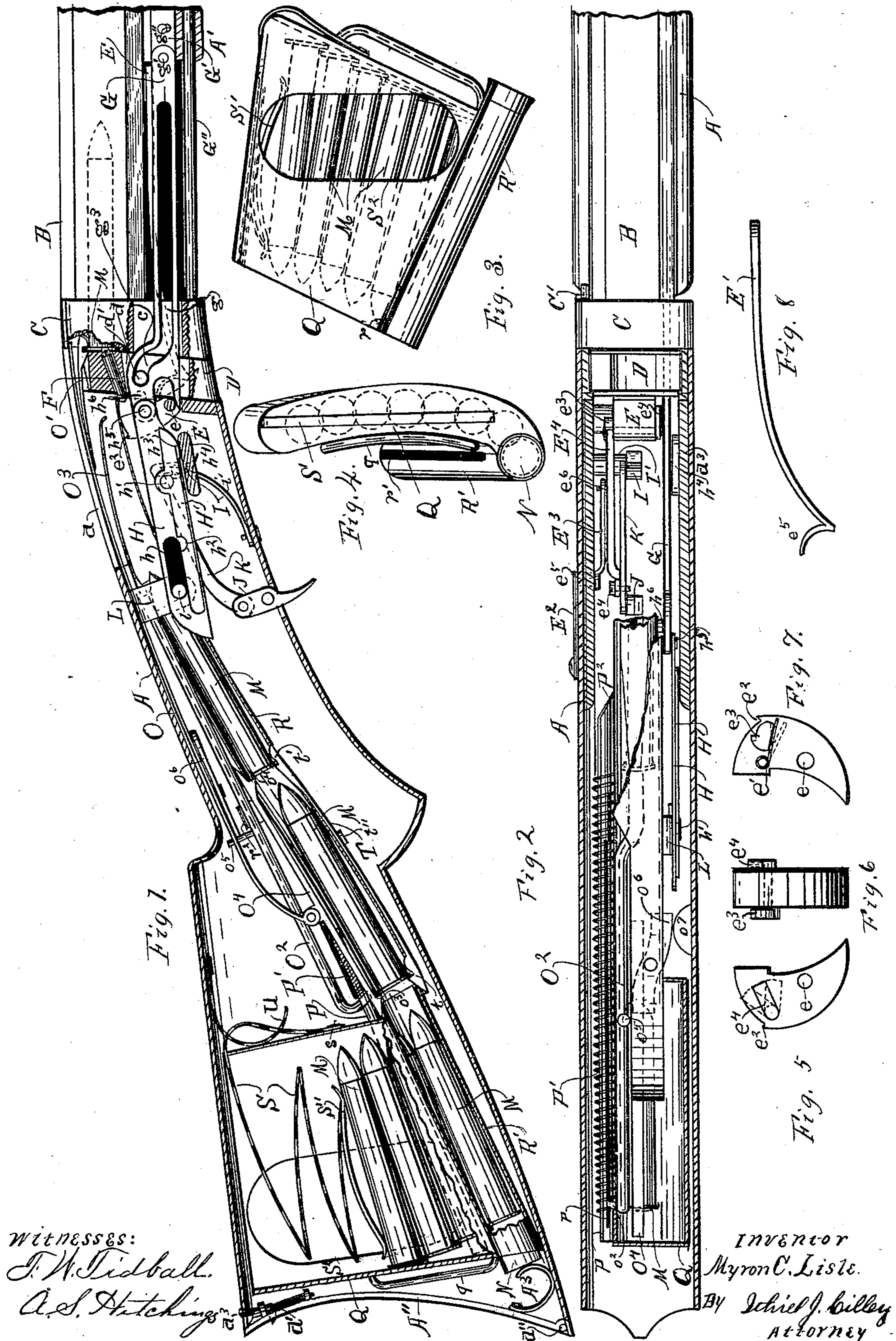


M. C. LISLE.
MAGAZINE GUN.

No. 529,037.

Patented Nov. 13, 1894.



Witnesses:

J. W. Tidball.

A. S. Hitching.

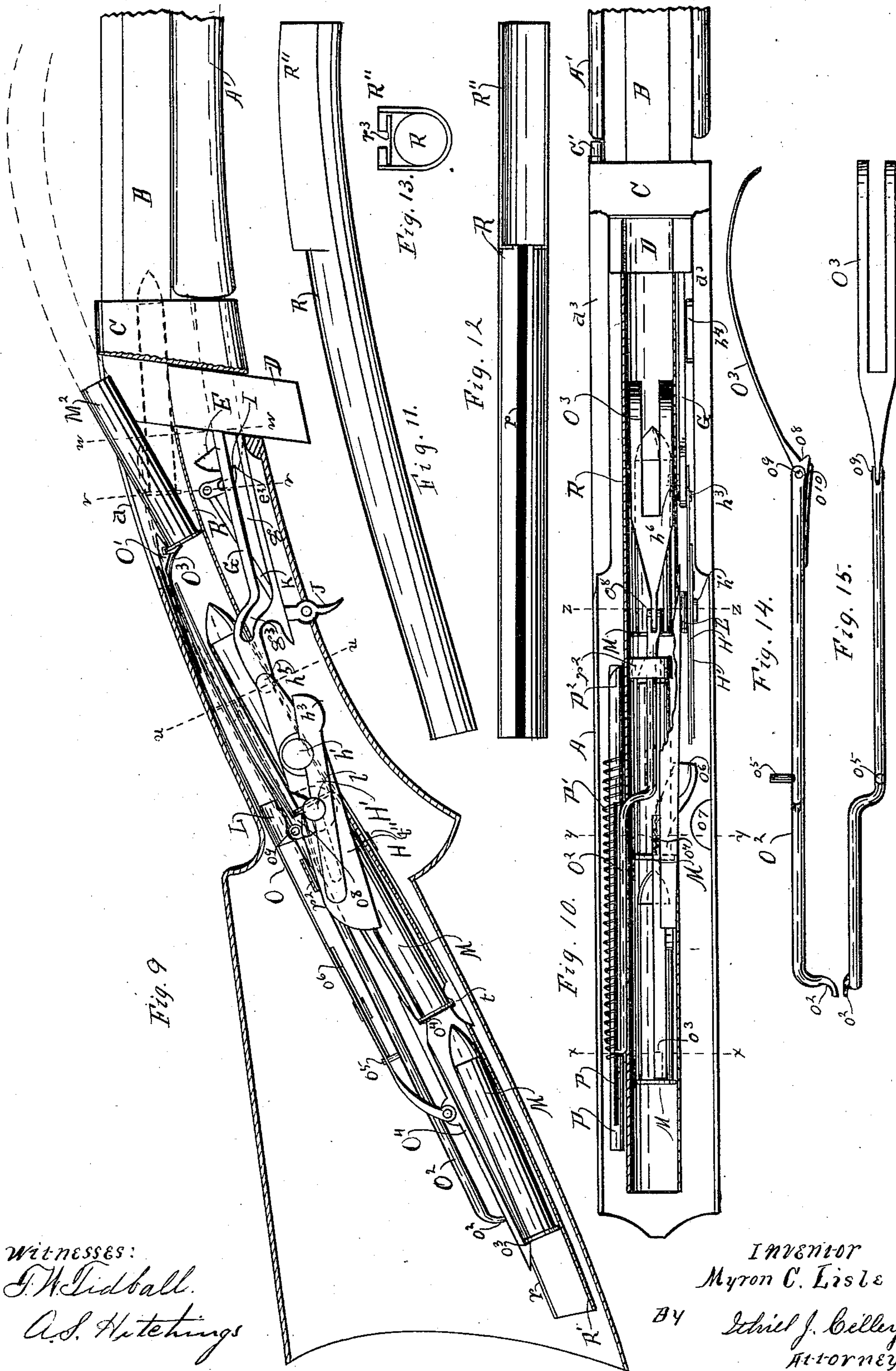
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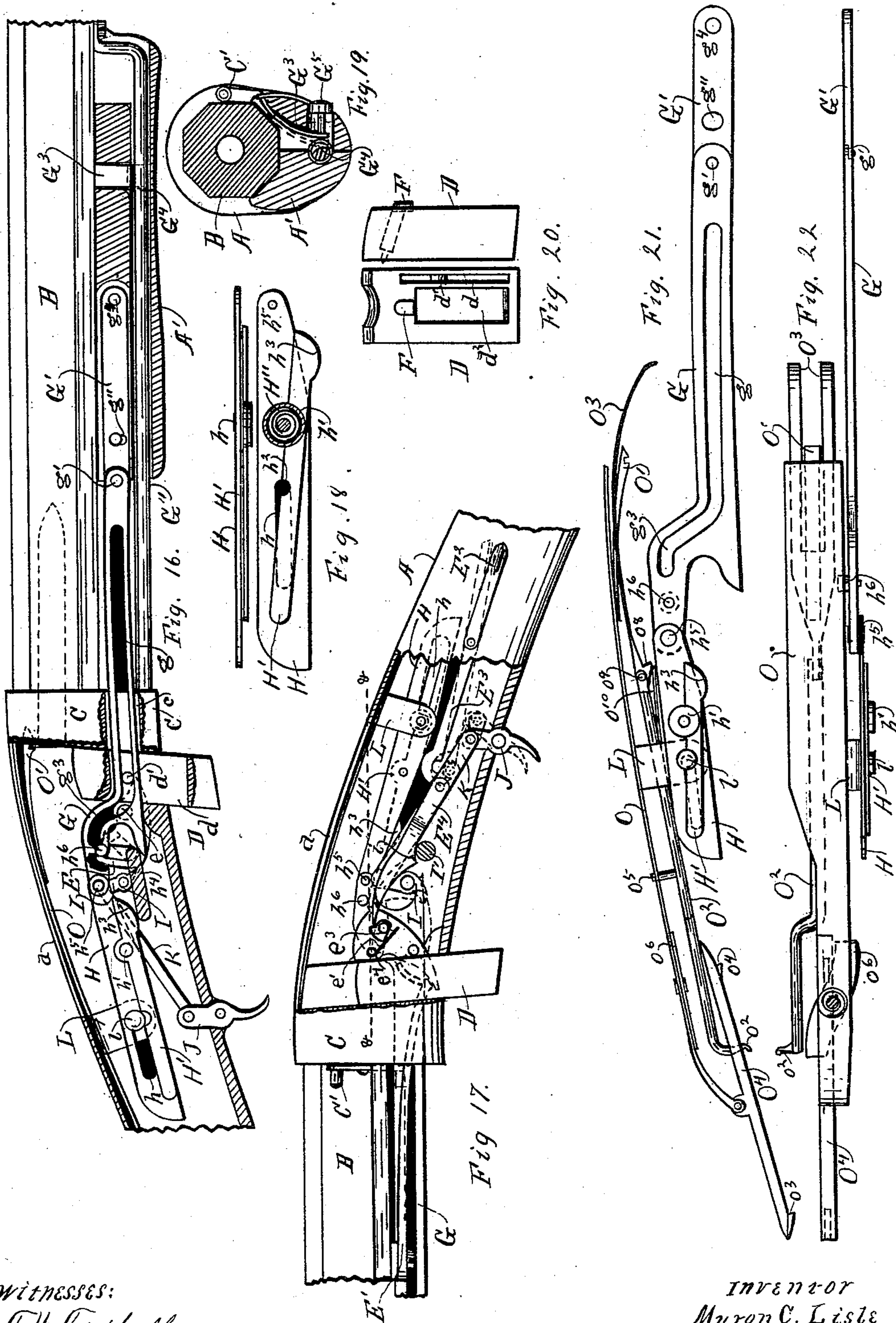
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UNITED STATES PATENT OFFICE.

MYRON C. LISLE, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR OF ONE-HALF TO
WILLIAM A. BERKEY, OF SAME PLACE.

MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 529,037, dated November 13, 1894.

Application filed May 10, 1894. Serial No. 510,811. (No model.)

To all whom it may concern:

Be it known that I, MYRON C. LISLE, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Magazine-Guns, of which the following is a specification.

My invention relates to improvements in the class of magazine guns described and shown in my applications Serial No. 455,304, filed December 15, 1892, and Serial No. 485,498, filed September 14, 1893, and its objects are: first, to dispense with the use of the lever action shown in said applications; second, to dispense with the rack and gear therein shown and described; third, to provide a detachable magazine that may be charged independent of the gun, and inserted or removed at pleasure, and may, if desired, be carried in a belt ready to insert when a former magazine has been exhausted; fourth, to provide for changing the gun from a single shot to a magazine gun, and vice versa, without interfering with the magazine; fifth, to load the gun without cocking it, and to cock it without loading it, or interfering with the cartridge already in the gun barrel, and, sixth, to provide a safety that may be set and the gun cocked or not, at pleasure. I attain these objects by the mechanism illustrated in the accompanying drawings, in which--

Figure 1, is a longitudinal vertical section of my gun stock with my transfer mechanism in its normal position for shooting the gun. Fig. 2, is a sectional plan of the same. Fig. 3, is a side, and Fig. 4, an end elevation of the detachable magazine. Figs. 5, 6 and 7 show the two side, and a back view of the hammer. Fig. 8, is the main spring. Fig. 9, is a longitudinal vertical section of the stock and the transfer tubes, with the transfer mechanism thrown back to engage with, and transfer the cartridges toward the gun barrel. Fig. 10, is a sectional plan of the same with the transfer slides, &c., thrown back to position to allow of inserting single cartridges into the barrel without interfering with the cartridges in the magazine and transfer tube. Figs. 11, 12 and 13, are a side view, a plan, and an end view, respectively, of the transfer tube. Figs. 14, and 15, are a side view and a plan of the aux-

iliary transfer slide and the ejecting spring and guard. Fig. 16, shows the actuating slide and the fore arm in position to throw the breech block down and cock the gun without operating the transfer mechanism and the back end of the actuating slide cut away to show the stud that cocks the gun. Fig. 17, shows the manner of manipulating the trigger to operate the transfer mechanism without cocking the gun, and also the position of the safety lever. Fig. 18, is an elevation and a plan of the coupling link that connects the end of the actuating slide with the main transfer slide. Fig. 19, is a sectional end view of the gun barrel and fore arm showing the position of the button and catch that regulates the independent cocking of the gun. Fig. 20, is a back and a side elevation of the sliding breech block. Fig. 21, is an elevation of the transfer slides showing their respective relative positions; and Fig. 22 is a plan of the same.

Similar letters refer to similar parts throughout the several views.

In the accompanying drawings, A is the gun stock.

B, is the barrel.

C is the permanent breech block.

D, is the sliding breech block and O, O', O², O³ and O⁴ are the transfer slides, springs and guides corresponding with similar parts described and shown in my former applications hereinbefore referred to.

For manipulating the slides I secure a sliding fore-arm A' beneath the back end of the gun barrel upon a guiding rod G'' in the usual manner; and to connect this fore-arm with the transfer slides I employ a slotted slide G, the front end of which is pivoted, as at g', to the extension G', which in turn is provided with a slotted aperture g'' by means of which it is adjustably secured at one end, to the fore-arm, and the other end is pivoted to the fore-arm as at g⁴. The back end of the slotted actuating slide passes through the mortise d in the breech block and inclines upward so that when it is carried to the position indicated in Fig. 1 the sliding breech-block D, will be carried up into the breech of the gun by means of the small pin or trunnion d' which is made to work freely in the slot g,—g³; and when the

fore arm is carried back to the positions indicated in Figs. 9 or 16, the breech block will be carried down below the bore of the gun so that a cartridge can be inserted or extracted at pleasure. To this end of the slide I pivot a coupling link H, provided with a slot h for the reception and free passage of the stud l , by means of which it is adjustably connected with the main slide O, through the medium of the arm L. Pivoted to this link at h' and actuated by a spring H'' , is a cover H' having a notch h^2 at the front end of the slot in the link, so arranged that when the cover is thrown up to the position indicated in Figs. 18 and 21, it will form a close bearing around the stud l , and prevent the stud from traveling lengthwise in the slot, but when the fore-arm is thrown forward until the incline h^3 comes in contact with the trip h^4 , on the stock,—which occurs just when the slide O, and the extractor O' are carried ahead until they come in contact with the permanent breech block C—when the cover H' is thrown to the position indicated in Fig. 16, and leaves the slot open so that the actuating slide may be carried forward to the position indicated in Fig. 1, without affecting the transfer slides by reason of the slot h sliding its length over the stud l ; and,—reversing the motion of the fore arm—it may be carried back to the position indicated in Fig. 16, without moving, either, the cartridge in the gun barrel, or the transfer slides, but will throw the sliding breech block down, as hereinbefore described, and, if so desired, will cock the gun.

My appliance for cocking the gun consists of a small stud h^6 , upon the back end of the actuating slide G, on the side next to the hammer and between the back end of the slot g and the pivot that holds the link H, which stud is made to engage with the latch e^4 on the side of the hammer—shown in Figs. 2, 5 and 6, and indicated in Figs. 1 and 17—when the fore-arm is thrown back.

The hammer E is pivoted directly to the gun-stock, independent of the sliding breech block, in position so that the lower end will pass into, and through the mortise d^2 in the breech block to receive the end of the main spring, and the upper end will strike the firing pin F just below the transfer tube when the breech-block is thrown up to place, and its upper end is provided with a notch e^2 for the reception of the point of the sear I.

The latch e^4 is hung upon a short shaft that passes through the hammer, and has, attached to its opposite end a catch e^3 having a notch in its upper surface, and its lower surface fitted for the reception of the spring e' —see Figs. 5, 6 and 7—that holds the latch, normally in the position shown by the solid lines in Figs. 5, but will allow it to be thrown either up—by the stud on the slide G—to cock the gun, or down to allow the stud to pass over it, as indicated by the dotted lines in Figs. 5 and 17.

The sear I, is pivoted through its center to

the gun stock in position so that its point will engage with the notch e^2 on the hammer when the gun is cocked, as indicated in Fig. 9, and the upper end is connected, by means of the rod K, with the upper end of the trigger J, which, also, is pivoted, through its center, to the stock, so that drawing the lower end back throws the upper end of the sear ahead, which motion is necessary to operate certain parts I am about to describe.

For the purpose of enabling me to throw the fore-arm back and operate the transfer slides without cocking the gun I pivot a latch E^4 to the side of the rod K,—see Fig. 17, which extends forward to position for its point to be readily brought in contact with the notch on the upper surface of the catch e^3 . The lower surface of this latch is provided with an incline i that acts upon the support I' in such a manner that when the trigger J stands in its normal position, indicated by the dotted lines in Fig. 17, the point of the latch will be above the notch in the upper surface of the catch e^3 , and when the trigger is drawn back, as indicated by the solid lines in Fig. 17, the point of the latch drops down and engages with the notch and, throwing the catch over ahead, throws the latch down so that the stud h^6 , when carried back upon the line $x x$, passes over the latch without engaging therewith, and thus allows the transfer mechanism to be operated without cocking the gun.

My safety appliance consists of a lever pivoted through the stock with one arm, as E^2 outside, and the other arm, as E^3 inside, and the inner arm provided at its free end with a hook or notch that may be made to engage with the stud e^6 on the rod K that connects the trigger J with the dog I, when the trigger is in its normal position, and prevent the trigger from being operated to free the sear from the hammer and fire the cartridges.

The main slide O is adjustably attached to the link H, by means of the arm L, and the stud l through the slot h , so that the throwing of the fore arm in either direction, between the positions shown in Figs. 9 and 16, will carry the slide with it. The front end of this slide is provided with a downwardly inclined spring catch O' that acts a double purpose: first, to fall behind and push against the back end of the cartridge and convey it from the position indicated by the line $v v$ in Fig. 9, into the gun barrel, and, second, to drop over the flange of the cartridge, as shown in Figs. 1 and 9, for the purpose of extracting the shell from the gun barrel. The opposite end of the slide O is pivoted to a second slide O^4 that is provided with projections forming notches $o^3 o^4$, intended to pass through the groove r in the transfer tube and engage with the butts of the cartridges to convey them forward, as the slide is thrown ahead. The notch o^3 moves the cartridge from the first position, or magazine tube R' to the second position, in the transfer tube R where it is

held by the end t of the spring catch T, and the notch o^4 moves it from this position to the third position, where its flange is engaged by the notch t' of the spring catch T, (see Figs. 1 and 9,) which is securely attached to the transfer tube in position to hold the cartridges a short distance apart and prevent them from moving in either direction until propelled by the transfer slides.

My appliance for conveying the cartridge from third position, at t' , to fourth position—between the line $v v$ and the gun barrel—consists of the auxiliary slide O^2 , the back end of which is provided with a lug o^2 that projects down through the slot p in the tube P, and is engaged, and actuated to be thrown forward by the spiral spring P' that encircles the tube, the front end of the tube being securely attached to the side of the transfer tube R, as at P^2 in Figs. 2 and 10. The front end of this slide is pivoted, as at o^9 in Fig. 9, to a forwardly projecting adjustable spring O^3 , which is provided at the point of contact with a projection o^8 that passes through, and travels in the slot r in the transfer tube to engage with the butts of the cartridges when they are resting at the third position, and carry them forward to the fourth position, just ahead of the spring extractor O' , as indicated by the dotted lines in Fig. 9, the adjustable spring O^3 , in the mean time, pressing upon the upper surface of the cartridge to hold it to place, as indicated, also, by the dotted lines in Fig. 9. This adjustable spring is divided to form a fork as shown in Figs. 10, 14 and 22, so that the extractor O' may drop through and work freely between the two sides and is designed to pass through the slot p^3 of the tube—see Fig. 13,—as a guide. At the joint between the slide O^2 and the spring O^3 I place a spring o^{10} whose office is to hold this joint down to the tube and force the projection o^8 through the slot r in the transfer tube. To carry the slide O^2 back to position to engage the cartridge I provide a post o^5 that projects upward back of the button o^6 that is pivoted diagonally across the slide O in position so that one end will act upon the post, and the opposite end will, when carried back to the desired position, engage with the trip o^7 , and be thrown around, and, freeing the slide O^2 , will allow it to be thrown forward by the spring P' , with sufficient force to carry the cartridge to the desired position ahead of the extractor. When the fore arm is drawn back the extractor O' draws the cartridge shell M^2 back until its forward end clears the permanent breech-block, when the spring O^3 , acting upon the butt of the shell, expels it from the receiver, as indicated in Fig. 9. When the auxiliary slide is thrown forward the catch o^9 is carried forward about to the line u, u , the cartridge M to the line v, v , ahead of the extractor and the spring O^3 , to the line $w w$, resting on top of the cartridge to hold it to place in the transfer tube.

The front end of the transfer tube, at R'' ,

is open for the free escape of cartridges, as is, also, the receiver immediately over it at a , the opening in the receiver being completely closed by the slide O, when the gun is charged, as in Fig. 1.

The main spring E' is provided with an upwardly projecting lip e^5 , that bears upon the hammer above its pivot point e' and throws the hammer back and frees the firing pin after the gun is fired.

The magazine Q is made entirely separate from the transfer tube, and has a tube R' that couples freely to the back end of the transfer tube, and also a slot r' corresponding with the slot r in the transfer tube, the tube R' being simply a detachable continuation of the transfer tube with a wing or body Q attached for the storage of cartridges. I store the cartridges in the magazine side by side, as shown in Figs. 1 and 3, and hold them to place to pass successively into the transfer tube, by means of a multiplex spring S, one end of which is secured to the end of the magazine, and the other end, composed of several leaves or folds S' , as shown in Fig. 1, passes inside of the magazine and bears upon both ends of the cartridge. The opening S^2 through the side of the magazine, is for inserting the thumb to press the cartridges and spring back, to make room for the introduction of additional cartridges until the magazine is full. I also provide a handle q , by means of which the magazine may be easily and conveniently handled. I provide for holding the magazine to place in the stock by inserting a cork or other suitable plug N, into the back end of the tube R' and turning the end of the spring A^3 , up so that when the door A'' is closed and secured by the catch a' the end of the spring will press against the cork. This spring also acts to throw the door open when the catch is freed so that the door may swing upon the pivot a'' . It will be readily seen, that with the arrangement here described, several magazines may be filled and carried in a belt, and as fast as one is emptied it may be replaced with another, thus providing an absolutely practical detachable magazine, for breech loading guns, that may be made interchangeable.

I provide for cocking my gun without moving the transfer tubes or cartridges by forming a shoulder G^4 ,—Figs. 16 and 19—on the rod G'' and a catch G^3 on the fore arm having a push button G^5 in position so that when the catch is pressed in and the fore-arm is drawn back, the shoulder will engage the catch and stop the fore-arm when it has reached the position shown in Fig. 16, having traveled only the length of the slot h in the link H, but not far enough to bear against the stud l sufficiently to move the lever O, or to release the cap H' from the trip h^4 .

My appliance for changing the gun from a magazine to a single shot and vice versa, consists of a button C' which, when standing in the position indicated in Figs. 17 and 19, will

allow the fore-arm to be drawn back to the permanent breech-block and the transfer slides back of the cartridges, as hereinbefore described, and shown in Figs. 2 and 9, but if it is turned down as indicated in Fig. 10, and the dotted lines in Fig. 17, it will stop the fore-arm with the notches o^3 and o^4 of the slide O^4 upon or near the lines xx and yy respectively, and the catch o^8 on the auxiliary slide O^2 upon the line zz , all a short distance ahead of the flange of the cartridge as shown in Fig. 10, and the latch o^6 ahead of the trip o^7 so that the auxiliary slide is not let free to spring ahead, but far enough back to fully open the aperture a in the receiver and allow the empty shell to be ejected and a new cartridge to be inserted by hand through the opening.

To insure holding the auxiliary slide down to the tube I place a guard r^2 Figs. 1, 9 and 10 on the tube and over the slide.

The trigger and sear, are held to their normal position by means of any suitable spring as i' in Fig. 1.

The extractor O , is carried up above the cartridge to engage with its rim, as an extractor, by the upward movement of the breech block and the slide O , supporting it is drawn slightly ahead, as the breech block rises to position so that the notch in the extractor drops over the flange of the cartridge as in Fig. 1.

I render my detached magazine self ejecting by the use of the spring u , which is so arranged that when the catch a' is sprung and the butt plate A'' is thrown open by means of the spring A^3 , the spring u will force the magazine back, entirely out of the stock and leave the stock free for the reception of a charged magazine, and if it is desired not to throw the magazine out of the stock, it is simply necessary to ease the butt plate down by hand and catch the magazine as it passes out.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a magazine gun having a sliding fore-arm and a sliding breech block; of a connecting rod pivoted to the fore arm and provided with a longitudinal slot, the back end of which inclines upward for actuating the breech block, a trunnion on said breech block to engage with said slot, a stud upon the end of said connecting rod for cocking the gun, a link pivoted to the end of the connecting rod and connecting the same with the main transfer slide, a slot in said link for the reception of the stud l a notched cover for said slot actuated by a spring a trip for opening said cover, a main transfer slide having a notched slide pivoted to its back end, and a spring shell extractor at its front end, an auxiliary slide having a spring pivoted to its front end, said slide actuated in one direction by the main slide, and in the opposite direction by a spring, a latch and trip for

actuating said slide and a transfer tube slotted its entire length, the front end open at its upper side, and catches for holding the cartridges to place and a magazine, substantially as shown.

2. In a magazine gun, a magazine and transfer tube, transfer slides actuated by a sliding fore-arm, said fore-arm connected with the transfer slides by an actuating slide having a longitudinal slot the back end of which inclines upward to actuate the vertically reciprocating breech-block, a trunnion in the breech block arranged to travel in said slot, a link connecting the actuating slide with the transfer slides, said link having a slot corresponding in length with the inclined portion of the slot in the actuating slide, and a guide for the fore-arm having an offset in position to give the fore-arm a distance of travel corresponding with the length of the slot in the link, and a spring and thumb piece in the fore-arm in position to engage with the offset on the guide to limit the travel of the fore-arm to the distance necessary to throw the breech-block down and cock the gun without moving the transfer slides, substantially as and for the purpose set forth.

3. In a magazine gun, a magazine, transfer tube, and transfer slides actuated by a sliding fore-arm, in combination with a button on the end of the stock in position to stop the fore-arm before the transfer slides engage with the cartridges in the magazine and transfer tube, substantially as, and for the purpose set forth.

4. A magazine gun having a sliding fore-arm, transfer tubes and transfer slides; in combination with a slotted connecting rod between the fore-arm and the transfer slides, a stud on the side of the back end of said rod, a hammer pivoted in the receiver, a button on the side of the hammer in position to engage with the trunnion on the rod, said button connected by a shaft, passing through the hammer, to a second button on the opposite side of the hammer, a spring to actuate said buttons to throw them to a neutral point from either direction, a notch in the second button, a sear and trigger with a connecting rod between them, a sear pivoted to said connecting rod, said sear adjusted to engage with the notch on the button e^3 and throw the end of the button e^4 below the line of travel of the trunnion on the connecting rod G by drawing upon the trigger when the hammer is in its normal position, substantially as and for the purpose set forth.

5. A magazine gun having a sliding fore-arm, a sliding breech block, transfer tubes, transfer slides, and a shell extractor, a hammer pivoted in the receiver, a sear and a trigger with a connecting rod between them; in combination with a lever pivoted in the receiver, one arm of which is outside and one arm inside of the receiver the inner arm having a notch to engage with a stud on the side

of the connecting rod between the trigger and the dog, to form a safety lock, substantially as, and for the purpose set forth.

6. The combination, in a magazine gun having a sliding fore-arm and breech block, transfer slides and shell extractor with a transfer tube having a slot for the passage of the transfer slides and its back end detachable, a body projecting out nearly at right angles from the detached portion of the transfer tube for the storage of cartridges and a spring attached to said body and arranged to force the cartridges into the tube sidewise substantially as, and for the purpose set forth.

7. In a magazine gun having transfer slides and a transfer tube, a detachable magazine in the butt of the gun stock and having a body projecting from one side of the tube, a spring for forcing the cartridges sidewise to the tube, a butt plate pivoted to the butt end of the gun stock, and a spring between the butt plate and the magazine to hold the magazine tube in contact with the transfer tube, substantially as, and for the purpose set forth.

8. The combination in a magazine gun having transfer slides and tubes; of a detachable magazine in the butt end of the gun stock having a body projecting from the transfer tube, a spring for forcing the cartridges toward the transfer tube sidewise; with a door pivoted into the butt of the stock, and a spring connection between said door and the magazine to hold the magazine tube in contact with the transfer tube, substantially as, and for the purpose set forth.

9. In a magazine gun, a permanent transfer tube, a detachable magazine inserted to engage with the back end of the transfer tube, transfer slides to carry the cartridges from the magazine to the gun barrel and a spring

to eject the magazine from the stock, substantially as, and for the purpose set forth.

10. In a magazine gun, a transfer tube in the stock, a detachable magazine in the butt of the stock, slides for conveying the cartridges to the gun barrel, a butt plate to open and close the end of the stock, a spring to hold the magazine against the transfer tube, and a spring to eject the magazine from the stock, substantially as and for the purpose set forth.

11. The combination, with a magazine gun having a permanent transfer tube, of a detachable magazine, inserted to engage with the transfer tube, and a spring for ejecting the magazine from the stock, substantially as, and for the purpose set forth.

12. In a magazine gun, a transfer tube in the stock, a detachable magazine engaging with the back end of said tube in the butt of the stock, the butt plate of the stock pivoted to open and close for the insertion and removal of the magazine longitudinally, and a catch to hold the butt plate when closed, substantially as and for the purpose set forth.

13. In a magazine gun, a hollow stock, a transfer tube and a detachable magazine within the stock, the butt plate of the stock pivoted to open and close, a catch to hold the same to place, and the magazine arranged to store the cartridges side by side and to insert and remove longitudinally through the opening of the butt plate, substantially as shown and described.

Signed at Grand Rapids, Michigan, this 30th day of April, 1894.

MYRON C. LISLE.

In presence of—
C. E. PECK,
I. J. CILLEY.