Oct. 10, 1944. E. R. CHRISTENSEN ET AL 2,359,897

FIREARMS IMPLEMENT

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Fig. 1.

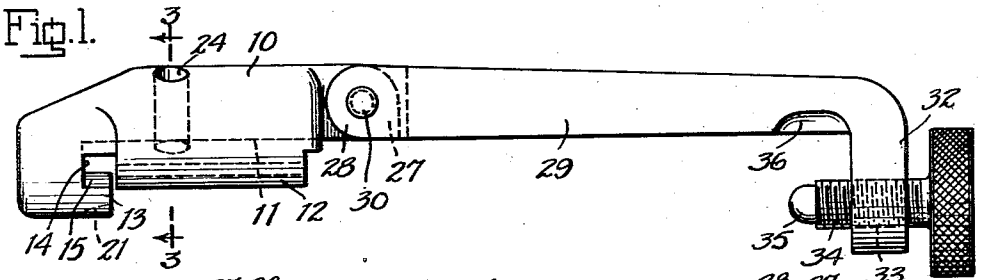


Fig. 2.

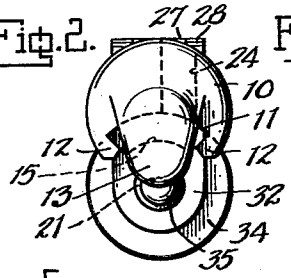


Fig. 3.

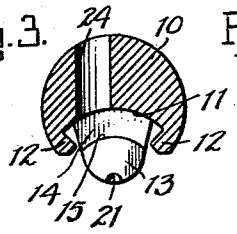


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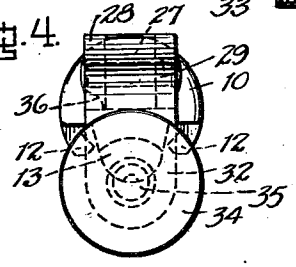


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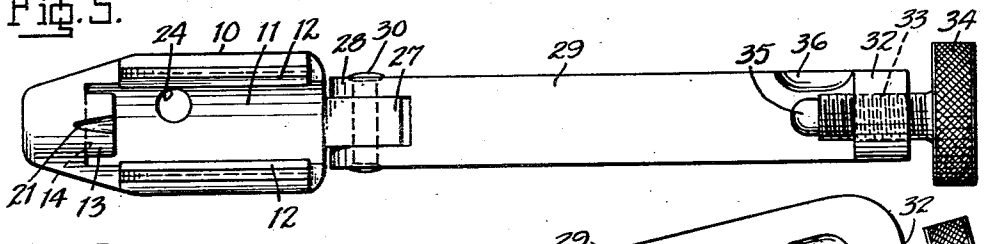


Fig. 6.

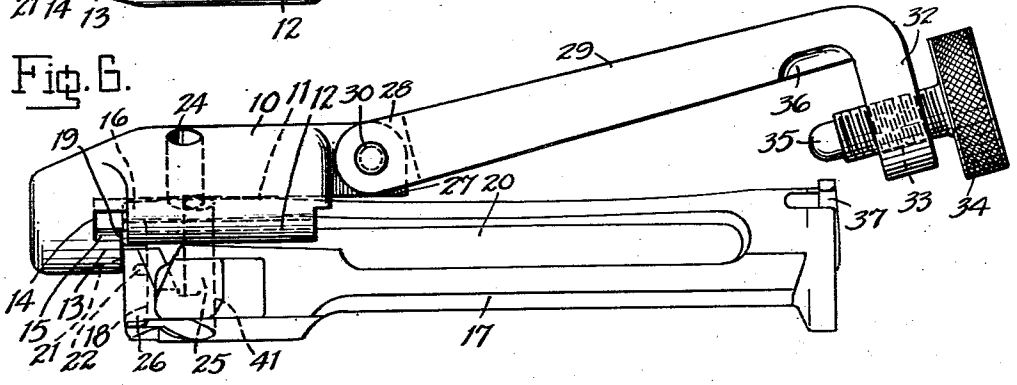
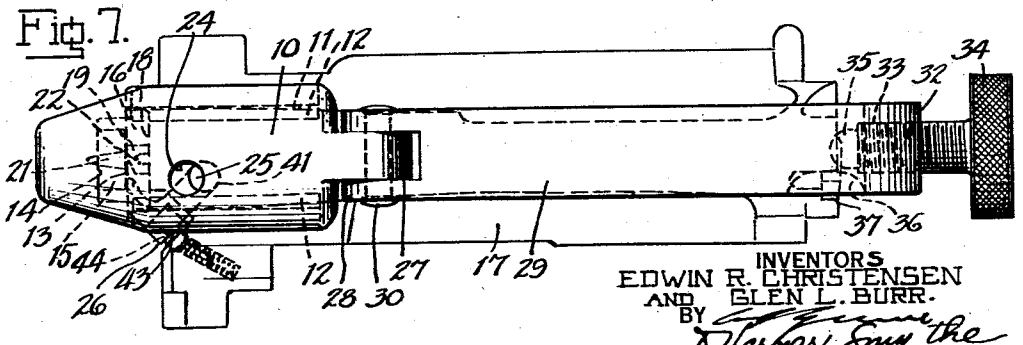


Fig. 7.



INVENTORS
EDWIN R. CHRISTENSEN
AND GLEN L. BURR.
BY
D. Verner Smythe
ATTORNEYS

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Fig. 8.

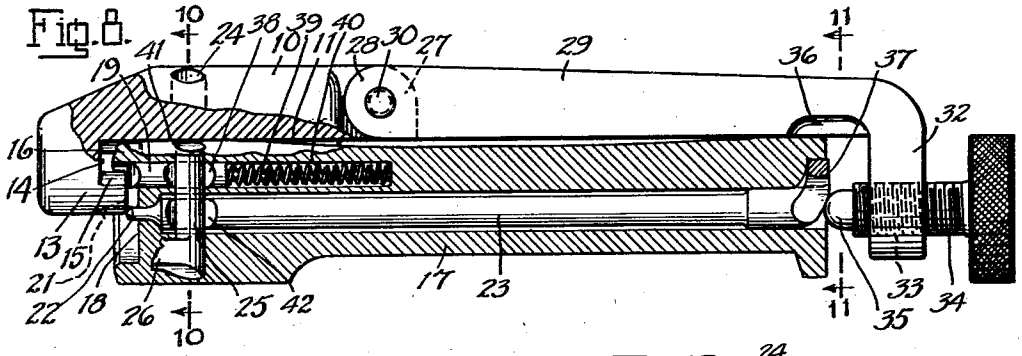


Fig. 9.

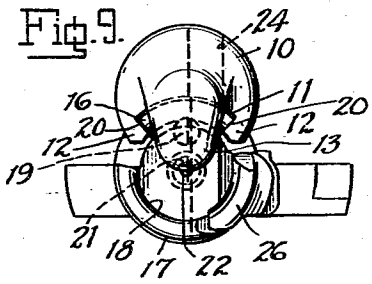


Fig. 10.

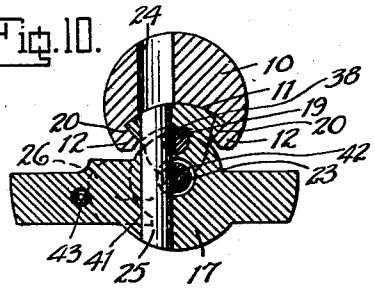


Fig. 11.

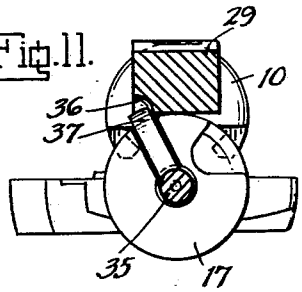
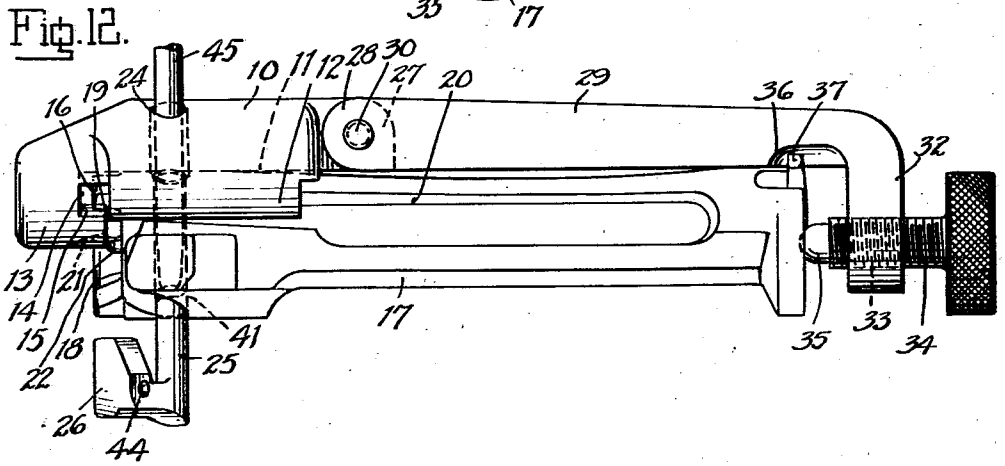


Fig. 12.



INVENTORS
EDWIN R. CHRISTENSEN
AND GLEN L. BURR.
BY
D. Parker Smythe
ATTORNEYS

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UNITED STATES PATENT OFFICE

2,359,897

FIREARMS IMPLEMENT

Edwin R. Christensen, Salt Lake City, and Glen L. Burr, Provo, Utah, assignors to Remington Arms Company, Inc., Bridgeport, Conn., a corporation of Delaware

Application June 16, 1943, Serial No. 491,048

4 Claims. (Cl. 29—227)

The present invention relates to a firearms implement, and particularly an accessory device for the safe, convenient, and rapid assembly or disassembly of the parts of a rifle bolt. The device is adapted either for factory use in the manufacture and servicing of rifles, or for field use.

Certain types of rifle bolts, for example the bolt of the Garand rifle, include a spring pressed ejector pin which is retained in assembled relation by the shaft of a pivotally mounted removable extractor member, the retaining means consisting of an elongated longitudinal slot formation in the ejector pin engaged by the transversely disposed shaft of the extractor member. The axially movable firing pin is also retained in assembled position by similar slot means cooperating between the firing pin and the shaft of the extractor member. The usual practice, in assembling these parts of the bolt, consists in manually pressing the ejector pin inwardly against the force of its spring to a point where the shaft engaging ends of the slot are clear of the bearing passage for the shaft of the extractor member, the latter being engaged with the bearing passage while the ejector pin is pressed inwardly. In disassembling the usual practice is to simply drive the shaft of the extractor member from the bolt, thus releasing the spring pressed ejector pin, which is forcibly impelled from the bolt by its spring. This practice has frequently resulted in loss of and damage to the ejector pins, as well as damage to the bolt and extractor member through inexpert use of unsuitable tools to drive the extractor member from the bolt, and has also been dangerous as the ejector pin would be impelled with such force that there was a possibility of causing eye injuries.

It is an object of the present invention to provide a device adapted to be engaged with the bolt to automatically depress the ejector pin and retain it during assembly or disassembly of the extractor member, and further to provide such a device by which the spring pressure of the ejector pin may be gradually relieved automatically, so that there is no chance of the ejector pin being forcibly impelled from the bolt when the latter is released from the device.

A further object is to provide such device having means for guiding a dismounting tool into relation with the shaft end of the extractor member, whereby the later may be easily removed by axial pressure upon the shaft without danger of damage to the bolt or its parts.

Another object is to provide a firearms implement of relatively compact form and light weight, so that it may be conveniently carried as an accessory to the firearms.

With the above and other objects in view an embodiment of the invention is shown in the accompanying drawings, and this embodiment will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claims.

In the drawings:

Fig. 1 is a side elevation of a firearms implement, according to the illustrated exemplary embodiment of the invention.

Fig. 2 is a front end view thereof.

Fig. 3 is a transverse vertical sectional view, taken along the line 3—3 of Fig. 1.

Fig. 4 is a rear end view.

Fig. 5 is a bottom plan view.

Fig. 6 is a side elevation showing the device as it is initially engaged with the rifle bolt and before being actuated to depress the ejector pin.

Fig. 7 is a plan view, showing the rifle bolt in the relation illustrated in Fig. 6, but with the swinging arm of the device moved into its normal relation aligned with the rearward end of the bolt.

Fig. 8 is a view, partially in side elevation and partially in vertical section, showing the device in its operative position with the ejector pin depressed preparatory to removing the extractor member.

Fig. 9 is a forward end view of the device and the rifle bolt, as illustrated in Fig. 8.

Fig. 10 is a transverse vertical sectional view, taken along the line 10—10 of Fig. 8.

Fig. 11 is a transverse vertical sectional view, taken along the line 11—11 of Fig. 8.

Fig. 12 is a side elevation showing the extractor member partially removed from the rifle bolt.

Similar reference characters indicate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, the firearms implement, according to the illustrated exemplary embodiment of the invention, comprises a forward slideway clamp member 10, of substantially cylindrical form, provided in its under side with a cylindrical slideway channel 11, provided at each side with retaining flanges 12—12 having their inner wall surfaces in radial planes converging downwardly, the forward ends of these flanges terminating in a transverse vertical plane rearwardly spaced from the forward end of the member 10.

At the forward end of the channel 11 there is provided a downwardly extending abutment portion 13 having its side wall surfaces converging downwardly and inwardly offset from the side walls of the channel 11, its lower side being cylindrically rounded and having its lower-most point coincident to the axis of the cylindrical channel surface 11. The inner end of the abutment portion 13 is disposed in a transverse vertical plane, spaced slightly forwardly from the transverse vertical plane of the forward ends of the flanges 12—12, and is provided with a forwardly extending arcuate channel 14 having its lower convex cylindrical surface 15 concentric to and spaced downwardly from the concave cylindrical end surface of the channel 11 projecting forwardly from the flanges 12—12.

This structure is such that a circumferential pocket is provided at the forward end of the channel 11 for receiving the shell retaining rim portion 16 of the rifle bolt 17, the inwardly projecting abutment portion 13 below this circumferential recess being disposed to engage within the shell receiving recess 18 in the end of the bolt in opposed engaging relation with the projecting end of the spring pressed ejector pin 19 of the bolt, the bolt being guided and retained in engagement with the member 10 by the flanges 12—12 which engage in sliding fitting relation within the longitudinal side grooves 20—20 of the bolt. In the under side of the abutment portion 13 there is provided a clearance recess 21 for receiving the impact end 22 of the firing pin 23 of the bolt, in the operative relation of the implement as will presently more fully appear. Extending vertically through the member 10 is a cylindrical passage 24 adapted to register with the vertically disposed shaft 25 of the extractor member 26 of the bolt, in the operative relation of the implement as will presently more fully appear.

At the rearward end of the member 10 there is provided an apertured bearing extension 27, to which the slotted end 28 of the swinging arm clamp member 29 of the implement is pivotally connected by means of a pin 30, this pin being preferably secured against removal by riveting over its ends. At its rearward end the arm 29 is provided with a right angular extension 32 provided with a threaded passage 33, in which is engaged a thumb screw 34 adapted in the operative closed relation of the implement to have its axis aligned with the longitudinal axis of the bolt, being provided with a ball end 35 adapted to be engaged with the end of the bolt for the purpose of imparting longitudinal pressure thereto through turning of the thumb screw, as will presently more fully appear. The arm 29 is provided in its undersurface at one longitudinal edge with a recess 36 for the purpose of clearing the radially extending tang or finger 37 of the firing pin, in the operative relation of the implement.

It is pointed out that the rifle bolt is of the type in which the horizontally disposed ejector pin 19 is retained in assembled relation by the vertical shaft 25 of the extractor member 26 which engages within an elongated slot recess 38 provided in the ejector pin, the rearward abutment wall of this recess being normally pressed forwardly against the shaft 25 by the spring 39 of the ejector pin, the ejector pin and its spring being engaged in a horizontal guide passage 40 traversing at one side a side of the vertical bearing passage 41 of the shaft 25. The horizontally disposed firing pin 23 is also retained in assembled relation by the shaft 25 of the extractor member, being provided for this purpose with an elongated slot recess 42 in one side in which the vertical shaft 25 is engaged. The extractor member is normally retained in its assembled position by a spring pressed plunger 43 engaged in a detent recess 44 in the rearward angularly disposed wall of the extractor member, this plunger also permitting the extractor member to yield outwardly in the operation of the bolt. The extractor member is removed by forcing the shaft 25 downwardly in its bearing passage 41 with sufficient force to overcome the pressure of the plunger 43, the ejector pin and the firing pin being released as the extractor member is thus removed.

In the operation of the implement of the invention, the bolt is first engaged with the forward clamping member 10 by sliding the flanges 12 into the grooves 20, as shown in Fig. 6, the arm 29 being first swung upwardly to clear the end of the bolt. In this position the end of the ejector pin is brought into contact with the inner wall of the abutment portion 13. Thereupon the arm 29 is swung into position to align the thumb screw with the end of the bolt, and by turning the thumb screw inwardly the bolt is forced forwardly causing the ejector pin to be depressed against the pressure of its spring, so that the ends of the slot recess 38 are substantially clear of the bearing passage 41 of the extractor member shaft 25. Thereupon the extractor member may be freely inserted or removed. Removal is effectually accomplished by applying vertical pressure to its upper end with a suitable drift rod 45 or the like, guided into engagement therewith through the passage 24, thus preventing scratching or other injury to the bolt and the extractor member. Upon removal of the extractor member the thumb screw can be backed off of the bolt, allowing the bolt to move rearwardly and the ejector pin to be projected from its passage 40 through gradual controlled expansion of its spring, thus preventing any possibility of its being suddenly forcibly ejected from the bolt.

The form of the invention illustrated in the drawings and described herein is typical and illustrative only, and it is evident that the invention is capable of embodiments in other forms, all falling within the scope of the appended claims, which are to be broadly construed.

What is claimed is:

1. An implement for dismantling a firearm bolt having a recessed face; said implement comprising a C-clamp frame including bolt face engaging surfaces at one extremity, an adjustment screw facing said bolt face engaging surfaces at the opposite extremity, a hinge in the web portion joining said extremities; and means on the web portion to one side of said hinge for slidable locking engagement with a firearm bolt.

2. An implement for dismantling a firearm bolt, said implement comprising a head having a body portion provided with lateral depending undercut flanges and a foot extending laterally from said body portion, and an L-shaped member having its long leg hinged to said head and provided in the short leg thereof with an adjustable clamping screw.

3. An implement for dismantling a firearm bolt comprising a recessed face; said implement having a head comprising a body portion and a hook-shaped foot extending laterally from said body portion in a bolt face conforming configuration, and an L-shaped member hinged to the

body portion of said head and having in the short leg thereof an adjustable clamping screw.

4. An implement for dismantling a firearm bolt comprising a recessed face; said implement having a head comprising a body portion provided with lateral depending flanges and an aperture adapted for alignment with a part to be removed from said bolt, a hook-shaped foot of substantially bolt face conforming configuration extending laterally from said head; and an L-shaped member hinged to the body portion of said head and bearing in the short leg thereof an adjustable clamping screw.

EDWIN R. CHRISTENSEN.
GLEN L. BURR.