Feb. 11, 1936. O. F. MOSSBERG 2,030,149

UPTURN AND PULLBACK BOLT ACTION FIREARM

Filed May 5, 1933 3 Sheets-Sheet 1

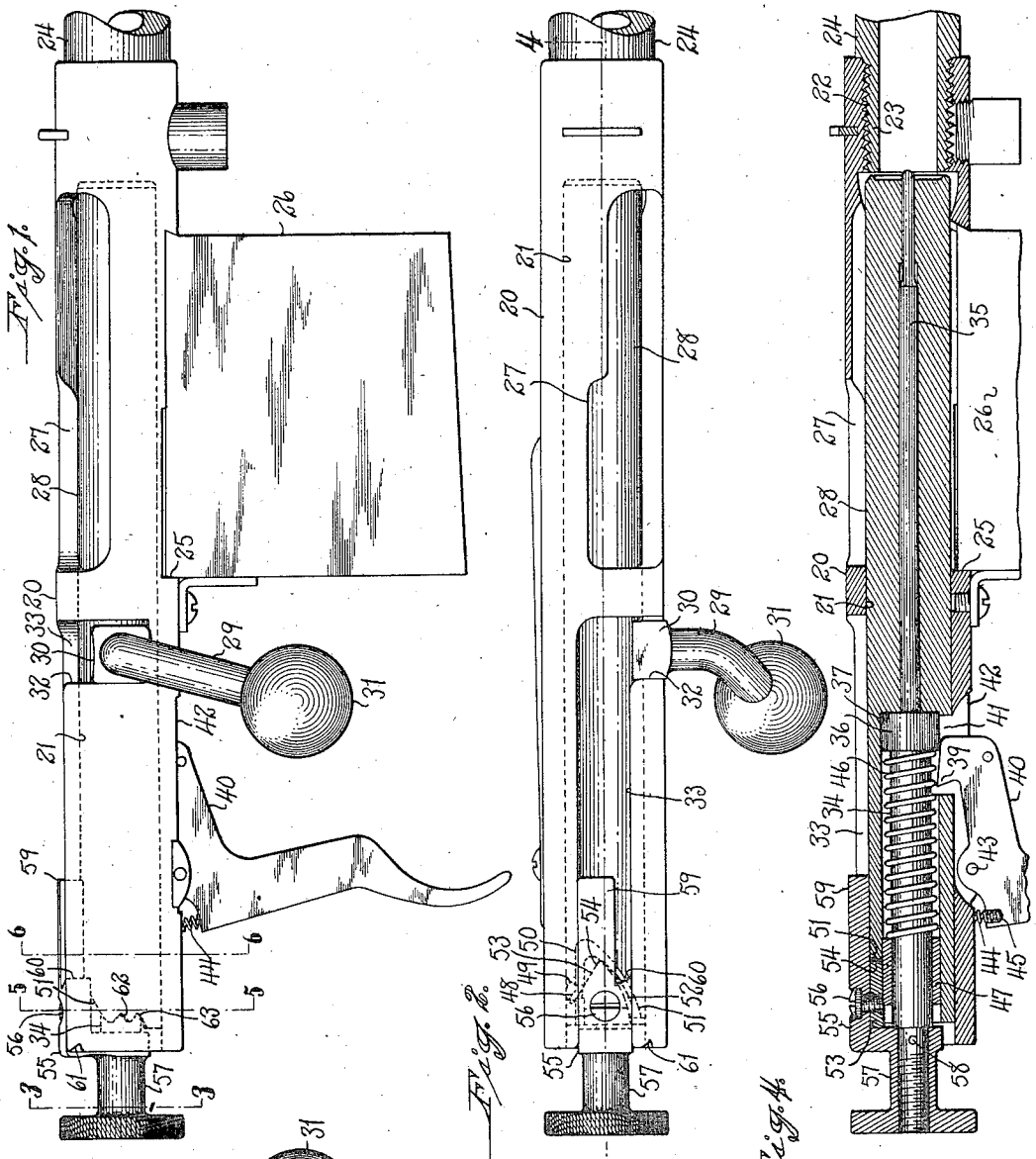

Fig. 1.

Fig. 2.

Fig. 4.

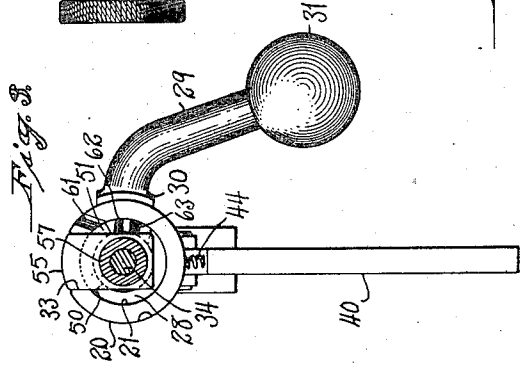

Fig. 3.

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Fig. 5.

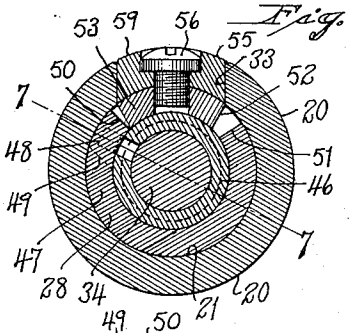


Fig. 6.

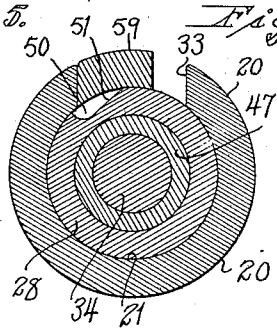


Fig. 7.

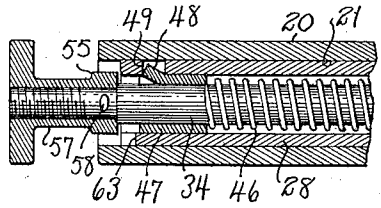


Fig. 8.

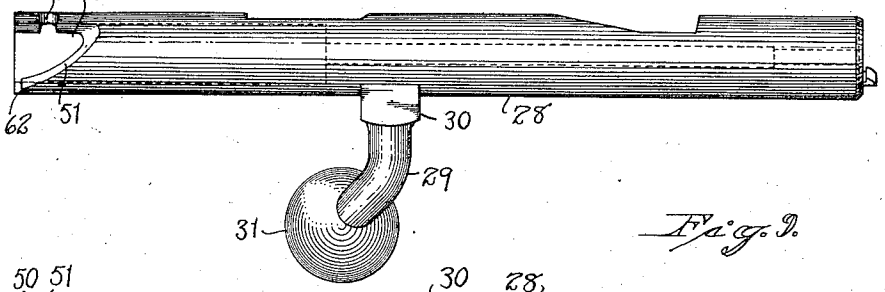


Fig. 9.

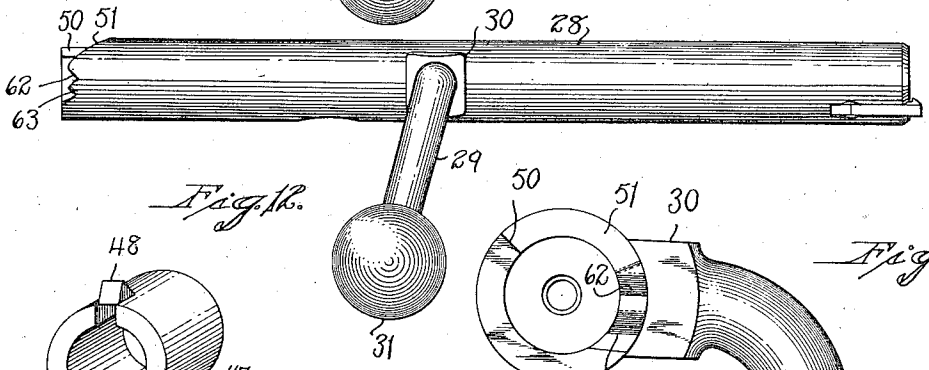


Fig. 12.

Fig. 10.

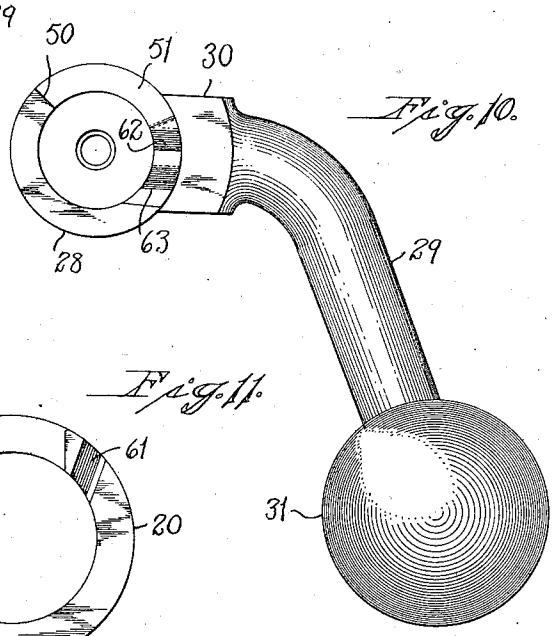


Fig. 13.

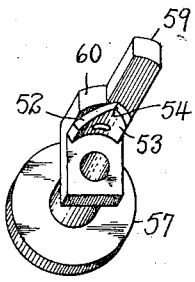
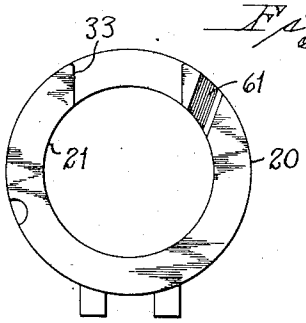


Fig. 11.



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UPTURN AND PULLBACK BOLT ACTION FIREARM

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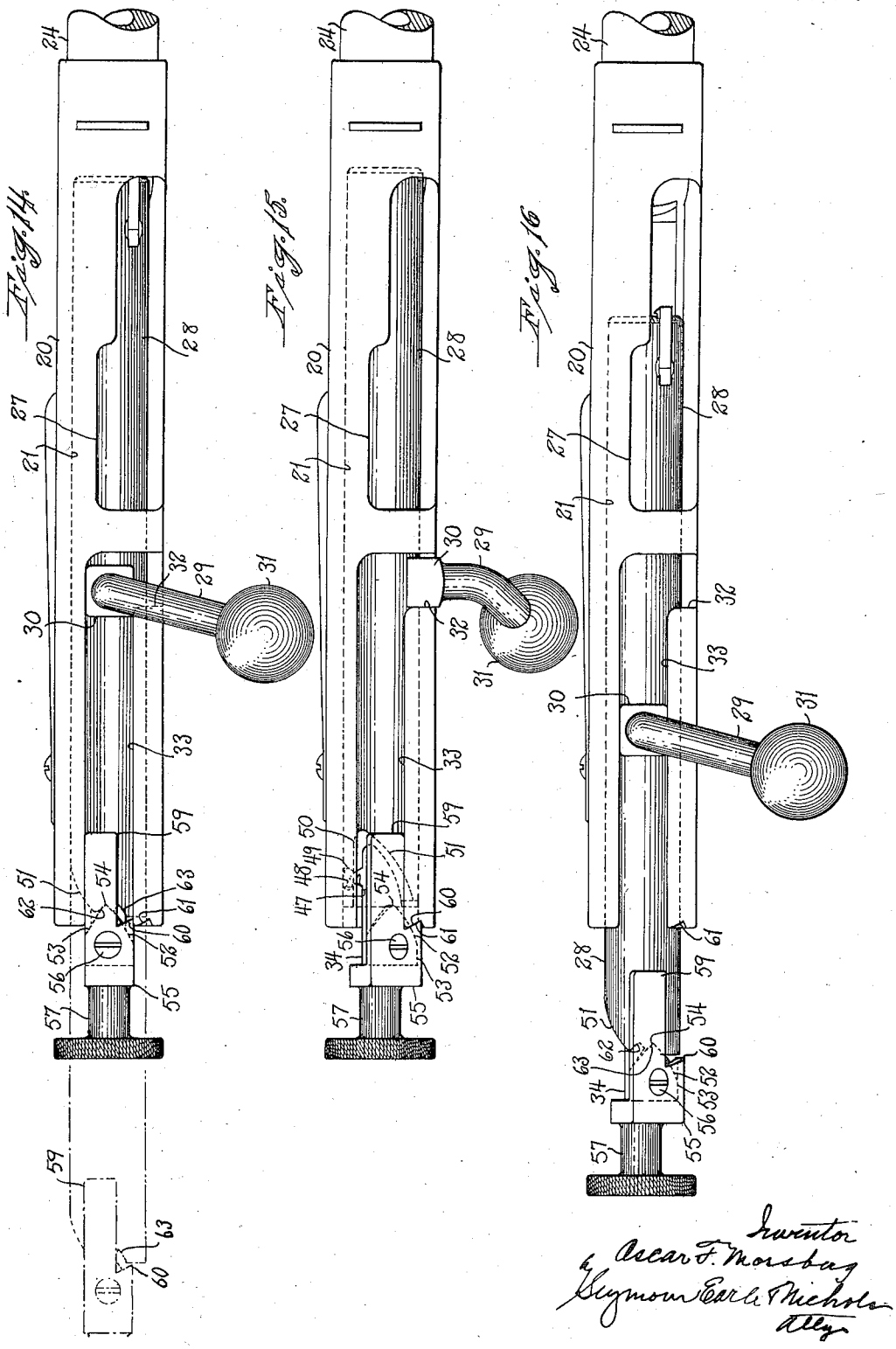

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Patented Feb. 11, 1936 2,030,149

UNITED STATES PATENT OFFICE

2,030,149

UPTURN-AND-PULLBACK BOLT-ACTION FIREARM

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Application May 5, 1933, Serial No. 669,505

10 Claims. (Cl. 42—16)

This invention relates to improvement in upturn-and-pullback bolt-action firearms and particularly to the bolt and firing-pin features of such arms.

One of the objects of the present invention is to provide at a relatively low cost for manufacture a firearm having a simple and reliable arrangement of parts, by means of which the firing-mechanism may be rendered "safe" when desired.

Another object is to provide a simple and reliable arrangement of parts whereby when the gun is set in "safe" position, the bolt may be reciprocated without throwing it out of its "safe" position.

A further object is to provide convenient means for retaining the firing-pin and firing-pin spring in assembled relationship to the bolt, whereby the same may be readily removed and replaced as may be required for cleaning, adjusting, etc.

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

In the accompanying drawings:

Fig. 1 is a broken view in side elevation of the receiver-portion of a firearm embodying the present invention, the parts being shown in the positions which they assume when the gun is fired;

Fig. 2 is a top or plan view thereof;

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a view in vertical central longitudinal section taken on the line 4—4 of Fig. 2;

Fig. 5 is a transverse sectional view taken on the line 5—5 of Fig. 1 but on a larger scale;

Fig. 6 is a similar view taken on the line 6—6 of Fig. 1 but on a larger scale;

Fig. 7 is a longitudinal sectional view taken on the line 7—7 of Fig. 5;

Fig. 8 is a top or plan view of the bolt;

Fig. 9 is a view thereof in side elevation;

Fig. 10 is a view thereof in rear-end elevation but on a larger scale;

Fig. 11 is a view in rear-end elevation of the receiver;

Fig. 12 is a perspective view of the assembly firing-pin-spring seat;

Fig. 13 is a perspective view of the operating-head of the firing-plunger;

Fig. 14 is a top or plan view corresponding to Fig. 2 but showing the parts in the positions which they assume when the bolt-handle is in its upturned position and the firing-plunger is cocked;

Fig. 15 is a corresponding view but showing the bolt in its closed position and the firing-plunger swung laterally into its safety position; and

Fig. 16 is a similar view but showing the bolt partly retracted.

In the embodiment of the present invention herein chosen for illustration, 20 represents a tubular receiver having an axial bolt-receiving bore 21 provided at its forward end with inwardly-projecting threads 22 receiving the externally-threaded shank 23 of a gun-barrel 24. The under side of the forward portion of the receiver 20 is cut away to provide a lateral passage 25 into which projects the upper end of a magazine 26 secured in any approved manner to said receiver and not requiring detailed consideration herein.

The receiver 20 is also provided in its upper surface, and in line with the passage 25, with a loading-and-ejection opening 27 and receives in its bore 21 an oscillating and reciprocating bolt 28 provided with a laterally-offsetting and rigid bolt-handle 29 having a rectangular base 30 and a ball-terminal 31. The base 30 of the said bolt-handle 29 is normally located in a locking-notch 32 downwardly extending from the forward end of a bolt-guiding slot 33 formed in the upper face of the receiver and extending longitudinally thereof in the usual manner of upturn-and-pullback bolt-action firearms.

Mounted within the bolt 28 with capacity for reciprocation and oscillation therein is a firing-plunger or -member 34 carrying a forwardly-extending firing-projection 35 for engaging and firing a cartridge located in the rear end of the barrel 24. The said firing-plunger is also provided with a cylindrical head 36, the forward face of which is adapted on occasion to engage with a stop-abutment 37 in the bolt 28 and on other occasions to be engaged by a sear-nose 39 inwardly offsetting from a trigger 40 through a clearance-cut 41 formed in the under face of the said bolt 28 and through a clearance-cut 42 formed in the under face of the receiver 20, as clearly shown in Fig. 4 of the drawings.

The trigger 40 is pivotally secured to the under side of the receiver 20 by a pivot-pin 43 and is swung in the direction required to move its sear-nose 39 upwardly for engagement with the head 36, by a trigger-spring 44 seated in a socket 45 in the said trigger 40 and engaging the under face of the said receiver 20.

Encircling the firing-plunger 34 is a firing-spring 46 seated at its forward end against the rear face of the head 36 and at its rear end against the forward face of a sleeve-like spring-seat 47 and exerting a constant effort to urge the said firing-plunger 34 and firing-projection 35 forwardly. The spring-seat 47 has struck upwardly from it a locking-lug 48 seated in a locking-notch 49 opening laterally out of a cam-notch 50 formed in the rear end of the bolt 28. One wall of the said cam-notch 50 is shaped to provide a cocking-cam 51 coacting with a forwardly-and-laterally-facing cam-surface 52 formed upon a cocking-shoe 53 having a safety-abutment in the form of a nose 54 and secured to the under face of a guide-lug 55 by means of a screw 56 (Figs. 4 and 5).

The guide-lug 55 above referred to has straight parallel sides and is of such width to freely slide in the longitudinal guide-slot 33 in the receiver 20 and forms a forwardly-extending feature of an operating-head 57 rigidly mounted upon the reduced rear end of the firing-plunger 34 and secured thereto by a pin 58.

The guide-lug 55 before referred to is cut at its forward end to provide a forwardly-extending stop-tang 59 and a safety-nose or -abutment 60 which is adapted on occasion to be engaged with a safety-abutment 61 on the rear face of the receiver 20. Immediately adjacent the point at which the cocking-cam 51 joins the rear face of the bolt 28, the said rear face is formed with a detent-notch 62 and with a safety-notch or -abutment 63, both of which notches are adapted to receive on occasion the nose 54 of the cocking-shoe 53 before referred to.

When the bolt-handle 29 is swung upwardly out of the locking-notch 32, from the position in which it is shown in Figs. 1, 2 and 3 into the position in which it is shown in Fig. 14, it will, to a corresponding degree, turn the bolt 28 and cause the cocking-cam 51 thereof to engage the cam-surface 52 of the cocking-shoe 53 with the effect of forcing the firing-plunger 34 and associated parts rearwardly.

When turned as described, the bolt 28 will have brought the detent-notch 62 in its rear face into registration with the detent-nose 54 of the cocking-shoe 53 to thereby yieldingly hold the firing-plunger and bolt in a predetermined rotary position, as shown in Fig. 14, so that when the bolt is retracted to a degree sufficient to remove the guide-lug 55 from the guide-slot 33, this relationship will be maintained.

Now, when the bolt is moved forwardly, the forward face of the head 36 of the firing-plunger 34 will be engaged with the sear-nose 39 to thus releasably hold the said firing-plunger in its cocked position. The final downward swinging movement of the bolt-handle 29 will serve to enter the base 30 of the said handle in the locking-notch 32 to thus lock the bolt in its closed position and realign the notch 50 in the said bolt with the cocking-shoe 53, so that upon the disengagement of the sear-nose 39 from the head 36, the firing-plunger 34 and associated parts will be free to snap forwardly under the urge of the spring 46 to fire the gun.

When the bolt is in its closed position and it is desired to render the gun "safe," this may be effected by grasping a knurled portion of the operating-head 57, drawing slightly rearwardly thereupon and turning the same in a clockwise direction to engage the safety-nose or -abutment 60 with the safety-abutment 61 on the rear end of the receiver 20. This turning movement will be limited by the engagement of the stop-tang 59 with the right wall of the guide-slot 33. When in this position, the trigger may be operated, but the firing-plunger and associated parts will be prevented from traveling forwardly under the urge of the spring 46.

If, now, the bolt-handle 29 is swung upwardly, the firing-plunger 34 and its operating-head 57 will be prevented from similarly turning by the engagement of the safety-nose 60 with the safety-abutment 61, and the notch-like safety-abutment 63 in the rear end of the bolt 28 will be brought into longitudinal alignment with the now-retracted nose 54 of the cocking-shoe 53. Immediately upon the release of the bolt as just described, the spring 46 will assert itself and move the said bolt 28 slightly rearwardly to actually engage the notch 63 with the previously-retracted nose 54.

Now, when the bolt is manually moved rearwardly for the purpose of ejecting an empty cartridge and inserting a fresh cartridge in the cartridge-chamber of the gun, the nose or abutment 60 will be held in longitudinal alignment with the safety-abutment 61 in the rear end of the receiver 20, as shown in Fig. 16, by the inter-engagement of the features 54 and 63, so that when the bolt is again moved forwardly, the abutments 60 and 61 will reengage and the arm remain in its "safe" position, as indicated in Fig. 15.

From the foregoing it will be observed that once the operating-head has been swung into its safety position, the subsequent manipulation of the bolt does not disturb this setting, which can only be done manually by a deliberate swinging movement imparted to the operating-head 57.

When it is desired to remove the firing-plunger 34 and the parts carried thereby, this may be conveniently accomplished by pressing slightly forwardly upon the locking-lug 48 of the spring-seat 47 and turning the latter in a clockwise direction to disengage the said lug from the locking-notch 49 in the bolt 28. The firing-plunger may now be readily withdrawn from the interior of the said bolt and cleaned and oiled, if desired, and reinstalled by reversing the operations just above described.

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. An upturn-and-pullback bolt-action firearm, including: a receiver provided with a safety-abutment; a bolt mounted in said receiver with capacity for both oscillating and reciprocating movement therein and having a safety-abutment; an operating-handle offsetting from the said bolt; a firing member having oscillating and reciprocating movement in the said bolt; and a pair of safety-abutments carried by the said firing-member and simultaneously movable therewith into longitudinal alignment—one with the safety-abutment of the said bolt and the other with the safety-abutment of the said receiver, when the operating-handle of the said bolt is in its upturned position.

2. An upturn-and-pullback bolt-action firearm,

including: a receiver provided in its rear edge with a safety-abutment; a bolt mounted in the said receiver with capacity for both oscillating and reciprocating movement therein and having a safety-abutment in its rear edge; an operating-handle offsetting from the said bolt; a firing-member having oscillating and reciprocating movement in the said bolt; and a pair of safety-abutments carried by the said firing-member and simultaneously movable therewith into longitudinal alignment—one with the safety-abutment on the rear end of the said bolt and the other with the safety-abutment on the rear end of the said receiver, when the operating-handle of the said bolt is in its upturned position.

3. An upturn-and-pullback bolt-action firearm, including: a receiver provided with a safety-notch; a bolt mounted in the said receiver with capacity for oscillation and reciprocation therein and having a safety-notch; an operating-handle offsetting from the said bolt; a firing-member having oscillating and reciprocating movement in the said bolt; and a pair of safety-noses carried by the said firing-member and simultaneously movable therewith into longitudinal alignment—one with the safety-notch in the said bolt and the other with the safety-notch in the said receiver, when the operating-handle of the said bolt is in its upturned position.

4. An upturn-and-pullback bolt-action firearm, including: a receiver provided in its rear edge with a safety-notch; a bolt mounted in the said receiver with capacity for both oscillating and reciprocating movement therein and having a safety-notch in its rear edge; and operating-handle offsetting from the said bolt; a firing-member having oscillating and reciprocating movement in the said bolt; and a pair of safety-noses carried by the said firing-member and simultaneously movable therewith into longitudinal alignment—one with the safety-notch on the rear end of the said bolt and the other with the safety-notch on the rear end of the said receiver, when the operating-handle of the said bolt is in its upturned position.

5. An upturn-and-pullback bolt-action firearm, including: a receiver provided with a safety-abutment; a bolt mounted in said receiver with capacity for both oscillating and reciprocating movement therein and having a safety-abutment; an operating-handle offsetting from the said bolt; a firing-member having oscillating and reciprocating movement in the said bolt; and a pair of safety-abutments carried by the said firing-member; the aforesaid safety-abutments being so located with respect to each other that when one of the safety-abutments of the said firing-member is turned into longitudinal alignment with the safety-abutment of the said receiver, the safety-abutment of the said bolt will be brought into alignment with the other of said safety-abutments on the said firing-member when the operating-handle of the said bolt is moved into its upturned position.

6. An upturn-and-pullback bolt-action firearm, including: a receiver provided in its rear edge with a safety-abutment; a bolt mounted in the said receiver with capacity for both oscillating and reciprocating movement therein and having a safety-abutment in its rear edge; an operating-handle offsetting from the said bolt; a firing-member having oscillating and reciprocating movement in the said bolt; and a pair of safety-abutments carried by the said firing-member; the aforesaid safety-abutments being so located with respect to each other that when one of the safety-abutments of the said firing-member is turned into longitudinal alignment with the safety-abutment on the rear end of the said receiver, the safety-abutment on the rear end of the said bolt will be brought into alignment with the other of said safety-abutments on the said firing-member when the operating-handle of the said bolt is moved into its upturned position.

7. An upturn-and-pullback bolt-action firearm, including: a receiver provided with a safety-notch; a bolt mounted in the said receiver with capacity for oscillation and reciprocation therein and having a safety-notch; an operating-handle offsetting from the said bolt; a firing-member having oscillating and reciprocating movement in the said bolt; and a pair of safety-noses carried by the said firing-member; the said safety-noses and safety-notches being so located with respect to each other that when one of the said safety-noses of the said firing-member is turned into longitudinal alignment with the safety-notch of the said receiver, the safety-notch of the said bolt will be brought into longitudinal alignment with the other of said safety-noses on said firing member, when the operating-handle of said bolt is moved into its upturned position.

8. An upturn-and-pullback bolt-action firearm, including: a receiver provided in its rear edge with a safety-notch; a bolt mounted in the said receiver with capacity for both oscillating and reciprocating movement therein and having a safety-notch in its rear edge; an operating-handle offsetting from the said bolt; a firing-member having oscillating and reciprocating movement in the said bolt; and a pair of safety-noses carried by the said firing-member; the said safety-noses and safety-notches being so located with respect to each other that when one of the said safety-noses of the said firing-member is turned into longitudinal alignment with the safety-notch on the rear end of the said receiver, the safety-notch on the rear end of the said bolt will be brought into longitudinal alignment with the other of said safety-noses on said firing-member, when the operating-handle of said bolt is moved into its upturned position.

9. An upturn-and-pullback bolt-action firearm, including: a receiver having a longitudinal guide-slot and provided in its rear edge with a safety-notch; a bolt mounted in said receiver with capacity for both oscillating and reciprocating movement therein and having a safety-notch in its rear edge; an operating-handle offsetting from the said bolt and riding in the longitudinal groove of said receiver; a firing-member having oscillating and reciprocating movement in the said bolt; an operating-head rigidly attached to the rear end of the said firing-member and having a guide-lug extending forwardly over the rear portion of the said bolt and normally fitting within the longitudinal guide-groove of the said receiver; and a pair of safety-noses carried by the operating-head of the said firing-member; the said safety-noses and safety-notches being so located with respect to each other that when one of the said safety-noses of the said firing-member is turned into longitudinal alignment with the safety-notch of the said receiver, the safety-notch of the said bolt will be brought into longitudinal alignment with the other of said safety-noses on said firing-

member, when the operating-handle of said bolt is moved into its upturned position.

10. An upturn-and-pullback bolt-action firearm, including: a receiver having a longitudinal guide-slot and provided in its rear edge with a safety-notch; a bolt mounted in said receiver with capacity for both oscillating and reciprocating movement therein and having a safety-notch in its rear edge; an operating-handle rigidly offsetting from the said bolt and riding in the longitudinal groove of said receiver; a firing-member having oscillating and reciprocating movement in the said bolt; an operating-head rigidly attached to the rear end of the said firing-member and having a guide-lug extending forwardly over the rear portion of the said bolt and normally fitting within the longitudinal guide-groove of the said receiver; and a pair of safety-noses, one forming an integral feature of the guide-lug of the said operating-head, and the other being attached to the inner face thereof for engagement with the rear edge of the said bolt; the said safety-noses and safety-notches being so located with respect to each other that when one of the said safety-noses of the said firing-member is turned into longitudinal alignment with the safety-notch of the said receiver, the safety-notch of the said bolt will be brought into longitudinal alignment with the other of said safety-noses on said firing-member, when the operating-handle of said bolt is moved into its upturned position.

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