

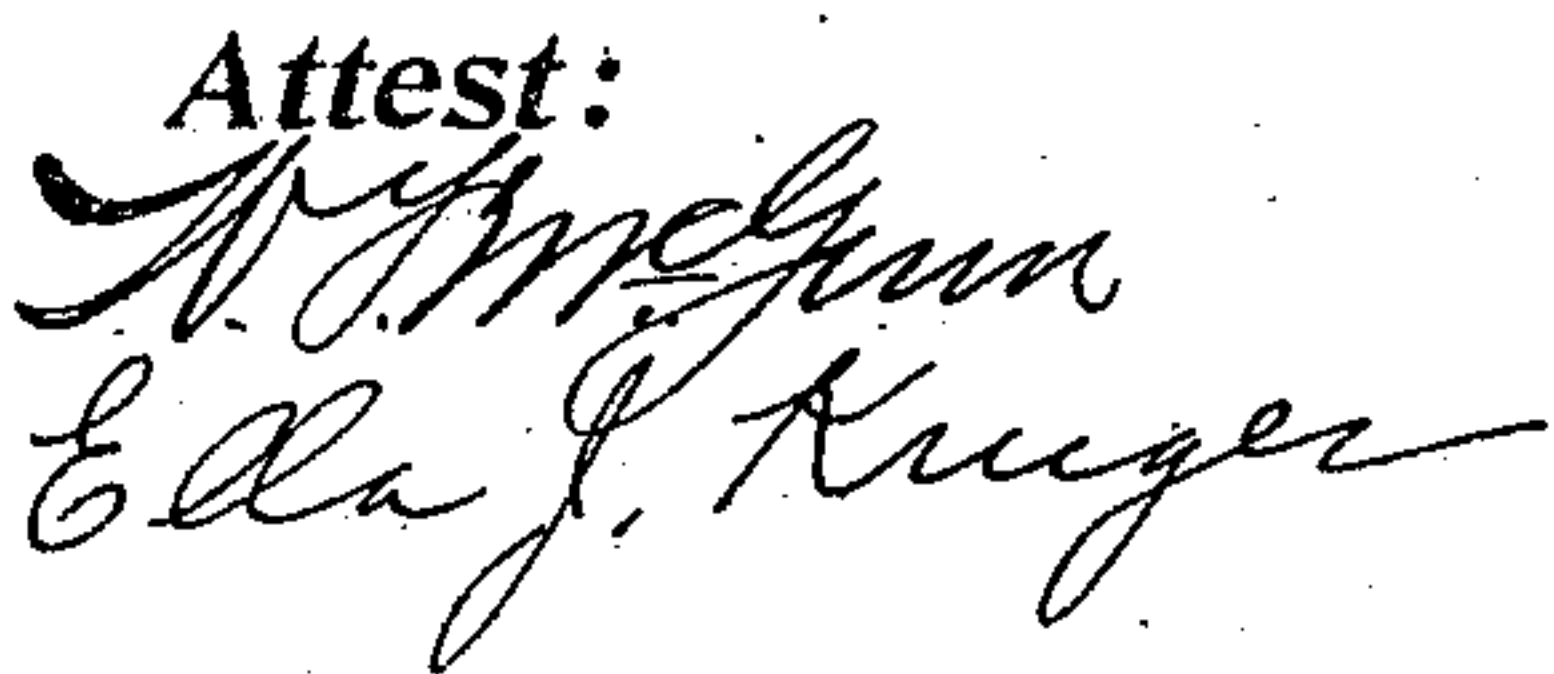
REPEATING FIREARM.


APPLICATION FILED SEPT. 18, 1909.

953,292.

Patented Mar. 29, 1910.

3 SHEETS—SHEET 1.



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APPLICATION FILED SEPT. 18, 1909.

Patented Mar. 29, 1910.

3 SHEETS—SHEET 2.



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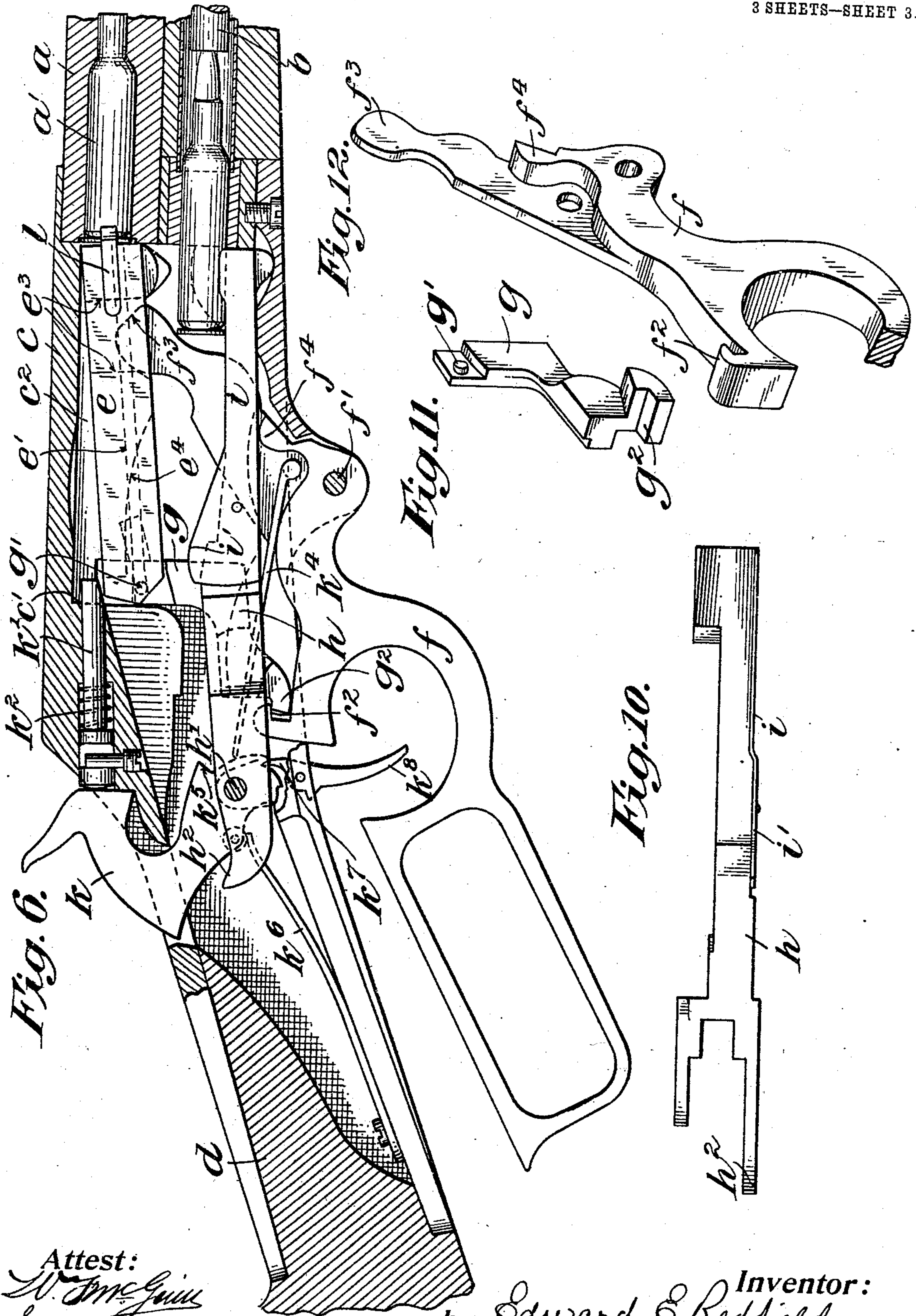


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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

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## REPEATING FIREARM.

953,292.

Specification of Letters Patent.

Patented Mar. 29, 1910.

Application filed September 13, 1909. Serial No. 518,419.

*To all whom it may concern:*

Be it known that I, EDWARD E. REDFIELD, a citizen of the United States, residing at Glendale, Douglas county, Oregon, have invented certain new and useful Improvements in Repeating Firearms, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention has been developed with especial reference to its application to repeating firearms in which the frame is closed in the rear of the breech, but as the description thereof proceeds it will be seen that the improvements, at least except so far as they involve directly a closed frame, are applicable, either separately or together, to other forms of repeating firearms.

One object of the invention is to permit the use of an external hammer with a closed frame, and thereby to avoid the dangers of a concealed hammer, and also to permit the cocking of the hammer to be effected directly by the action of the guard lever, either in connection with the closed frame or in connection with a rearwardly sliding breech-block, the cocking of the hammer being thereby more easily effected, since the full stroke of the guard lever may be utilized for the purpose without lost motion.

Another feature of the invention is particularly concerned with means for effecting the movement of the breech-block from the firing position to the loading position and from the loading position to the firing position, and for locking it in the firing position, such means being especially adapted for use with a closed frame.

The invention is also concerned with means for extracting the empty shell from the chamber of the barrel after firing and for ejecting it from the frame or receiver, such means being carried by the breech-block.

The means for operating the cartridge carrier or lifter, by which each cartridge as it is received from the magazine is moved to position for insertion in the chamber of the barrel, are also improved, the purpose being to secure more direct and positive action, as well as more power. The operation of the cartridge guide, or cartridge plate, by which the cartridge is prevented from falling out through the ejector opening during the loading movement, has also been improved.

These and other details and features of improvement will be more fully explained hereinafter with reference to the accompanying drawings, in which an embodiment of the invention is illustrated, and in which—

Figure 1 is a view in side elevation of an ordinary sporting rifle, to which the invention is applied. Fig. 2 is a detail view on a larger scale, partly in side elevation and partly in longitudinal section, of so much of the rifle shown in Fig. 1 as is necessary to enable the application of the invention to be understood, the parts being shown in the firing position, but with the hammer down. Fig. 3 is a view in section on the plane indicated by the broken line 3—3 in Fig. 2, looking in the direction of the arrows. Fig. 4 is a view similar to Fig. 2, but with the parts in the positions which they assume during the operation of the loading, the cartridge being shown on the carrier in readiness to be inserted in the chamber of the barrel. Fig. 5 is a detail view in section on the plane indicated by the line 5—5 in Fig. 4, looking in the direction of the arrows. Fig. 6 is a view generally similar to Figs. 2 and 4, but with the parts in the positions which they assume in the beginning of the downward movement of the guard lever after the firing. Figs. 7 and 8 are detail views, partly in horizontal section and partly in plan view, showing particularly the cartridge extracting and ejecting devices. Fig. 9 is a detail view, in front end elevation, of the breech block. Figs. 10, 11 and 12 are detail views, respectively, of the cartridge carrier or lifter, the lifting slide for the breech-block and the guard lever, the latter being broken off to save space.

The barrel *a* chambered as at *a'* to receive the cartridge, the magazine *b* in which the cartridges are placed and are pressed to the rear by a spring follower not shown, the frame or receiver *c* (except as hereinafter indicated) and the stock *d* may all be constructed and arranged in any usual or convenient manner.

In the type of firearm with which the invention is particularly concerned, the frame or receiver *c* is closed, *i. e.*, it is provided with a solid abutment as at *c'* in line with the barrel and in line with the breech block and in rear of the same when the latter is in firing position. The frame is also suitably chambered as at *c''*, to permit the proper



movement of the breech-block and other parts, as hereinafter explained. The breech-block  $e$ , as is usual in firearms of the type referred to, during the extraction and ejection of the empty cartridge shell, and during the loading movement, first drops down from its firing position between the barrel and the abutment of the frame, then moves back to permit the cartridge to be placed in front of it, then moves forward to insert the cartridge in the chamber of the barrel, and then rises to the firing position. The guard lever  $f$ , as also usual in repeating firearms, swings upon a pivot  $f'$  in the underside of the frame, its movement effecting the various operations of extracting the empty cartridge shell, cocking the hammer, lifting the fresh cartridge into position, and inserting the cartridge into the chamber of the barrel. The devices through which these various operations are effected, differ, however, from those heretofore employed, as will now be described.

The breech-block  $e$  has in its left-hand side a longitudinal groove  $e'$  (see particularly Figs. 3 and 6) which is entered by a pin  $g'$  (Figs. 3, 6 and 11), on the right-hand side of the breech-block lifter  $g$ . The latter has a vertical movement, being guided in the recess in the left-hand side of the frame or receiver. Its lower end is provided with a lug  $g^2$  projected to the right and also to the rear, to be engaged by a forwardly projected hook or finger  $f^2$  on the guard lever  $f$  in rear of the pivot  $f'$ , and when the guard lever is in its normal position, as shown in Fig. 2, standing above the horizontal plane of the pivot  $f'$  when the rifle is held with its barrel horizontal. During the first part of the downward movement of the rear end of the guard lever the hook  $f^2$  pulls down the breech-block lifter  $g$  through its engagement with the lug  $g^2$ , as shown in Fig. 6, and as such movement continues and the hook or finger  $g^2$  reaches the horizontal plane of the pivot  $f'$  it is disengaged from the lug  $g^2$ , so that the downward movement of the lifter  $g$  ceases and the movement of the guard lever  $f$  is permitted to continue. The downward movement of the lifter  $g$  is sufficient to depress the rear end of the breech block  $e$  below the abutment  $c'$  so that the breech-block is then free to move rearwardly. Such rearward movement of the breech-block is effected by the continued movement of the guard lever  $f$ , which is extended forward beyond the pivot  $f'$  and is provided with a finger  $f^3$ , which is preferably rounded and enters a slot  $e^3$  (Figs. 2, 3 and 6) of the breech-block  $e$  near its forward end. The continued downward and forward movement of the rear end of the guard lever  $f$  through the forwardly extended finger  $f^3$  causes the rearward movement of the breech block  $e$  from the position shown in Figs. 2 and 6 to the position shown

in Fig. 4, in which the breech block is represented in its extreme rearward position. The upward and rearward movement of the rear end of the guard lever  $f$  first moves the breech block forward from the position shown in Fig. 4 to the position shown in Fig. 6 and then through contact of the upper side of the guard lever with the under side of the lifter  $g$  raises the rear end of the breech block from the position shown in Fig. 6 to the position shown in Fig. 2, in which it is in readiness for firing. In the upward movement of the guard lever the hook or finger  $f^2$  again engages the lug  $g^2$  of the slide  $g$  in readiness for the next downward movement of the breech block.

The cartridge lifter or carrier  $h$ , suitably shaped at its forward end to receive the fresh cartridge from the magazine, is pivoted near its rear end as upon the pin  $h'$  and at its rear end, as at  $h^2$  is formed with an upwardly turned toe with which the rear end of the breech block  $e$  coöperates as the breech block reaches the limit of its rearward movement, as shown in Fig. 4, with a direct, positive, and wedge-like or cam-like action, to tilt the carrier upon its pivot, raising its forward end with the cartridge thereon into the position shown in Fig. 4. The initial movement of the cartridge lifter or carrier, however, is effected as heretofore, the guard lever  $f$  being formed forward and above its pivot  $f'$  with a cam toe  $f^4$ , which acts against the under side of the cartridge lifter or carrier  $h$  to start the same from its initial position of rest, such initial movement raising the end of the carrier sufficiently to act as a magazine cut-off to prevent the egress of another cartridge from the magazine. The main part of the movement of the carrier is effected by the coöperation of the breech block with the cam toe  $h^2$ , as above described.

On the right hand side of the cartridge lifter is pivoted a cartridge guide or guard plate  $i$ , the rear end of which is wider than the cartridge lifter or carrier. As the cartridge carrier is swung upward on its pivot in the manner described, that portion  $i'$  of the rear end of the cartridge guide which projects above the cartridge carrier strikes the overlying breech block  $e$ , as shown in Fig. 4, throwing down the rear end of the cartridge guide and raising the forward end. This movement takes place as the cartridge is raised to the level of the ejector opening  $c^3$  in the right hand side of the frame, so that the cartridge is prevented from falling out through such opening, even if the rifle is held in a position in which this would otherwise be possible.

As before stated, the hammer  $k$  is arranged as an external hammer, notwithstanding the fact that the frame is closed at the rear. As shown, the hammer is pivoted in the frame as usual, as on the pin  $h'$ ,



and it co-acts directly with the rear member  $k'$  of the firing pin which is seated in the abutment  $c'$  of the frame and is pressed to the rear by a spring  $k^2$ . In view of the movement of the breech block relative to the frame in which the member  $k'$  of the firing pin is mounted, it is necessary to make the firing pin in two parts, the other part  $k^3$  (Figs. 2 and 3) being mounted in the breech block  $e$  and having its reduced forward end extended through the face of the breech block as usual to act upon the primer of the cartridge.

The hammer is cocked directly through the movement of the guard lever  $f$ , the cocking bar  $k^4$  being pivoted on the guard lever above its pivot  $f'$  and coöperating with a shoulder  $k^5$  of the hammer during the movement of the guard lever to open the breech, and thus cocking the hammer against the force of the main spring  $k^6$ , the hammer being held in cocked position by the sear  $k^7$  of the trigger  $k^8$ , or by other usual or suitable means. It will be seen not only that the hammer is exposed, which is more desirable on the score of safety than a concealed hammer, but that it is cocked directly by the movement of the guard lever, the cocking movement of the hammer taking place practically throughout the entire movement of the guard lever, so that the cocking is easily effected. The breech block does not touch the hammer during its movement, being slotted on its under side and at its rear end, as at  $e^4$ , to straddle the hammer in its rearward movement, this arrangement permitting the use of a shorter receiver or frame than would otherwise be possible.

The extraction of the empty cartridge shell from the chamber of the barrel and the ejection thereof through the opening  $c^3$  in the side of the frame are accomplished in the following manner: In opposite sides of the breech block  $e$ , at its forward end, are pivoted two levers  $l$  and  $m$  formed at their forward ends to engage the rim of the cartridge, as shown in Fig. 7. The lever  $l$  serves the purpose of an extractor only and is held yieldingly in normal position by the spring  $l'$  as usual. The lever  $m$  serves the double purpose of an extractor and an ejector. This is not spring-pressed, but its tail  $m'$  stands in the groove  $e'$  (Figs. 5, 7 and 8) in the left hand side of the breech block. In the rear portion of the groove  $e'$  is a lug or pin, such as the pin  $g'$ , which coöperates with the cam-like tail  $m'$  of the extractor-ejector to cause the same to be rocked upon its pivot, as shown in Fig. 8, the frame  $c$  being recessed, as at  $c^4$ , to receive the hook member of the lever during this movement. The ejector member of the lever consists of an arm  $m^3$  which lies in a slot formed therefor in the parts of the breech-block and extends nearly across the

head of the cartridge, so that when the tail of the lever strikes the lug or pin  $g'$  the ejector arm is thrown quickly into the position shown in Fig. 8, while at the same time the hook member is disengaged from the rim of the cartridge. This action causes the cartridge to be ejected through the ejector opening  $c^3$  in the frame with a quick snap, which throws it clear of the frame.

The general mode of operation of the improved firearm is substantially the same as that of any other firearm of like character, and need not be described in detail herein, the features of operation with which the present invention is concerned having been fully described and explained.

It has already been suggested and it will now be evident that certain features of the present improvement, such, for example, as the cartridge lifting devices, the cocking devices and the extracting and ejecting devices, are not necessarily employed in connection with a closed or solid frame, and it will also be evident that such devices are not necessarily combined with one another in a single structure, since each of such devices may be used with other devices than those shown and described. It will further be evident that the invention is not limited to the particular details of construction and arrangement shown and described herein.

I claim as my invention:

1. In a repeating firearm, the combination of a frame chambered to receive the breech-block, a breech-block, a breech-block lifter movable vertically in guides in the frame and engaging the breech-block, and a guard lever pivoted in the frame and engaging the breech-block lifter during its initial opening movement to depress the breech-block and during its final closing movement to raise the breech-block.

2. In a repeating firearm, the combination of a frame chambered to receive the breech-block, a breech-block movable vertically and longitudinally, a breech-block lifter movable vertically in guides in the frame and engaging the breech-block to depress and raise the same and to permit longitudinal movement thereof, and a guard lever pivoted in the frame and engaging the breech-block lifter during its initial opening movement to depress the breech-block and during its final closing movement to raise the breech-block.

3. In a repeating firearm, the combination of a frame chambered to receive the breech-block, a breech-block movable vertically and longitudinally and having a longitudinal groove in one side thereof, a vertically movable breech-block lifter engaging said groove and a guard lever pivoted in the frame and engaging the breech-block lifter during its initial opening movement to depress the breech-block, and during its final closing movement to raise the breech-block.



4. In a repeating firearm, the combination of a frame chambered to receive the breech-block, a breech-block vertically movable therein, a vertically movable breech-block lifter engaging the breech-block and having a rearwardly projecting lug and a guard lever pivoted in the frame and having in rear and above the plane of the pivot of the guard lever a forwardly projecting hook to engage the rearwardly projecting lug of the breech-block lifter.
5. In a repeating firearm, the combination of a frame chambered to receive the breech-block, a breech-block movable vertically and longitudinally in the frame, a vertically movable breech-block lifter engaging the breech-block, and a guard lever pivoted in the frame and engaging the breech-block lifter during its initial opening movement to depress the breech-block and having a forwardly extending finger to engage the breech-block and move the same longitudinally.
6. In a repeating firearm, the combination of a frame, a cartridge lifter pivoted in the frame, a breech-block mounted movably in the frame, and a cartridge guide plate pivoted on the cartridge lifter and having its end in rear of the pivot wider than the cartridge lifter to cooperate with the breech-block during the upward movement of the lifter to rock the plate on its pivot and with the frame during the downward movement of the lifter to restore the plate to normal position.
7. In a repeating firearm, the combination

of a frame, a breech-block movable longitudinally in the frame, a pivoted, spring-pressed extractor mounted in the breech-block, and a pivoted extractor-ejector also mounted in the breech-block and having a hook to engage the rim of the cartridge and an arm to engage the head of the cartridge, and means to rock the extractor-ejector to release the cartridge and to eject the cartridge.

8. In a repeating firearm, the combination of a frame, a breech-block movable longitudinally in the frame, an extractor carried by the breech-block, an extractor-ejector pivoted in the breech-block and having a hook to engage the cartridge rim and an arm to engage the cartridge head, and means to rock the extractor-ejector to release the cartridge and eject it.

9. In a repeating firearm, the combination of a frame, a longitudinally movable breech-block, an extractor carried by the breech-block, an extractor-ejector pivoted in the breech-block and having a hook to engage the cartridge rim, an arm to engage the cartridge head and a tail piece, and a lug located in the path of the tail piece of the extractor-ejector to rock the same on its pivot to cause it to release the cartridge and to eject it.

This specification signed and witnessed this 30th day of August A. D., 1909.

EDWARD E. REDFIELD

Signed in the presence of—

R. A. JONES,  
K. A. MILLER.