(No Model.) 3 Sheets—Sheet 1.

G. PERRNA.

BREECH LOADING GUN.

No. 437,365. Patented Sept. 30, 1890.

Fig. 3.

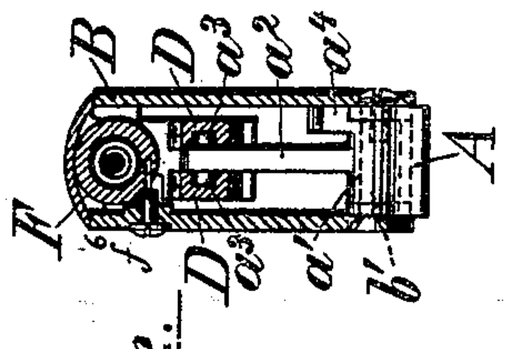


Fig. 5.

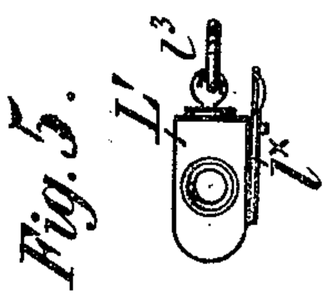


Fig. 1.

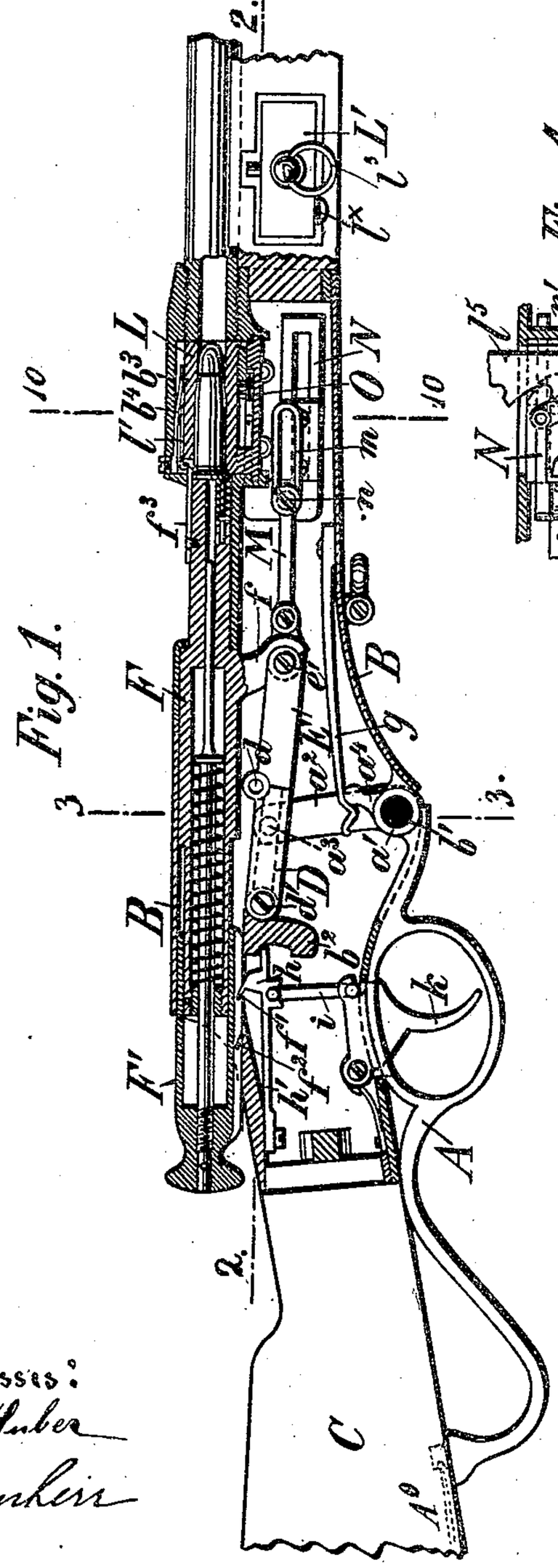


Fig. 4.

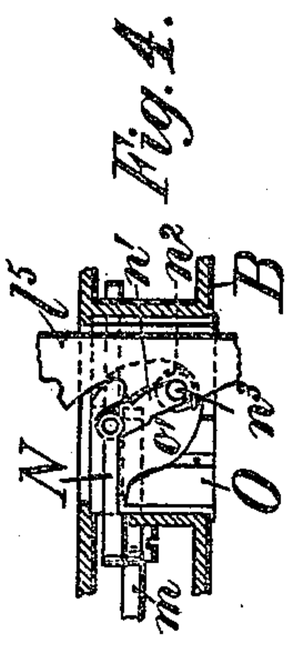
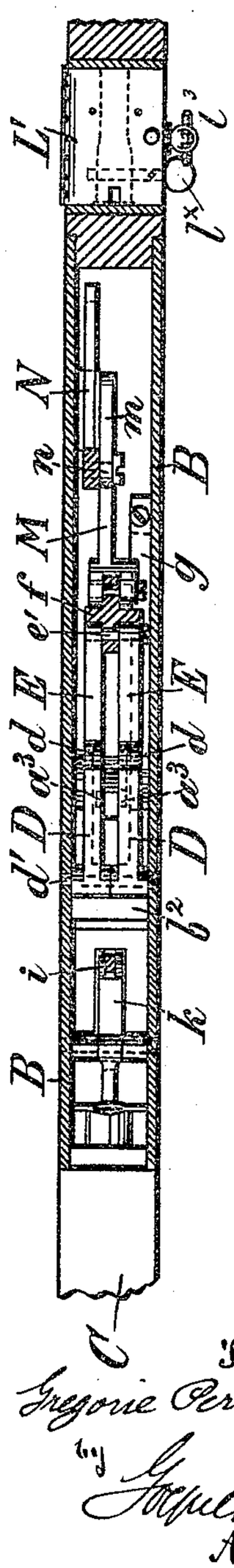


Fig. 2.



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BREECH LOADING GUN.

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Fig. 8.

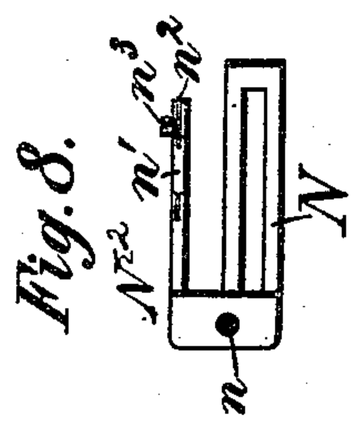


Fig. 7.

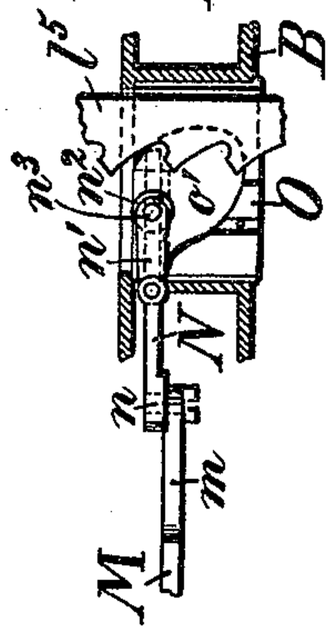
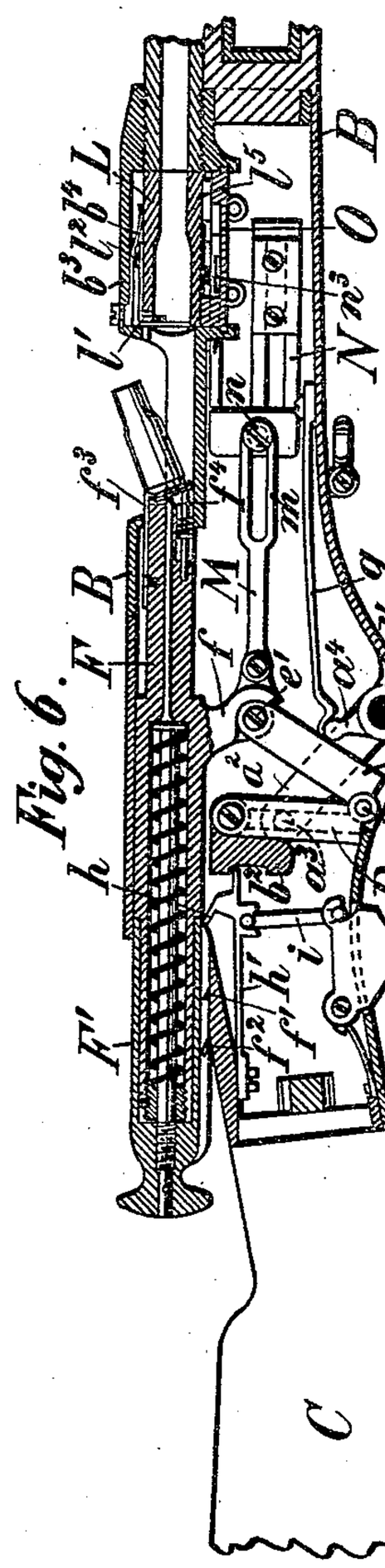


Fig. 6.



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BREECH LOADING GUN.

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Fig. 9.

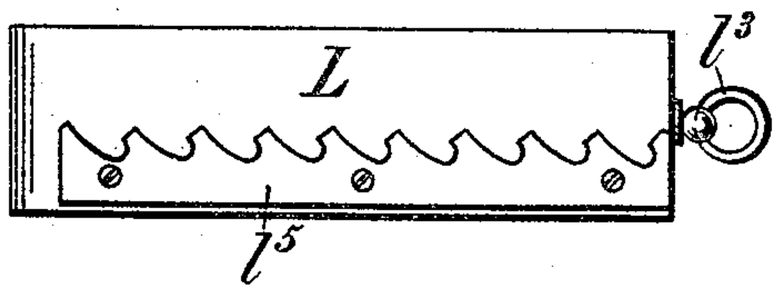


Fig. 10.

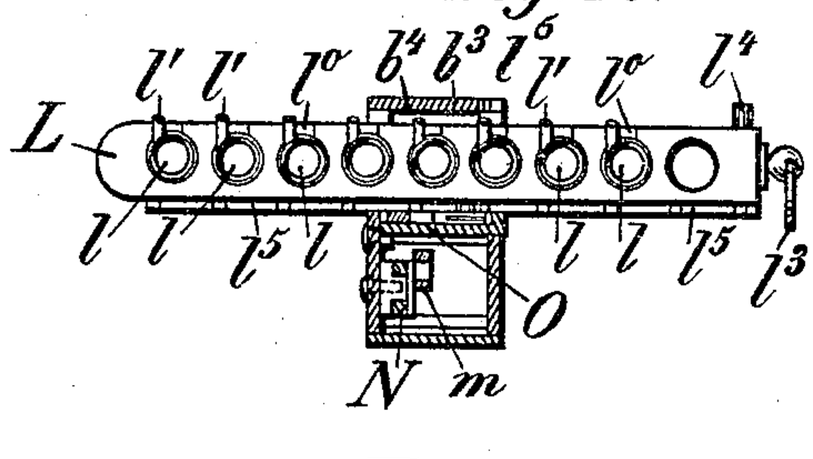
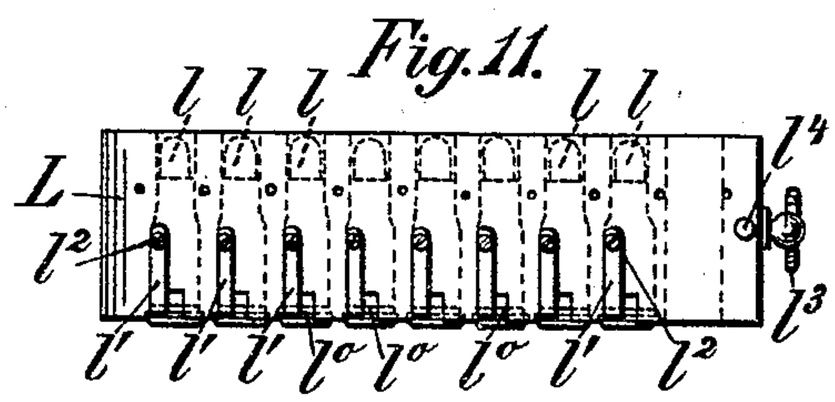


Fig. 11.



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UNITED STATES PATENT OFFICE.

GREGORIE PERRNA, OF SLANIC, ROUMANIA.

BREECH-LOADING GUN.

SPECIFICATION forming part of Letters Patent No. 437,365, dated September 30, 1890.

Application filed April 14, 1890. Serial No. 347,839. (No model.)

To all whom it may concern:

Be it known that I, GREGORIE PERRNA, a subject of the King of Roumania, residing at Slanic, District of Prahova, Kingdom of Roumania, have invented certain new and useful Improvements in Portable Fire-Arms, of which the following is a specification.

This invention relates to that class of fire-arms in which the opening and closing of the breech-bolt is accomplished by moving the trigger-guard downward and upward.

The invention consists in the construction and combination of parts and details, as will be fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of my improved magazine-gun, the parts being shown in position ready for firing. Fig. 2 is a horizontal view of the same on the line 2 2, Fig. 1. Fig. 3 is a transverse sectional view on the line 3 3, Fig. 1. Fig. 4 is a detail horizontal sectional view of the bottom of the chamber for receiving the combined magazine and firing-chamber. Fig. 5 is an end view of the single fire-chamber. Fig. 6 is a vertical longitudinal sectional view of my improved magazine-gun, showing the positions that the parts have when the trigger-guard is swung down to throw out the cartridge and to prepare for a fresh charge. Fig. 7 is a sectional plan view through the bottom of the chamber for receiving the combined magazine and firing-chamber, showing the mechanism for shifting said magazine. Fig. 8 is a detail side view of the side after shifting the magazine. Fig. 9 is a plan view of the under side of the combined firing-magazine and firing-chamber. Fig. 10 is a longitudinal end view of the combined magazine and firing-chamber and a cross-section on the line 10 10, Fig. 1. Fig. 11 is a plan view of the combined magazine and firing-chamber.

Similar letters of reference indicate corresponding parts.

The trigger-guard A is provided at one end with an eye a', through which a pivot b' passes, which is secured transversely in the breech-casing B of the gun, so as to adapt the trigger-guard to turn on said pivot. That end of the trigger-guard opposite the one that is pivoted is provided with a projection a^0, adapted to engage a spring A^0 (shown in dotted lines in Fig. 1) for the purpose of keeping the trigger-guard in place when in raised position. The eye a' is provided with an arm a^2, which is located within the casing B, and forms an acute angle with the trigger-guard A. The said arm a^2 is provided on its free end with a pin a^3, which projects from both sides of the arm and engages longitudinal grooves in the adjacent sides of the two parallel shanks D of the double toggle-lever D E.

The shanks of the toggle-lever D E are pivoted to each other at d, and the shanks D are pivoted at d' to the casing B, and the shanks E are pivoted at e' to a lug f, projecting downward from the breech-bolt F. When the trigger-guard is raised, as shown in Fig. 1, the shanks of the toggle-levers are in line and the breech-bolt is in closed position, and when the trigger-guard is swung down the toggle-levers are folded—that is, brought in the position shown in Fig. 6—by the action of the ends of the pin a^3 on the sides of the groove in the shanks E, and thereby the breech-bolt is withdrawn. When the toggle-levers are extended, their shanks are slightly inclined and their rear ends rest against the fixed cross-piece b^2 of the casing B, which prevents the pressure of the powder gases from forcing back the breech-bolt and forcing down the trigger-guard.

For the purpose of holding the trigger-guard in position when raised or lowered, it is provided with a short projection a^4, that rests against the free end of the spring g, secured to the upper side of the bottom of the casing B and provided at its free end with beveled angular projections adapted to engage the projection a^4.

The breech-bolt F differs from the ordinary breech-bolt containing the firing-pin in this respect, that for the purpose of setting the firing-pin the rear part of the breech-bolt need not be turned laterally in relation to the front part. When the gun has been fired, the rear end of the recess of the part F′ of the breech-bolt rests against the rear end of the part F. The catch h of the trigger-spring h', fastened to the casing B, snaps into a notch f' of the breech-bolt section F′ and holds the

same and the firing-pin and prevents their moving forward with the section F of the breech-bolt. The trigger-spring h' is connected by a link i with the trigger k. A short distance from the rear toward the notch f' the part F′ of the breech-bolt is provided with an additional notch f^2, which serves for holding the firing mechanism in half-cocked position. If the gun is to be locked in the half-cocked position, the rear end of the part F′ of the breech-bolt is held, and the trigger is pulled so as to remove the catch h from the notch f'. Then the trigger is released, and the part F′ is permitted to slide forward until the catch h engages the notch f^2. To cock the gun ready for firing, the part F′ of the breech-bolt is withdrawn until the catch h snaps into the notch f'.

In that part of the gun where the firing-chamber is usually arranged the casing is provided with a rectangular opening forming a rectangular chamber opened at both sides and into which a block can be inserted, which forms the firing-chamber for the single cartridge, or in place of which a combined firing-chamber and magazine can be inserted, which contains a number of cartridges, thus adapting the rifle for use as a repeater.

The block L is provided with a series of bores l, extending from front to rear and having the shape of a cartridge. In this case there are nine bores, of which eight smaller ones serve to receive the cartridges. In each of the said bores l cartridges are inserted, which are held in place by the springs l', fastened at one end upon the top of the magazine L at l^2 and are provided at their free ends with pins, that pass through corresponding notches in the magazine and into grooves formed in the cartridges a short distance in front of the rim, so that the cartridges cannot drop out of their apertures in the magazine. At the rear end of the magazine a notch l^0 is formed above each bore, through which notches the hooked ends of the extracting-spring f^3 can pass to engage the rims of the cartridges for the purpose of withdrawing them from the magazine. The magazine is provided at one end with a ring L^3, to facilitate handling it, and is provided at its top at one end with a check-pin l^4, which enters a notch l^6 in the chamber and prevents pushing the magazine too far to the left. Said magazine is shifted laterally every time the breech-bolt is shoved forward, so as to bring a fresh cartridge in line with the barrel. To the lug f of the breech-bolt one end of a link M is pivoted, which is provided at its opposite end with a longitudinal slot m. Into said slot m a pivot n passes, which projects laterally from the slide N, which is so guided on the casing B that it can slide forward and backward only. On an arm N^2 on the top of said slide an arm n' is pivoted to swing laterally, and is provided in its free end with a roller n^2, and at said free end at its upper surface with a pin n^3. The said arm n' rests upon a plate O, which forms the bottom of the chamber for receiving the magazine, said plate being held detachably in the casing B. The plate O is provided in its upper surface with a recess o', having curved sides and of such shape that when the slide N is pushed forward the roller n^2 of the said arm n' comes in contact with the front curved edge of the recess o', and is thus shifted to the right, as is illustrated in Fig. 4. This movement of the arm n' is transmitted to the magazine L, which is provided on its under side with a rack l^5, the teeth of which are inclined and curved in such a manner that as the roller n^2 runs along the front curved edge of the recess o' of the plate O the pin n^3 engages one of the teeth of the rack l^5 and shifts the magazine to the right the distance of one cartridge. The friction-spring b^4, which is secured to the under side of the top plate b^3 of the magazine-chamber, and the free end of which rests upon the top of the magazine, serves for retaining the magazine in the desired position for the time being. When the slide N moves backward, the curved rear edge of the recess o' in the plate O brings the arm n' from the position shown in Fig. 4 to the position shown in Fig. 7—that is, in line with the top of the arm N^2—so as to be ready for the next forward movement. The slot m of the lug M is of such length and the edges of the recess o' in the plate O are so shaped that the magazine is only shifted laterally a distance sufficient to bring the fresh cartridge truly in line with the bore of the barrel, and so that the magazine will be in position before the head or front end of the breech-bolt presses the rimmed end of the cartridge against the rear end of the barrel. After a cartridge has been fired it is only necessary to move the trigger-guard downward and upward, whereby the gun is charged and cocked. When the breech-bolt is withdrawn, the extracting-spring f^3 withdraws the empty shell from the magazine, and when the said shell comes in contact with the spring-actuated pin f^4 it is thrown out. The spring, acting on the pin f^4, tends to press said rod in the direction from the muzzle of the gun toward the breech-bolt; but when the breech-bolt is withdrawn the ejector-pin f^4 strikes against a screw f^6, Fig. 3, projecting from the inner side of the casing B, whereby the ejector-pin f^4 is forced in the direction from the breech-bolt toward the muzzle, and, acting on the lower part of the rim end of the empty shell, throws said shell outward, as illustrated in Fig. 6. When the breech-bolt is moved forward, the spring acting on the pin f^4 withdraws said ejector-pin. After all the cartridges in the magazine have been fired, the trigger-guard is pulled down and the magazine removed and replaced by another.

In case it is desired to use the gun as a single-firing gun in place of a repeater, the magazine is replaced by a block L′, Figs. 1 and 5, which has but a single bore for cartridges

and is usually kept in a suitable aperture provided in the gun-stock at the rear end of the barrel, as shown in Figs. 1 and 2. Said block is provided with a ring for handling it in the same manner as the magazine, but is not provided at its under side with a rack. For the purpose of locking the block L′ in the chamber, it is provided with a spring-catch $l^{\times}$ on its under side, which spring-catch, when the block has been inserted, snaps into a suitable aperture in the bottom of the chamber. Said spring-catch also serves to hold the block in the aperture or recess for the same in the stock when said block is not being used.

A special advantage of my improved fire-arm is that each cartridge is fired from the bore in the magazine in which it is held and that after all the cartridges in the magazine have been fired the magazine is replaced by a fresh-filled magazine. This prevents the magazine from being heated to such an extent by the contact with the heated firing-barrel that an explosion of the cartridges can take place, which, as is well known, frequently occurs in fire-arms having a permanent and fixed magazine.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a fire-arm, the combination, with a barrel, firing-pin, and trigger, of a sliding breech-bolt and a transversely-sliding combined magazine and firing-chamber at the breech end of the barrel, which combined magazine and firing-chamber has three or more apertures parallel with the barrel and adapted to receive and hold cartridges, and mechanism for shifting said combined firing-chamber and magazine transversely to the axis of the barrel by the withdrawal of the firing-pin, substantially as set forth.

2. In a fire-arm, the combination, with a pivoted trigger-guard, of a sliding breech-bolt actuated from the same, a combined magazine and firing-chamber mounted to slide transversely to the axis of the barrel at the breech end of said barrel, and a slide operated from the breech-bolt and adapted to shift said magazine laterally, substantially as set forth.

3. In a fire-arm, the combination, with a pivoted trigger-guard, of a sliding breech-bolt operated from the trigger-guard, a combined magazine and firing-chamber mounted to slide transversely to the bore of the barrel at the breech end of said barrel, a rack on the under side of said magazine, and a slide operated from the breech-bolt and adapted to engage said rack and shift the magazine laterally, substantially as set forth.

4. In a fire-arm, the combination, with a pivoted trigger-guard, of a sliding breech-bolt actuated from the same, a combined magazine and firing-chamber mounted to slide transversely to the axis of the barrel at the breech end of the same, a rack on said magazine, a slide actuated from the breech-bolt, a pivoted arm on said slide, a plate forming the bottom of the chamber for receiving the magazine and having a grooved recess for guiding said arm on the slide, and a pin on said arm adapted to engage the rack of the magazine and to shift the magazine laterally, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GREGORIE PERRNA.

Witnesses:
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