June 9, 1936. F. F. BURTON 2,043,281

SAFETY DEVICE FOR BOLT ACTION FIREARMS

Filed Jan. 24, 1934 2 Sheets-Sheet 1

Fig. 1.

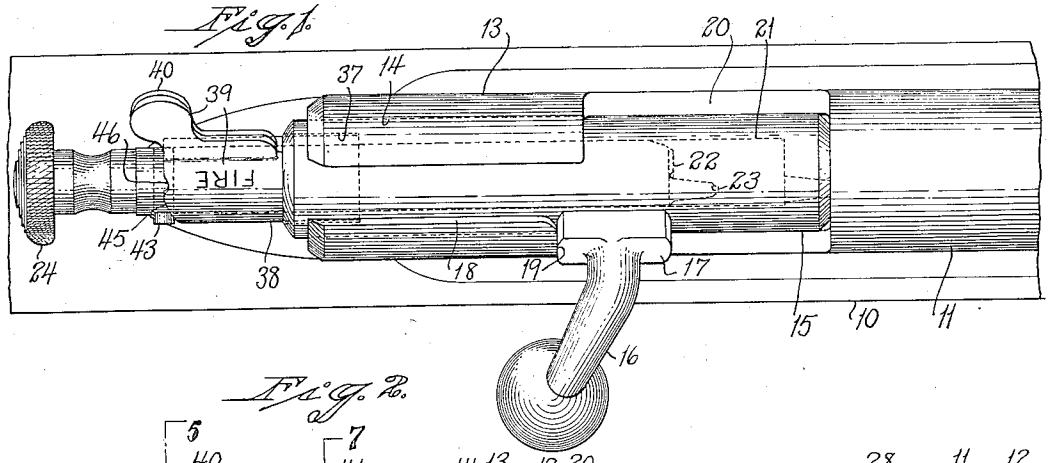


Fig. 2.

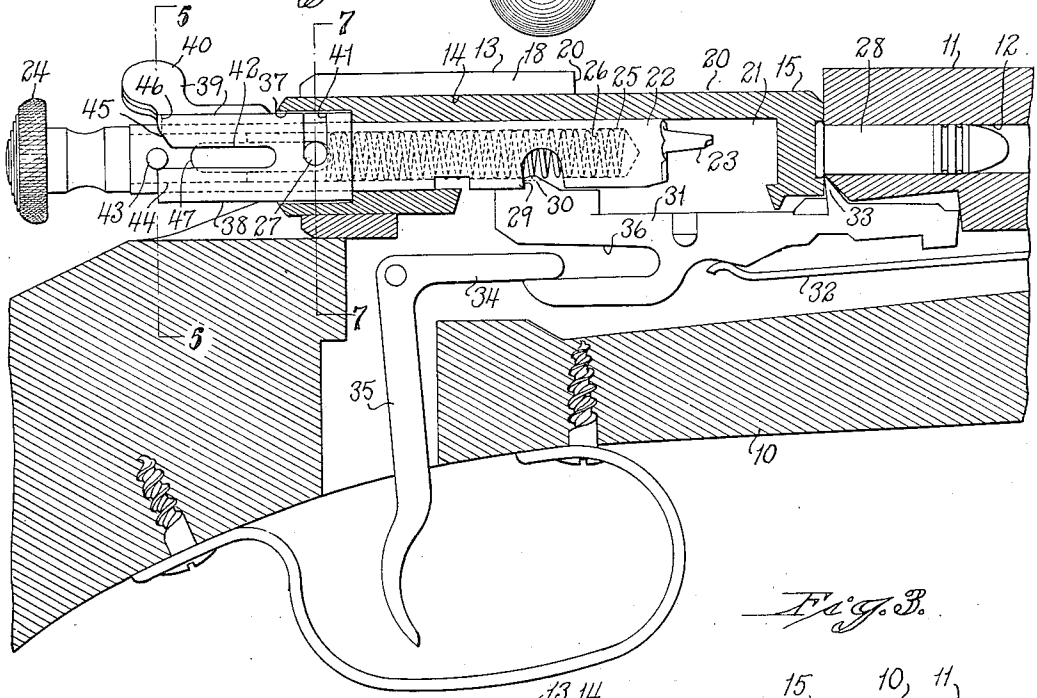
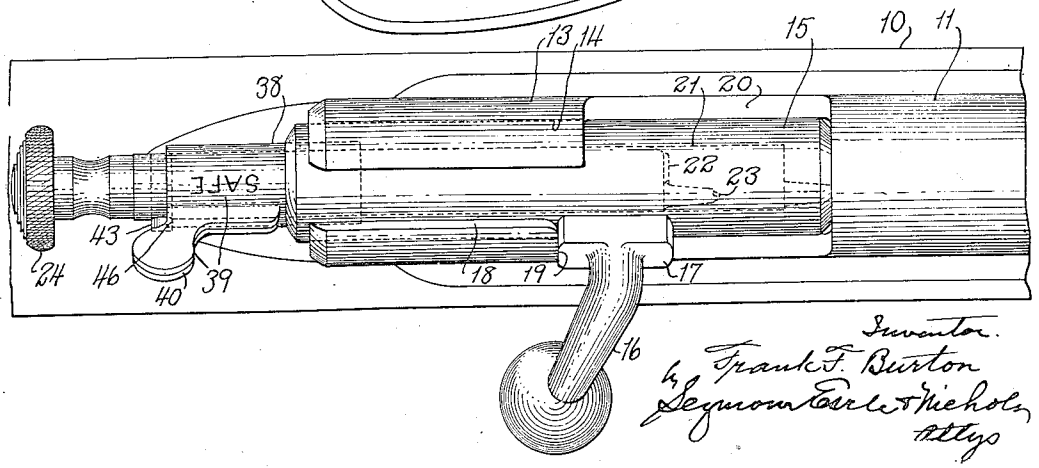


Fig. 3.



Inventor.
Frank F. Burton
by Seymour Earle & Nichols
Attys

June 9, 1936. F. F. BURTON 2,043,281

SAFETY DEVICE FOR BOLT ACTION FIREARMS

Filed Jan. 24, 1934 2 Sheets-Sheet 2

Fig. 4.

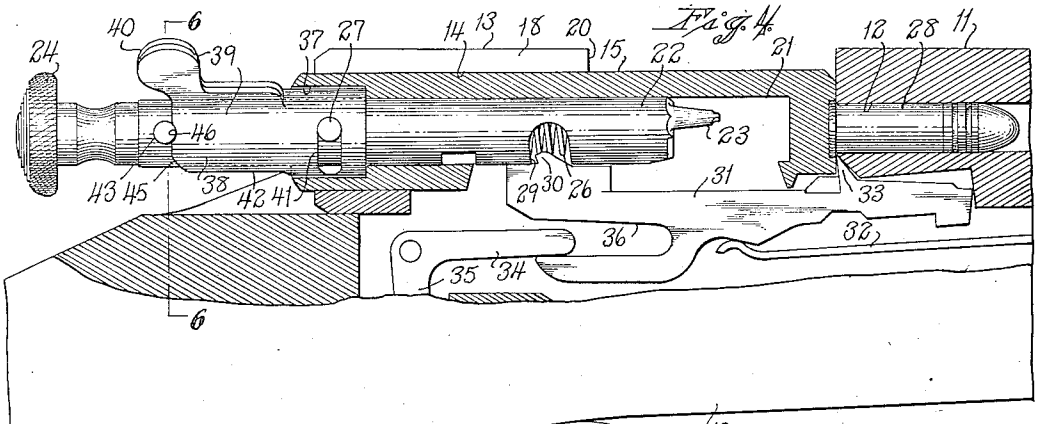


Fig. 5.

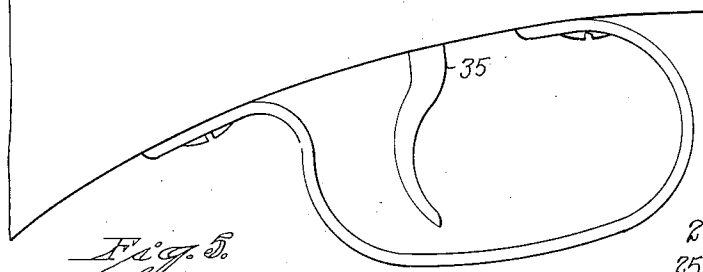


Fig. 7.

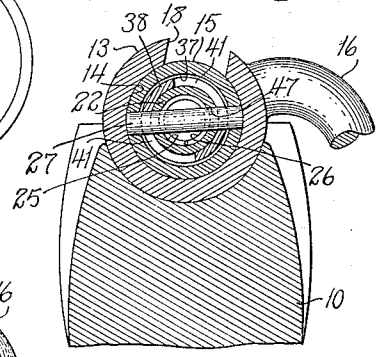


Fig. 6.

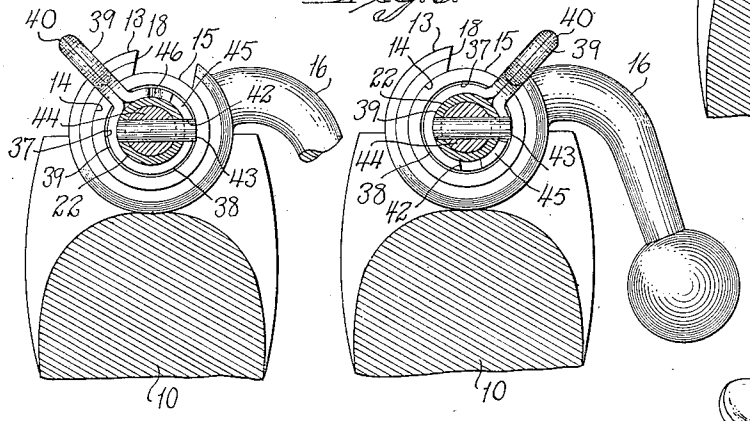


Fig. 8.

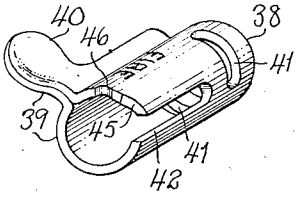
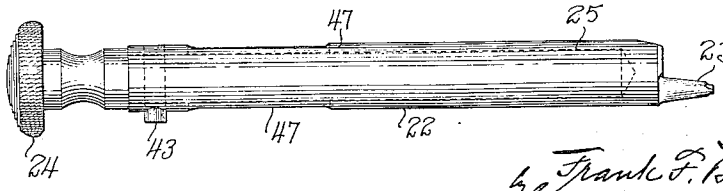


Fig. 9.



Inventor
Frank F. Burton
by Seymour Earle & Nichols
Attys

Patented June 9, 1936 2,043,281

UNITED STATES PATENT OFFICE

2,043,281

SAFETY-DEVICE FOR BOLT-ACTION FIREARMS

Frank F. Burton, Mount Carmel, Conn., assignor to Winchester Repeating Arms Company, New Haven, Conn., a corporation of Maryland

Application January 24, 1934, Serial No. 708,068

8 Claims. (Cl. 42—70)

This invention relates to an improvement in safety-devices for firearms and more particularly to safety-devices for bolt-action firearms.

One of the objects of the present invention is to provide a superior safety-device characterized by simplicity of construction and ease and certainty of operation.

Another object is to provide a superior and effective safety-device which may be produced at a low cost for manufacture.

A further object is to provide a safety-device by means of which the condition of the arm (whether safe or in condition for firing) may be readily and quickly ascertained by means of both sight and touch.

Other objects and advantages will be apparent to those skilled in the art from the following, considered in conjunction with the accompanying drawings and the appended claims.

In the accompanying drawings:

Fig. 1 is a broken top or plan view of a bolt-action firearm embodying the present invention, the safety-device being shown in position to permit the firing of the arm;

Fig. 2 is a view thereof mainly in vertical central-longitudinal section;

Fig. 3 is a view corresponding to Fig. 1 but showing the safety-device swung into position to prevent the firing of the arm;

Fig. 4 is a view thereof mainly in vertical central-longitudinal section, corresponding to Fig. 2, but showing the safety-device in position to prevent the firing of the arm;

Fig. 5 is a broken view in transverse section taken on the line 5—5 of Fig. 2;

Fig. 6 is a similar view taken on the line 6—6 of Fig. 4;

Fig. 7 is a transverse sectional view taken on the line 7—7 of Fig. 2;

Fig. 8 is a perspective view of the safety-member detached; and

Fig. 9 is a view in elevation of the firing-pin detached.

The particular firearm herein chosen for the illustration of the present invention is of the upturn-and-pullback bolt-action type and includes a stock 10 supporting a barrel 11 having a cartridge-chamber 12 formed therein and having its rear end appropriately counterbored and cut to provide, in effect, an integral receiver 13.

The integral receiver 13 just above referred to has an axially-arranged rearwardly-opening passage 14 for the reception of a breech-bolt 15 of cylindrical exterior form in general and having a laterally-offsetting bolt-handle 16, the lug-like base 17 of which is adapted to reciprocate in a longitudinally-arranged bolt-guide passage 18 formed in the receiver 13. The rear face of the base 17 of the bolt-handle 16 is adapted also to engage with a forwardly-facing bolt-locking abutment 19 forming a right-angle continuation of the right side wall of the passage 18 in the receiver 13. At its forward end the bolt-guide passage 18 intersects a relatively-wide loading-and-ejection opening 20 formed in the receiver 13 and providing for both the insertion and removal of cartridges from the arm.

The breech-bolt 15 above referred to is provided with an axial-passage 21 coaxially-arranged with respect to the cartridge-chamber 12 and providing for the reception of a reciprocating firing-pin 22 having the usual firing-point 23 at its forward end and a firing-pin head 24 at its opposite end, rearwardly of the respective rear ends of the receiver 13 and breech-bolt 15.

The firing-pin 22 is formed with an axial spring-pocket 25 housing a firing-pin spring 26 which bears at its forward end against the forward wall of the said spring-pocket and at its rear end bears against a diametrically-arranged pin 27 mounted in the breech-bolt 15 and herein designated as a "limiting-pin" for reasons as will hereinafter appear. The said firing-pin spring 26 exerts a constant effort to move the firing-pin 22 forwardly for engaging its firing-point 23 with the rear face of a cartridge 28 located in the cartridge-chamber 12 of the barrel 11.

The firing-pin 22 is also formed with a forwardly-facing cocking-abutment 29 engageable by a sear-nose 30 upstanding from a sear 31 which is urged in the direction required to engage its sear-nose 30 with the cocking-abutment 29 by means of a sheet-metal spring 32.

The sear 31 above referred to is also provided with an extracting-nose 33 of no essential concern with the present invention, and is rocked for disengaging the sear-nose 30 from the cocking-abutment 29 by the horizontal arm 34 of a pivotally-mounted trigger 35. The said trigger 35 is operatively connected to the said sear for moving the same as described, by having the forward end of its arm 34 entered into a rearwardly-opening notch 36 formed in the said sear.

The rear end of the breech-bolt 15 is counterbored axially in line with its passage 21 to provide a rearwardly-opening axial pocket 37 for the reception of the forward end of the sleeve-portion 38 of a safety-member generally designated by the numeral 39 and including also a radially-offsetting finger-piece 40. The sleeve-

portion 38 of the said safety-member 39 bears upon the periphery of the projecting portion of the firing-pin 22 with capacity for oscillatory movement thereon, and is retained in place against longitudinal displacement with respect to the breech-bolt 15 by the limiting-pin 27 before referred to. The said limiting-pin, in addition to passing through the firing-pin 22, also passes through a pair of arcuate limiting-slots 41 formed at diametrically-opposite points in the sleeve-portion 38 of the safety-member 39, adjacent the forward end thereof, which extends within the pocket 37 of the breech-bolt 15. The limiting-slots 41 just referred to serve not only to prevent the axial displacement of the safety-member as described, but also serve as limiting-slots to limit the oscillatory movement of the member.

Extending forwardly from the rear edge of the sleeve-portion 38 of the safety-member 39, in a direction paralleling the axis thereof, is a deep clearance-notch 42 adapted on occasion to receive the projecting end of a pin 43 constituting what may be termed a safety-abutment and projecting radially from the firing-pin 22, adjacent the rear end thereof, and in addition serving to rigidly connect the firing-pin head 24 before referred to with the said firing-pin. For the purpose last referred to, the said head 24 is provided with a cylindrical shank 44 projecting into the open rear end of the spring-pocket 25 of the firing-pin and having the said pin 43 extending diametrically through it, as indicated in Figs. 5 and 6.

One of the walls of the deep clearance-notch 42 formed in the sleeve-portion 38 as above described is connected to the rear edge of the said portion by a sloping retracting-cam surface 45, which is adapted when the safety-member 39 is turned in one direction, as will hereinafter appear, to engage the pin 43 to effect a slight retraction of the firing-pin 22 against the counterurge of the spring 26, after the said firing-pin has been moved into its cocked position. Formed in the rear edge of the sleeve-portion 38 of the member 39 and slightly laterally beyond the retracting-cam surface 45 in a direction toward the finger-piece 40, is a shallow detent-notch 46 adapted to receive the projecting end of the pin 43 when the safety-member 39 is swung fully into its safety position and serving to yieldingly retain the said member in the position referred to.

It may here be noted that the limiting-pin 27 before referred to, in addition to serving as an abutment for the firing-pin spring 26, and as a limiting-pin for the safety-member 39, also serves to prevent the firing-pin 22 from turning movement with respect to the breech-bolt 15. The desired axial movement of the firing-pin 22 with respect to the breech-bolt 15 is permitted by a pair of longitudinally arranged clearance-slots 47—47 formed in the wall of the firing-pin 22 respectively at diametrically-opposite points therein.

After a cartridge has been inserted into the cartridge-chamber 12 of the arm and the breech-bolt has been closed and the firing-pin cocked, as clearly indicated in Figs. 1 and 2, the arm may be fired by operating the trigger 35 in the usual way. At this time, of course, the safety-member 39 is turned to the limit of its movement to the left to thereby bring its deep clearance-notch 42 in line with the projecting end of the pin 43. After the trigger has been pulled and the firing-pin moves forwardly under the urge of the firing-pin spring 26, the said pin 43 will ride forwardly in the said clearance-notch 42.

In the event that it is desired to guard against the accidental discharge of the arm after the same has been reloaded and the firing-pin 22 again cocked, the finger-piece 40 is shifted from left to right to similarly turn the safety-member 39 upon the firing-pin 22. The initial movement of the safety-member 39 as just referred to, will serve to engage the retracting-cam surface 45 with the pin 43, with the effect, upon continued movement of the safety-member, of slightly retracting the firing-pin 22 against the counterurge of the firing-pin spring 26. As the finger-piece 40 about reaches the limit of its movement to the right, under the control of the limiting-pin 27 and limiting-slots 41, the detent-notch 46 in the rear edge of the sleeve-portion 38 of the safety-member 39 will be brought into alignment with the projecting portion of the said pin 43, which will thereupon, under the urge of the spring 26, ride slightly forwardly and into the said detent-notch 46 and serve to yieldingly hold the safety-member 39 against being returned to its firing-pin-releasing position.

In the position just referred to, it will be obvious from the drawings that the pulling of the trigger will have no effect upon the firing-pin 22 for the reason that the engagement of the pin 43 with the detent-notch 46 in the rear wall of the safety-member 39 serves to positively prevent further forward travel of the firing-pin, which at this time, as before described, is held in a position slightly to the rear of its normal cocked position, thereby permitting the sear-nose 30 of the sear 31 to retire from and reenter into the path of movement of the cocking-abutment 29 of the firing-pin 22.

If preferred, the safety-member 39 may have inscribed upon the periphery of its sleeve-portion 38 suitable indicia, such, for example, as the words "Safe" and "Fire", as shown in the drawings, which are respectively located on apposite sides of the finger-piece 40, though it may be here pointed out that without such indicia, the user of the arm is readily informed of the fact as to whether or not the arm has been rendered safe, either by sight or touch, by noting the relative position of the finger-piece 40.

The invention may be carried out in other specific ways than that herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

I claim:

1. In a bolt-action firearm, the combination with the breech-bolt thereof; of a reciprocating firing-pin extending within the said breech-bolt; a firing-pin head telescopically interfitted with the rear end of the said firing-pin; a transverse pin serving to secure the said firing-pin and firing-pin head together; and a movable safety-member bearing upon the rear portion of the said firing-pin, and having means engageable with the said transverse pin to guard against the firing movement of the said firing-pin.

2. In an upturn-and-pullback bolt-action firearm, the combination with the oscillating and reciprocating breech-bolt thereof; of a recipro-

cating firing-pin unit extending within the said breech-bolt; a spring located within the said firing-pin unit; a safety-member bearing upon the said firing-pin unit and having a locating-slot therein; an abutment-pin extending crosswise through the said firing-pin unit and engaged by the aforesaid spring and projecting also into the locating-slot in the said safety-member for limiting the movement thereof with respect to the said firing-pin unit; and complementary abutments, one of which is carried by the said firing-pin unit and the other of which is carried by the said safety-member and interengageable by a movement of the latter for holding the said firing-pin unit in its retired position.

3. In an upturn-and-pullback bolt-action firearm, the combination with the oscillating and reciprocating breech-bolt thereof; of a reciprocating firing-pin unit extending within the said breech-bolt and provided with a safety-abutment; a laterally-oscillating safety-member mounted for swinging movement substantially coaxially with respect to the said firing-pin unit and having a clearance-slot opening through its rear edge for receiving the safety-abutment of the said firing-pin unit and also having in its rear edge a detent-notch for engagement with the safety-abutment of the said firing-pin unit for releasably holding the latter in its retired position.

4. In an upturn-and-pullback bolt-action firearm, the combination with the oscillating and reciprocating breech-bolt thereof; of a reciprocating firing-pin unit extending within the said breech-bolt and provided with a safety-abutment; a laterally-oscillating safety-member mounted for swinging movement substantially coaxially with respect to the said firing-pin unit and having a clearance-slot opening through its rear edge for receiving the safety-abutment of the said firing-pin unit and also having in its rear edge a detent-notch for engagement with the safety-abutment of the said firing-pin unit for releasably holding the latter in its retired position, the said safety-member also being formed in its rear edge at a point laterally intermediate the said clearance-slot and the said detent-notch with a retracting cam-surface engageable with the safety-abutment of the firing-pin unit for retracting the latter.

5. In an upturn-and-pullback bolt-action firearm, the combination with a reciprocating and oscillating breech-bolt; of a reciprocating firing-pin unit oscillating with and projecting beyond the rear end of the said breech-bolt and provided with a safety-abutment located to the rear of the rear end of the said breech-bolt, the said firing-pin unit having a manual operating-head at its rear end; and an oscillating safety-sleeve having a portion embracing the said firing-pin unit at a point to the rear of the rear end of the said breech-bolt and interposed between the latter and the said safety-abutment of the said firing-pin unit with which it engages, the said safety-sleeve being manually oscillatable independently of the said breech-bolt and firing-pin unit and normally oscillating therewith when the breech-bolt is oscillated.

6. In an upturn-and-pullback bolt-action firearm, the combination with a reciprocating and oscillating breech-bolt; of a reciprocating firing-pin unit oscillating with and projecting beyond the rear end of the said breech-bolt and provided with a safety-abutment located to the rear of the rear end of the said breech-bolt, the said firing-pin unit having a manual operating-head at its rear end; an oscillating safety-sleeve having a portion embracing the said firing-pin unit at a point to the rear of the rear end of the said breech-bolt and interposed between the latter and the said safety-abutment of the said firing-pin unit with which it engages, the said safety-sleeve being manually oscillatable independently of the said breech-bolt and firing-pin unit and normally oscillating therewith when the breech-bolt is oscillated, the said oscillating safety-sleeve having a substantially-circumferentially-arranged limiting-slot and the said breech-bolt having a limiting-pin projecting into the limiting-slot of the said safety-sleeve.

7. In an upturn-and-pullback bolt-action firearm, the combination with a reciprocating and oscillating breech-bolt; of a reciprocating firing-pin unit oscillating with and projecting beyond the rear end of the said breech-bolt and provided with an offsetting safety-abutment located to the rear of the rear end of the said breech-bolt, the said firing-pin unit having a manual operating-head at its rear end; an oscillating safety-sleeve having a portion embracing the said firing-pin unit at a point to the rear of the rear end of the said breech-bolt and interposed between the latter and the said safety-abutment of the said firing-pin unit with which it engages, the said safety-sleeve being manually oscillatable independently of the said breech-bolt and firing-pin unit and normally oscillating therewith when the breech-bolt is oscillated, the said safety-sleeve being provided with a longitudinally-extending clearance-opening intersecting its rear edge and adapted to receive the offsetting safety-abutment of the said firing-pin unit and also having a safety-abutment located on its rear face and engageable with the said safety-abutment of the said firing-pin unit to guard against the firing movement of the latter.

8. In an upturn-and-pullback bolt-action firearm, the combination with a reciprocating and oscillating breech-bolt; of a reciprocating firing-pin unit oscillating with and projecting beyond the rear end of the said breech-bolt and provided with a safety-abutment located to the rear of the rear end of the said breech-bolt, the said firing-pin unit having a manual operating-head at its rear end; an oscillating safety-sleeve having a portion embracing the said firing-pin unit at a point to the rear of the rear end of the said breech-bolt and interposed between the latter and the said safety-abutment of the said firing-pin unit with which it engages, the said safety-sleeve being manually oscillatable independently of the said breech-bolt and firing-pin unit and normally oscillating therewith when the breech-bolt is oscillated, the said oscillating safety-sleeve having a longitudinal clearance-slot and a retracting cam-surface leading laterally therefrom and coacting with the safety-abutment of the said firing-pin unit.

FRANK F. BURTON.