(No Model.) 2 Sheets—Sheet 1.

C. G. HARSTON.

CARTRIDGE MAGAZINE FOR FIRE ARMS.

No. 419,518. Patented Jan. 14, 1890.

Fig. 1.

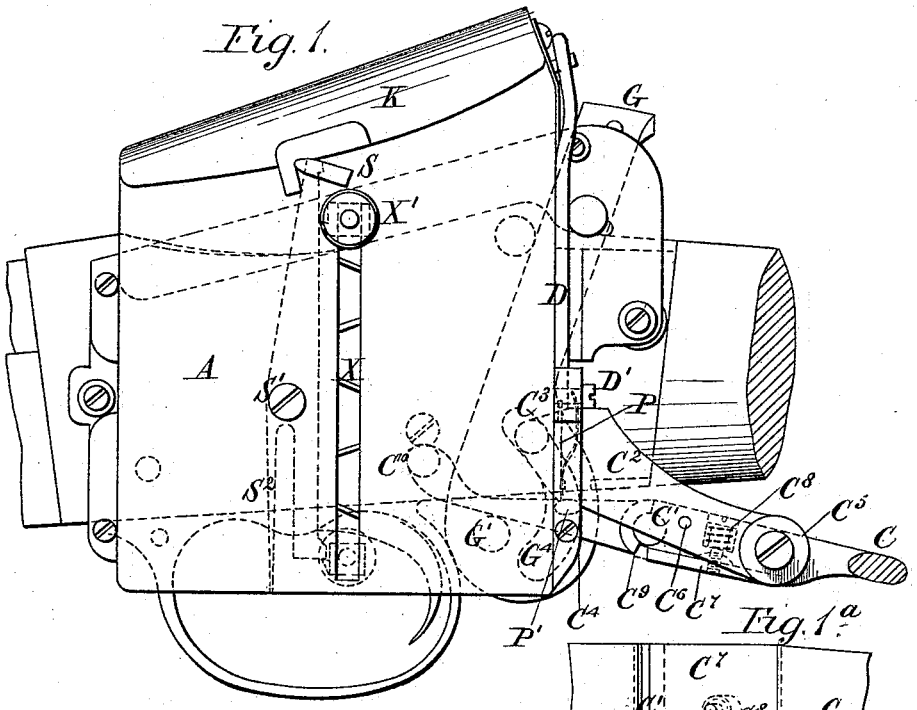

Fig. 1a.

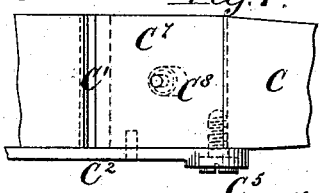

Fig. 4.

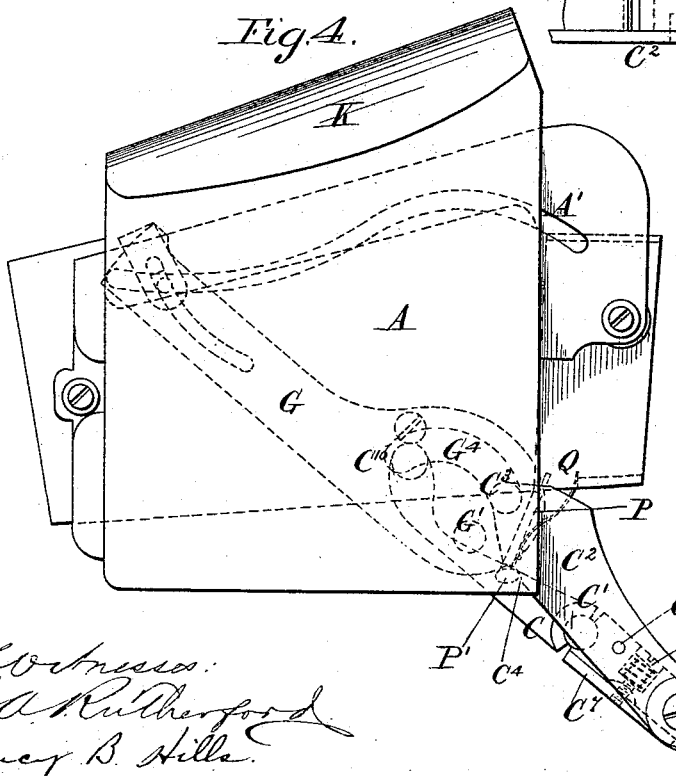

Fig. 6.

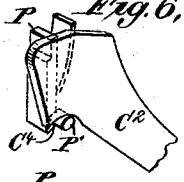

Fig. 7.

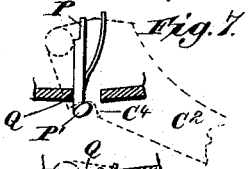

Fig. 8.

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(No Model.) 2 Sheets—Sheet 2.

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CARTRIDGE MAGAZINE FOR FIRE ARMS.

No. 419,518. Patented Jan. 14, 1890.

Fig. 2.

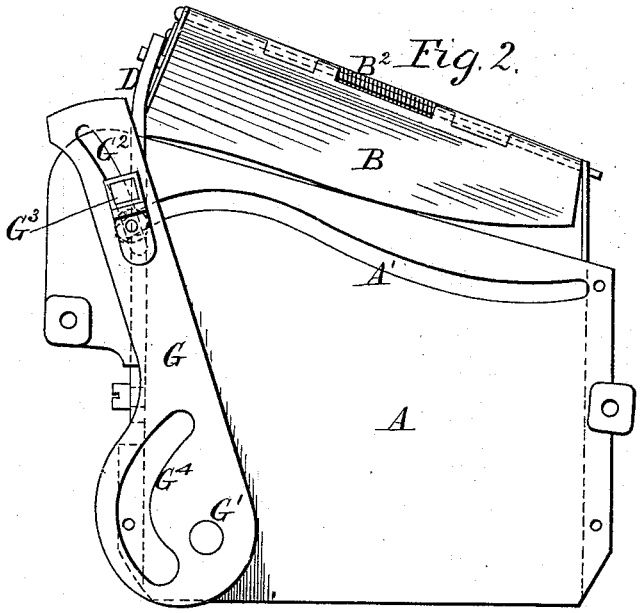


Fig. 3.

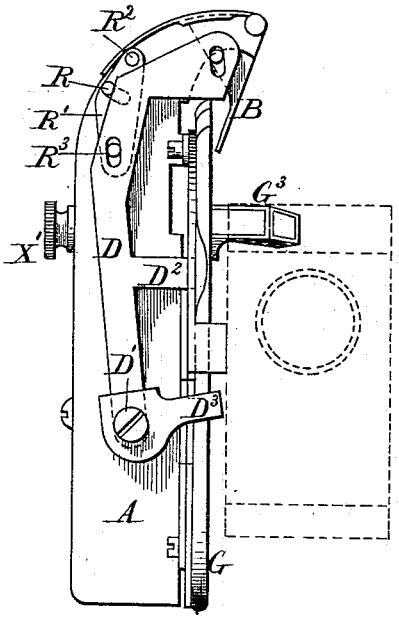
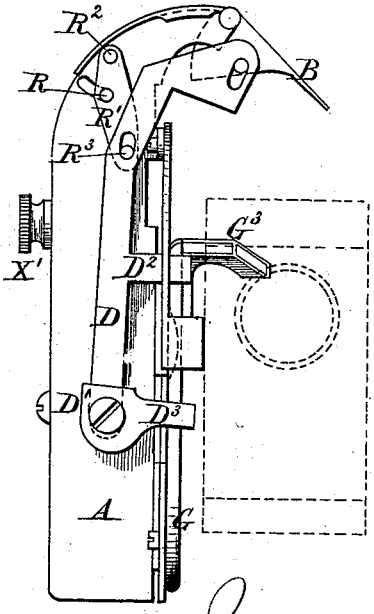


Fig. 5.



Witnesses:
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Percy B. Hills.

Inventor:
Charles G. Harston
By James L. Norris
Attorney.

UNITED STATES PATENT OFFICE.

CHARLES GREVILLE HARSTON, OF WHITEHALL, COUNTY OF MIDDLESEX, ENGLAND.

CARTRIDGE-MAGAZINE FOR FIRE-ARMS.

SPECIFICATION forming part of Letters Patent No. 419,518, dated January 14, 1890.

Application filed February 5, 1889. Serial No. 298,731. (No model.) Patented in England October 27, 1887, No. 14,650, and February 10, 1888, No. 2,065; in Belgium February 24, 1888, No. 80,759; in Victoria March 26, 1888, No. 5,725; in New South Wales March 28, 1888, No. 578; in Queensland April 3 and November 2, 1888, No. 503, and in India April 30, 1888, No. 64/595.

To all whom it may concern:

Be it known that I, CHARLES GREVILLE HARSTON, a subject of the Queen of Great Britain, at present residing at United Service Institution, Whitehall, in the county of Middlesex, England, have invented new and useful Improvements in Cartridge-Magazines for Fire-Arms and in Mechanism in Connection Therewith, (for which I have obtained patents in Great Britain, dated October 27, 1887, No. 14,650, and February 10, 1888, No. 2,065; in Belgium, dated February 24, 1888, No. 80,759, and by patent of addition dated January 8, 1889, No. 84,561; in Victoria, dated March 26, 1888, No. 5,725; in New South Wales, dated March 28, 1888, No. 578; in Queensland, dated April 3 and November 2, 1888, No. 503, and in India, dated April 30, and May 17, 1888, No. 64/595,) of which the following is a specification.

My invention relates to an improved construction of cartridge magazines or hoppers of the kind described in my application for Letters Patent, dated March 8, 1888, Serial No. 266,622, wherein a lever attached to one end of the magazine was actuated by the rising and falling motion of the breech-action lever of the gun, and was caused thereby to open a door, through which the uppermost cartridge was made to pass out, and at the same time to actuate a lever that imparted rapid longitudinal motion to the issuing cartridge, whereby this was made to pass right into the cartridge-chamber.

My present invention has for its object to provide novel means for propelling the cartridge into the cartridge-chamber of the gun-barrel; to provide novel means for actuating the cartridge-carrier lever; to provide a novel construction of breech-action lever, whereby it is made to act more efficiently upon the magazine mechanism at the proper time relative to the rising and falling action of the breech-block, and to improve the magazine mechanism.

To such ends the invention consists in the features and combination of devices, hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 shows an outside elevation; Fig. 1ª, a detail view of parts adapting the gun for firing when the magazine is removed, as hereinafter explained; Fig. 2, an inside elevation; Fig. 3, an end view of the magazine with the door closed and the carrier-lever in the backward position, while Figs. 4 and 5 show, respectively, an outside elevation and an end view with the door open and the carrier-lever in the forward position; Figs. 6, 7, and 8, detail views showing different positions of the detent and the finger of the breech-action lever.

The cartridge magazine or hopper A is generally of a similar construction to that described in my said former application—that is to say, the hopper has a door B facing the breech-shoe, which is actuated by the breech-action lever C through the end lever D so as to allow the top cartridge to be pushed out of the hopper by the spring X when the breech-block is in the lowered position, the top of the hopper being sloped down in the direction of the cartridge-chamber of the gun in order to place the issuing cartridge in proper position for entering the latter.

G is the carrier-lever, which in this case is pivoted at G′ to the side of the magazine facing the breech-shoe of the gun, the magazine being attached to the breech-shoe in such a manner as to leave sufficient space between them to allow the carrier-lever to work freely therein.

The lever G is connected by a slot G^2 to the pin of a carrier cross-head G^3, which pin also passes through a slot A′ in the side of hopper A, so that as the lever G moves from the position at Fig. 1 into that at Fig. 4 the carrier cross-head G^3 travels along the slot A′.

The breech-action lever C is hinge-jointed at C′ in such manner as to allow of a certain amount of movement of the outer end while the inner end is stationary, and it has a finger C^2, having a head C^3, entering a curved slot G^4 in lever G, this slot being so formed that as the lever C is moved up with its fin-

ger C^2 the head C^3 causes the lever G to move rapidly from the backward to the forward position. The inner end of the lever C carries a detent P, which, when the lever is in the lowered position at Fig. 4, catches on a notch in the breech-shoe at Q, and thus holds the inner part of the lever while the outer part is moving independently through part of its stroke, as permitted by the hinge-joint C′. By this motion the carrier-lever is made to perform part of its forward stroke while the breech-block is still in its lowest position. At the rear end of the hopper is pivoted, at D′, a lever D, connected at its upper end to the hopper-door B, which is urged by its spring B^2 so as to tend to fly open. At D^2 the lever D has an arm which, when the lever is in the position at Fig. 3, abuts against the carrier-lever G when this is in its backward position, so that the lever G thus prevents the lever D from moving forward, and consequently keeps the door B closed. When the outer part of lever C in rising has moved lever G through the first part of its stroke, as above described, the latter will have moved away from the arm D^2, and consequently the door B will be free to spring open to allow a cartridge to pass out. The carrier cross-head G^3 will then be situated immediately behind the base of the issuing cartridge, so that by its rapid forward motion on the continued rising of the lever C the carrier will push the cartridge home into the cartridge-chamber of the gun.

As the outer end of lever C performs the first part of its upward motion, turning on the hinge-joint C′, the inner end of the said lever C is held by the detent P catching under the abutment formed by the edge of the notch Q, and the upper end of the finger C^2 will have a downward motion relatively to the inner stationary end of lever C, whereby a hollow at C^4 on the under edge of the finger will be made to press upon a short arm P′ of the detent P. The latter will thereby be forced away from its abutment at Q, and will now allow the inner end of C to move upward on its fulcrum at C^5, together with the outer end. During the before-mentioned motion of the outer part of C while the inner end is held by the detent, the head C^3 in moving in a downward direction will act on the slot G^4 of G, so as to move this rapidly over from the backward position shown in Fig. 1 into the forward position shown at Fig. 4, thereby propelling the cartridge into the chamber of the gun. On the further upward motion of the lever after the release of detent P, as described, the head C^3 will move upward, turning on the upper center C^{10} of the lever C, and in pressing upon the upper edge of the slot G^4 will bring the lever G back into the position at Fig. 1. Before this motion is completed the upper edge of the finger C^2 will have come in contact with the projecting arm D^3 of lever D, and in pushing it upward will cause the lever D to move backward, so as to close the hopper-door again, the lever D being held by the finger in this position until the carrier-lever G has completed its backward motion, when it will again pass in front of D^2 and thus hold the lever and door, as above described.

In order to enable the rifle to be used for ordinary firing when the cartridge-magazine is removed, the breech-action lever C carries on its under side a separate rectangular plate C^7, (shown more clearly in plan at Fig. 1^a,) held by a screw and helical spring C^8, so that when required it can be drawn away from the lever by hand and turned one-quarter round, and then allowed to spring back into its orignal position, when, as the plate is somewhat greater in width than it is in length, its front edge will project beyond the position shown at Fig. 1, and in butting against the edge C^9 of the inner part of the lever will render the connection of the two parts of the lever a rigid one.

The finger C^2 is shown attached to the lever C by a screw C^5 and steady-pin C^6. It may, however, be formed in one therewith or be fixed thereto in any other manner.

The pin R for retaining the second cartridge is carried by a plate R′, which is pivoted at R^2 to the hopper and is connected at R^3 to the lever D; or, instead of this arrangement, the door B may be provided with a tail so formed that as the door opens the tail passes over the second cartridge and prevents this from rising.

The cover K is held closed by a spring-catch S, the lever of which is pivoted at S′, and has a spring S^2, tending to keep the catch in the position shown at Fig. 1. When, after the charge of the magazine has been expended, the spring X is drawn down by the outside button and slide X′, the slide of the latter, when arrived at the dotted position, presses against a nose on the lever, and in forcing back the catch S releases the cover, so that it will be thrown open by the spring B^2, and allow the introduction of a fresh charge. At the same time the spring X is held down by the tail of the catch-lever springing over the slide X′ thereof. Upon the cover K being closed again, the catch in being forced back causes the tail to release the slide of the spring X, so that this is again free to act on the cartridges.

Having thus described the nature of my invention and the best means I know for carrying the same into practical effect, I claim—

1. In a breech-loading fire-arm, the combination of a cartridge-magazine having a hinged door, a lever D, pivoted to the magazine and connected with the hinged door, a carrier-lever G, pivoted at the inner side of the magazine, between the latter and the shoe of the fire-arm, and a breech-acting lever C, loosely connected with the lower end portion of the carrier-lever to throw the latter forward as the said breech-action lever is raised, substantially as described.

2. In a breech-loading fire-arm, the combination of a cartridge-magazine having a hinged door, a spring which tends to open the door, a lever pivoted to the magazine, connected with the hinged door, and having the lateral arms D^2 D^3, the carrier-lever G, pivoted at the inner side of the magazine, between the latter and the shoe of the fire-arm, and the breech-action lever C, having the finger C^2 loosely connected with the carrier-lever, substantially as described.

3. In a breech-loading fire-arm, the combination of a magazine, a cartridge-carrier lever pivoted thereupon, a breech-action lever composed of two parts jointed together, and having its outer part connected with the carrier-lever, and a device, substantially such as described, for holding the inner part of the breech-action lever stationary while the outer end thereof is moved to actuate the carrier-lever.

4. In a breech-loading fire-arm, the combination, with a cartridge-magazine and magazine mechanism for advancing a cartridge into the cartridge-chamber of the fire-arm, of a breech-action lever composed of two parts jointed together, and having its outer end connected with the magazine mechanism that propels the cartridge, and a device, substantially such as described, for holding the inner part of the breech-action lever stationary while the outer part is moved to actuate the magazine mechanism.

5. In a breech-loading fire-arm, the combination, with a cartridge-magazine and magazine mechanism for advancing a cartridge into the cartridge-chamber, of a breech-action lever composed of two parts jointed together, and the outer part connected with the magazine mechanism, and a locking-plate pivoted on one part of said lever, and adapted to be turned to engage the other part for making the joint of the two parts of the lever rigid, substantially as described.

6. In a breech-loading fire-arm, the combination, with a magazine having a cartridge-carrier lever G pivoted to its inner side and provided with a curved slot G^3, of a breech-action lever composed of two parts jointed together, a finger C^2 on the outer part of the breech-action lever, having a head C^3 engaging the slot of the carrier-lever, and means, substantially as described, for holding the inner part of the breech-action lever stationary during a portion of the upward movement of the outer part of said breech-action lever.

7. In a breech-loading fire-arm, the combination of a magazine having a hinged door, a carrier-lever pivoted to the magazine, between the latter and the shoe of the fire-arm, a lever pivoted to the end of the magazine and connected with the door, a breech-action lever composed of two parts jointed together, and a finger connecting the outer part of the breech-action lever with the carrier-lever to operate the latter and act on the arm of the lever which is connected with the door for closing the latter, substantially as described.

8. The combination of a cartridge-magazine having a hinged door, a lever D, pivoted to the magazine and connected with the door, a plate R′, pivoted to the magazine, having a slotted connection with the said lever and provided with a pin R, extending into the magazine to hold the second cartridge while the uppermost one is removed, a cartridge-carrier lever pivoted on the magazine, and a breech-action lever for operating the carrier and door-levers, substantially as described.

9. The combination of a cartridge-magazine having a slot A′, a carrier-lever G, having a slot G^2 in its upper end and a slot G^4 at its lower end, and provided with a carrier cross-head G^3, working in said upper slot of the lever and engaging the slot in the magazine, a breech-action lever C, having the detent P, and composed of two parts jointed together, and a finger C^2, mounted on the outer part of the breech-action lever and having a head C^3 engaging the lower slot of the carrier-lever, substantially as described.

10. The combination, with a cartridge-magazine containing the spring X, and provided with a slide X′ for depressing the spring, of a hinged magazine-door K, a spring for throwing the door open, a spring-catch S for holding the door closed, and a lever S′ on the magazine operated by the slide in its downward movement to release the spring-catch, substantially as described.

11. In a side cartridge-magazine, the combination of the hinged door K, a lever D, that holds the door of the magazine closed, and a plate R′, pivoted to the magazine and having a slotted connection with said lever and carrying a pin R, projecting through a slot into the cartridge-magazine to project over the second cartridge and retain it while the uppermost one is being ejected.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 22d day of January, A. D. 1889.

C. GREVILLE HARSTON.

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