

July 6, 1937.

C. C. LOOMIS

2,085,812

FIREARM

Filed April 28, 1934

2 Sheets-Sheet 1

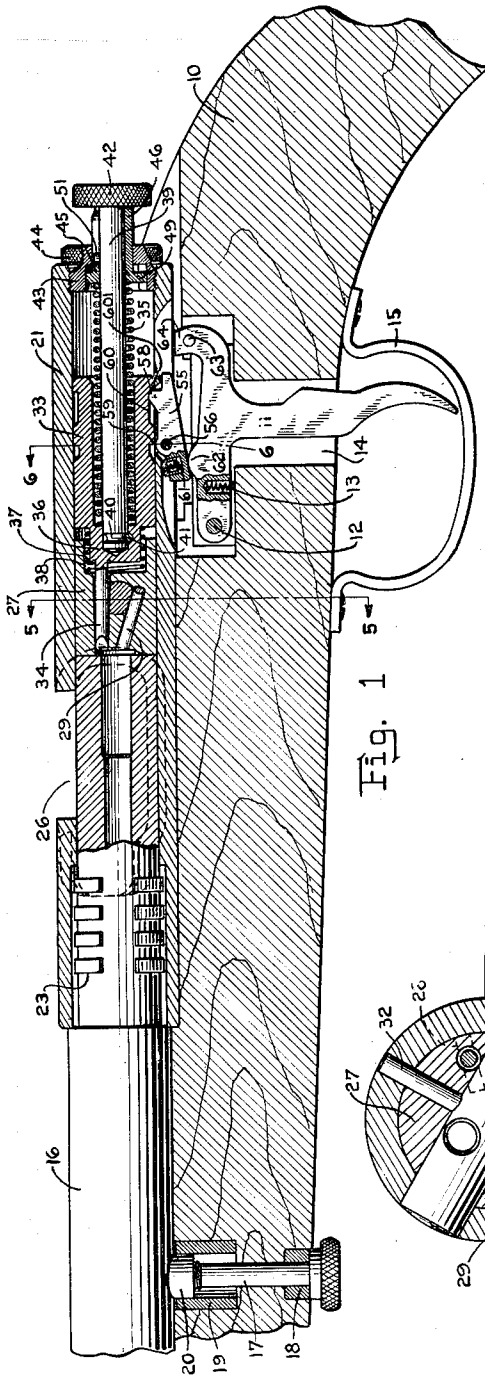


Fig. 1

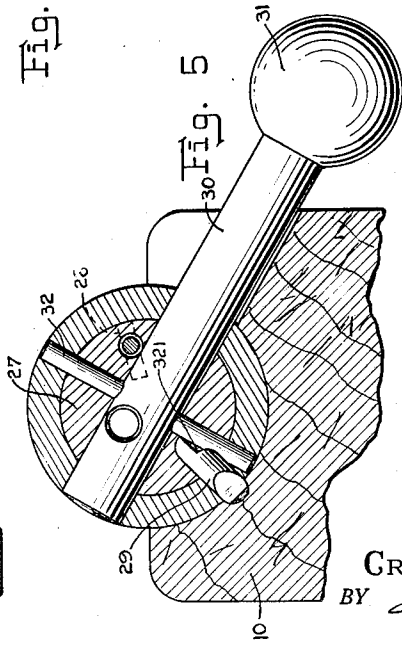


Fig. 5

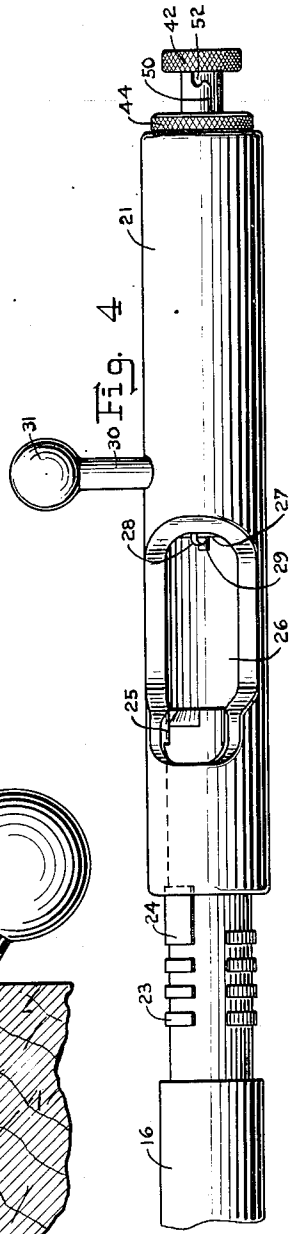


Fig. 4

INVENTOR.
CRAWFORD C. LOOMIS
BY *Coffey*
ATTORNEY

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2 Sheets-Sheet 2

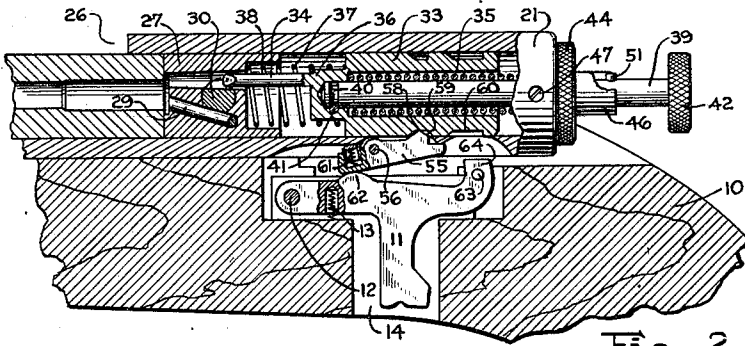


Fig. 2

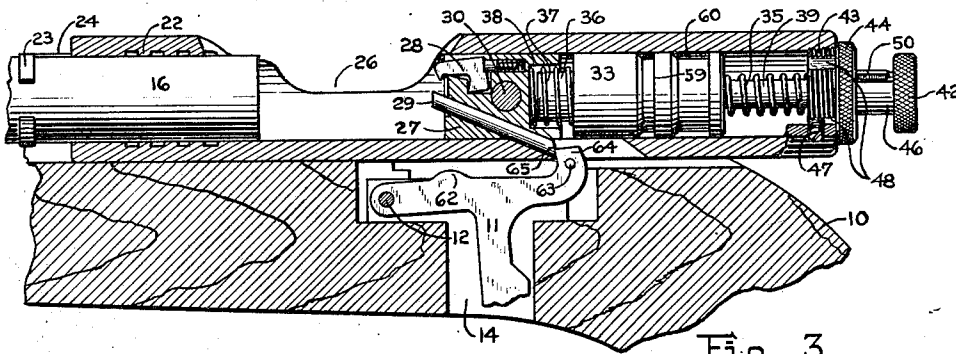


Fig. 3

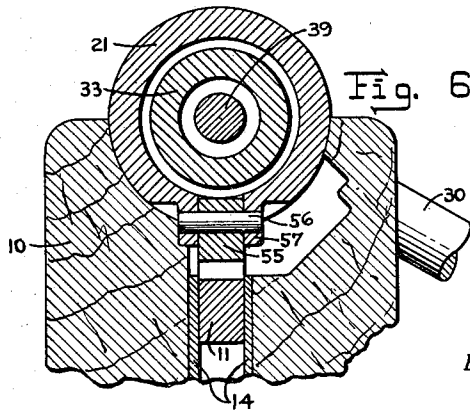


Fig. 6

INVENTOR.
CRAWFORD C. LOOMIS
BY *C. C. Loomis*
ATTORNEY

UNITED STATES PATENT OFFICE

2,085,812

FIREARM

Crawford C. Loomis, Iilon, N. Y., assignor to Remington Arms Company, Inc., a corporation of Delaware

Application April 28, 1934, Serial No. 722,901

16 Claims. (Cl. 42-16)

The present invention contemplates a firearm differing quite distinctly from prior practice, in that the receiver and breech block are rigidly united. To open the arm, for ejecting of fired shells and for reloading, the entire receiver is moved rearwardly with respect to the barrel. The receiver comprises a forwardly extending portion, preferably a tube, which encircles the barrel and is locked thereto, preferably by rotary movement, at a point in advance of the firing chamber. Thus, a substantially solid breech mechanism is secured, while permitting opening at the breech for reloading.

The invention likewise contemplates certain improvements in fire control mechanism applicable to firearms generally, as will more fully appear in the specification.

The firearms illustrated is a small caliber single shot rifle, but it is to be understood that the operating principles and inventions are of general applicability.

In the drawings:

Fig. 1 is a fragmentary, sectional side elevation of a typical firearm embodying the inventions.

Fig. 2 is a fragmentary, sectional side elevation showing the striker cocked.

Fig. 3 is a fragmentary, sectional side elevation showing the action open.

Fig. 4 is a fragmentary plan view of receiver and barrel, showing the action opened for reloading by moving the receiver upon and relative to the barrel.

Fig. 5 is a transverse section on the line 5-5 of Fig. 1.

Fig. 6 is a fragmentary, transverse section substantially on the line 6-6 of Fig. 1.

The firearm illustrated comprises a stock 10 suitably recessed to contain a trigger 11 pivoted at 12 and urged to counter-clockwise rotation about its pivot by a spring 13. Preferably metal plates 14 are placed at each side of the trigger, to prevent undue friction between the trigger and the wood of the stock. The usual trigger guard 15 is secured to the underside of the stock. The barrel 15 rests in a suitable groove in the front portion of the stock and is secured to the stock by such means as a bolt 17, which bolt preferably passes through metal bushings 18 and 19 in the stock and is received in an apertured and threaded lug 20 fixed to the barrel. The receiver, identified generally by the numeral 21, is of tubular form and comprises a front portion which extends a substantial distance over the rear end of the barrel, as clearly illustrated in Fig. 1. Near its forward end the receiver is

provided with an internal interrupted thread 22, and a corresponding interrupted thread 23 is formed on the barrel. The action is opened by rotating the receiver to disengage threads 22 and 23 and subsequently sliding the receiver rearwardly. A guide lug 24 on the barrel and in alignment with one section of the interrupted thread 23 is engaged by the margin 25 of a recess in the receiver to stop its unlocking movement and to guide the receiver during its rearward movement. A loading and ejection port 26 is cut in the receiver in such a position that when the action is closed its rearward margin is slightly forward from the chamber mouth.

Within the sliding receiver 21 and immediately in the rear of the ejection and loading port 26 is a fixed breech block 27 containing an extractor 28 and an ejector 29. The devices for securing the breech block to the receiver may include the shank 30 of an operating handle 31. Both walls of the receiver and the breech block are apertured to receive said shank 30. Moreover, the shank 30 may be held in place by the ejector retaining pin 32, said pin preferably passing through aligned apertures in the shank 30, breech block 27, and receiver 21. Pin 32 is received in a recess 321 (Fig. 5) in the ejector 29, which recess is elongated to afford the ejector the necessary limited longitudinal movement. The breech block and operating handle shank are likewise both apertured to receive the firing pin.

The firing mechanism comprises a hollow generally cylindrical striker 33, urged forward by a striker spring 35 and having secured thereto a firing pin 34. The forward end of the striker 33 is preferably of reduced diameter, as shown at 36, and is encircled by a firing pin retracting spring 37 partially housed in a recess 38 in the rear end of the breech block. The striker spring 35 preferably encircles a cocking bolt 39 which extends forwardly into the hollow striker 33 and is rotatably secured thereto by suitable means. Such means may comprise an annular recess 40 in the cocking bolt and a pin 41 fixed in the striker and extending into said recess. The rear end of the cocking bolt projects from the receiver 21 and carries a suitable finger piece 42. The rear end of the receiver is closed by a threaded plug 43 which may comprise a knurled head 44. Said plug comprises a forwardly facing recess adapted to receive the rearward end of striker spring 35 and a suitable abutment for said spring. The drawings illustrate a floating abutment, identified by numeral 45, and comprising a sleeve 46 which extends through the plug 43 and ter-

minates adjacent the forward face of the cocking bolt finger piece 42. The plug 43 may be secured against rotation in the receiver by suitable means such as a set screw 47 extending through the receiver wall and entering one of two slots 48 in said plug. The floating abutment 45 comprises an outwardly extending lug 49 which is likewise received in a slot 48 in the plug or fixed abutment 43. Forward movement of the floating abutment with respect to the plug may be limited by partially closing the open end of said slot. The sleeve 46 comprises a bayonet slot 50 which receives a pin 51 projecting laterally from the cocking bolt 39. When the cocking bolt is retracted and rotated slightly to place the pin 51 in the transversely extending and recessed portion 52 of slot 50 the striker cannot move forward and the gun is thus rendered "safe".

To fire the gun, the cocking bolt must be retracted slightly and rotated to bring pin 51 into alignment with slot 50. The striker is then held, in the manner to be hereinafter described, in the position shown in Fig. 2. When the trigger is pulled, the striker advances under the pressure of striker spring 35 and in so doing compresses the firing pin retracting spring 37. Before the striker has advanced sufficiently to cause the firing pin 34 to contact a cartridge in the chamber, the forward face of finger piece 42 engages the rear end of abutment sleeve 46 and moves the floating abutment forward. This movement of the floating abutment prevents further extension of the striker spring, enabling the compressed retractor spring to return striker and firing pin until the floating abutment again engages the fixed plug 43.

Pivoted in the lower part of the tubular receiver and projecting downwardly therefrom is a sear 55. In the construction shown in the drawings this sear is supported on a pivot 56 in a pair of flanges 57 projecting a short distance below the receiver. The shoulder 58 of the sear is adapted to engage a notch 59 in the striker to hold the striker in cocked position, and enters a cut-out 60 when the striker is in its forward position. The cut-out 60 terminates in a forwardly facing shoulder 601 adapted to engage the sear shoulder 58 and prevent such forward movement of the firing pin as might result in the accidental firing of a cartridge in the chamber. Fig. 1 shows the striker thrust forward to engage shoulders 58 and 601, the floating abutment 45 being held away from plug 43. The sear is urged to striker engaging position by suitable means such as a spring 61 partially housed within the sear and bearing against a part of the receiver. The sear is controlled by the trigger 11, said trigger being provided with a projection 62 for engagement with the sear. The trigger 11 is also provided with a stop pin 63 adapted to engage the underside of the receiver and limit the movement of the trigger by its spring 13 when the receiver is retracted. Said stop pin 63 may be associated with an upward projection 64 which by its engagement with the lower and rear end of ejector 29 serves to actuate said ejector. Projection 64 likewise engages a shoulder 65 of the receiver adjacent the ejector 29 and thus serves as an abutment to limit the rearward movement of the receiver.

The operation of the mechanism will be apparent from the foregoing description. It will be seen that the functions of breech locking, fire control, breech unlocking, opening extraction and

ejection, are all performed by mechanism held in a receiver which moves upon and relative to the barrel, and that the breech block as a member separate from and movable in the receiver has been eliminated.

What is claimed is:

1. A firearm comprising a stock, a barrel secured to said stock, a receiver slidably and rotatably mounted on said barrel, a breech block fixed in said receiver, an ejector held in said breech block, and an ejector actuator mounted in said stock, said ejector being moved by the rotation of said receiver into position for engagement by said actuator.
2. In combination with a receiver, a breech block in said receiver and an ejector in said breech block; assembly means comprising an operating handle passing through aligned apertures in said breech block and receiver, and an ejector retaining pin passing through aligned apertures in said operating handle, said breech block and said receiver.
3. In combination with a receiver, a breech block, an ejector and a firing pin; assembly means comprising an operating handle apertured to receive said firing pin and passing through aligned apertures in said breech block and receiver, and an ejector retaining pin passing through aligned apertures in said operating handle, said breech block and said receiver.
4. A firearm comprising a barrel, a receiver, means for locking said receiver to said barrel, a breech block in said receiver, and an operating handle extending through and joining said breech block and receiver.
5. A firearm comprising a barrel, a receiver, a breech block in said receiver, an operating handle extending through and joining said breech block and receiver, and an interrupted thread connection between said breech block and said receiver, whereby a movement of said operating handle rotates said receiver, disengaging said interrupted thread connection and enabling retraction of said receiver to open the breech.
6. A firearm comprising a barrel, a receiver rotatably and slidably mounted on said barrel, a breech block in said receiver, and an operating handle on said receiver, said handle passing through and fixing said breech block to said receiver.
7. A firearm comprising a barrel, a receiver, a breech block in said receiver, an operating handle passing through and fixing said breech block to said receiver, an ejector in said breech block, and an ejector retaining pin passing through and securing together said operating handle and said breech block.
8. A firearm comprising a stock, a barrel secured to said stock, a tubular receiver supported on said barrel and slidable rearwardly thereon from breech closing position to breech open position, a breech block fixed in said receiver, a striker in said receiver comprising a firing pin extending through said breech block, a shell ejector in said breech block, fire control mechanism comprising a striker-engaging sear supported in said receiver and a sear actuating trigger supported in said stock, a shoulder on said receiver, and a member moved by said trigger into the path of movement of said shoulder and said ejector to limit the rearward movement of said receiver and actuate said ejector.
9. A firearm comprising a barrel, a breech mechanism comprising a tubular member, a

breech closing block secured to said member, a striker in said tubular member having a firing pin, a striker propelling spring, a retracting spring, and an abutment for said striker spring mounted for limited movement in said tubular member and adapted to move forward during a portion of the forward movement of said striker and to be returned by said retracting spring.

10. A breech mechanism comprising a tubular member, a hollow striker, a striker retracting bolt extending into said striker, a striker spring surrounding said bolt, a floating abutment for said striker spring, a sleeve associated with said abutment, a safety mechanism comprising a bayonet slot in said sleeve and a pin extending from said bolt, and a finger piece secured to said bolt.

11. A breech mechanism comprising a tubular member, a hollow striker, a striker retracting bolt extending into said striker, a striker spring surrounding said bolt, a floating abutment for said striker spring, a fixed abutment secured to said tubular member, and means for guiding the movement of the floating abutment on the fixed abutment.

12. A firearm breech mechanism comprising a tubular member, a hollow striker mounted in said tubular member and provided with a firing pin, a striker operating bolt extending within the hollow of said striker and rotatably joined thereto, a striker spring surrounding said bolt and partially housed within the hollow of said striker, a floating abutment for said striker spring movably held in said tubular member, and a manipulative head on said bolt adapted to engage said abutment when said bolt is moved forward by said spring whereby said abutment, striker and bolt move a short distance together.

13. A manually operated shoulder firearm comprising a stock, a barrel secured to said stock, a tubular receiver comprising a portion encircling the breech end of said barrel and interposed between said barrel and said stock, and a breech block fixed in said receiver, said receiver

being shiftable from a breech closing to a breech open position and being wholly supported on said barrel in either of said positions.

14. A manually operated shoulder firearm comprising a stock, a barrel secured to said stock, a tubular receiver rotatably and slidably mounted upon said barrel and wholly supported by said barrel, said receiver comprising a portion encircling the breech end of said barrel and interposed between said barrel and said stock, a breech closing block fixed to said receiver, and an operating handle projecting from said receiver.

15. A manually operated shoulder firearm comprising a stock, a barrel secured to said stock, a tubular receiver rotatably and slidably mounted upon said barrel and wholly supported by said barrel, said receiver comprising a portion encircling the breech end of said barrel and interposed between said barrel and said stock, a breech closing block fixed to said receiver, an operating handle projecting from said receiver, a trigger mounted in said stock, and fire control mechanism mounted in said receiver and movable into operative engagement with said trigger as said receiver is moved to breech closing position.

16. A manually operated shoulder firearm comprising a stock, a barrel secured to said stock, a tubular receiver rotatably and slidably mounted upon said barrel and wholly supported by said barrel, said receiver comprising a portion encircling the breech end of said barrel and interposed between said barrel and said stock, a breech closing block fixed to said receiver, an operating handle projecting from said receiver, a trigger mounted in said stock, means associated with said trigger for limiting the breech opening movement of said receiver, and fire control mechanism mounted in said receiver and moved into operative relation to said trigger by the breech closing movement of said receiver.

CRAWFORD C. LOOMIS.