

(No Model.)

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P. A. ALTMAIER.

MAGAZINE GUN.

No. 343,883.

Patented June 15, 1886.

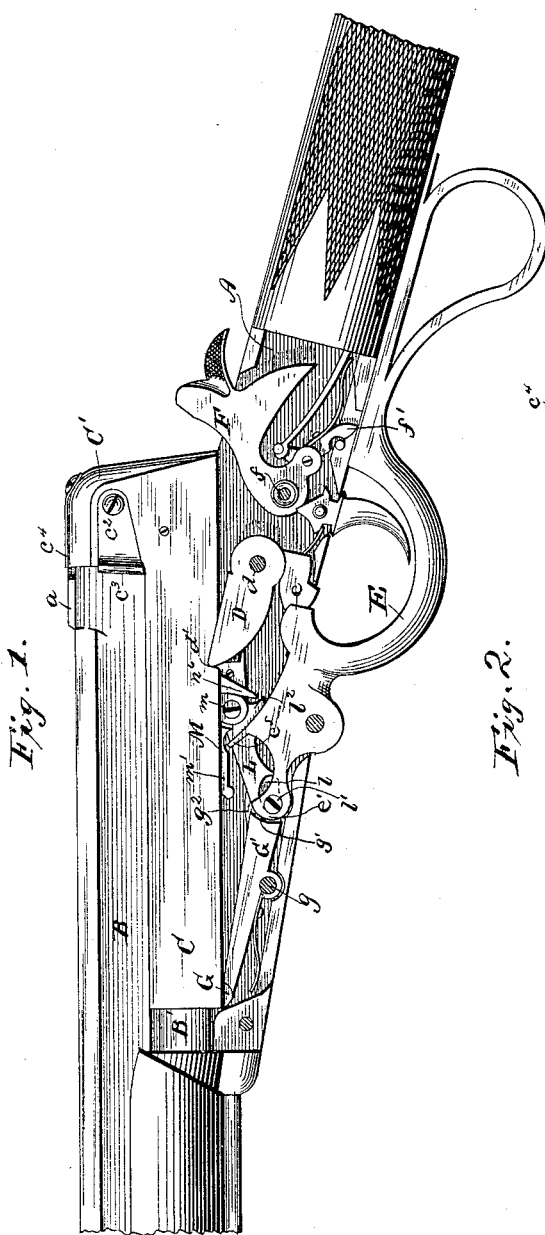
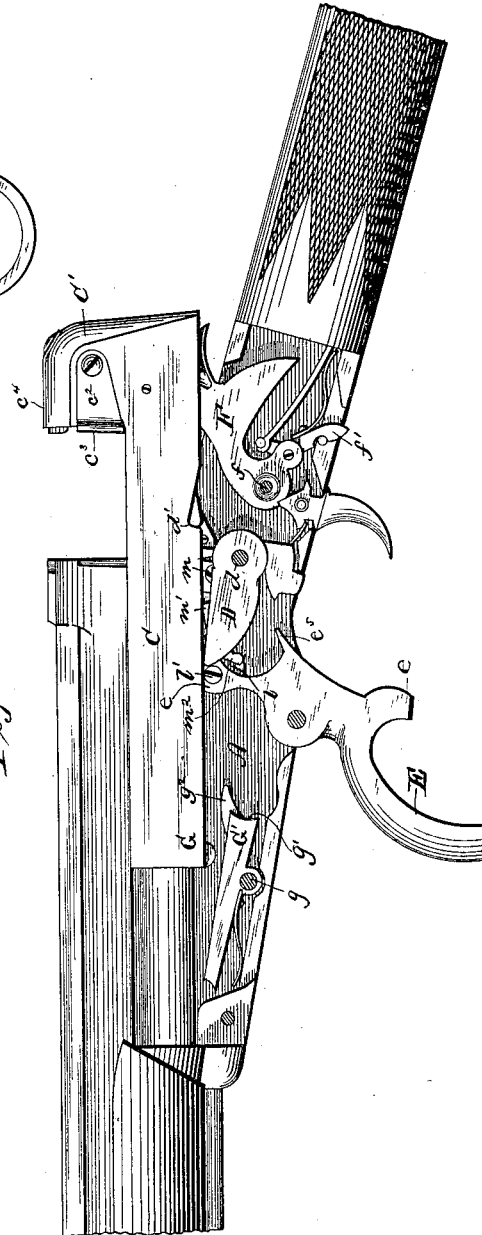


Fig. 2.



Witnesses.

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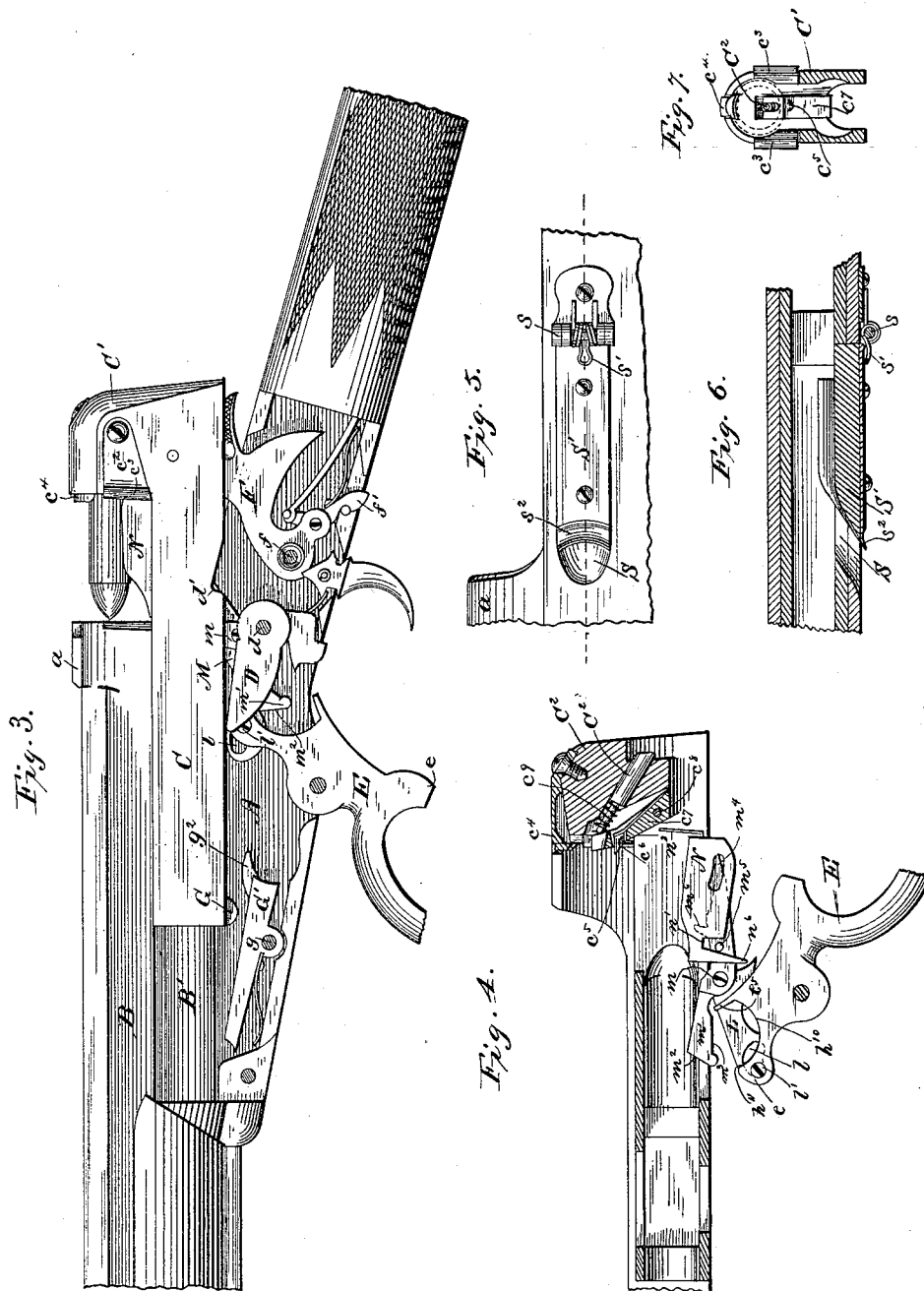
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UNITED STATES PATENT OFFICE.

PETER A. ALTMAIER, OF HARRISBURG, PENNSYLVANIA.

MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 343,883, dated June 15, 1886.

Application filed January 19, 1886. Serial No. 189,088. (No model.)

To all whom it may concern:

Be it known that I, PETER A. ALTMAIER, of Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Magazine-Guns; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

This invention relates to that class of magazine-guns described in my application No. 142,420, filed September 6, 1884, and has for its object to improve the locking, feeding, and firing mechanisms as contained in said prior application; and to this end it consists in the several novel and improved constructions and combinations of parts, as hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved gun with the side plate removed to exhibit the position of the locking and feeding devices when the breech-block is closed. Figs. 2 and 3 are similar views illustrating the different positions assumed by the parts when the breech-block and carrier are partially and wholly retracted. Fig. 4 is a longitudinal sectional view of the carrier, breech-block, and cartridge-lifter. Fig. 5 is a detached view of the feeding-orifice and the cap-plate. Fig. 6 is a transverse sectional view through the carrier and cap-plate. Fig. 7 is a sectional view of the carrier, looking toward the face of the breech-block, the latter being shown in elevation.

Similar letters of reference in the several figures indicate the same parts.

A is the sectional breech piece or frame, secured to the stock at one end and to the barrel B at the other, and provided with a socket, *a*, to receive the end of the barrel, and ways *a'* beneath the barrel, in which reciprocates the longitudinally-perforated carrier C, with its breech block or anvil C'.

B' is the magazine-tube, secured to the barrel and having its rear end projecting within the longitudinal perforation in carrier C.

D is the locking-lever, pivoted at *d* and engaging shoulders *d'* on the carrier, to lock the latter, and E is the hand-lever for actuating

the carrier, provided with a shoulder, *e*, engaging the locking-lever D.

F is the hammer, pivoted at *f*, and provided with the hook *f'* for locking the hammer when the carrier is retracted, and engaging the hand-lever when closed to release the hammer.

All these parts are constructed, arranged, and combined substantially as set forth in my prior application, and do not require further description in this.

The devices for communicating motion from the hand-lever to the carrier for locking and unlocking the forward end of the latter and for transferring and holding the cartridges have, however, been changed and improved, as follows: Upon the under side of the forward end of carrier C is formed a shoulder, G, with which a lever, G', pivoted at *g* in the breech-frame, and held with its forward end pressed upward behind said shoulder, engages. The rear end of this lever G is formed or provided with a curved shoulder, *g'*, and arm *g''*, co-operating with the forward curved end, *e'*, of the hand-lever E, so that when the hand-lever E is raised and the carrier C forced forward until its breech-block or anvil C' closes the rear end of the barrel, the forward end of the lever G' will be held behind and against the shoulder G in the carrier, and the curved end *e'* of the hand-lever E will stand behind the shoulder *g'* and beneath the arm *g''* on said lever G'. When now the hand-lever E is depressed and its forward end raised, it will, by coming in contact with arm *g''*, raise the rear end of lever G', and thus hold the front end down and away from the shoulder G on the carrier until the latter has been sufficiently retracted to clear the said lever G' when the hand-lever passes beyond the arm G'. As the carrier is again brought forward to close the breech, the projection G passes over the forward end of the lever G', raises the arm *g''* sufficiently to permit the end of the hand-lever to again pass beneath it, before the lever rises behind the projection G.

The lever G' is not depended upon to alone sustain the thrust of the carrier when the cartridge is exploded, but to supplement the action of the locking-lever D or other device employed for the purpose, and being disconnected from the hand-lever, except when the

latter is closed, it permits of an extended movement of said hand-lever, at the same time serving, in conjunction with the locking-lever D, to retain the hand-lever against the stock.

The cartridges contained in the magazine-tube are fed through the carrier C upon the cartridge-lifting devices, which latter are located at the rear end and operate vertically through a slot in said carrier, to elevate the rear cartridge and carry it to a position in front of the breech-block or anvil, where it is held until the carrier is again advanced and the cartridge inserted within the barrel.

The devices for thus sustaining the cartridges in position after they have been elevated through the slot in the carrier and for withdrawing the shells from the barrel, are applied to the breech-block or anvil C' in the following manner: Upon opposite sides of the breech-block or anvil C' are secured springs c^2 , provided with inwardly-projecting parallel flanges c^3 , to receive the flange on the head of the cartridge. These flanges c^3 do not extend above the level of the bore of the barrel, and serve merely as guides to direct and hold the cartridge against the face of the breech-block or anvil while being elevated. Above the breech-block or anvil, C', is secured another spring or catch c^4 , provided with a downwardly-projecting flange, c^5 , under which the flange of the cartridge is received and held when elevated to a position in line with the bore of the barrel. The cartridge, when elevated sufficiently to clear the catches c^2 and engage the catch c^4 , is sustained in position by a spring-catch, c^6 , whose beveled end c^6 projects through an opening in a furcated lever, c^7 , said lever being mounted upon a pivot, c^8 , and working back and forth in a slot formed in the breech-block. The firing-pin C² projects between the furcated end of the lever c^7 , and is held retracted and the lever projected by an interposed spring, c^9 .

The operation of this part of the machine is as follows: When the carrier C is retracted, the cartridge at the rear end of the latter is forced upward by appropriate lifting mechanism, an example of which will presently be described, the flange on the head passing up behind the flanges c^3 of catches c^2 . The cartridge as it is forced upward presses the lever c^7 and catch c^6 backward until its flange is brought under the catch c^4 , when the catch c^6 is released and springs forward under the head of the cartridge, thereby serving in conjunction with the catch c^4 to sustain the head of the cartridge during the forward movement of the breech-block or anvil C'. As the cartridge, when thus elevated into position for insertion within the barrel, presses the lever c^7 back into the slot in the breech-block, the spring bearing upon the firing-pin is compressed, thereby insuring the withdrawal of the latter. The catch c^4 , engaging the flange of the cartridge, serves also to withdraw the latter from the barrel when the breech-block

is retracted. The lever c^7 , pressing against the head below the said catch c^4 , serves, when the shell is withdrawn from the barrel, to tilt the shell upward and throw it from the gun, the catch c^4 serving as the fulcrum about which the shell moves and from which it is disengaged as the former is elevated.

The devices for reciprocating the carrier and for transferring the cartridges from the interior of the carrier through the opening therein and into position for insertion within the barrel are constructed and arranged as follows: The forward end of the hand or actuating lever E is slotted to receive the end of a link, L, in which latter is formed a curved, l , for the passage of the pin l' in the lever E. The rear end of this link L is pivoted at m to the carrier C and is formed with a downwardly-projecting shoulder, l^2 , which makes contact with a stop on the frame—such as the pin supporting the locking-lever D—as the carrier approaches the end of its rearward movement. This link L is only brought into action in closing the breech-block against the barrel. The pivot m on the carrier supports a link, M, loosely hung thereon and provided with an arm, m' , whose under side and forward end is inclined, forming bearings $m^2 m^3$, against which the end e and an arm or projection, e^2 , of the hand-lever bear, as hereinafter described. The rear end of the link M is formed with a beveled point or finger, m^4 , carrying a cross-pin, m^5 , and stud m^6 .

N is the cartridge-lifter, which is formed on its under side with a socket to receive the finger m^4 , upon which it rests, and with a socket or bearing n to receive the stud m^6 , and slots n' to receive the cross-pin m^5 . The forward wall of the slots n' is extended downward to prevent the lifter N from becoming displaced when elevated. The upper surface of the lifter N is made concave longitudinally to receive the cartridge, and at the rear end is secured a spring, n^3 , projecting above the lifter and held at such a distance therefrom as to leave a space beyond the end of the lifter, into which the flanges of the cartridge-head is received.

When the hand-lever is closed against the stop, as in Fig. 1, the lifter N rests between the arms of the locking-lever D, with its upper surface in line with the opening in the carrier, so that the rear cartridge will be forced back upon the lifter with its head against the spring n^3 . The forward end or arm m' of the link M is now prevented from dropping by the arm e^2 of the hand-lever, which stands beneath the bearing m^2 .

To load the gun from the magazine, the hand-lever is thrown down or away from the stock. It acts, first, upon the locking-levers to move them from engagement with the carrier, so that the latter can be retracted. While acting to raise the rear end of the locking-lever G', the pin l' rides in the slot l of the link L, elevating the latter until the end of the hand-lever has nearly passed off from the arm or locking-lever G'. As soon as this takes place,

however, the arm e^b is brought into contact with the link M in front of its pivot and starts the carrier C with its lifter N and the cartridge thereon backward or away from the barrel, continuing the motion until the end of the hand-lever is raised sufficiently to make contact with the front end or arm m^3 of the link M.

The hand-lever is cut away or hollowed out at h^{10} , where it first makes contact with the link M, so that as said hand-lever continues its movement it will bear against the end of the link and force the carrier C, to which said link is pivoted, back until the end of the hand-lever moving in the arc of a circle is brought to bear upon the end of said link at a point, m^6 , when the rearward movement of the carrier will be interrupted and the pressure of the hand-lever will be applied in a direction to oscillate the link M and raise its rear end, thereby elevating the lifter M and with it the cartridge. As the cartridge lying upon the lifter N passes from the carrier it enters beneath the catches c^2 , which guide it in its vertical movement and hold the head pressed against the spring on the lifter, whereby the latter is tilted on the link M as it rises, and its forward end elevated, to support the front end of the cartridge and bring it in line with the bore of the barrel. The spring n^3 on the lifter N, against which the head of the cartridge bears, serves not only as a means for effecting this tilting movement of the lifter, but also as a protection for the head of the cartridge in retracting the catch c^5 , lever c^1 , and firing-pin C^2 , being interposed between the head and the said devices, so that when the lifter with its cartridge is elevated the spring will bear upon and force them back.

The tilting movement of the lifter N upon its supporting-link M is limited and controlled by the pin m^3 , bearing against the walls of the slots n^1 .

The final movement of the hand-lever to carry the cartridge beneath the catch c^4 and into position to enter the barrel is effected after the shoulder l^2 has been brought against its stop and the rearward movement of the carrier is arrested. When this takes place, the pin l^1 in the front end of the hand-lever slides in the slot l in link L, and the point h^{11} of the hand-lever bears down upon the arm m^1 of the link M, operating to quickly depress the latter and elevate the lifter. By this movement the cartridge is brought under the catch c^4 and in line with the barrel, into which it is carried when the hand-lever is raised to bring the breech-block against the barrel, as follows: The cartridge is now lying upon the lifter and in front of the breech-block or anvil C' , and is held from lateral or vertical movement by the catch c^4 and the spring on the lifter. The pin l^1 in the hand-lever is at the rear extremity of the slot l in link L and holding the carrier, while the point h^{11} on the hand-lever bears upon the link M, to sustain the lifter and the cartridge. The movement of the hand-lever being reversed, its forward end is raised from

the link M, releasing the latter, and leaving the lifter free to be depressed within the carrier, at the same time carrying the pin l^1 forward and into engagement with the front end of slot in link L. The continued upward movement of the hand-lever operates through link L to drive the carrier forward and the cartridge into the barrel, while the arm e^b , rising under the link M, pushes its forward end up and its rear end, with the lifter N attached thereto, down, whereby the lifter is drawn within the carrier and into position to receive the next cartridge, and the carrier is advanced until the breech-block or anvil C' is brought into position to close the barrel.

The lifter N is slightly beveled at the front end to facilitate its movement and prevent its catching upon edge of the barrel, and it is also provided with downwardly-projecting arms n^6 , which, being interposed behind the row of cartridges remaining within the magazine-tube, operates as a cut-off to prevent them from being projected beneath the lifter when the latter is elevated.

The magazine-tube may be charged at its front end, if desired; but I prefer, for convenience, to charge it from the rear, and to this end I make the following provisions: In the side of the breech-piece, and opposite the longitudinal perforation in the carrier, I form a slot or opening, S, and insert therein a cover, S' , hinged at s and held down by a spring, s' . This cover does not entirely close the opening in the breech-piece, but is somewhat shorter, and its rear end is furnished with a lip, s^2 , to facilitate end entrance of the cartridge.

The cover S' is provided with longitudinal flanges s^3 , projecting through or into a slot, s^4 , in the side of the carrier, said flanges being curved to conform to the shape of the interior of the carrier, and the slot in the latter is made sufficiently long to permit the necessary movements of the parts. As thus constructed and arranged, the cover S' is held closed by its spring, and serves merely as a part of the passage-way through which the cartridges are conducted to the lifter. When, however, it is desired to charge the magazine, the end of the cartridge is inserted under the lip s^2 on the cover and turned so as to raise the latter slightly, after which it can be pushed forward under the cover, the latter serving to deflect and position it within the carrier and in rear of the spring usually employed for pressing the cartridges back toward the feeding mechanism.

It will be observed that when the cartridge has been brought into position to be inserted within the barrel, and the hand-lever is drawn back to advance the carrier, the lifter is released, and by the pressure of the spring in the magazine-tube the rear cartridge lying within the carrier is forced back upon the lifter and into position to be raised out of the carrier before the breech-block is closed against the barrel. Thus the feeding mechanism is put in condition to carry a cartridge up in front of the breech-block before the preceding

cartridge is inserted, thereby not only facilitating the operation of loading and firing, but rendering it certain that a fresh cartridge shall be inserted each time the hand-lever is carried to the extreme of its forward movement, whether the previous cartridge has been exploded or not, and even though the hand-lever has not been fully closed against the stop.

Having thus described my invention, I claim—

1. In combination with the carrier and pivoted hand-lever, by which the former is reciprocated, the locking-lever G', pivoted to the frame, with its forward end moving into engagement with a stop on the carrier when in its forward position, and its rear end provided with an arm, such as described, for co-operating with the end of the hand-lever, to lock and release the carrier, as set forth.

2. In combination with the reciprocating carrier provided with the breech-block or anvil, as described, and supported in ways beneath the barrel, the pivoted hand-lever connected at its forward end to the carrier, and the locking-lever G', pivoted in the frame and moving into engagement with the carrier at one end and with the hand-lever at the other, substantially as and for the purpose described.

3. In combination with the reciprocating carrier sliding in ways beneath the barrel and provided with the breech-block or anvil, the locking-lever pivoted in the frame beneath the carrier, the shoulder on said carrier for engaging one end of the locking-lever, and the pivoted hand-lever engaging an arm on the said locking-lever, substantially as described, whereby when the hand-lever is depressed to retract the carrier the locking-lever is withdrawn from engagement with the carrier, and when raised to advance the carrier the rear end of the locking-lever is elevated to permit the free movement of the hand-lever, as set forth.

4. In combination with the longitudinally-perforated carrier through which the cartridges are fed and a lifting device operating to elevate the rear cartridge therein, the breech-block or anvil provided with the side and top catches, and the lever pivoted in the breech-block and pressing against the head of the cartridge, substantially as described.

5. In combination with the breech-block or anvil, and the side and top catches applied thereto, the furcated lever pivoted in the breech-block, the firing-pin, and the spring interposed between said lever and the firing-pin, substantially as described.

6. In combination with the movable breech-block or anvil and the fixed barrel, the vertically-moving cartridge-lifter, the catches applied to the sides and top of the breech-block, the furcated lever, firing-pin, and interposed spring, substantially as described.

7. The combination, with the breech-block or anvil and its side and top catches for engaging the head of the cartridge, of the spring-catch located in the face of the breech-block

and serving to support the head of the cartridge, substantially as described.

8. The combination, with the breech-block and the vertically-movable lifter, substantially as described, of the side catches on the breech-block, and the pivoted lever carrying the spring-catch and working in a slot in the face of the breech-block, substantially as and for the purpose described.

9. In combination with the longitudinally-perforated reciprocating carrier and its breech-block or anvil, the lifter mounted upon and moving with said carrier, and the hand-lever pivoted to the frame and operating through intermediate devices, substantially as described, to reciprocate the carrier and elevate the lifter, as and for the purpose set forth.

10. In combination with the reciprocating carrier and its breech-block or anvil, the pivoted link supporting the lifter and mounted upon the carrier, and the hand-lever connected to the carrier by a link and engaging the link supporting the lifter, to elevate the latter, substantially as described.

11. The combination, with the lifter loosely supported upon the vibrating link, and provided with the spring to receive the head of the cartridge, of the breech-block and its side catches engaging the flanges of the cartridge-head, substantially as described.

12. The combination, with the breech-block or anvil and its side catches, of a lever pivoted in and projecting from the face of the anvil, and the movable lifter provided with the cartridge-guiding spring at its rear end, substantially as described.

13. The combination, with the breech-block or anvil and its side and top catches, of the vertically-movable lifter provided with a spring, n^3 , at its rear end, by which the cartridge is guided to its seat on the anvil, substantially as described.

14. The combination, with the breech-block or anvil, its side and top catches, and the firing-pin, of the pivoted lever projecting from the face of the anvil and the movable cartridge-lifter provided with the cartridge-guiding spring and mounted upon a link, which latter is vibrated by suitable means to reciprocate the lifter, substantially as described.

15. The combination, with the lifter loosely supported upon the pivoted link and provided with a spring to receive the head of the cartridge, of the breech-block provided with side and top catches, and a pivoted lever bearing against the head of the cartridge to eject the latter when withdrawn from the barrel, substantially as described.

16. The combination, with the barrel and the reciprocating carrier and its breech-block, and the hand-lever pivoted to the frame below the carrier, of the link connecting the said lever and carrier, a second link pivoted on the carrier and supporting the cartridge-lifter, and the arm and bearings on the hand-lever, substantially as described, which engage with the carrier and the link supporting the lifter,

and transmit the motion of the operating-lever thereto, as set forth.

17. In combination with the reciprocating carrier and its breech-block or anvil, the link 5 supported upon a pivot beneath the carrier, the lifter supported upon said link and moving through a vertical slot in said carrier, and the downwardly-projecting arms attached to said lifter and serving as a cut-off, to prevent 10 the movement of the cartridges through the carrier when the lifter is elevated, substantially as described.

18. The combination, with the carrier reciprocating in ways beneath the barrel and provided with the slot or opening on one side, 15 and the frame also provided with a slot communicating with that in the carrier, of the pivoted cover for such slot held down by a spring and provided with a lip at its end, substantially as described. 20

19. The pivoted cover-plate provided with interior ways, as described, in combination with the slotted frame, and the reciprocating carrier, with its side slot and longitudinal perforation communicating with the magazine-tube and cartridge-feeding devices, as and for 25 the purpose set forth.

20. In a magazine-gun such as described, and in combination with the barrel and the

longitudinally-perforated carrier reciprocating in ways beneath the barrel, and provided 30 with the breech-block or anvil, as described, the cartridge-lifter working through a slot in the carrier, the link supporting said lifter pivoted upon and moving with the carrier, 35 and a pivoted hand-lever engaging the said link, to retract the carrier and elevate the lifter, substantially as described.

21. The combination, with the reciprocating carrier and the supplemental locking-lever, 40 engaging the forward end of said carrier, of the hand-lever pivoted in the frame, the pin carried by the hand-lever and engaging the slot in a link connecting with said lever, and the reciprocating carriage, the arm or shoulder 45 on the supplemental locking-lever, with which the end of the hand-lever co-operates, the link M, carrying the lifter pivoted upon the carrier and provided with the arm *m'*, against 50 which the end of the hand-lever makes contact, to first reciprocate the carrier and then elevate the lifter, substantially as and for the purpose set forth.

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Witnesses:

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