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PATENTED APR. 30, 1907.

E. E. REDFIELD.
MAGAZINE RIFLE.

APPLICATION FILED JULY 3, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

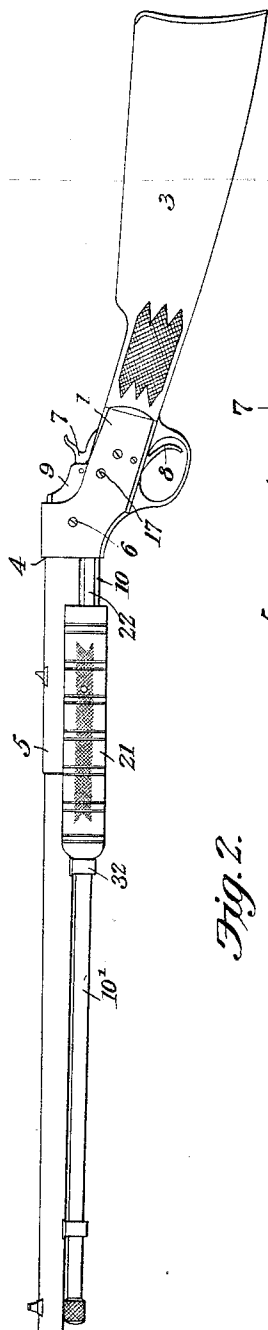


Fig. 2.

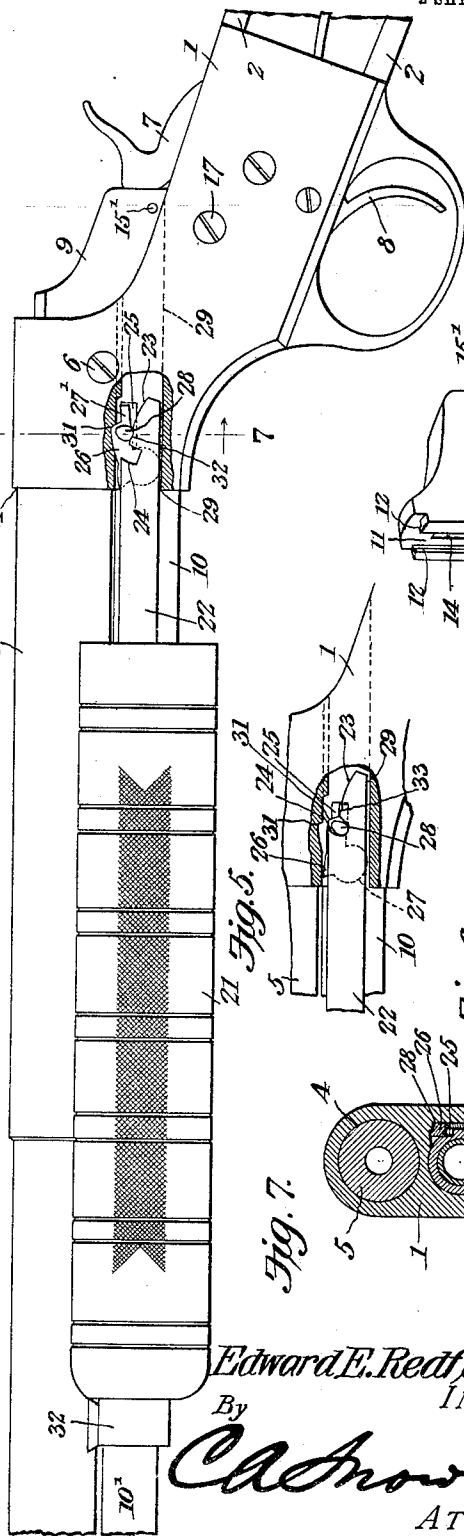


Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

Fig. 12.

WITNESSES:

E. J. Stewart
C. Bradway

Edward E. Redfield

By

INVENTOR

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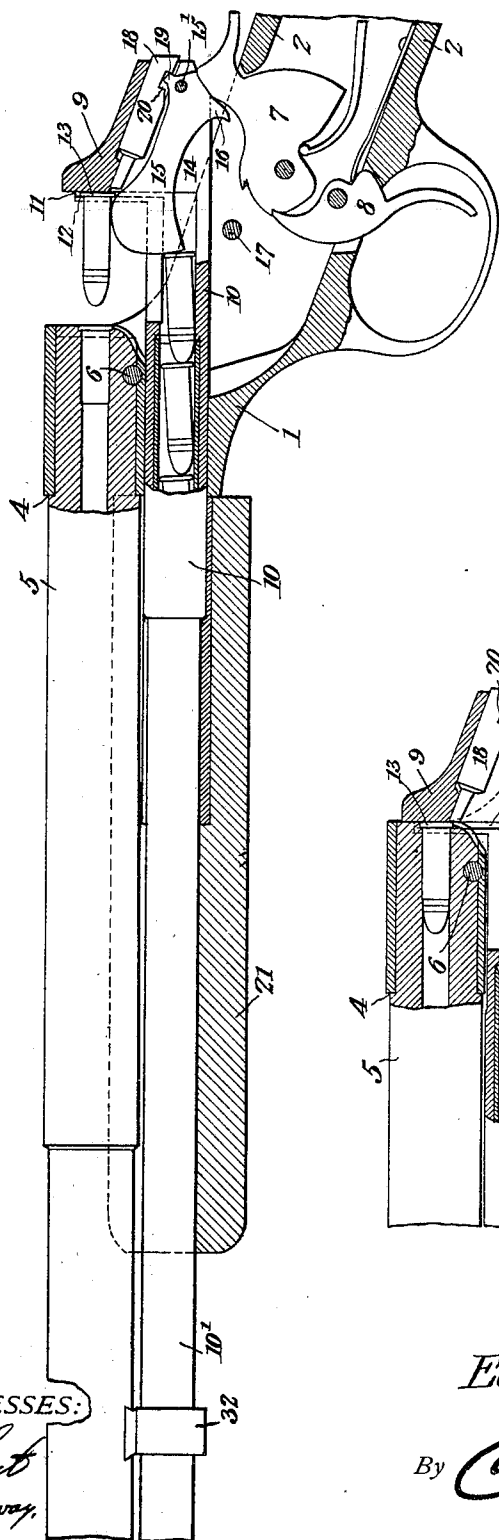
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2 SHEETS—SHEET 2.

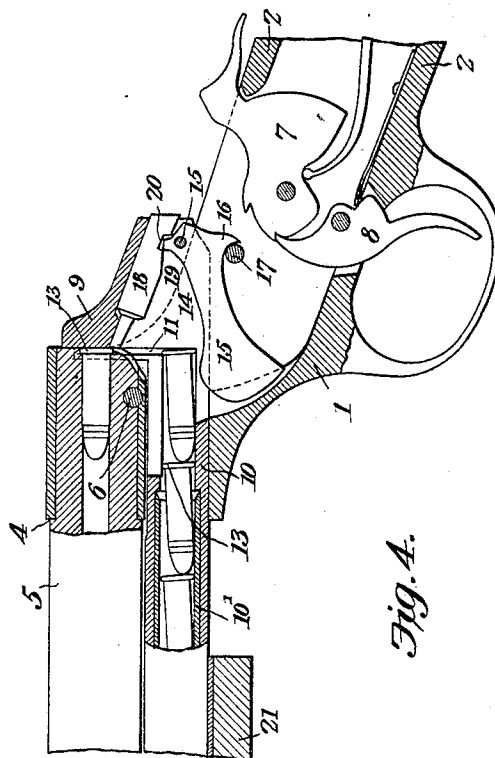
Fig. 3.



WITNESSES:

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Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD E. REDFIELD, OF GLENDALE, OREGON.

MAGAZINE-RIFLE.

No. 852,241.

Specification of Letters Patent.

Patented April 30, 1907.

Application filed July 3, 1906. Serial No. 324,842.

To all whom it may concern:

Be it known that I, EDWARD E. REDFIELD, a citizen of the United States, residing at Glendale, in the county of Douglas and State of Oregon, have invented a new and useful Magazine-Rifle, of which the following is a specification.

The present invention relates to magazine rifles, and more particularly to improvements in the construction of the breech mechanism.

It has for one of its objects to simplify the construction and reduce the number of parts, so as to lessen the cost of manufacture, diminish the liability of mechanism getting out of order, and improve the operation.

A further object is to provide a simple and effective means for detachably connecting the grip piece of the rifle with the breech block, and for locking the latter in position.

With these objects in view, and others, as will appear as the nature of the invention is better understood, the same comprises the novel features of construction and arrangement of parts, described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one of the embodiments of the invention, Figure 1 is a side elevation of a magazine rifle with my invention applied thereto. Fig. 2 is a side elevation drawn on an enlarged scale of the breech mechanism of the rifle, with a portion broken away to show the locking device for holding the breech block in firing position and for attaching the forearm attachment, or grip piece, to the breech block. Figs. 3 and 4 are central longitudinal sections of the breech mechanism showing the parts in an open and closed position, respectively. Fig. 5 is a detail view of the locking device in a position different from that shown in Fig. 2. Fig. 6 is a perspective view of the key or locking member of the device. Fig. 7 is a vertical transverse section on line 7-7, Fig. 2, looking in the direction indicated by the arrows. Fig. 8 is a perspective view of the combined breech block, magazine tube and extractor.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawings, 1 represents the frame of a breech mechanism provided with the usual tangs 2 for attachment of the stock

3, and the socket 4 that receives the shouldered end of the barrel 5, the latter being held in place by the screw 6.

7 designates the hammer and 8 the trigger, which are actuated by springs in the usual manner.

The breech block 9 is preferably made with an integral tubular portion 10 forming a part of the rear end of the magazine tube 10', although, if desired, the tubular portion may be separate from and suitably secured to the breech block. The front wall of the breech block, as shown in Fig. 8, is provided with a vertical groove 11 having opposed overhanging shoulders 12, so as to receive the beaded head of the cartridge, indicated at 13, Figs. 3 and 4, this construction forming the extractor. It will thus be seen that the extractor, breech block and a portion of the magazine tube are formed by a single piece, or unitary structure.

The breech block is provided with a narrow, upright slot 14 extending from the bottom thereof, Figs. 3, 4 and 8, in which is arranged a lifter 15 that is pivoted at its rear end on the pin 15'. Extending downwardly from the rear end of the lifter is a lug or nose 16 that is adapted to abut the hammer when the breech block reaches the last part of the rearward or extracting movement, thereby causing the lifter to tilt on its pivot and raise the forward end of the same to eject the fired cartridge and elevate the succeeding unfired cartridge to the proper position for recharging, as shown in Fig. 3. The nose is also adapted to engage on its forward movement the abutment 17 that preferably takes the form of a screw bolt extending transversely in the frame 1. By abutting the screw, the lifter is caused to be lowered at its front end so that its upper edge will lie even with or slightly below the bore of the magazine or tube portion of the breech block, so as to permit the next cartridge to be advanced by the spring in the magazine tube, in the usual manner, as shown in Fig. 4.

The firing pin 18 is located in the breech block in a position above the lifter and is suitably connected therewith so that, as the lifter is elevated, the firing pin is retracted in order to permit the succeeding cartridge to be lifted into position without its coming in contact with the pin. For connecting these two members, the lifter is provided with a

projection 19 on its upper surface at the rear that engages with a slight degree of lost motion in the groove 20 of the firing pin.

The grip piece, or forearm attachment, 21, for reciprocating the breech block during the extracting and loading operation, is connected with the breech block by means of a locking mechanism comprising a bar or finger 22 extending along one side of the magazine portion of the breech block and suitably connected to the rear end of the grip piece. The rear end of the finger is beveled at 23 and provided with a notch 24 in its upper edge. The breech block is provided with a slot or recess 25, as seen more clearly in Fig. 8, which is slightly more than semi-circular at its front end. A locking piece or detent 26, Fig. 6, is mounted in the recess, the same having a partially circular portion 27 which is loosely set in the partially circular end of the groove 25, so as to permit of a limited pivotal movement of the detent. This locking piece is provided with a rearward extension 27' having a laterally projecting lug 28 that is adapted to engage in the notch 24 of the bar 22, thereby locking the grip piece to the breech block, as shown in Fig. 5, during the extracting and loading movements. The frame 1 is grooved longitudinally at 29, Fig. 7, to receive the finger 22 and the detent, and permit of their moving back and forth therein. The locking piece 26 also serves to lock the breech block in the firing position, which position is indicated in Fig. 2. For this purpose, the locking piece or detent is provided on the upper edge of the rearward extension 27' with a shoulder 30 that is adapted to engage with a stop or abutment 31 formed by cutting away a portion of the upper wall of the longitudinal groove 29, as shown in Fig. 2. The two walls of the notch 24 are slightly inclined at the rear from a vertical line, so that by a sufficient pressure exerted in a forward direction on the grip piece 21, the lug 28 will be forced out or raised from the notch 24 and upon the bevel 23 of the finger 22. This disengaging of the lug 28 from the notch 24 takes place approximately at the end of the forward or reloading movement of the grip piece 21, and at the point that the front end of the grip piece 21 abuts the eye 32 for supporting the magazine tube 10', the lug 28 seats in a slight depression 33 in the bevel 23 of the finger 22, the finger having a slight degree of resiliency in a vertical plane. By this means, the breech block is positively locked in position so that the reacting force resulting from the firing of a cartridge cannot move the breech block. While the parts are in the position shown in Fig. 2, it is a very simple matter to detach the grip piece 21 from the breech block; this being accomplished by first disengaging the rifle barrel 5 and then sliding off the grip piece in a forward direction from the maga-

zine tube. If it is desired to remove the breech block and magazine tube, the hammer 7 is first taken out and then the breech block and tube can be withdrawn from the frame 1 in a rearward direction.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the invention will be readily understood by those skilled in the art to which it appertains. In setting forth briefly the operation, let it be assumed that a shot has been fired and the parts are in the position shown in Figs. 1 and 2. The grip piece 21 is next moved rearwardly to eject the fired cartridge and shift the succeeding unfired cartridge to a position for reloading. At the beginning of this rearward movement of the grip piece 21, the finger 22 attached thereto yields slightly in a downward direction so that the lug 28 can disengage from the depression 33 and engage in the notch 24, as the finger moves rearwardly with the grip piece. The notch 24 is of sufficient depth to receive the lug 28 when the detent 26 is tilted to its lowermost position. This tilting of the detent is effected by the curved front wall of the notch 24, which serves as a cam for engaging around the curved lug 28, thereby causing the lug to move to the bottom of the notch 24. By this movement of the detent, the shoulder 30 is disengaged from the abutment 31, and the parts assume the position shown in Fig. 5. The grip piece 21 is thus positively connected with the breech block so that the latter will be moved rearwardly therewith. In other words, the parts become positively locked or connected to effect the extracting movement of the breech block after the grip piece has passed through a limited lost motion, which lost motion is necessary to unlock the detent 26 from the frame 1 of the rifle. As the breech block is moved rearwardly, the lifter 15 is hanging in a position corresponding to that shown in Fig. 4, and the hammer, which is impinging on the rear end of the breech block, is gradually tilted on its pivot to a cocked position. Before the breech block reaches the end of its rear movement, the hammer rides off the rear end of the breech block into the path of the nose 16 of the lifter, so that when the said nose abuts the hammer, the forward end of the lifter will be raised so as to carry the unfired cartridge in the magazine tube lying above it, upwardly in the groove 11 to the position shown in Fig. 3, the said unfired cartridge in its upward movement ejecting the shell of the previously fired cartridge. Simultaneously with the raising of the lifter 15, the firing pin 20 is withdrawn sufficiently, through the agency of the slot and projection connection between the lifter and firing pin, to remove the point of the firing pin out of the extractor groove 11 so as to permit the succeeding unfired cartridge to be raised to a

loading position without hindrance. With the parts thus in the position shown in Fig. 3, the grip piece 21 is moved forwardly with sufficient force to cause the lug 28 to be thrown out of the notch 24 as the grip piece 21 approaches the limit of its stroke and move into the depression 33 and cause the shoulder 30 to engage the abutment 31 when the front end of the grip piece engages the eye or stop 32. By the forward movement of the breech block, the unfired cartridge that was raised into position by the lifter on the preceding rear stroke is moved into the barrel of the gun and the lifter falls to its lowered position. At the end of the forward stroke, the parts occupy the positions shown in Figs. 2 and 4, except that the hammer in Fig. 2 is cocked. The trigger is next pulled, thereby releasing the hammer which strikes the firing pin and through the same fires the cartridge. By reason of the slight lost motion between the projection 19 on the lifter and groove 20 on the firing pin, the striking of the latter does not necessarily have any effect on the lifter. This completes the cycle of operation, and for ejecting the fired cartridge and firing the succeeding unfired one, the above described operations are repeated.

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, but I desire to have it understood that the apparatus shown is merely illustrative, and that such changes and modifications may be made, when desired, as are within the scope of the invention.

What is claimed is:—

1. In a magazine gun, the combination of a movable breech block, a cartridge lifter, a fixed pivot on the block on which the lifter is directly mounted for swinging movement, a breech frame for guiding the movement of the block, a hammer arranged on the frame in the path of a portion of the lifter during the rearward movement of the block for forcibly swinging the lifter upwardly, and means on the frame arranged in the path of the said portion of the lifter for insuring the downward movement of the latter.
2. In a magazine gun, the combination of a breech frame, a breech block mounted thereon and having a longitudinally extending slot extending to the rear of the block, a cartridge lifter pivotally mounted at its rear end in the slot and provided with a depending projection, and means on the frame against which the projection forcibly strikes during the rearward movement of the block to impart a swinging movement to the lifter.
3. In a magazine gun, the combination of a breech frame, a single piece magazine tube and breech block having a longitudinal groove and an extractor groove, a firing pin in the breech block, a lifter mounted in the longitudinal groove arranged to eject car-

tridges through the extractor groove, and means connecting the lifter with the firing pin.

4. In a magazine gun, the combination of a breech frame, a single piece magazine tube and breech block, a lifter carried thereby having a depending nose, a firing pin mounted in the breech block and operatively connected with the lifter, a hammer that is adapted to engage the nose of the lifter to raise the latter, and an abutment located in the path of the nose for lowering the lifter.

5. In a magazine gun, the combination of a breech frame, a single piece magazine tube and breech block, a lifter carried thereby having a depending nose, a firing pin mounted in the breech block, a slot and projection operatively connecting the firing pin and lifter, a hammer adapted to engage the nose of the lifter to raise the latter, and an abutment located in the path of the nose for lowering the lifter.

6. In a magazine gun, the combination of a movable breech block, a cartridge lifter mounted thereon, and a hammer with which the lifter engages for receiving its ejecting movement.

7. In a magazine gun, the combination of a breech frame, a breech block movable thereon, a cartridge lifter mounted on and movable with the breech block, and a hammer on the frame arranged to be engaged by the breech block on its backward movement so as to be automatically cocked and to engage the lifter adjacent the end of the rearward movement of the block to actuate the lifter.

8. In a magazine gun, the combination of a breech frame having a longitudinal groove and an abutment in one of the walls of the latter, a breech block guided therein, a grip piece, and a device arranged to connect the grip piece with the breech block during the extracting and loading movements of the latter and to lock the breech block with respect to the frame during the firing operation, said device comprising a pivotally mounted locking member carried by the breech block adapted to engage the abutment and having a laterally extending projection which is movable in the groove of the frame, a finger on the grip piece which is disposed in the groove for engagement with the projection of the locking member, and a lost motion connection between the finger and locking member.

9. In a magazine gun, the combination of a movable magazine tube, a breech block connected with the tube, a breech frame on which the tube and block are guided, a grip piece, and a pivotally mounted locking member carried by the tube for locking the latter to the frame and for connecting the tube with the grip piece.

10. In a magazine gun, the combination of a movable magazine tube, a breech block connected with the tube, a grip piece, and a

pivotally mounted locking member on the tube for connecting the grip piece to the latter.

11. In a magazine gun, the combination of
 5 a movable magazine tube having a recess at one side thereof, a breech block attached to and movable with the tube, a grip piece mounted on the tube, a spring bar attached to the said piece having a beveled and
 10 notched portion, and a pivotally mounted locking piece held in the said recess by the walls thereof and having a projection for engagement with the notched and beveled part of the bar, and a breech frame for guiding the
 15 movement of the magazine tube.

12. In a magazine gun, the combination of a slotted breech block, a firing pin mounted

in the breech block, and a lifter pivoted in the slot and connected with the firing pin with a limited degree of lost motion.

13. In a magazine gun, the combination with a slotted breech block, a firing pin mounted therein, a lifter disposed in the slot and connected with the firing pin, and a pivot on the block for the lifter which acts through
 25 the latter to form the sole means for retaining the firing pin in position.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

EDWARD E. REDFIELD.

Witnesses:

EDWARD H. WHITE,
 B. L. DARBY.