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J. A. BADALI ET AL
AUTOMATIC SAFETY DEVICE WITH MANUAL RELEASE FOR
BOLT ACTION FIREARMS

3,387,400

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2 Sheets-Sheet 1

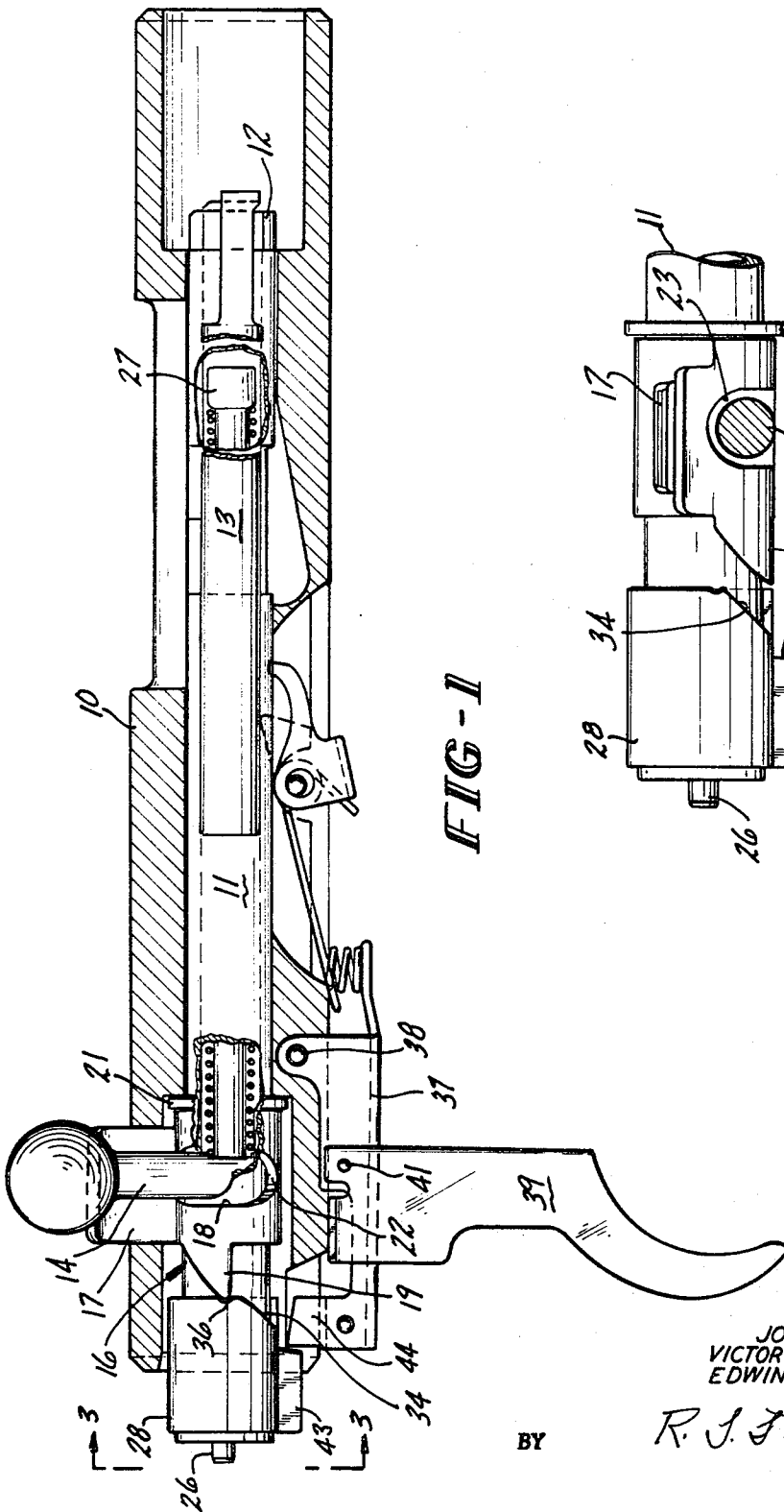


FIG - 1

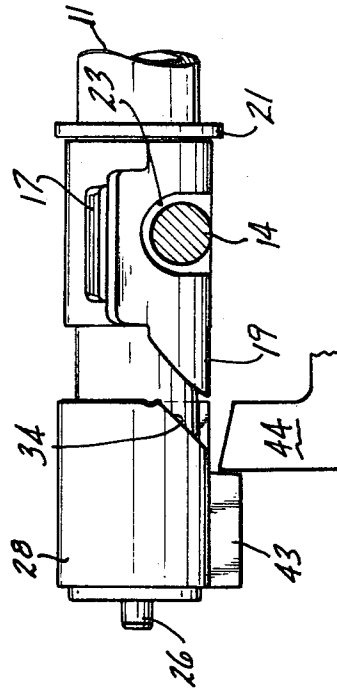


FIG - 4

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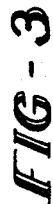
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AUTOMATIC SAFETY DEVICE WITH MANUAL RELEASE FOR BOLT ACTION FIREARMS

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3 Claims. (Cl. 42—70)

A bolt, striker and safety assembly for a bolt action firearm where the safety is set "on" automatically by operation of the bolt and must be set "off" manually before firing is possible.

A particular feature of the invention is the provision of a bolt action firearm having a settable safety which is automatically set to the "on" position by ordinary operation of the bolt from the closed position to the open position where the safety remains in the "on" position after subsequent operation of the bolt to the closed position and the safety must be set manually to the off position before firing is possible.

A bolt action firearm embracing certain principles of the invention may comprise a bolt-striker assembly of the type where the striker is movable relative to the bolt from a firing position to a safe cocked position by cam action between the bolt and the striker, a strap having a cam follower movably mounted on the bolt, said strap making a lost motion connection with the bolt, a cooperating cam face formed on the striker, handle means on the bolt engageable with said strap operable to move from a first position corresponding to a closed bolt position to a second position corresponding to an open bolt position effective to drive the strap and its cam follower relative to said cam face to move the striker from a firing position to said safe cocked position, said handle means being operable, by virtue of said lost motion, to return to said first position without disturbing the safe cocked position of the striker.

Other features and advantages of the present invention will become more apparent from an examination of the succeeding specification when considered in conjunction with the drawings, in which:

FIG. 1 is a sectional view of a bolt action firearm embodying the invention;

FIG. 2 is an exploded view of the bolt-striker assembly of FIG. 1;

FIG. 3 is a sectional view of FIG. 1 as viewed in the plane of line 3—3; and

FIG. 4 is a view of a portion of FIG. 1 showing the bolt strap in the "off" position and the bolt handle in the closed position.

Referring now in detail to the drawings, the reference numeral 10 denotes a receiver within which there is slidably mounted a bolt 11 having a head 12, extractor 13 and bolt handle 14.

The bolt is fitted with a safety defining a strap or sleeve indicated generally by the reference numeral 16 and includes an operating tab 17, an elongated opening or slot 18 and cam follower 19.

The strap 16 is positioned by snap ring 21 and is rotatable to and fro relative to the bolt within limits defined by the ends 22 and 23 of the slot as they abut opposite sides of bolt handle 14.

As is most apparent in FIG. 2, the bolt 11 amounts to a piece of tubing having a bore 24 operative to receive striker rod 26 formed at one end with a working head 27 and at the opposite end with a searing head 28.

In assembly, the bolt handle 14 is received through slot 18 of strap 16 and projects into the interior of bolt 11 through aperture 29. The handle 14 is held in position by striker rod 26 received within transverse bore 31 of

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the bolt handle. Coil spring 32, retained under compressive stress, abuts working head 27 at one end and seats against the bolt handle as at 33 at the opposite end.

In well known fashion, coil spring 32 is operative to urge striker rod 26 relative to bolt 12 to effect firing.

As is apparent in FIGS. 1 and 3, the bolt handle 14 is movable from a first position defining a locked bolt position (as represented in dotted lines in FIG. 3) to a second position (solid line position in FIG. 3) defining an open bolt position operative to drive strap 16 including its cam follower 19 relative to cam face 34 formed on searing head 28 by virtue of the driving connection between slot end 23 and bolt handle 14.

As a result of this occurrence, the striker 26 including searing head 28 is driven to the left as viewed in FIG. 1 relative to bolt 11 against coil spring 32 with the result that the striker 26 is moved from a firing position, illustrated in FIG. 4, to a safe cocked position illustrated in FIG. 1. In the safe cocked position the tip of cam follower 19 engages a notch 36.

The feature to note is that the elongated slot 18 formed in the strap 16 effects a lost motion connection between the bolt handle 14 and the strap so that the bolt handle 14 may be returned to its first or closed position without disturbing the safe cocked position of the striker 26.

With the cam follower 19 set in notch 36, coil spring 32 generates frictional resistance precluding relative motion between strap 16 and searing head 28.

Thus, it is apparent that although the bolt 11 and its handle 14 are rotated to the locked position with a round chambered ready for firing, it is impossible to operate the firearm to discharge the round unless and until the strap 16 is moved manually by grasping operating tab 17 and rotating the strap from the solid line position in FIG. 3 to the dotted line position thereof.

For purposes of subsequently claiming the invention, the strap 16 may be referred to as a safety settable automatically to the "on" position by operation of the bolt in moving from its first or closed position to its second or open position and settable manually to the "off" position by grasping operating tab 17 and rotating it in the fashion shown in FIG. 3.

As is most apparent in FIGS. 1 and 3, searing head 28, threadably connected to striker rod 26 and retained by a spring clip 42, is formed with a sear lug 43 operative to sear upon a corresponding lug 44 of sear 37 is pivotally mounted to the receiver 10 as at 38 and carries a trigger 39 pivotally mounted as at 41.

When safety or strap 16 is moved manually to the off position previously described, striker rod 26 moves to the right slightly, as viewed in FIG. 1, causing lug 43 to "sear up" on mating sear lug 44 effective to place striker 26 and its accompanying searing head 28 in cocked ready to fire position.

In this condition, manipulation of the trigger in the direction shown in FIG. 1 is effective to rotate the left end of sear 37 downwardly clearing sear lug 43 to permit spring 32 to drive striker rod 26 to the right to effect firing in the usual fashion.

It is anticipated that a number of embodiments or modifications may be devised in the present invention without departing from the spirit and scope thereof.

What is claimed is:

1. In a bolt-striker assembly of the type where the striker is movable relative to the bolt from a firing position to a safe cocked position by cam action between the bolt and the striker, the improvement comprising: a strap having a cam follower movably mounted on the bolt and making a lost motion connection with the bolt, a cooperating cam face formed on the striker, handle means on the bolt engageable with said strap operative to move from a first position corresponding to a closed bolt position to

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a second position corresponding to an open bolt to drive the strap and its cam follower relative to said cam face effective to move the striker from a fired position to said safe cocked position, said bolt handle means being operable, by virtue of said lost motion connection, to return to said first position without disturbing the safe cocked position of the striker.

2. In a bolt action firearm, the combination of a tubular bolt including an aperture for receiving one end of a bolt handle having a transverse bore, a striker rod within the bolt having a searing head at one end and a working head at the opposite end, said striker rod being received within said transverse bore operative to anchor said bolt handle, a coil spring surrounding the striker rod abutting the working head at one end and seated against the bolt handle at the other end, said spring being under compressive stress operative to urge the striker towards a firing position, a safety defining cam means carried by the bolt and movable relative to the bolt, said cam means making a driving connection with the bolt and with the searing head, said cam means being operable to cock the striker when the bolt is opened, said cam means being further operable by virtue of its being movable relative to the bolt to hold the striker cocked after the bolt is closed.

3. A safety for a bolt action firearm comprising a receiver, a tubular bolt having a side aperture for receiving a bolt handle movably mounted in the receiver having a transverse bore, a striker rod including a searing head and a working head received with said bolt, said searing head

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having a cam face and a notch, said striker rod being received in said transverse bore to anchor the bolt handle to the bolt, coil spring means surrounding said striker rod and held under a compressive stress by abutment with said bolt handle at one end and with said working head at the opposite end operative to urge the striker rod relative to said bolt from a cocked position to a firing position, a strap having a cam follower movably mounted on the bolt and making a lost motion connection with said bolt, said cam follower being engageable with said cam face operative to move said striker rod from a firing position to a safe cocked position in opposition to said coil spring, said cam follower engaging said notch in said safe cocked position, said bolt handle being operable to drive the strap to move the striker rod to its safe cocked position, said bolt handle being further operable to move the bolt without disturbing the safe cocked position of said striker rod, said strap being manually relative to said bolt to permit said striker rod to move to a firing position.

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