2 Sheets—Sheet 1.

W. W. WETMORE.

Magazine Fire-Arm.

No. 213,538 Patented Mar. 25, 1879.

Fig. 1.

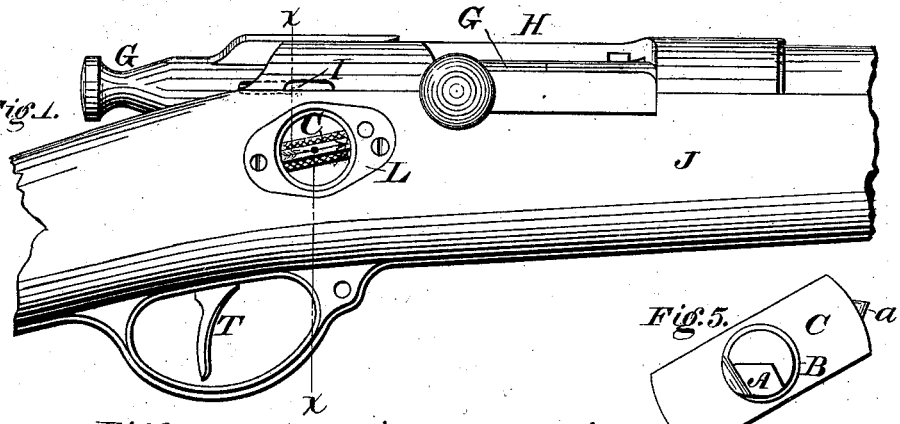


Fig. 5.

Fig. 2.

Fig. 3.

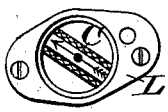


Fig. 4.

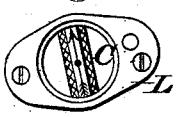


Fig. 6.

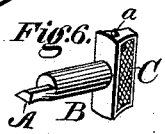


Fig. 7.

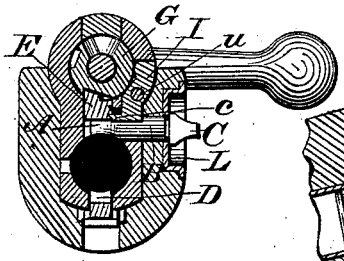


Fig. 8.

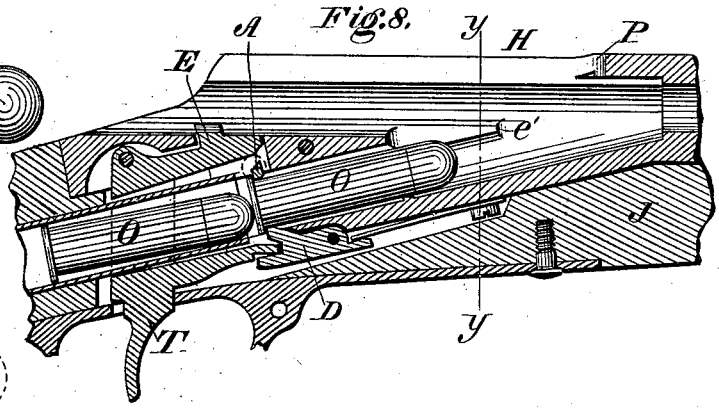


Fig. 9.

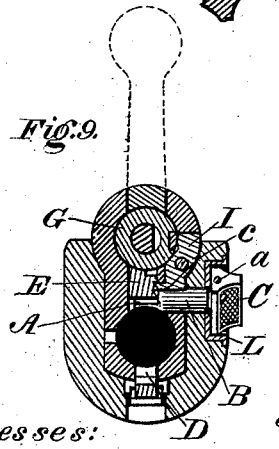


Fig. 10.

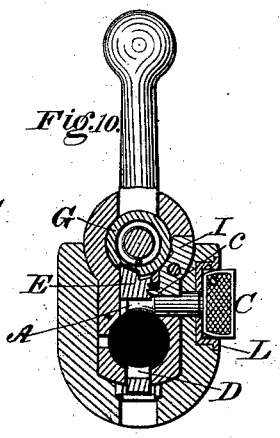
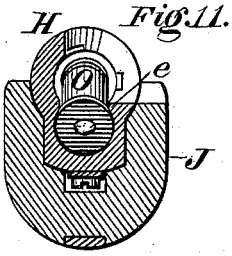


Fig. 11.



Witnesses:

Donn D. Twitchell.

William W. Dodge.

Inventor:

W. W. Wetmore.

by Dodgerson,

Attys.

2 Sheets—Sheet 2.

W. W. WETMORE.

Magazine Fire-Arm.

No. 213,538. Patented Mar. 25, 1879.

Fig. 12.

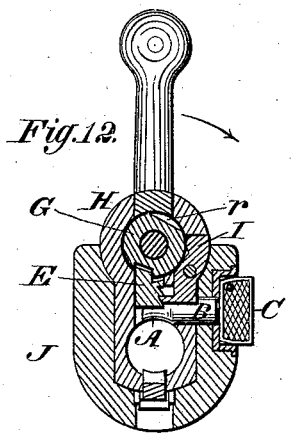
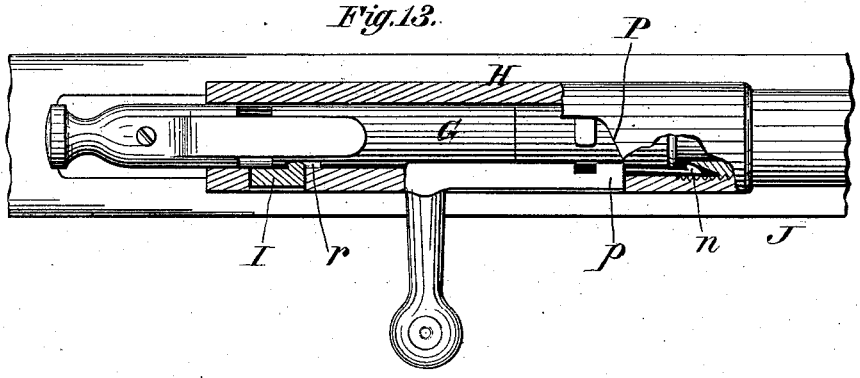


Fig. 13.



Witnesses:

Donn P. Twitchell.

William W. Dodge

Inventor:

W. W. Wetmore.

by Dodger & Son

Attys.

UNITED STATES PATENT OFFICE.

WILLIAM W. WETMORE, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE WINCHESTER REPEATING ARMS COMPANY, OF SAME PLACE.

IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. **213,538**, dated March 25, 1879; application filed January 20, 1879.

To all whom it may concern:

Be it known that I, W. W. WETMORE, of New Haven, in the county of New Haven and State of Connecticut, have invented certain Improvements in Magazine Fire-Arms, of which the following is a specification:

My present invention consists in certain improvements upon the arm patented to me July 23, 1878, No. 206,202; and the improvements consist in so constructing the stop used to limit the movement of the trigger and sear as to make it hold the sear-arm of the trigger in several different positions, for purposes hereinafter described.

Another of the improvements consists of a locking device arranged to operate in connection with the breech-bolt and the sear-arm of the trigger, so as to hold the latter fast at certain times, while a third improvement consists in so constructing and arranging the extractor that it will operate to withdraw a cartridge whenever the breech-bolt is shoved forward, even though the breech be not entirely closed; and, finally, the fourth improvement consists in a projection or ledge arranged at the side of the passage along which the cartridges pass from the magazine to the chamber, to prevent them from being accidentally thrown out, all as hereinafter more fully set forth.

Figure 1 is a side elevation, and Fig. 8 a longitudinal vertical sectional view, of the breech mechanism of my improved arm. Figs. 2, 3, 4, 5, and 6 are views of the stop, shown in detail; Figs. 7, 9, 10, and 12, transverse sections on the line *x x* of Fig. 1, and Fig. 11 a similar view on the line *y y;* Fig. 13, a top-plan view with a portion broken away to show the extractor.

To make an arm on the plan of my invention, the receiver, stock, and breech-bolt, with the magazine and detent, may be made as represented in the drawings, and which is essentially the same as described in my Patent No. 206,202, dated July 23, 1878.

The trigger T has on its upper part, above the magazine-tube, an arm, E, which supports the sear, and has on its upper face also a projection, which prevents the breech-bolt from being drawn out of the receiver, except when the projection is drawn down out of the way by pulling the trigger, these being the same as in the patent referred to.

My improved device, which I denominate a "stop," is shown detached and in perspective in Fig. 6, and as there shown it consists of a small bolt, B, upon the outer end of which is a thumb-piece, C, for turning it, and which has in one end a small spring pin or catch, *a*, to engage in corresponding recesses in the surrounding wall of the plate L, in which it is seated, as shown in Figs. 1, 2, 3, and 4. The opposite or inner end, A, of this bolt B is cut away, so as to form an eccentric of the form shown in Fig. 6, and more clearly in the enlarged end view, Fig. 5. This bolt thus constructed is inserted through a hole in the stock and receiver in such a position as to bring the eccentric or stop A directly under the sear or arm E, as shown in Figs. 1, 7, 8, 9, and 10, so that by turning it the various faces or projecting edges of the eccentric A will be brought under the sear-arm E, and thus limit the motion of the latter more or less, according as the stop is turned to the various positions it is designed to occupy, and which positions are shown in Figs. 1, 2, 3, and 4.

In connection with this device I also use a hook or lever, I, which is pivoted in a recess or hole cut in the side of the receiver close to the stop A, this lever I having a slight projection on its inner face at its upper end, which bears against the side of the breech-bolt at certain times, and has on its lower end an inwardly-projecting point or hook, *c*, which hook is arranged to engage in notches cut in the adjoining face of the arm E, as shown in Figs. 7, 9, 10, and 12. This lever I is pivoted on a pin, *u*, as shown in Fig. 7, and is so arranged that its upper end will naturally swing inward and bear against the side of the breech-bolt G. It is so pivoted in relation to the breech-bolt and the arm E that its hook *c* will engage in one of the notches cut in the side of the arm E at all times except when the bolt is in such a position as to bring a notch or recess cut in the side of the bolt opposite the upper end of the lever I, at which times the upper end will swing inward, thereby disconnecting its hook *c* from the arm E, which is then free to move. It will therefore be seen

from this that the lever I may be made to lock the arm E, and with it the trigger T, at such times as may be desired, or in fact to hold it locked at all times, except when the bolt G is brought into such a position as to bring the notch or recess in it opposite the lever I; and as this notch or recess may be located at any desired point on the bolt, it may be arranged so as to release the arm and trigger at any position of the breech-bolt that may be desired, either before or after the breech-bolt is closed and locked fast.

In order to prevent the trigger from being moved to release a cartridge until the extractor engages the one in the chamber, I cut the recess *r* in the side of the breech-bolt G, in the position shown in Fig. 12—that is, in such a position that it will not come opposite the upper end of lever I until the bolt G is closed and locked fast by turning its handle over to the horizontal position, as shown in Fig. 13.

As shown in Fig. 7, there is also another notch cut in the bolt at such a position that when the bolt is locked the projection on the top of arm E will engage therein, as shown, and so that by turning the stop A into a position to hold the arm E and prevent its projection from being drawn out of said notch, the bolt G will thus be locked fast, so as to prevent the handle from being turned upright, thereby preventing the breech from being opened, and at the same time prevent the trigger from being pulled and the gun fired in case it has been left cocked, even though the hook *c* is then released from its hold on the arm E.

The operation of these parts is as follows: Supposing the parts to be in position, and the breech-bolt closed, with its handle turned to the horizontal position, and the button C of the stop A turned to the position indicated in Fig. 1, the result will be that the bolt G cannot be turned nor the trigger pulled, the arm E being held up by the stop A, as shown in Fig. 7. If the stop be turned to the position indicated in Fig. 2, then its eccentric portion or edge will project downward through an opening into the magazine-tube, as shown in Fig. 8, and serve to stop the passage of cartridges from the magazine, the trigger in this case being left free to move when the breech is closed, so that the arm can be used as a single loader. By turning the stop to the position indicated in Fig. 3 it will be thrown down away from the arm E, as shown in section in Fig. 9, thereby permitting the arm with its projection to be drawn down far enough to enable the breech-bolt to be drawn entirely out or removed from the receiver. By turning the stop to the position shown in Fig. 4, the parts will be as represented in Fig. 10—that is, in the position for operating the gun as a magazine-arm.

When thus arranged, it will be seen by examining Fig. 10, that the stop A has its curved face next the magazine, thus permitting the cartridges to pass freely, while the arm E is permitted to move far enough to fire the arm, but not far enough to permit the breech-bolt to be detached, the hook *c* of lever I, while the breech is open, engaging in the lower notch of arm E, and preventing the trigger from being pulled until the breech is closed, and the handle turned down, as in Figs. 1 and 12.

It will be seen by examining Fig. 8 that the detent which releases the cartridges from the magazine is connected to and operated by the trigger, as in my former patent.

In the arm as previously constructed there was a possibility of a cartridge passing from the magazine while one still remained in the chamber of the barrel, in case the breech-bolt was shoved forward and then drawn back again without turning down the handle, because the incline P, Fig. 13, would not let the bolt go far enough forward for the extractor-hook to engage with the shell in the chamber unless the handle was turned down.

To obviate this and prevent the possibility of a cartridge passing forward from the magazine until the shell in the chamber has been withdrawn, I make the extractor *n* and the recess into which its point enters as represented in Fig. 13—that is to say, I make the hook of the extractor project farther forward than usual, sufficiently so that it shall be in advance of the flange of the shell at the instant the rib *p* on the breech-bolt strikes against the incline P, so that if the breech-bolt be drawn back without turning down the handle, it will extract the shell that is in the chamber, and thus have it out of the way of the one that next comes from the magazine.

In order to permit the extractor to move forward as the bolt advances in turning down its handle, the recess into which the point of the extractor enters is made to extend farther forward than usual, and is made by cutting an inclined groove longitudinally in the exterior surface of that portion of the barrel that is screwed into the receiver, as shown in Fig. 13, the object of thus inclining it being to not weaken the wall of the chamber, but leave sufficient solid metal in the wall to support the explosive force of the charge. As the extractor moves forward in this recess, its beveled point rides up the incline, and as it is drawn back the spring of the metal forces the hook of the extractor inward, so that it is sure to engage with the flange of the shell and draw the latter out when the breech-bolt is drawn back, as usual.

By this improvement it will be seen that I prevent the possibility of a cartridge being retained in the chamber, or at any point where it can interfere with the one which is next released from the magazine, and as the lever I locks into the arm E and prevents the trigger from being pulled until the breech-bolt is closed and its handle turned down, it will be seen that it is impossible to move the detent so as to release a second cartridge until the breech-bolt is shoved forward and turned in its seat,

the last one previously released being retained in the passage just in front of the detent until the breech-bolt is drawn back far enough to let it pass forward to the chamber, it passing forward under the cartridge or shell being drawn back by the retreating breech-bolt and extractor.

In order to prevent the cartridge from being accidentally thrown from the shoe or receiver through the side opening as it passes from the magazine to the chamber, as it was liable to be in the original Hotchkiss gun, (on which mine are improvements,) I now provide an overhanging ledge or projection, *e*, as shown in Fig. 11, this being located on the right-hand side of the receiver, just opposite the point *e'* of Fig. 8. This projection or lip *e* may be formed of the solid metal of the receiver by suitably boring or cutting the same, or it may be formed of a separate piece secured thereto in any suitable manner; or, if preferred, it may be a small spring-piece secured to the side of the receiver. By so locating this projection *e* it will be seen that the upper side of the passage is made less in width than the diameter of the cartridge-head, and that, therefore, the only escape for the cartridge will be by moving straight forward; and as the point of the cartridge must enter the chamber or pass under the overhanging part P of the receiver before the head has passed the lip *e*, it follows that there is no longer any possibility of its being thrown out at the side. This, in connection with the projection in the bottom of the channel, described in my patent hereinbefore mentioned, also prevents the head of a cartridge which may, by any means, have its point thrown up so as to catch on the upper outer edge of the chamber from being pushed up out of the channel by the shock of the following cartridge from the magazine, in case one should thus strike it. So, too, in case the edge of the front end of the shell should accidentally catch on the shoulder at the mouth of the chamber, this overhanging lip *e* will prevent its head from being thrown up out of the channel by the shock.

By these several improvements the arm is rendered more perfect in its operations, and also more safe and free from accidental discharge.

Having thus described my invention, what I claim is—

1. The eccentric stop A, in combination with the pivoted arm E, the said parts being constructed and arranged to operate substantially as described, whereby the movement of the arm or sear may be limited to the different positions, as set forth.

2. The eccentric stop A, constructed and arranged to operate in connection with the sear-arm E and the magazine, substantially as shown and described, whereby the stop is made to limit the motions of the sear, and also serve as a stop to shut off the flow of the cartridges in the magazine, as set forth.

3. The combination of the breech-bolt G and the swinging lever I with the arm E, said parts being arranged to operate substantially as and for the purpose herein set forth.

WILLIAM W. WETMORE.

Witnesses:

DANIEL H. VEADER,

T. G. BENNETT.