any rotation relative to the handle 11 and since the handle 11 and tip 12 are rigidly joined, the collar is positively held in position. From the pocket 26 extends a passage 32, into the hollow center of the collar 14, into which passage 32, the end of the lever 27 projects so that it strikes against the shoulder 35 when the lever is used for a purpose which will be pointed out later.

A vertical cavity 34 is formed in the col-

lar 14 opening into the lower face of the collar. In this cavity is mounted a pawl 35 normally forced to project from the lower face of the collar 14 by means of a spring 36. A transverse slot 37 in the wall of the collar crosses the cavity 34 and thus exposes the pawl 35. A handle 38 on the pawl projects into this slot 37, and by its contact with the lower wall of the slot limits the downward movement of the pawl.

In the upper face of the tip 12 are provided a plurality of equally spaced sockets 39, as shown in Fig. 6. The sockets 39 may be as shown the same in number as the pockets 25 in the handle 11 and are the same distance from the center of the box as is the cavity 34. Consequently the lower end of the pawl 35 will enter whichever one of the recesses 39 is below the cavity.

The lower end of the pawl 35 is inclined as shown particularly in Figs. 7, 8 and 9. By means of the handle 38 this pawl can be turned into various positions to permit the ratchet of the tool in clockwise or anticlockwise position or to prevent such use. In Fig. 7, the pawl is shown turned into the position for a clockwise or right hand movement of the tool, while in Fig. 9 the pawl is reversed for a left hand or anti-clockwise movement. When the pawl is placed in the position shown in Fig. 8, it prevents any relative movement between the collar 14 and the tip 12.

As will be obvious from the above statement, this tool may be used in any of four different cases, viz; with the parts in the position shown in Fig. 1, the pawl 35 being preferably in the position shown in Fig. 8 the tool can be used in the ordinary way. With the lever in the position shown in Fig. 3 and the pawl as shown in Fig. 7, the tool can be used for a clockwise or right hand movement. With the lever as in Fig. 3 and the pawl as in Fig. 9, the tool can be used for a left hand or anti-clockwise movement. In these last two positions pressure may be exerted upon the handle to hold the blade in engagement and the latter turned by means of the lever 27.

Under certain circumstances, however, it is desired to hold the tool firmly in position and actuate the same by turning the handle. When this is to be done the pawl 35 is placed

in the proper position and pressure applied to the lever 27, the end of which will strike against the shoulder 33 and hold the tool to the work. This is particularly desirable when working with small screws, an operation which, with the ordinary screw driver, requires the manual holding of the blade in contact with the work.

While, as pointed out above, the pawl is usually in the position shown in Fig. 8, when the lever 27 is in one of the slots 25, it is obvious that conditions might arise under which the tool has been used as a ratchet to drive in one direction, and it is desired to use it to back off the tool in the ordinary way without shifting the pawl 35, so mounted.

Accordingly the relation of the sockets 39 to slots 25 is arranged, as pointed out above, so that when the pawl 35 is in one of the sockets, the lever 27 can be swung into one of the slots 25 and the collar 14 held against movement.

While one embodiment of this invention has been shown and described, I am not to be limited thereto since others may be made without departing from the scope and spirit of the invention as set forth in the following claims.

Having thus set forth my invention what I claim as new and for which I desire the protection of Letters Patent, is:

A tool of the class described comprising a handle, a tip having a socket for receiving the shank of a blade, means rigidly joining said handle and tip, a collar intermediate said handle and tip and mounted upon said joining means for rotation relative to said handle and tip, a vertical pocket in said collar, a passage leading from said pocket to the center of said collar, a lever pivotally mounted in said pocket the inner end thereof entering said passage when said lever is swung outwardly from said pocket, said lever adapted to be used in such position to hold the tool in contact with the work the inner end of said lever bearing against the top of said passage to steady the tool, the blade thereof being actuated by said handle independently of said collar.

In testimony whereof I have affixed my signature.

ALGOT T. JOHNSON.