(No Model.) 2 Sheets—Sheet 1.

# J. H. McLEAN.

## BREECH LOADING FIRE ARM.

No. 290,905. Patented Dec. 25, 1883.

Fig 1.

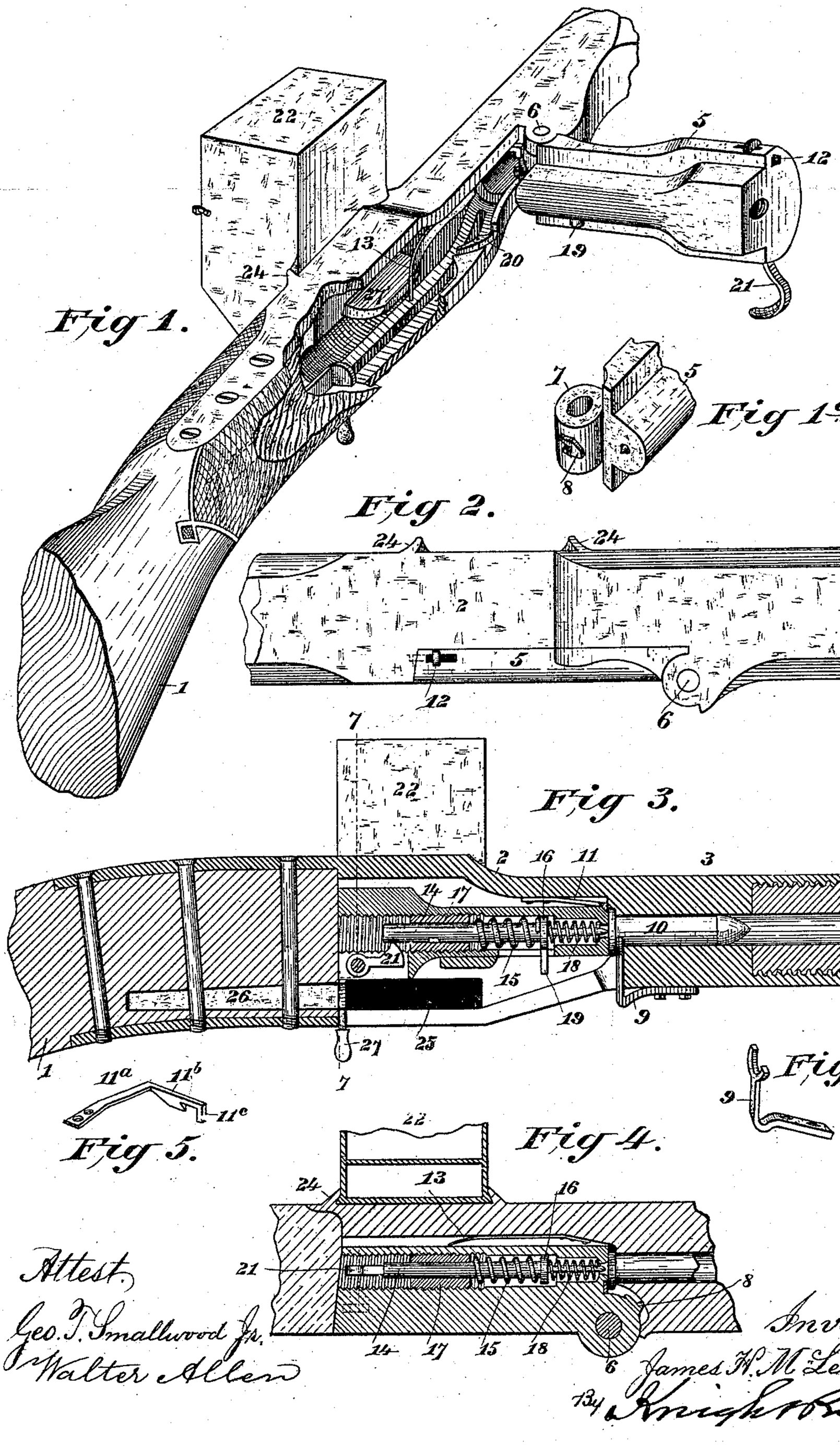



Fig 1a.




Fig 2.




Fig 3.




Fig 6.




Fig 5.




Fig 4.




Attest.

Geo. T. Smallwood Jr.

Walter Allen

Inventor:

James H. McLean:

by Knight Bros. attys

(No Model.) 2 Sheets—Sheet 2.

# J. H. McLEAN.

## BREECH LOADING FIRE ARM.

No. 290,905. Patented Dec. 25, 1883.

Fig 7.

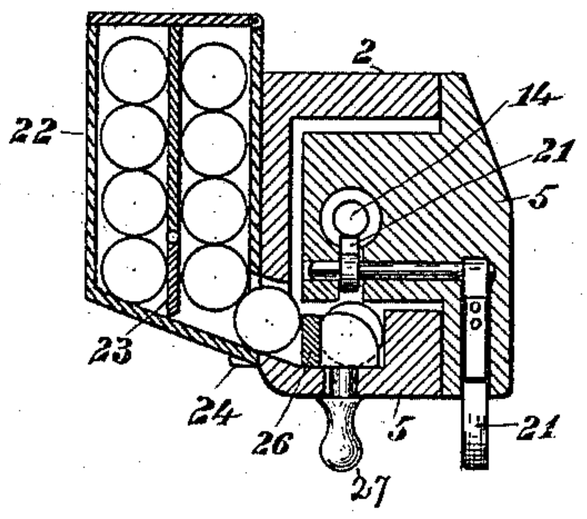



Fig 8.

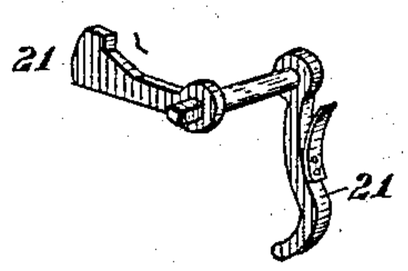
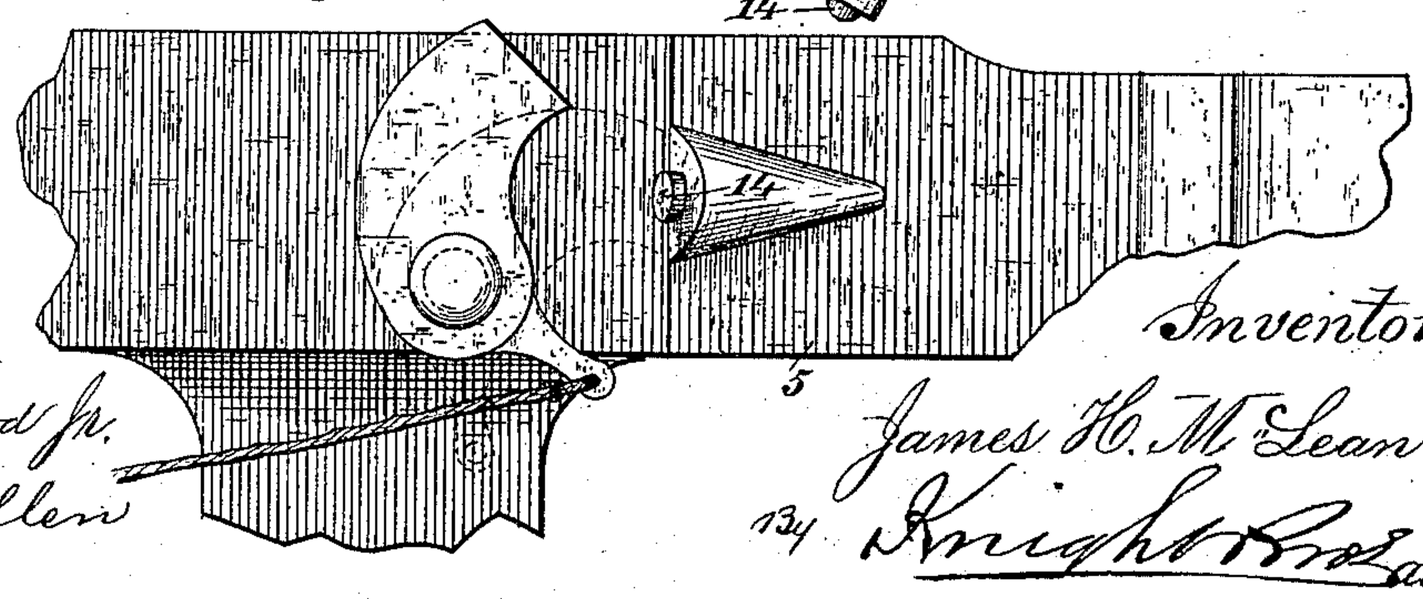



Fig 9.




Fig 10.




Attest.

Geo. T. Smallwood Jr.

Walter Allen

Inventor.

James H. McLean

by Knight Bros Attys

# UNITED STATES PATENT OFFICE.

JAMES HENRY McLEAN, OF ST. LOUIS, MISSOURI.

## BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 290,905, dated December 25, 1883.

Application filed December 30, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES HENRY McLEAN, of the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Breech-Loading and Magazine Fire-Arms, of which the following is a specification.

My improved arm is constructed with a hinged breech-block opening laterally and carrying the lock, which may be of the firing-pin or hammer type, as preferred. The ejecting-spring is compressed in the act of loading, and the cartridge is held in its place within the chamber against the pressure of said spring by a spring-stop engaging with the back of the cartridge and holding the shell when the breech is first opened and until the way is clear for its ejection. On the hinge of the breech-block is an oblique-faced lug acting in the opening of the breech to retract the spring-stop from the rear of the cartridge-shell and to loosen the shell from its seat, so that it may be driven out by the recoil of the ejecting-spring. The breech-block is held shut by a spring-bolt with an upwardly-projecting thumb-piece, in convenient position to be pressed forward by the thumb of the right hand while grasping the piece within reach of the trigger. On the side wall of the breech is an internal spring pressing against the face of the hinged breech-block, so as to throw it out when its spring-catch is retracted, and the said internal spring, when relieved of constraint, assumes a curved form, adapting it to serve as a guide or deflector to throw the ejected shell laterally or sidewise from the gun. The automatic cocking of the hammer or firing-pin is performed by a switch on the interior of the breech acting on a lug or pin projecting from the firing-pin, so as to press the latter back into cocked position when the breech-block is closed. The pin is caught by a trigger, and the lug by which it was pressed back passes beyond the switch, so that the firing-pin may be thrown forward by its spring when released by the trigger. The forward end of the switch is hinged so as to open outwardly, permitting the passage of the firing-pin lug when the pin is thrown forward. The loading may be performed by hand or the cartridges may be fed automatically by gravity from a magazine adapted to contain six or more rounds. The magazine is seated in a dovetail groove on the side of the breech opposite to that on which the breech-block opens. The cartridges are fed in succession by gravity through a lateral slot to a trough beneath the breech-block and in front of a sliding plunger, formed with a projecting knob or handle for thrusting it forward by means of the thumb. The cartridge is thus carried to firing position when the breech is open, and the loading-plunger prevents the passing of a new cartridge into the trough until it is again retracted. The loading-plunger is retracted either by hand or by means of a spring when a new cartridge automatically descends in front of it, whether the breech is open or closed.

The invention is applicable to artillery as well as to small-arms. In applying the improvements to artillery the charge-chamber and loading mechanism are completely in front of the trunnions, so that the latter may be formed on a solid portion of the gun. I thus avoid any irregular shape and thickness of metal around the loading-chamber and barrel of the gun, and am enabled to construct all these portions which are required to bear the strain of firing to the best advantage for this purpose and to wrap the same with steel wire in customary manner.

In order that the invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the breech portion of a musket or shoulder-gun illustrating the invention, the breech being open. Fig. 1ª is a detail perspective view of the hinge portion of the breech-block. Fig. 2 is a plan of the breech of the gun with the breech closed and omitting the magazine. Fig. 3 is a vertical longitudinal section. Fig. 4 is a horizontal section. Fig. 5 is a perspective view of the spring-stop employed for retaining the cartridge within the load-chamber. Fig. 6 is a perspective view of the ejecting-spring. Fig. 7 is a vertical transverse section of the gun on the line 7 7, Fig. 3. Fig. 8 is a detail perspective view of the trigger mechan-

ism. Fig. 9 is a plan of the breech portion of a cannon illustrating the invention. Fig. 10 is a partial side view of the same.

1 represents a portion of the stock; 2, the breech-frame; 3, the firing-chamber, formed in one piece therewith, and 4 a portion of the barrel screwed therein in the customary manner.

5 is the hinged breech-block, working on a vertical pin, 6, so as to open laterally, as represented in Fig. 1. The socket-piece 7 of the hinge is formed in one with the breech-block 5, and is provided with an oblique-faced lug, 8, for the purposes presently to be described.

9 represents a V-shaped spring-ejector rigidly attached at one end to the lower portion of the firing-chamber 3. The said spring-ejector is compresssed by the flange of the cartridge in the act of loading, in readiness for ejecting the empty shell from the chamber when the said shell is released. (See Fig. 3.) The cartridge is shown in position at 10.

11 represents a spring-stop, the form of which is shown in Fig. 5. Its spring-shank $11^a$ is secured by its rear end to the breech-frame 2, and carries in front a transverse arm, $11^b$, formed in the rear with an oblique face, adapting it to recede upward by the pressure of the flange of the cartridge in entering and to descend behind the said flange, holding the cartridge firmly in position against the spring 9, which is thus held under constraint, in readiness to eject the cartridge or shell when the spring-stop 11 is tripped or retracted. This retraction of the spring-stop is effected by the contact of the oblique upper face of the lug 8 with the extremity $11^c$ of the spring-stop, after which the said lug 8, which for this purpose works in a groove in the breech, engages with the cartridge-flange, so as to start it from its seat and permit it to be freely ejected by the recoil of the spring 9. The breech-block is held in closed position by a spring-bolt, 12, formed with a knob or thumb-piece projecting upward in convenient position to be pressed forward by the thumb. When thus released, the breech-block is thrown out by a spring, 13. The said spring, when thus relieved of pressure, assumes the curved form shown in Fig. 1, to serve as a deflector to throw the shell laterally outward away from the face of the soldier.

Within the breech-block 5 is a firing-pin, 14, thrown forward in the act of firing by a spring, 15, confined between a collar, 16, on the firing-pin and a hollow screw, 17, forming a bearing portion for and within which the firing-pin works.

In front of the collar 16 is a weaker spring, 18, to retract the pin within the breech-block after the stroke has been delivered, and thus to hold the point of the pin out of reach of the cap or primer. The cocking is effected by a lug or pin, 19, projecting downward from the firing-pin through the bottom of the breech-block, in which a longitudinal slot is provided for it.

In the act of closing the breech the pin 19 engages with an oblique-faced switch, 20, serving to retract the firing-pin to cocked position, where it is caught by a trigger, 21, the pin 19 passing beyond the cocking-switch 20, so that the latter will present no obstruction in firing. The front portion of the switch 20 is hinged so as to open outwardly, permitting the passage of the retracting-pin 19 when the breech-block is opened, after which the said hinged portion of the switch is closed by a suitable spring.

The mechanism above described is adapted for a breech-loading arm.

To provide a repeating-gun I employ a magazine, 22, adapted to contain six or more cartridges in one or more vertical tiers or chambers, all the chambers after the first being provided with doors 23, as shown in Fig. 7, so that after the first chamber is depleted the others will feed in succession. The magazine is seated between dovetail flanges 24 on the side of the breech opposite to that on which the breech-block 5 opens. The cartridges are delivered in succession through a slot, 25, underneath the breech-block 5, directly in front of a plunger, 26, which is thrust forward by a knob or handle, 27, to carry the cartridge up the inclined trough in which it rests into the firing-chamber in rear of the barrel. The plunger 26 is of sufficient length to prevent the escape of another cartridge into the trough until it is itself retracted, when the next cartridge descends by gravity in front of the plunger, ready for loading. The plunger 26 gradually decreases in size toward the rear end, so that it can ride up the inclined slideway without danger of cramping. The conical form of the cartridge guides it into the barrel after the point has effected an entrance. When the cartridge has assumed a horizontal position, the plunger 26 may be withdrawn and the swinging breech-block closed, thereby driving the cartridge into the firing-chamber.

The manner of constructing and applying the magazine adapts it to be readily put on and off the gun, and to be supplied with new cartridges as often as required. As a guide to assist in hand-loading, a shelf, 27′, may be provided within the breech-chamber directly beneath the breech-block 5.

Parts of my invention are equally applicable to guns having external hammers. This modification is illustrated in Fig. 10. The firing-pin is here placed in oblique position to adapt it to receive the stroke of the hammer. It may, as in previous illustration, be retracted by the closing of the breech, and thereby elevate the hammer to full-cock and then recede from it; or the hammer may be cocked by a similar lug and switch acting directly upon it or by hand, the movement of the firing-pin being limited to that imparted by the front spring, 18.

In ordnance the hinged breech-block carrying the lock and firing mechanism already described may be placed instead of laterally,

as herein shown, either on top or underneath, as preferred.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a magazine fire-arm having a laterally-moving breech-block, a magazine provided with a series of vertical chambers having feeding mechanism, as described, a receiving-slot for the reception of the cartridges directly under the breech-block, and a plunger provided with a handle for thrusting the cartridge, as set forth.

2. In a breech-loading or magazine fire-arm, substantially as hereinbefore described, the breech-block moving laterally on a vertical pintle to open the breech, in combination with a V-shaped ejecting-spring attached to the lower portion of the firing-chamber and adapted to be compressed by the cartridge in the act of loading, and to eject the empty shell when the breech-block is thrown open, substantially as set forth.

3. In a breech-loading or magazine fire-arm, substantially as hereinbefore described, the breech-block moving laterally on a vertical pintle to open the breech, and provided with a socket-piece having an oblique-faced lug, in combination with a spring-stop, 11, having a shank, $11^a$, secured to the breech-frame, a transverse arm, $11^b$, and an end piece, $11^c$, all adapted to operate as and for the purposes set forth.

4. In a breech-loading or magazine fire-arm, substantially as hereinbefore described, the breech-block moving laterally on a vertical pintle to open the breech, and provided with a socket-piece, 7, having an oblique-faced lug, 8, for retracting the spring-stop 11, in combination with a V-shaped ejecting-spring attached to the lower portion of the firing-chamber, all arranged substantially as and for the purposes set forth.

5. In a breech-loading or magazine fire-arm, substantially as hereinbefore described, the combination of an oblique-faced switch at the bottom of the breech-chamber with the laterally-moving breech-block, having a firing-pin working within it, and provided with a lug, 19, projecting through a longitudinal slot in the bottom of the breech-block, and adapted to be engaged by such switch for placing the pin in a firing position, substantially as set forth.

6. In a breech-loading or magazine fire-arm, substantially as hereinbefore described, the laterally-moving breech-block 5, having a spring-bolt, 12, for retaining the said breech-block in a closed position, in combination with the spring 13, adapted to throw out the breech-block when released and to deflect the cartridge-shell, as explained.

JAMES HENRY McLEAN.

Witnesses:
OCTAVIUS KNIGHT,
GEO. T. SMALLWOOD, Jr.