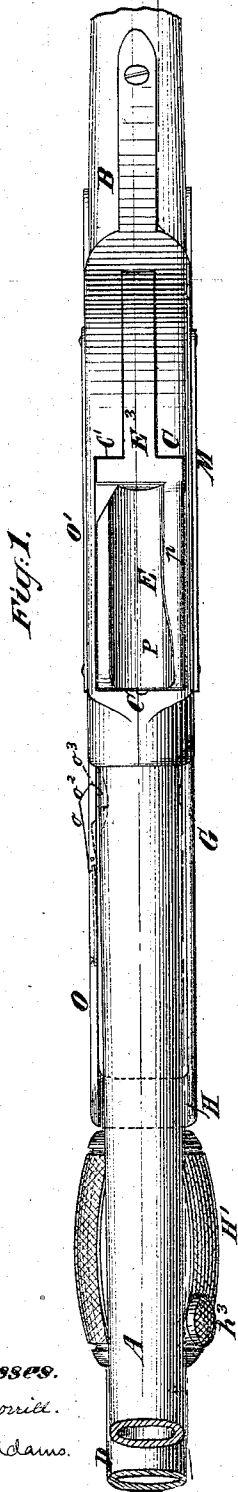


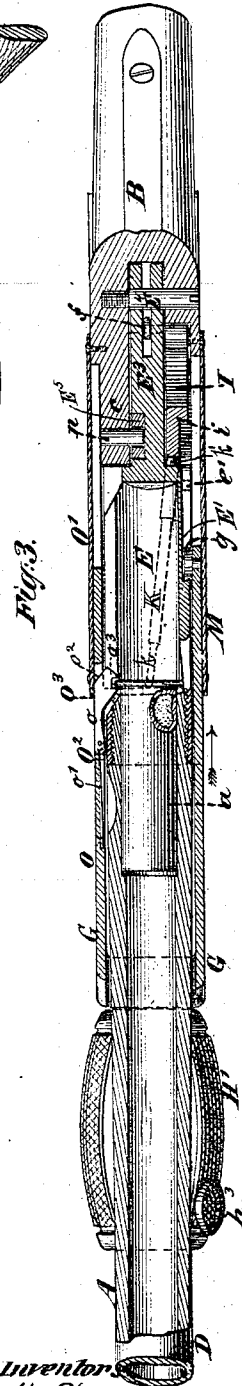
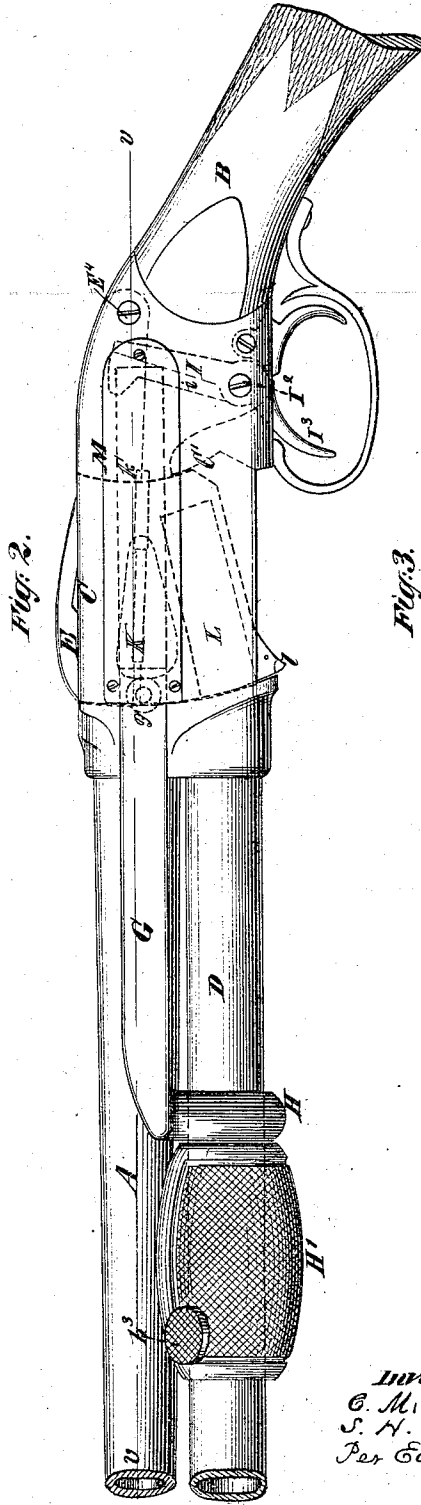
C. M. SPENCER & S. H. ROPER.  
MAGAZINE FIRE ARM.

No. 255,894.

Patented Apr. 4, 1882.



*Witnesses.*  
 Chas. Morrill.  
 M. L. Adams.



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(No Model.)

3 Sheets—Sheet 2.

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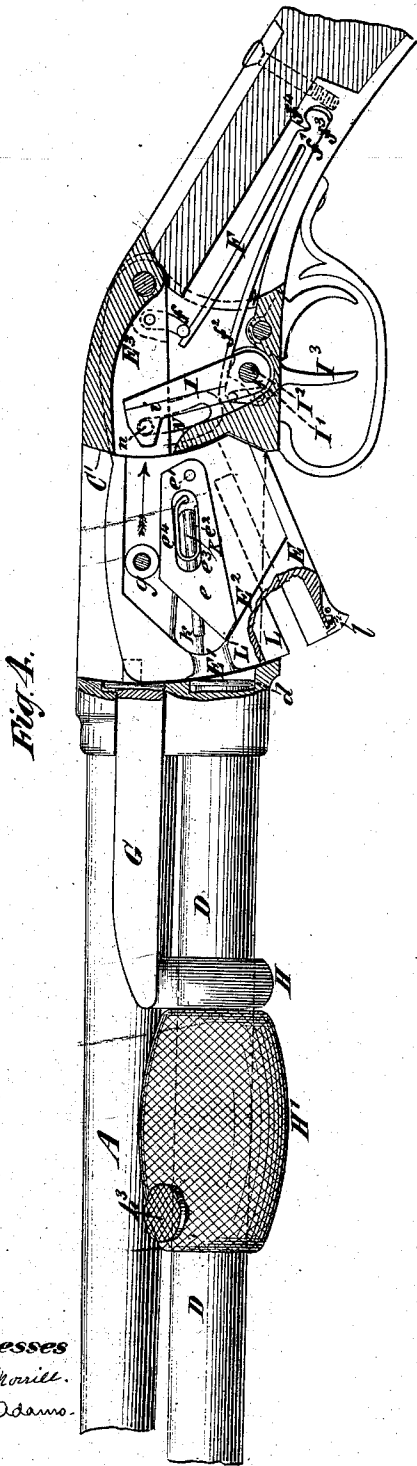


Fig. A.

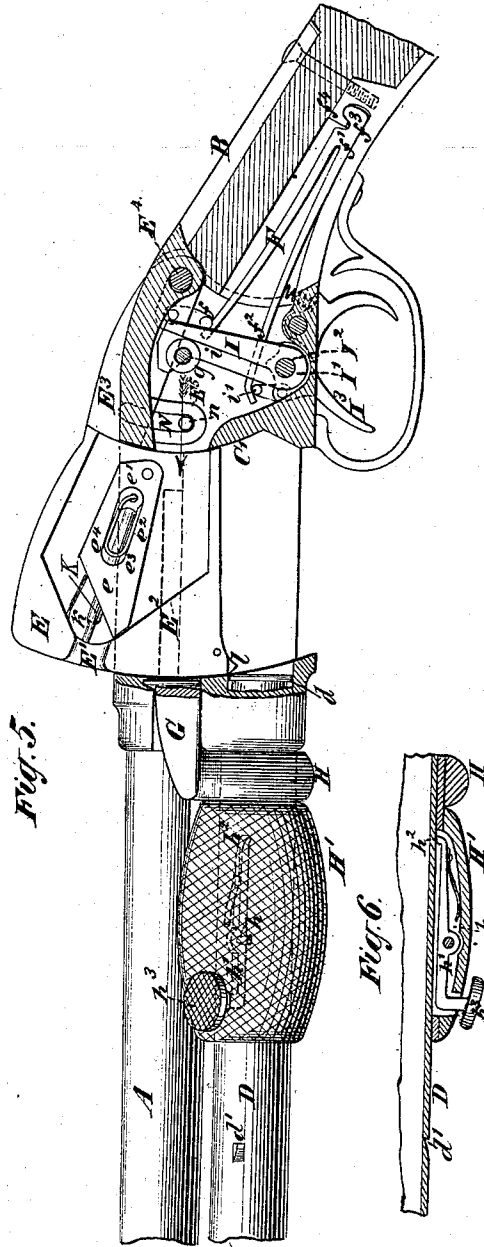


Fig. 5.



Fig. 6.

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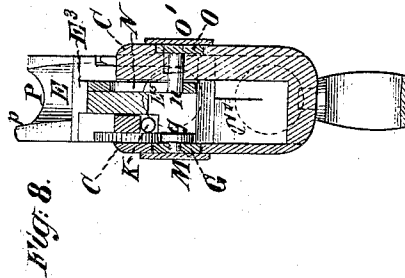
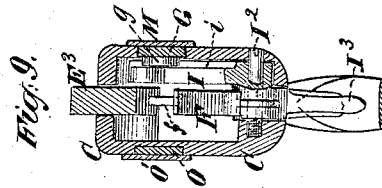
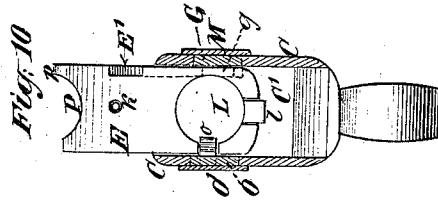
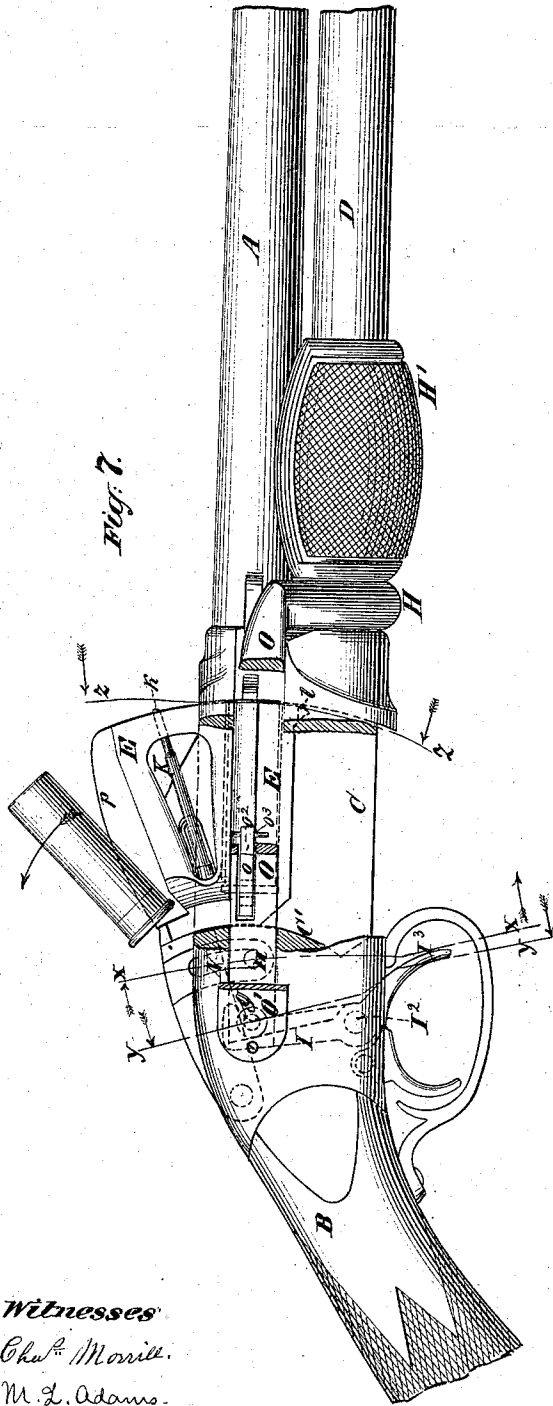
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# UNITED STATES PATENT OFFICE.

CHRISTOPHER M. SPENCER, OF HARTFORD, CONNECTICUT, AND SYLVESTER H. ROPER, OF BOSTON, MASSACHUSETTS.

## MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 255,894, dated April 4, 1882.

Application filed January 9, 1882. (No model.)

To all whom it may concern:

Be it known that we, CHRISTOPHER M. SPENCER, of Hartford, Connecticut, and SYLVESTER H. ROPER, of Boston, Massachusetts, have invented certain Improvements in Magazine-Shotguns, of which the following is a specification.

It is the object of our invention to provide for the recharging of a magazine-shotgun without requiring the gun to be taken down from the position in which it has been fired. We accomplish this result by means of a forked slide provided with a handle which is arranged beneath the barrel in convenient position to be grasped and reciprocated by one hand while the gun is held against the shoulder by the other hand, which grasps the stock. One arm of the forked slide carries at its end a laterally-projecting pin, upon which is a friction-roller which traverses a cam-groove provided with a spring-tongue or switch-cam in the side of an oscillating breech-block. The oscillation of the breech-block is effected by the reciprocating friction-roller or cam-pin in conjunction with the mainspring of the lock, which, in addition to its ordinary function of driving the hammer when the gun is fired, also acts upon the breech-block with a constant upward pressure. The rear wall of the receiver is curved concentrically with relation to the axis of oscillation of the breech-block, and affords a bearing for the rear end of the breech-block, which serves to take up the recoil. The friction-roller, hereinafter called the "cam-pin," during the latter part of its backward excursion, strikes against and throws backward the hammer, and thus cocks the gun. A horizontal slot in the side wall of the receiver permits the inward projection of the cam-pin which operates the breech-block, and this slot is covered by a metallic plate which is screwed to the exterior of the wall of the receiver. The opposite wall of the receiver is similarly slotted and covered with a metallic plate. The other arm of the slide carries an oscillating catch, which, in its backward excursion, strikes against the edge of the plate covering the slot in the wall of the receiver, and being rocked inward catches the flange of the shell in the chamber of the gun. By the continued backward movement of the slide

the shell is extracted and deposited in the grooved top of the breech-block, the breech-block having been thrown down from the firing position by the first portion of the backward movement of the cam-pin carried by the other arm of the slide. The groove in the side wall of the breech-block is of such shape as to permit the breech-block to be thrown upward by the mainspring when the cam-pin has completed its backward excursion. The sudden upward movement of the breech-block throws out the empty shell from the groove in the top of the breech-block, and one of the side walls of this groove is extended upward and curved slightly over the groove, so that the shell in being thrown out is given a sidewise direction. When the breech-block is thus thrown upward a carrier-cell in the lower part of the breech-block containing a loaded shell is brought into alignment with the chamber of the gun, and during the first portion of the forward excursion of the slide the catch, which during the backward excursion has acted as an extractor, now catches upon the flange of the loaded shell and pushes the loaded shell forward into the chamber, thus acting as an inserter. By the latter portion of the forward movement of the slide the breech-block is rocked downward into its middle position, in which the firing-pin is brought into alignment with the primer. At the same time the mouth of the carrier-cell is brought to rest opposite the mouth of the magazine, in position to be supplied with a loaded shell therefrom by the action of the magazine-spring.

It will be understood that while the devices which we employ may be variously modified, the leading feature of our invention, the prime mover of the mechanism by which the desired results are accomplished, is the forked slide provided with a handle forward of the breech in convenient position to be grasped by the hand and reciprocated in a path substantially parallel with the barrel, while the other hand grasps the stock and holds the gun against the shoulder in firing position.

The accompanying drawings, representing portions of a magazine-shotgun containing our improvements, are as follows:

Figure 1 is a top view of the receiver and the adjoining portions, respectively, of the bar-

rel and stock of the gun, the breech-block being represented as in its middle or firing position. Fig. 2 is an elevation of the left hand side of the receiver, &c., upon which the slide which carries the cam-pin for controlling the movements of the breech-block is located, the breech-block being represented in dotted lines as in its middle or firing position. Fig. 3 is a transverse longitudinal section through the line *v v* in Fig. 2. Fig. 4 is a left-hand side view, partly in vertical section, showing the oscillating breech-block thrown downward into its lowest position by the first portion of the backward excursion of the slide. Fig. 5 is a view of the same side of the gun, partly in section, showing the breech-block in its highest position and the slide at the end of its backward excursion, also showing the cam-pin in contact with the hammer and the hammer at full-cock. Fig. 6 is a longitudinal section of a portion of the handle and the magazine, showing the spring stop-latch for holding the slide at the end of its forward excursion. Fig. 7 is a right-hand side elevation of the gun, partly in section, showing the breech-block in its highest position and an empty shell in the act of being ejected from the recess in the top of the breech-block. Fig. 8 is a transverse section through the line *x x* on Fig. 7. Fig. 9 is a transverse section through the line *y y* on Fig. 7. Fig. 10 is a front elevation of the breech-block in its highest position, showing the receiver in transverse vertical section through the line *z z* on Fig. 7.

The drawings represent a single-barreled shotgun, the barrel A and the stock B of which are secured respectively to the front and rear ends of the receiver C. A tubular magazine, D, is arranged immediately beneath the barrel, and has its mouth inserted in the lower portion of the front end of the receiver. An oscillating breech-block, E, which is constantly subjected to the upward pressure of the mainspring F of the lock, is made to occupy three positions by the reciprocation of the arm G, the forward end of which is affixed to the yoke H, which is perforated and provided with the tubular handle H', to admit the tubular magazine D, upon which the yoke and handle slide. The oscillating breech-block occupies its middle or firing position when the yoke is fully extended forward, by reason of the fact that at that time a cam-pin, *g*, extending laterally inward from the end of the arm G, occupies the groove E' in the forward portion of the left-hand side wall of the breech-block, as shown in dotted lines in Fig. 2, in which the gun is represented as being cocked, the hammer I of the lock being shown also in dotted lines as thrown backward.

In order to permit the extraction of the shell from the chamber of the gun, the breech-block is thrown downward from its middle position. This is effected by the backward excursion of the slide G, and consequent engagement by the cam-pin of the inclined upper edge of the switch-cam *e*, pivoted to the recessed side wall

of the breech-block. By the completion of the backward excursion of the slide G the cam-pin *g* is carried beyond the rear end, *e'*, of the switch-cam *e*, and the oscillating breech-block is thus released to the expanding action of the mainspring F, the upper leg of which is seated in the stirrup *f*, pivoted to the tang E<sup>3</sup> of the breech-block. By the expanding action of the mainspring F the breech-block is thrown into its highest position, as represented in Figs. 5, 7, 8, and 10. During the latter part of the backward excursion of the slide the cam-pin strikes against the shoulder *i* of the hammer and pushes back the hammer and cocks the gun. During the forward excursion of the slide the cam-pin strikes against the inclined part E<sup>2</sup> of the lower wall of the recess in the side of the breech-block and forces the breech-block downward into its middle or firing position. The switch-cam, which yields in an upward direction as the cam-pin travels up the incline E<sup>2</sup>, is brought back to its normal position by means of the spring *e*<sup>2</sup>, affixed to the side wall of the breech-block, and bearing with its free end upon the lower edge, *e*<sup>3</sup>, of the slot *e*<sup>4</sup> in the central part of the switch-cam.

The stock of the gun is recessed in the usual manner to contain the bight *f'* of the mainspring, the lower leg of which, *f*<sup>2</sup>, is seated in the stirrup *i'*, pivoted to the hammer-hub I', and drives the hammer when the gun is fired.

The bight of the mainspring is provided with the recess *f*<sup>3</sup> to admit the fixed hook *f*<sup>4</sup>, by which the spring is held in its proper place.

The firing-pin K is carried in the breech-block, and when the breech-block is in its middle position the point *k* of the firing-pin stands opposite the center of the cartridge in the chamber, while its head *k'* is in position to receive the blow of the hammer. When the breech-block occupies its middle or firing position a carrier-cell, L, in the lower part of the breech-block is brought into position, with its mouth opposite the mouth *d* of the magazine, and by the action of the magazine-spring a cartridge from the magazine is forced backward into the carrier-cell. To fill the magazine the oscillating breech-block is thrown upward to its highest position, and the cartridges are then introduced into the lower part of the receiver and pushed forward into the magazine. As the cartridges are successively pushed into the magazine they are prevented from springing backward by means of the spring-lip *l*, pivoted in the lower front edge of the breech-block. This spring-lip yields to allow the flanges of the cartridges to pass as they are pushed into the magazine.

The side wall of the receiver is longitudinally slotted to allow the cam-pin to project inward and engage the cam-groove in the side wall of the breech-block, and this slot and the rearward portion of the slide carrying the cam-pin are covered by the plate M, which is screwed to the wall of the receiver. A tang, E<sup>3</sup>, which projects backward from the central part of the rear end of the breech-block, is transversely

slotted near the end to receive the screw  $E^4$ , upon which the breech-block swings. The rear end of the breech-block bears upon the rear wall,  $C'$ , of the receiver, these bearing-surfaces being concentrically curved with relation to the axis of oscillation of the breech-block. By this organization of the parts the recoil is taken up by the rear wall,  $C'$ , of the receiver, and does not affect the screw  $E^4$ . The rear end of the receiver is vertically slotted to admit the tang  $E^3$ , and is recessed upon the left-hand side to admit the sliding cam-pin  $g$  and to provide room for the swing of the hammer. The right-hand side of the tang  $E^3$ , near its point of junction with the rear end of the breech-block, is provided with a downwardly-projecting slotted plate,  $E^5$ , the slot  $N$  of which is concentrically curved with relation to the axis of oscillation of the breech-block, and engages a pin,  $n$ , inserted in the side wall,  $c$ , which constitutes the inner boundary of the recess in the rear end of the receiver. The side wall,  $c$ , and the right-hand side wall of the slot which admits the tang  $E^3$  are in the same plane. The pin  $n$  acts as a stop which limits the extreme range of oscillation of the breech-block in either direction. The hammer oscillates upon the shank of the screw  $I^2$ , and is provided with the arm  $I^3$ , which projects downward into the forward portion of the space within the trigger-guard, and affords a means of cocking the gun without the aid of the cam-pin  $g$ , and also shows by its position whether the gun is cocked or not.

The right-hand side wall of the receiver is longitudinally slotted to admit the reciprocating arm  $O$ , the forward end of which is affixed to the yoke  $H$ . A plate,  $O'$ , which is screwed upon the right-hand side wall of the receiver, covers the slot and the rearward portion of the reciprocating arm  $O$ . The arm  $O$  is provided with a longitudinal slot,  $O^2$ , in which is pivoted the catch  $o$ . A flat spring,  $o'$ , affixed to the inner side of the arm  $O$ , acts upon the tail end of the catch with a force tending to throw its free end inward. During the backward excursion of the arm  $O$ , after the cam-pin  $g$  has been moved back a proper distance and has performed its preliminary work of rocking the oscillating breech-block into its lowest position, the inclined outer edge,  $o^2$ , of the catch  $o$  is brought against the end  $O^3$  of the plate  $O'$ , and the catch is thereby forced positively inward, so that the notch  $o^3$  upon the inner edge of the catch, near the end, is made to engage the flange of the shell lying within the chamber  $a$  of the gun. During the continuance of the backward excursion of the arm  $O$  the catch  $o$  slides along the under surface of the plate  $O'$ , and maintaining its hold upon the flange extracts the shell from the fire chamber of the gun and deposits it in the groove  $P$ , formed in the top of the breech-block. When the breech-block, by being released to the action of the mainspring, is made to fly upward to its highest position, the shell lying in the groove  $P$  is thrown out, and the left-hand side wall,  $p$ , of

the groove  $P$  is extended upward and partially over the groove, in order to give to the shell, when being thrown out, a sidewise direction. As the breech-block moves up to its highest position the flange of the cartridge lying in the cell  $L$  is carried into the notch  $o^3$  of the catch  $o$ , and by the first portion of the forward excursion of the arm  $O$  the cartridge is pushed from the cell  $L$  into the chamber  $a$  of the gun. The upper edge,  $L'$ , of the mouth of the cell  $L$  is slightly chamfered, and as the breech-block is swung downward the chamfered edge  $L'$  rides across the flange of the cartridge, in case the base of the cartridge projects from the chamber, and thus the forward end of the breech-block, in its downward movement, acts as a wedge and forces the cartridge home in the chamber of the gun.

If desired, the reciprocating yoke carrying the arms which operate the breech-block and the extractor and inserter may be provided with a stop to hold it when fully extended forward. A convenient device for this purpose is shown in Fig. 6, in which it will be seen that the magazine  $D$ , upon which the yoke and handle slide, is provided with the slot  $d'$ , and that the handle  $H'$  is provided with the longitudinal recess  $h$ , in which is pivoted the oscillating spring-latch  $h'$ . The nose  $h^2$  of the latch springs into the notch  $d'$  when the handle is fully extended forward and stops the backward movement of the handle.

When the gun is to be recharged the exteriorly-projecting end  $h^3$  of the latch  $h'$  is pressed inward by the hand grasping the handle, and the nose  $h^2$  of the latch being thus withdrawn from the slot  $d'$  in the magazine, the handle can then be pulled backward.

It will of course be understood that instead of using the plates  $M$  and  $O'$  for covering the slots respectively in the side walls of the receiver the side walls of the receiver may be made thicker, and grooves may be formed upon the inner faces thereof to receive the sliding arms  $G$  and  $O$ .

We claim as our invention—

1. In a breech-loading shotgun, in combination with a movable breech-block, substantially such as described, a forked slide provided with a handle adapted to be reciprocated in a path parallel with the axial line of the barrel, the two arms or branches of such slide being provided the one with a cam-pin and the other with an extractor and inserter.

2. The cam-pin  $g$  and means for reciprocating the same across the wall of the receiver in a path substantially parallel to the axis of the barrel of the gun, in combination with the switch-cam  $e$ , pivoted to the recessed side wall of the oscillating breech-block  $C$ , and the mainspring  $F$  of the lock, substantially as set forth.

3. In combination with a movable breech-block, substantially such as described, the reciprocating yoke  $H$ , carrying the arms for operating the breech-block and the extractor and inserter, and provided with the hollow handle  $H'$ , and means for guiding the same in a path

parallel with and beneath the barrel of the gun, as set forth.

4. The hollow handle H' of the reciprocating yoke H, carrying the arms for operating the breech-block and the extractor and inserter, supported upon and guided by the magazine D, substantially as set forth.

5. The reciprocating yoke H, carrying the arms for operating the breech-block and the extractor and inserter, in combination with the spring-latch h' and a slot or shoulder d', for engaging the nose of the latch and stopping the backward movement of the yoke when fully extended forward.

6. The movable breech-block containing the carrier-cell L, and the reciprocating arm O, carrying the extractor and inserter, or catch o, provided with the notch o<sup>3</sup>, in combination with means, substantially such as described, for moving the breech-block and for reciprocating the arm O and catch o, substantially in the manner set forth, whereby one side of the notch

o<sup>3</sup> catches upon and extracts the shell from the chamber of the gun during the backward excursion of the arm O, and the opposite side of the notch o<sup>3</sup> engages the base of the cartridge in the carrier-cell, when, by the movement of the breech-block, the carrier-cell is brought into alignment with the chamber, and during the forward excursion of the arm O inserts the cartridge into the chamber, substantially as described.

7. The top of the breech-block, provided upon one side with the upwardly and inwardly curved side wall, p, for the purpose of giving a side-wise direction to the shell when being thrown out of the cavity P by the upward movement of the breech-block, substantially as described.

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