2 Sheets—Sheet 1

W. W. WETMORE.

Magazine Fire-Arm.

No. 206,202. Patented July 23, 1878.

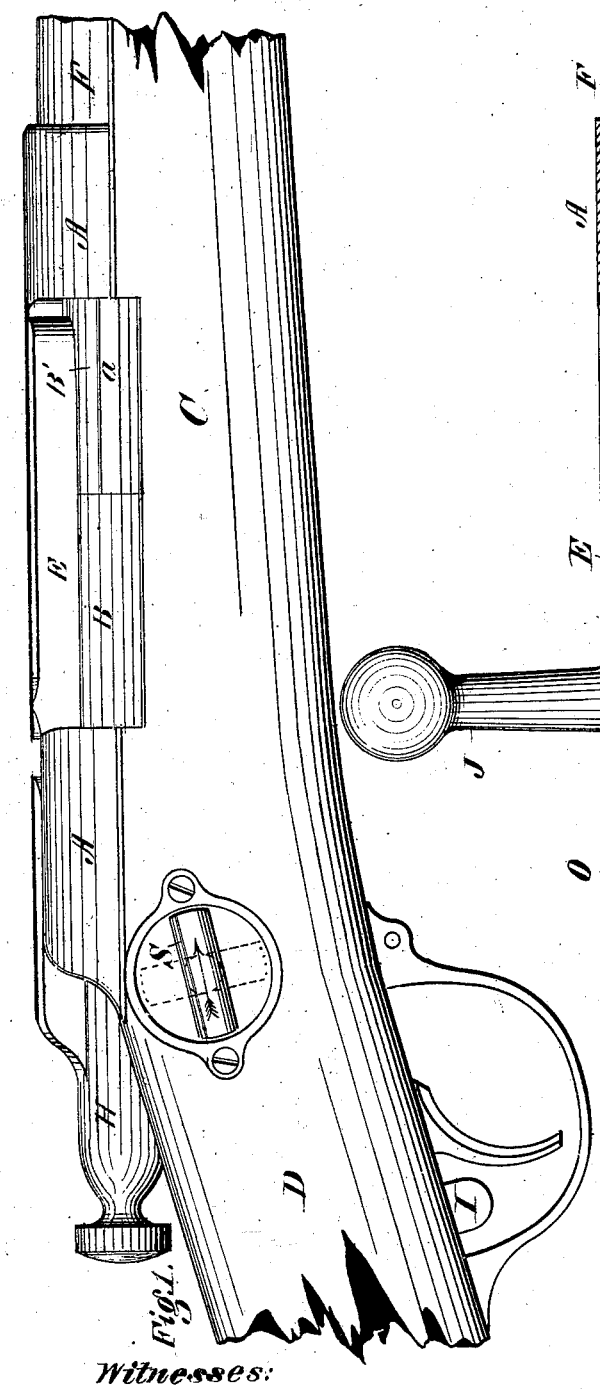

Fig. 1.

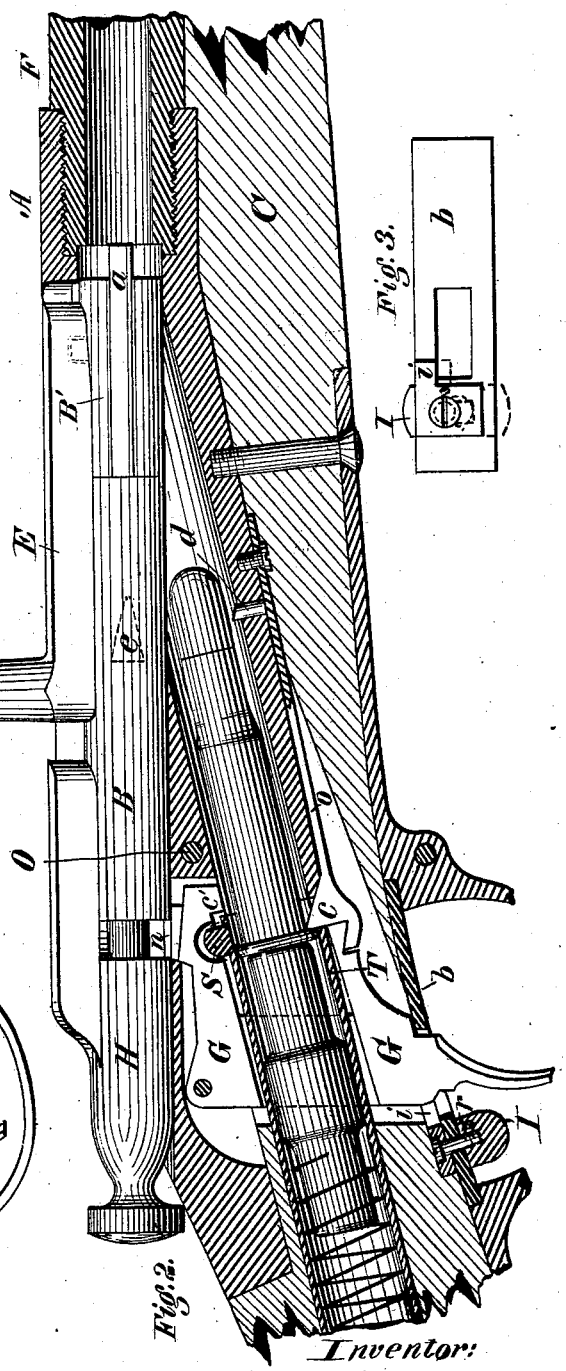

Fig. 2.

Fig. 3.

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2 Sheets—Sheet 2.

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Fig. 4.

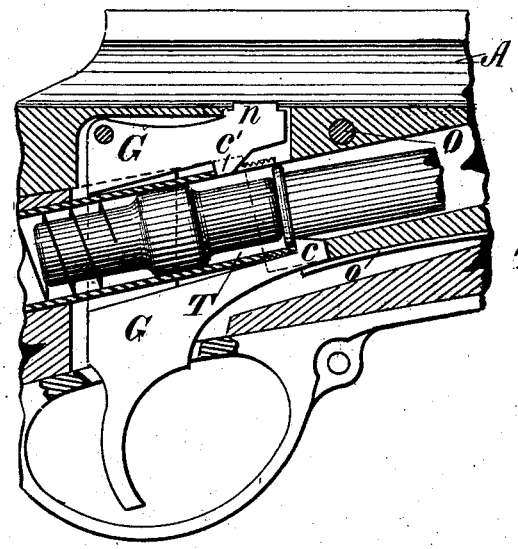
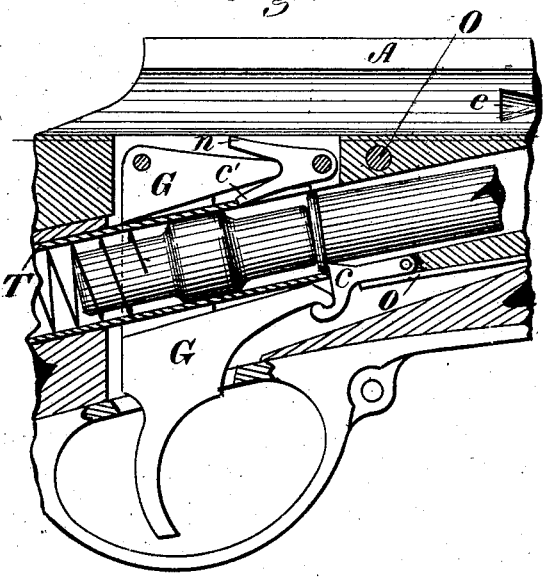


Fig. 5.



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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. **206,202**, dated July 23, 1878; application filed January 30, 1878.

To all whom it may concern:

Be it known that I, WILLIAM 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:

This invention relates to the style of gun patented to B. B. Hotchkiss, November 14, 1876, No. 184,285; and the invention consists in certain improvements whereby the arm is rendered more perfect in its construction and operation, as will be readily understood by the detailed description hereinafter given.

Figure 1 is a side elevation of that portion of the arm which contains the breech mechanism. Fig. 2 is a longitudinal vertical section of the same; and Figs. 3, 4, 5 are views representing certain modifications and details of construction.

In its general construction this arm resembles the ordinary "bolt-gun," to which class it belongs; but the receiver A, or, as it is sometimes termed, the "shoe," as shown in Fig. 2, is formed with two longitudinal passages, the upper one being in line with the bore of the barrel for the breech-bolt to slide in, and the other being located underneath the first, at such an angle as to coincide with the magazine, which extends longitudinally through the butt-end of the stock, as shown in Figs. 2, 4, and 5. This receiver or shoe A is made of a single solid piece of metal, and cut or worked to the proper shape, the barrel F being screwed into its front end in the usual manner.

The breech-bolt may be of any of the well-known forms; but I prefer the style shown in the drawings, in which it is represented as being made of two parts, the main part or body, B, having the handle J and the guiding and locking rib E formed thereon, and the front part, B′, having the contractor *a* attached, as shown in Figs. 1 and 2, these two parts B and B′ having a hole extending through them, in which the firing-pin, that projects from the front end of the sliding hammer H, works, it being propelled by a spiral spring located within the part B, as is customary in this class of guns. The part B of the bolt is free to be turned by the handle J, while the front part, B′, is prevented from turning by the extractor *a*, which fits and slides in a corresponding groove in the wall of the receiver.

Upon the upper side of the part B′ is a lug, which, when the part B is turned so as to unlock the breech, engages in a corresponding notch cut in the under side of the rib E, as indicated in dotted lines in Fig. 2, whereby the parts B and B′ are locked together when the breech is unlocked, so that when the breech-bolt is moved forward or back both parts move together. By this construction the extractor does not turn with the bolt in locking or unlocking the same, but simply slides forward and back, and thus the only recess required to be formed in the chamber of the barrel is one for the front end of the extractor to enter far enough for its hook to engage with the flange of the cartridge-shell, whereas, if the extractor is made to turn with the bolt, such recess would have to extend about one-fourth of the distance around the chamber or head of the shell. This feature is not claimed as of my invention, and is only described for the purpose of more clearly and fully explaining the construction and operation of the arm as a whole.

In the Hotchkiss gun, as described in the patent hereinbefore referred to, the magazine was arranged in the same general manner as in this; but in that the trigger G was made so as to form a section of the magazine-tube, through which the cartridge passed, whereas in this the magazine-tube T is formed in a single continuous piece and extends forward past the trigger G, as shown in Figs. 2, 4, and 5, its front end being screwed into the lower portion of the receiver, in front of the trigger, as shown in Fig. 4, the trigger extending up around the tube T at one side, as shown in said figures.

In experimenting or using the original Hotchkiss gun it was found that there were two difficulties: First, as there was but a single detent to hold the cartridges in the magazine, it frequently happened that if the trigger, which operated to release the cartridges from the detent, was not instantly released after being pulled, all the cartridges in the magazine were forced forward, and either thrown out entirely or left in such a position as to in-

terfere with the operation of the parts; and this was also liable to occur when shoving the cartridges into the magazine. The second difficulty consisted in the liability of the cartridge, when released from the detent, to have its front end elevated, thereby causing it to either strike against the upper rear wall of the chamber, thereby preventing it from entering the chamber, and also bursting the bullet, or occasionally causing it to jump entirely out of the receiver, this being due to the fact that the detent is so arranged as to operate upon the upper side of the flange of the cartridge and hold it, while the follower, pressing against its rear end, tends to tip up its front end.

In order to better regulate the discharge of the cartridges from the magazine by the movements of the trigger, I arrange the escapement as follows: Underneath the tube T, and working through an opening in the same, I locate a spring, *o*, with a detent, *c*, which engages against the front side of the flange of the cartridge and holds it until the trigger is pulled to fire the arm, when the movement of the trigger draws the catch *c* down and releases the cartridge therefrom. (See Fig. 2.) At its upper side the trigger is provided with a forwardly-projecting arm, upon the upper side of which is formed the sear *n*, that engages with the hammer or firing-bolt, and on its lower edge is formed another catch or detent, *c'*, which latter, as the trigger is pulled, is thrown down into such a position that, as the cartridge is released from the lower catch, *c*, it is caught and held by this upper one, *c'*. As the trigger is held in this latter position by its sear *n* bearing against the under side of the bolt B until the latter is drawn back far enough to let the sear engage with the hammer H, it follows that the detent *c'* is made to hold the cartridge until the bolt is thus drawn back, when the trigger swings forward, being forced by the spring below, when the cartridge is released and is thrown forward into the chamber of the barrel; or, if it fails to enter the chamber, it is thrown so far forward that, as the bolt is shoved forward to close the breech, it strikes against the head of the cartridge and forces it into the chamber.

This plan of regulating the feeding of the cartridges by means of the trigger may be modified in various ways and still operate the same. For instance, instead of making the detent *c* and the spring which operates it and the trigger in one piece, as represented in Fig. 2, the detent *c* may be made on the lower front arm of the trigger, as shown in Fig 4, the spring *o* in that case being made separate; or, as shown in Fig. 5, the detent *c* may be a separate piece, pivoted to the receiver, and the spring be arranged to bear against its under side, as there shown, the operation being the same in either case. So, too, instead of forming the sear *n* on the trigger itself, as shown in Figs. 2 and 4, it may be made of a separate piece, as shown in Fig. 5, in which case its upper arm will constitute the sear *n*, and its lower arm the detent *c'*. Any of these several forms of the lower detent may be used with any of the several forms of the upper one, and vice versa, the result being essentially the same in all cases.

It will be observed that in Figs. 4 and 5 the detents *c* and *c'* are so arranged in relation to each other that the cartridges will first be held by the upper one and then by the lower one, from which latter they will be finally released by pulling the trigger to fire the arm. By this arrangement the tendency of the cartridge to rise at its front end would be lessened, as the lower detent, being the last to act upon it, would tend to hold it down; but by this arrangement the cartridge would be finally released and allowed to shoot forward when the arm is fired, and as a consequence the cartridge would be thrown forward and strike against the under side of the bolt B, whereas by the plan shown in Fig. 1, in which the cartridge is finally released by the upper detent, it will be seen that it cannot move forward until the breech-bolt has been drawn back, because the upper detent cannot rise until the bolt is drawn back far enough to permit the sear to engage with the hammer H.

It will be seen that by thus using two detents the difficulty of more than one cartr escaping from the magazine at once is entirely obviated. It is, however, obvious that the gun may be made to operate with a single detent; but if it be so made, then it should be the lower detent, *c*, that should be used, for the reason before stated, that, as it acts upon the inner side of the head of the cartridge, it thereby tends to keep the front end from rising as it moves forward. If, however, two detents be used, with the upper one placed forward of the lower one, as shown in Fig. 2, then there will be the same tendency of the cartridge to rise, because the detent will operate on the upper side of the cartridge; and therefore I provide a means of counteracting or overcoming this tendency. This consists of a small pin or projection, *d*, located so as to project slightly above the bottom of the passage along which the cartridge moves as it passes from the detent to the chamber of the barrel, as shown in Fig. 2. This, operating on the lower side of the flange of the cartridge as it passes, will throw the front end of the cartridge down, the same as does the lower detent, *c*, when it is arranged to act last on the cartridge.

It is obvious that, instead of using a pin for this purpose, any form of obstruction may be substituted—as, for instance, the bottom may be cut away for a short distance in such a manner as to leave a ledge or shoulder at the required point, against which the flange will strike and produce the desired result. As an additional means of security, this may also be used in cases where the lower detent is located so as to act last on the cartridge, though in that case it will not be absolutely necessary, as in the other case.

In order to convert the gun from a magazine or repeating arm into a single-loader, or vice versa, I provide a stop, S, as shown in Figs. 1 and 2. This stop consists of a short stud, which projects from the outside through the receiver far enough to reach under the upper arm of the trigger, as shown in Fig. 2. On one side this stud is cut away, so that when turned so as to bring that side uppermost the movement of the trigger is not interfered with, in which case the movement of the trigger is sufficient to operate the lower detent, and thus release the cartridge held by it; but when the stop is turned as shown in Fig. 2, it serves to stop the movement of the trigger after it has moved far enough to release the hammer, and before it has moved far enough to operate the detent so as to release the cartridge; and thus the flow of the cartridges from the magazine may be permitted or stopped at will by merely giving the stop S a greater turn.

The handle of the stop is made in the form of a small bar, and has an arrow stamped or cut on it, so as to indicate the position to which it should be turned. When so turned that the arrow points toward the chamber or barrel, the cartridges are allowed to pass from the magazine; but when turned so that the arrow points upward, the magazine is cut off, and the arm can then be used as a single-loader.

In order to prevent the arm from being accidentally discharged, and render it more safe to be handled when marching, drilling, &c., and when it is not desired to fire it, I arrange a stop, I, on the trigger-plate *b*, directly in rear of the trigger, as shown in section in Fig. 2 and in plan in Fig. 3. The knob I has a stem, which projects through a slot and connects with a small plate, *i*, which, as shown in Fig. 3, is arranged to slide laterally, so as to come behind the trigger, and thus lock the latter and prevent it from being moved.

When it is desired to fire the gun, or render it capable of being fired, it is only necessary to shove the stop to one side, thus removing the plate *i* from behind the trigger. This stop is held in place, or prevented from being accidentally displaced, by a small friction-pin, *r*, which engages in a small recess in the plate *b*, as shown in Fig. 2.

Any of the known devices may be used for the head of the shell to strike against as it is withdrawn from the chamber, for the purpose of causing it to be thrown or tipped laterally as the hook-extractor pulls on the opposite side of the shell, and thus throw it clear of the gun. When the extractor is located on the side of the breech-bolt, as shown in Figs. 1 and 2, a recess, *e*, as shown in Fig. 5, and in dotted lines in Fig. 2, may be cut in the opposite wall of the receiver, its rear edge thus forming a shoulder, against which the head of the shell will strike just before the bolt has reached the end of its backward movement.

In case it is desired to locate the extractor on the top of the breech-bolt, it will be necessary to have a stud or flat spring, similar to the extractor, but without any hook, secured to the under side of the bolt, directly opposite the extractor, to hold the cartridge-shell up against the extractor and prevent the shell from dropping down into the passage below.

The magazine is designed to be filled from the front through the receiver, though it is obvious that it may be arranged to be loaded at the butt, if desired.

Having thus described my invention, what I claim is—

1. In a magazine-gun having its magazine arranged to deliver the cartridges directly forward to the chamber of the barrel, the detent *c*, located so as to act last upon the under side of the cartridge, in combination with the trigger G, arranged to operate said detent, substantially as and for the purpose set forth.

2. The combination of the trigger G, the two detents *c* and *c'*, with the spring *o*, when constructed or arranged to operate substantially as and for the purpose set forth.

3. The projection *d*, or its equivalent, arranged in the passage from the magazine, to operate upon the passing cartridges, substantially as and for the purpose set forth.

4. The cut-off or stop S, in combination with the trigger G, said parts being constructed and arranged to operate substantially as set forth.

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Witnesses:
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