(No Model.) 2 Sheets—Sheet 1.

M. F. RICHARDSON & C. A. WOODBURY.

MAGAZINE FIRE ARM.

No. 410,609. Patented Sept. 10, 1889.

Fig. 1.

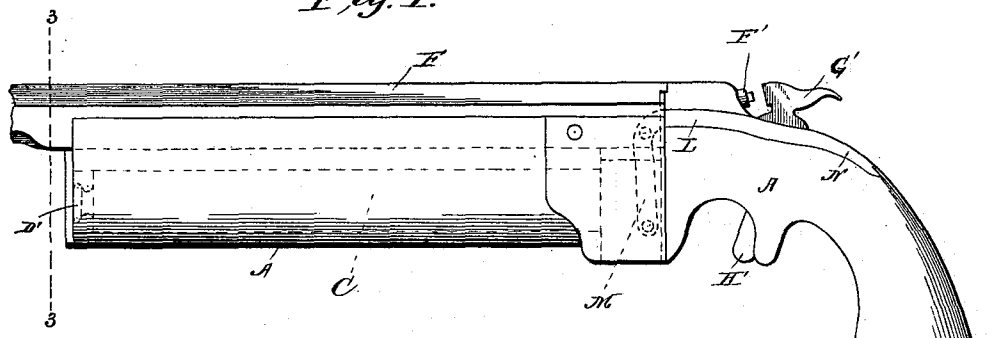


Fig. 2.

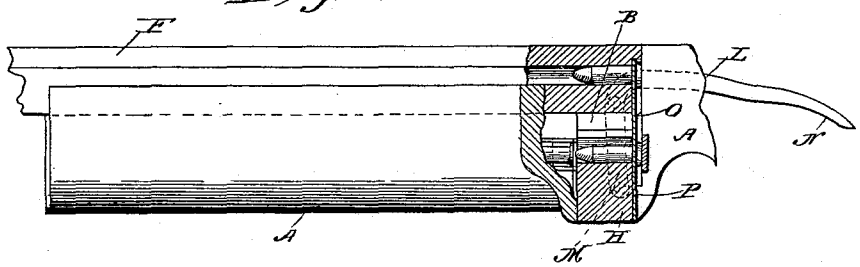
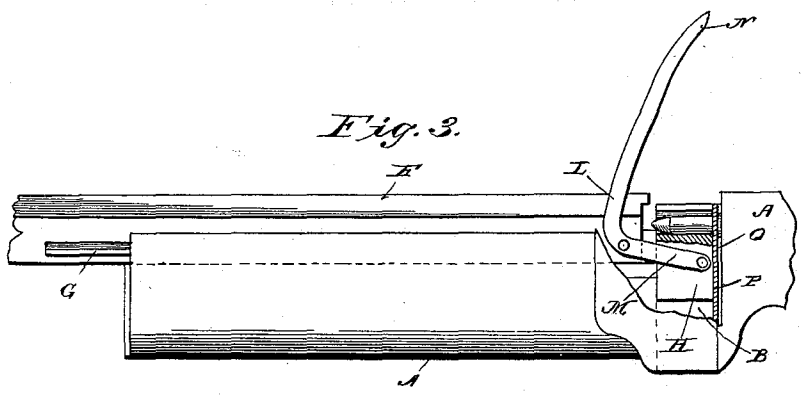


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 5.

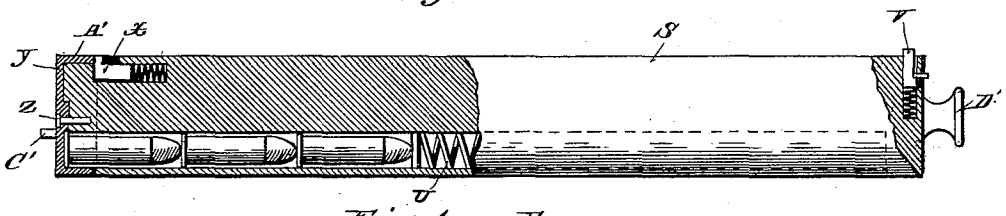


Fig. 4.

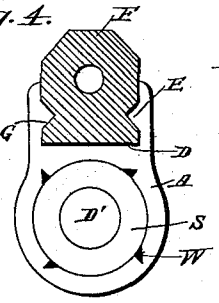


Fig. 6.

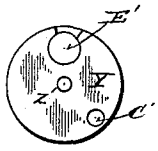


Fig. 7.

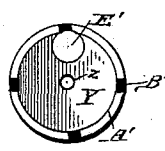


Fig. 14.

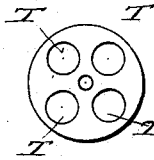


Fig. 8.

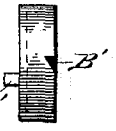


Fig. 9.

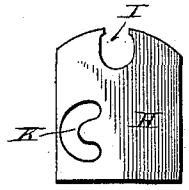


Fig. 12.

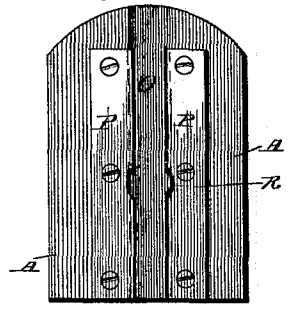


Fig. 10.

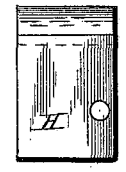


Fig. 11.

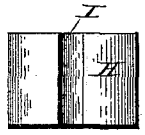
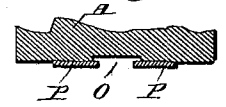


Fig. 13.



Witnesses
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UNITED STATES PATENT OFFICE.

MARK F. RICHARDSON AND CRAYTON A. WOODBURY, OF RUTLAND, VERMONT.

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 410,609, dated September 10, 1889.

Application filed October 2, 1888. Serial No. 286,964. (No model.)

To all whom it may concern:

Be it known that we, MARK F. RICHARDSON and CRAYTON A. WOODBURY, residents of Rutland, in the county of Rutland and State of Vermont, have invented certain new and useful Improvements in Magazine Fire-Arms; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

Our invention relates to an improvement in magazine fire-arms; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of a magazine fire-arm embodying our improvements. Fig. 2 is a similar view, partly in section, of the same, with the parts in position ready for firing. Fig. 3 is a similar view of the same, showing the lever and cartridge-elevator raised and the barrel moved forward ready to receive the cartridge. Fig. 4 is a vertical sectional view taken on the line 3 3 of Fig. 1. Fig. 5 is an elevation, partly in section, of the revolving magazine. Figs. 6, 7, and 8 are detailed views of the magazine-cap. Figs. 9, 10, and 11 are similar views of the cartridge-elevator. Figs. 12 and 13 are similar views of the cartridge-receiver and shell-extractor. Fig. 14 is an end view of the magazine.

A represents the stock of the piece, which is elongated, as shown, and has a vertical opening B near its rear end, a cylindrical longitudinal bore C in its lower side, the rear end of which communicates with the opening B, and in the upper side of the stock is a longitudinal groove D, in the sides of which are longitudinal V-shaped flanges E. The rear end of the said groove also communicates with the opening B.

F represents the barrel, the lower side of the rear portion of which is squared in cross-section and adapted to fit in the groove D, and said rear portion of the barrel has V-shaped grooves G, which are engaged by the tongues or flanges E, the latter serving to retain the barrel in the groove and enabling the barrel to slide longitudinally therein.

H represents the cartridge-elevator, which is fitted in the opening B and is adapted to play vertically therein. Said elevator has in its upper side a central longitudinal groove or recess I, adapted to receive a cartridge, and in the front of the elevator, near one side thereof and at a suitable distance from its bottom, is a semicircular cam-groove K.

A substantially right-angled lever L has its shorter arm M fulcrumed at its upper end to one side of the barrel, near the rear end thereof, and has its lower end fulcrumed to one side of the elevator. The longer curved arm N of the lever is adapted to conform to the contour of the curved portion of the stock when said lever is lowered in the position shown in Fig. 1.

From the foregoing description it will be understood that when the lever is raised the barrel is moved forward from over the opening B and that the elevator is raised to a position in rear of the barrel.

In the rear wall of the opening B is a vertical shallow groove O, the width of which is slightly greater than the diameter of the base of the cartridge, and vertical guide-plates P are secured to the said wall and have their inner edges projecting slightly over the groove, so as to form flanges, which are adapted to engage the projecting rim of the cartridge-shell, and thereby retain the base of the same in the groove. A circular opening R is made through said flanges of the plates and communicates with the lower end of the groove.

S represents a longitudinal cylindrical magazine, which is adapted to fit in the bore C of the stock and has a series of four (more or less) concentrically-arranged cylindrical longitudinal cartridge-chambers T, in one end of each of which is a coiled extensible spring U. The outer ends of said chambers are closed and the inner ends of the same are open.

Near the front end of the magazine is a radial spring-pressed detent V, which is adapted

to engage notches W successively, which communicate with the bore C and correspond in number to the chambers of the magazine.

Near the inner end of the magazine, at one side of the same, is a spring-pressed dog X.

A cap Y is centrally pivoted on the inner end of the magazine by means of a removable pin Z, and has an annular flange A′, which fits in an annular groove on the inner end of the magazine. Said flange has notches B′, adapted to be engaged in succession by the dog X, and from the outer side of the cap projects an eccentrically-arranged cam-pin C′, which engages the cam-groove K of the cartridge-elevator. Said cap also has an opening E′, adapted to register successively with the chambers of the magazine.

At the front end of the magazine is a button D′, by means of which the magazine may be withdrawn from the stock and the chambers thereof charged with cartridges, as shown in Fig. 5.

The fire-arm has the usual firing-pin F′, hammer G′, and trigger H′, the construction and operation of which are too well known to need description here.

The operation of our invention is as follows: The parts are in their initial position when the lever is lowered, so as to cause its long arm to bear on the stock, the cartridge-elevator is lowered to the bottom of the opening B, and the barrel is at the rear limit of its longitudinal movement with its rear end over the opening B. When thus arranged, the opening E′ in the cap registers with the uppermost chamber of the magazine and with the recess I of the cartridge-elevator, and consequently the spring in said chamber of the magazine forces the rearmost cartridge into the recess I, and causes the base to become engaged in the groove O by the flange-plates P. When the lever is raised, the barrel is moved forward, and the elevator caused to move upward, so as to raise the cartridge in the recess or groove O to the level of and in line with the bore of the barrel, the base of the cartridge sliding in the groove O and being retained therein by the flange-plates P. As the elevator moves upward, its cam-groove K and the engaging cam-pin C′ of the magazine-cap cause the latter to partly rotate on the rear or inner end of the magazine, and the spring-pressed dog X to engage the next succeeding notch B′, so that the opening in the magazine-cap may register with the next cartridge-chamber of the magazine. The lever is then depressed, causing the elevator to descend and leave the cartridge in the upper end of groove O, the cap on the magazine returns to its former position, at the same time revolving the magazine to the same degree, and thereby causes another cartridge to be fed into the receiving groove or recess of the elevator, and the barrel is moved backward, so as to cause the elevated cartridge to enter the breech. The hammer having been previously cocked, the piece is ready to be fired, after which the lever is again raised, causing the barrel to move forward and clear the shell of the exploded cartridge and leave the same secured with its base in the upper end of groove O, and the elevator to rise so as to bring a second cartridge to the level of the bore of the barrel, and in so doing eject the shell of the exploded cartridge, as will be readily understood.

After all the cartridges in the magazine are exploded the operator trips the detent V, so as to release the magazine and withdrawing it for reloading the chambers thereof and returning it to its former position, when it is again ready for use, as above described.

Having thus described our invention, we claim—

1. The combination, in a magazine fire-arm, of the longitudinally-movable barrel, the revoluble magazine having a series of cartridge-chambers, the vertically-movable cartridge-elevator adapted to register alternately with the magazine and barrel, and the lever pivoted to the barrel and connected to the cartridge-elevator, substantially as described.

2. The combination of a revoluble multi-chambered magazine, a vertically-movable cartridge-elevator adapted to register successively with the several chambers of the magazine as the latter revolves, and mechanism intermediate of said magazine and said elevator, whereby as the elevator reciprocates the magazine is caused to revolve, as and for the purpose set forth.

3. In a magazine-gun, the combination of a longitudinally-movable barrel, a vertically-movable cartridge-elevator, and a lever pivoted to said barrel and connected to the elevator for the purpose set forth, substantially as described.

4. In a magazine-gun, a stock having a vertical opening B, and a groove O in the rear side thereof, and flanges P at the sides of said groove, a vertically-movable cartridge-elevator working in the opening B, a longitudinally-movable barrel, and an operating-lever pivoted to the barrel and connected directly to the elevator, all in combination, substantially as described.

5. The combination of the revoluble magazine, a revoluble cap on the discharge end thereof adapted to open and close the magazine, a vertically-movable cartridge receiver or elevator, and connections between the same and the cap, whereby the latter will be automatically operated, for the purpose set forth, substantially as described.

6. The combination, with a stock having the bore C and notches W, of the magazine, revoluble in said bore, and a detent secured in the magazine to engage the notches, for the purpose set forth, substantially as described.

7. The combination, in a magazine fire-arm,

of a revoluble cap at the discharge end of a magazine having the opening E′ and an eccentrically-arranged cam-pin C′, and a vertically-movable cartridge receiver or elevator having the cam slot or groove engaged by said pin, substantially as described.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

MARK F. RICHARDSON.
CRAYTON A. WOODBURY.

Witnesses:
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