No. 695,574. Patented Mar. 18, 1902.

J. B. MAHANA.

MAGAZINE FIREARM.

(Application filed Mar. 21, 1901

(No Model.) 6 Sheets—Sheet 1.

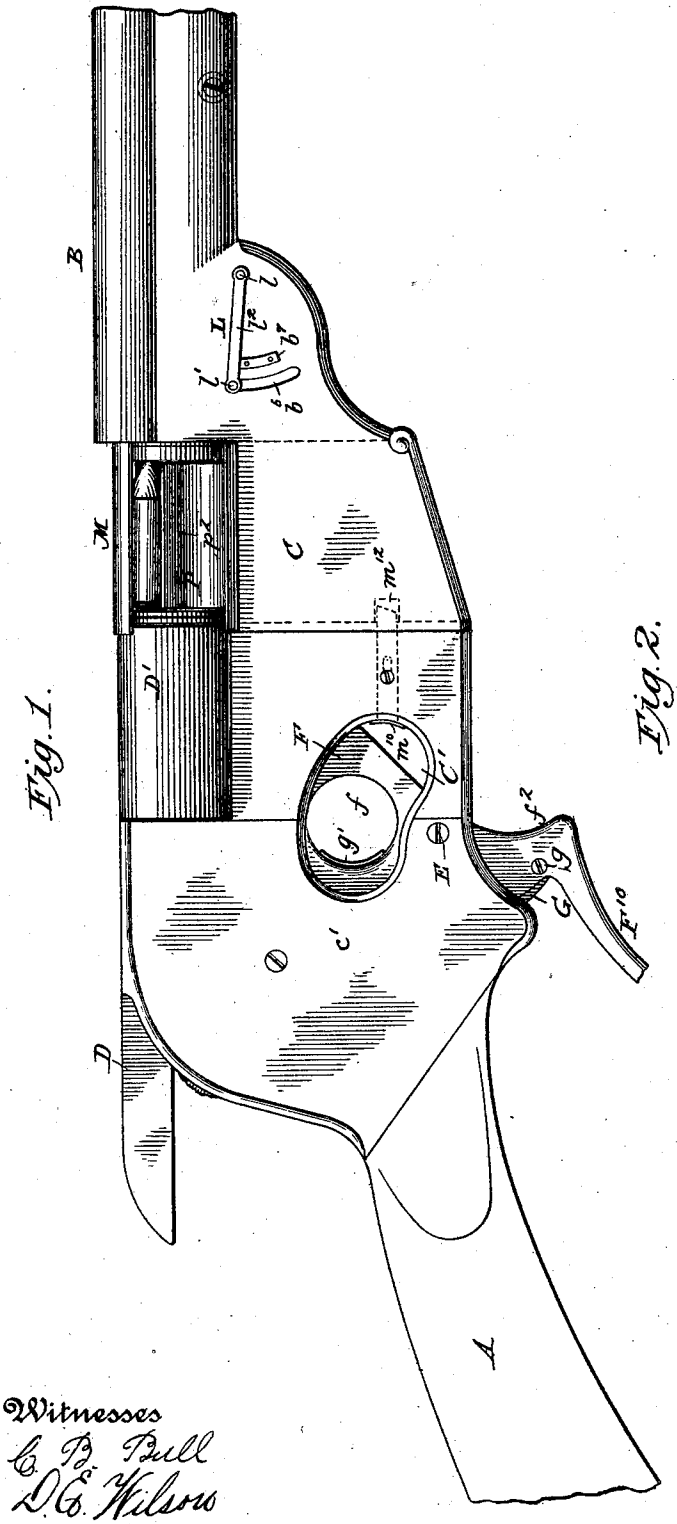


Fig. 1.

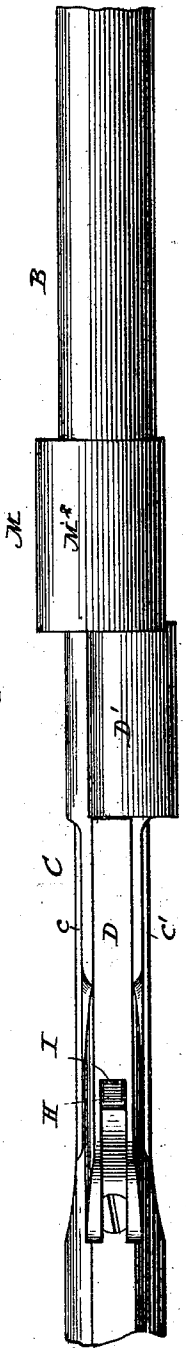


Fig. 2.

Witnesses
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D. E. Wilson

Inventor
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by C. B. Bull & Son
Attorneys

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No. 695,574. Patented Mar. 18, 1902.

J. B. MAHANA.

MAGAZINE FIREARM.

(Application filed Mar. 21, 1901.)

(No Model.) 6 Sheets—Sheet 2.

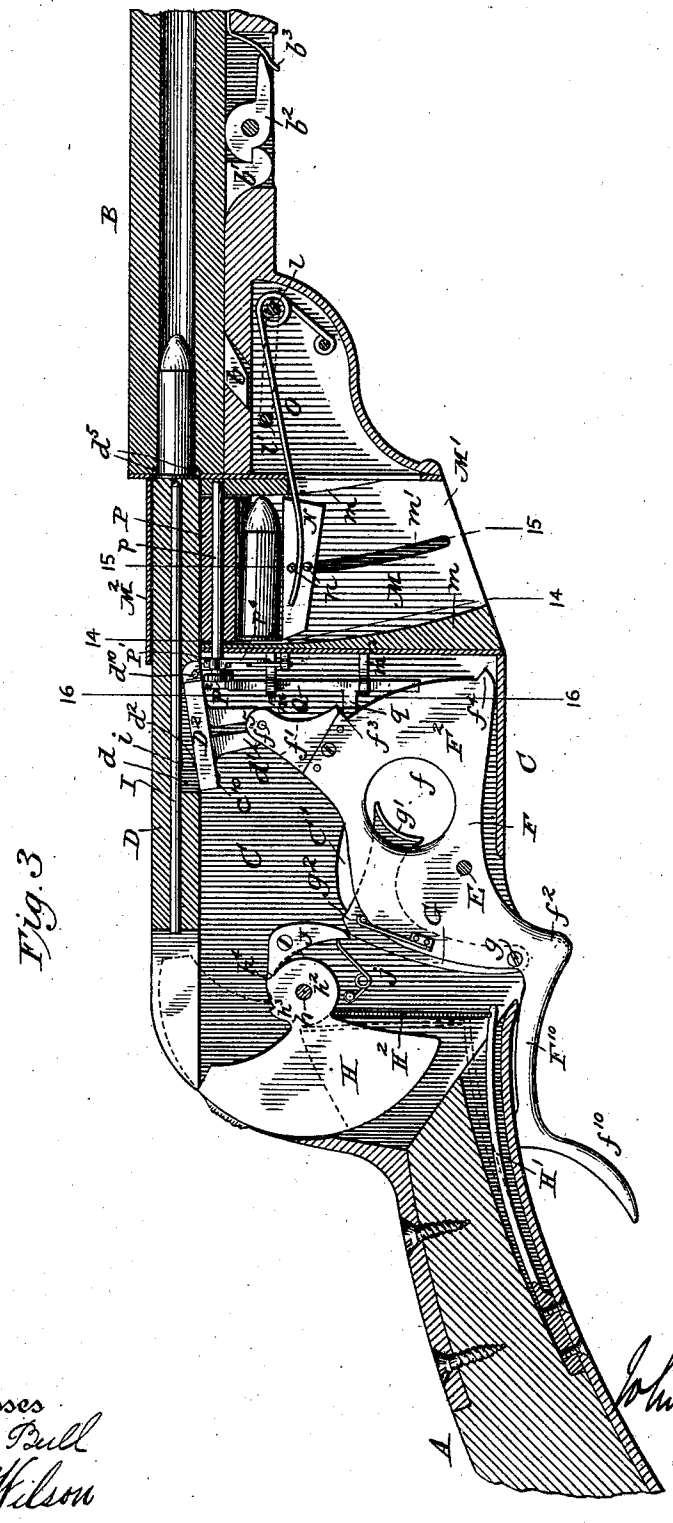


Fig. 3

Witnesses
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No. 695,574. Patented Mar. 18, 1902.

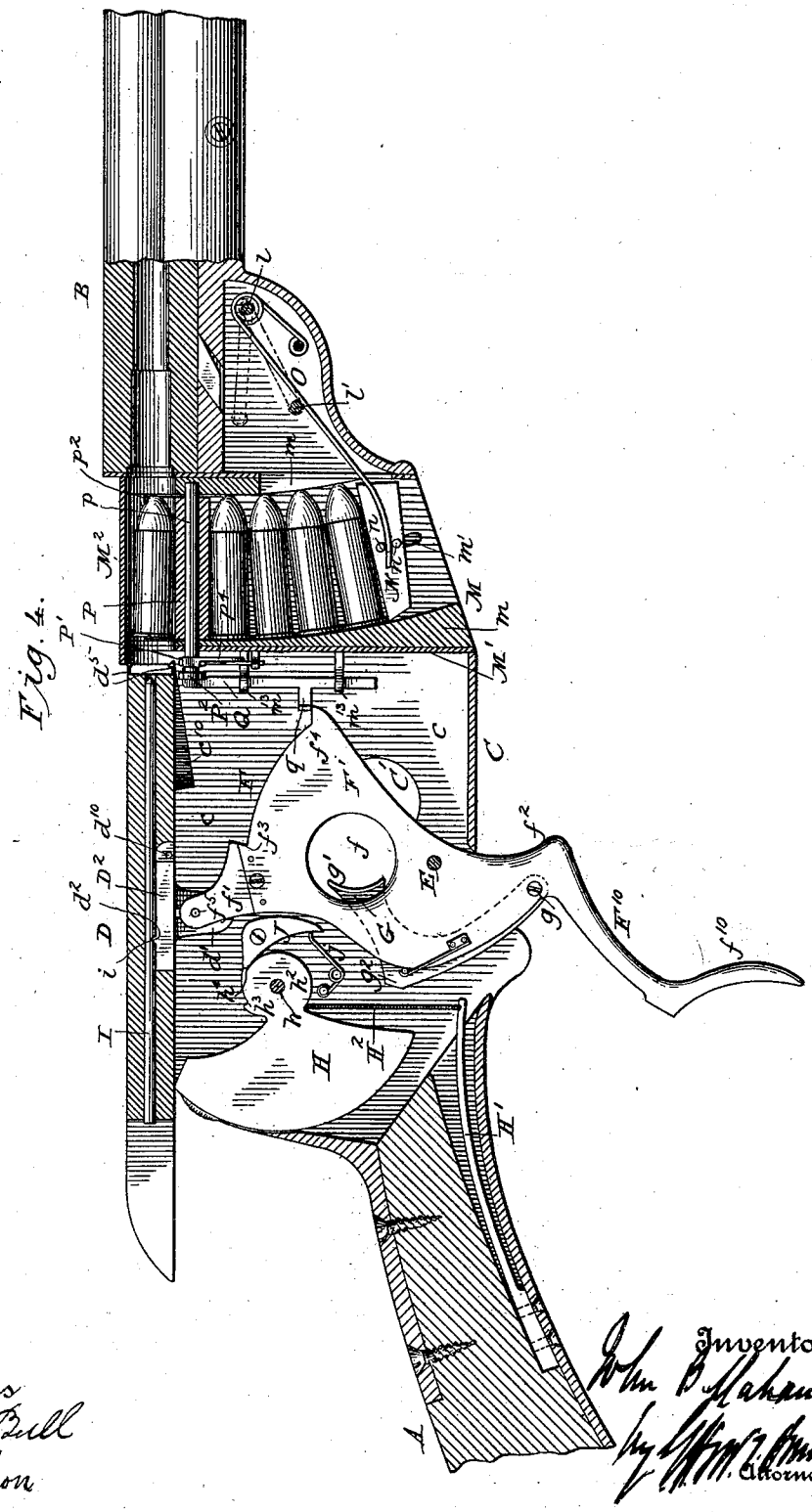
# J. B. MAHANA.

## MAGAZINE FIREARM.

(Application filed Mar. 21, 1901.)

(No Model.) 6 Sheets—Sheet 3.

Fig. 4.



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No. 695,574. Patented Mar. 18, 1902.

# J. B. MAHANA.

## MAGAZINE FIREARM.

(Application filed Mar. 21, 1901.)

(No Model.) 6 Sheets—Sheet 4.

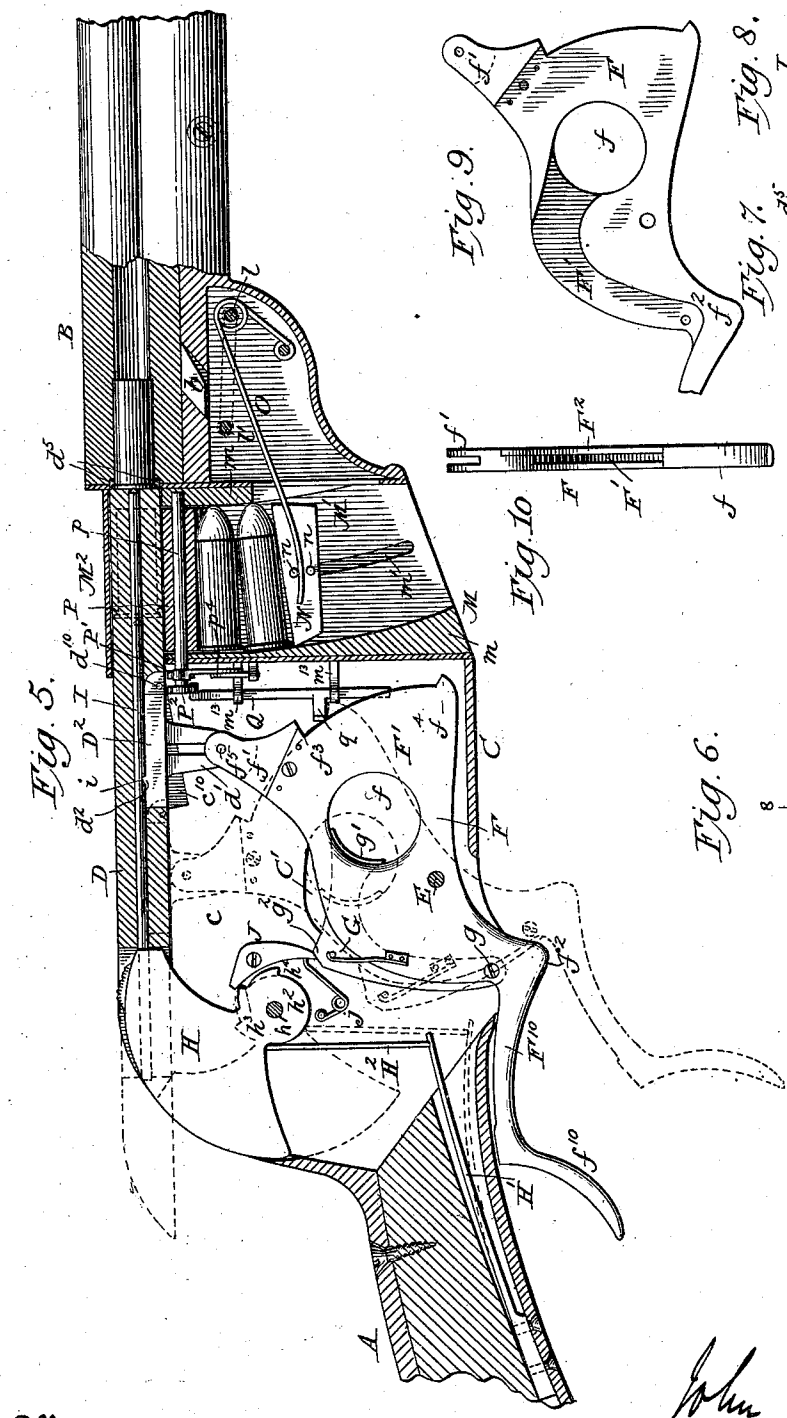


Fig. 5.



Fig. 9.

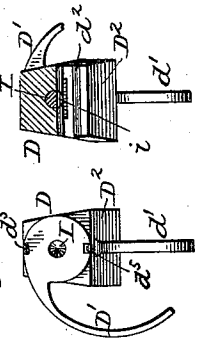


Fig. 8.



Fig. 7.



Fig. 10

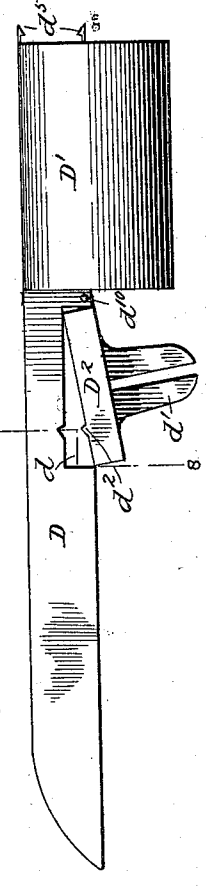


Fig. 6.

Witnesses
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No. 695,574. Patented Mar. 18, 1902.

# J. B. MAHANA.

## MAGAZINE FIREARM.

(Application filed Mar. 21, 1901.)

(No Model.) 6 Sheets—Sheet 5.

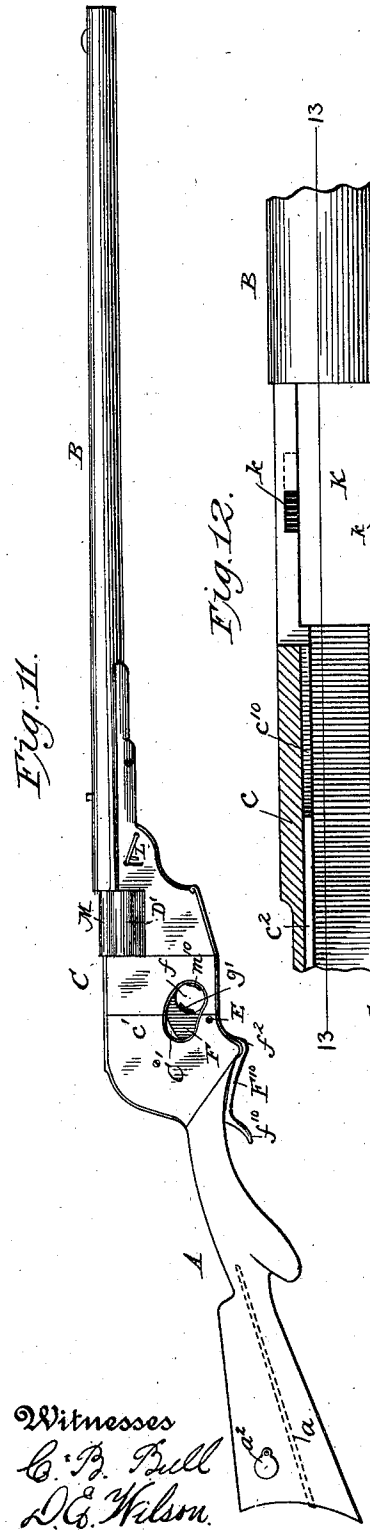


Fig. 11.



Fig. 12.

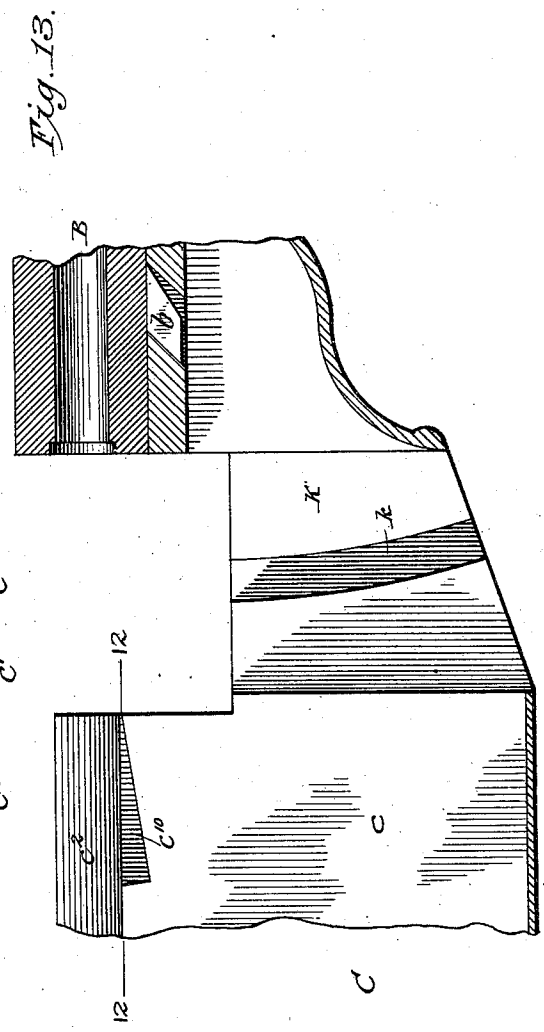


Fig. 13.

Witnesses
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No. 695,574. Patented Mar. 18, 1902.

# J. B. MAHANA.

## MAGAZINE FIREARM.

(Application filed Mar. 21, 1901.)

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Fig. 17.

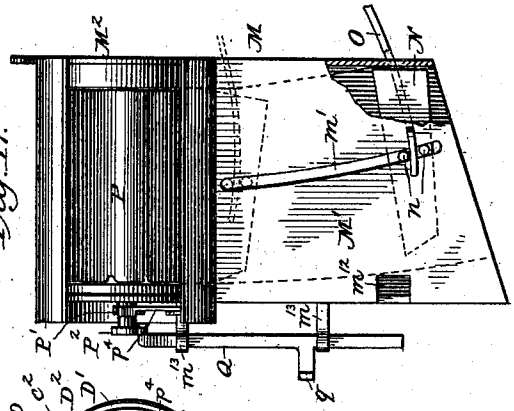


Fig. 16.

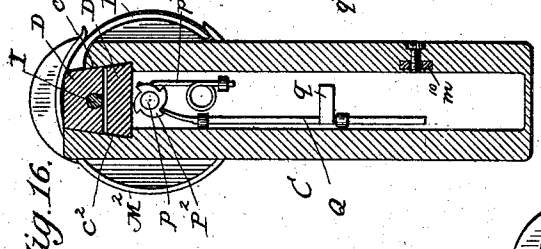


Fig. 15.

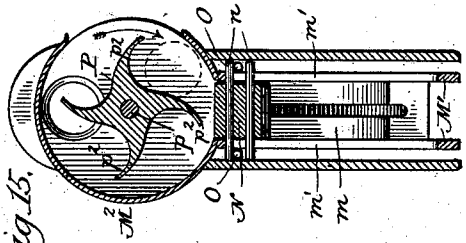


Fig. 14.

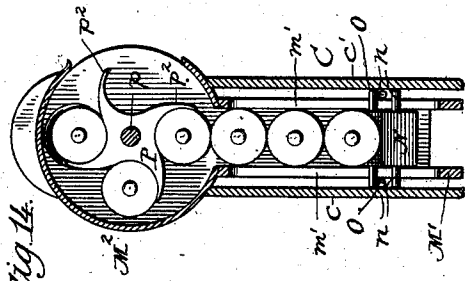


Fig. 19.

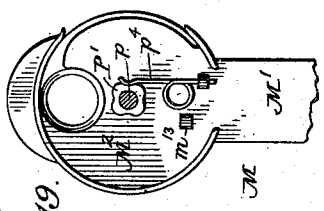
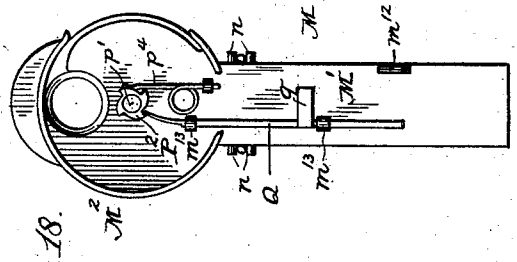


Fig. 18.



Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

JOHN B. MAHANA, OF KELSO, WASHINGTON, ASSIGNOR OF ONE-HALF TO ADRIAN A. POMPE, OF TOLEDO, WASHINGTON.

## MAGAZINE-FIREARM.

SPECIFICATION forming part of Letters Patent No. 695,574, dated March 18, 1902.

Application filed March 21, 1901. Serial No. 52,225. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN B. MAHANA, a citizen of the United States, residing at Kelso, in the county of Cowlitz and State of Washington, have invented certain new and useful Improvements in Firearms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to improvements in firearms, more especially that class known as "magazine" or "repeating" guns, and has for its general object the attainment of simplicity of construction, reduction in the number of working parts or elements, positiveness of action, non-liability of derangement of parts, and facility of repair in the event of derangement.

A special object of my invention is to so construct and arrange the "action" of a magazine-gun that the user shall be able to retain it at his shoulder and without changing the position of either hand discharge and reload until the magazine is emptied, the arrangement being such that in whatever position the gun is held the magazine will operate equally well in loading, firing, or in discharging the empty shell, which is discharged or thrown from the gun at one side (here shown as the right-hand side) instead of backward, as is the case with many other forms of magazine-guns. The magazine is capable of holding six cartridges; but it may be readily lengthened to hold more and may also be conveniently refilled without the removal from the gun of any part or element, the magazine containing the entire mechanism for feeding cartridges to the barrel and throwing out the empty shells, and may be easily removed from its socket when necessary for repair or cleaning.

The invention further relates to means for locking the firing-pin against movement while the gun is being loaded, said means consisting of simple and positive mechanism which releases the firing-pin only at the proper moment, so that a premature discharge of the gun is impossible.

The principal objects of my invention having been thus set forth, a more detailed description of the general structure will now be given, reference being had to the accompanying drawings.

Figure 1 is a side elevation of that portion of a magazine-gun containing the action or working parts made in accordance with my invention. Fig. 2 is a plan of the same. Fig. 3 is a longitudinal sectional view, the breech-bolt being in firing position. Fig. 4 is a similar view, the breech-bolt being retracted and a new cartridge brought into position for loading. Fig. 5 is a similar sectional view showing the position of the parts after the gun has been fired and as the reloading is about to take place. Fig. 6 is a side view of the sliding bar by means of which the cartridges are pushed into the barrel of the gun and the empty shells withdrawn. Fig. 7 is a front end view of the same sliding bar. Fig. 8 is a section of said bar on the line 8 8 of Fig. 6. Figs. 9 and 10 are respectively a side and a rear view of the actuating-lever, the cover-plate being removed. Fig. 11 is a side view, on a smaller scale, of the entire gun. Fig. 12 is a horizontal section on the line 12 12 of Fig. 13. Fig. 13 is a vertical section of the gun-frame on the line 13 13 of Fig. 12. Figs. 14, 15, and 16 are cross-sections of the gun on the lines 14 14, 15 15, and 16 16, respectively, of Fig. 3. Figs. 17 and 18 are respectively a side and a rear view of the magazine detached. Fig. 19 shows a detail hereinafter described.

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

A indicates the stock, B the barrel, and C the frame. The frame C is hollow and consists, mainly, of two side plates $c$ $c'$, Fig. 12, in each of which is formed part of a dovetail groove $c^2$ $c^2$, Figs. 12, 13, and 16, for supporting and carrying the breech-bolt D. The side plate $c$ is integral with the gun-frame, while the plate $c'$ is removable therefrom and held in place by suitable screws. The forward part of each groove $c^2$ is cut away, as at $c^{10}$, Figs. 4, 5, 12, and 13, to form an abutment or stop, as hereinafter explained. In each plate $c$ $c'$ is a curved opening C′ for the insertion of the forefinger when the gun is to be used.

Fulcrumed upon a pin E, passing transversely through the portion C, is the actuat-

ing-lever F, having a circular hole $f$ made therethrough and in line with the curved opening C'. A finger $f'$ projects upwardly and an extension $f^2$ is prolonged downwardly from the actuating-lever through the bottom of the portion C, running backwardly beneath the stock in the form of an arm $F^{10}$, which terminates in a finger $f^{10}$, as shown. The forward edge of the actuating-lever F is provided with two lugs $f^3$ $f^4$, their function being hereinafter described. A recess F', Figs. 9 and 10, is made in the actuating-lever behind the opening $f$, within which recess a trigger G, pivoted at $g$, is carried. A plate $F^2$, Fig. 10, covers the recess, being secured by screws to the actuating-lever. The trigger G has a curved end $g'$ for receiving the pressure of the finger projecting within the hole $f$ of the actuating-lever F and a shoulder $g^2$ for disengaging the sear J from the hammer H when said trigger is pressed.

Above the actuating-lever F and adapted to be moved longitudinally in the grooves $c^2$ in line with the barrel B is the breech-bolt D, carrying longitudinally therein the firing-pin I. A seat $d$ is formed in the under side of the breech-bolt, into which is fitted a recoil-block $D^2$, pivoted at $d^{10}$ to the breech-bolt. Depending from the under side of the recoil-block $D^2$ is a slotted lug $d'$, which engages the pin $f^5$ on the actuating-lever F. When the gun is ready for firing, the recoil-block $D^2$ is drawn down into the cut-away portions or against the abutments $c^{10}$ of the side plates, as seen in Fig. 3. The upper surface of the block $D^2$ has formed thereon an angular rib $d^2$, which engages with a notch $i$ in the firing-pin I, locks the same at all times, except when the gun mechanism is in the position for firing, by which means a premature discharge is prevented. The rear end of the breech-bolt D is slotted, as shown in Figs. 2, 3, &c., within which slot the hammer H passes to strike the firing-pin. The forward end of the breech-bolt D is practically cylindrical in cross-section (see Fig. 7) and carries on its right-hand side what I term a "curtain" D' for the purpose of closing the upper part of the magazine M after the empty shell has been thrown out and the gun reloaded. Extractors $d^5$ on the forward end of the breech-bolt serve to withdraw the empty shell.

H indicates the hammer, which is pivoted at $h$ and actuated by a flat spring H', pressing against a strut $H^2$, bearing on the hammer. The hammer H has a hub $h^2$, in which are formed two notches $h^3$ $h^4$, the former holding the hammer at half-cock, as represented by dotted lines in Fig. 5, while the latter retains it at full-cock. One end of a sear J, situated between the hammer and the trigger, engages at the proper time one or the other notch $h^3$ $h^4$ and is held in engagement therewith by a spring $j$. The other end of the sear J is in position to be struck by the shoulder $g^2$ of the trigger when the gun is to be discharged.

From the breech end of the barrel B rearwardly for a suitable distance the side plates or walls $c$ $c'$ of the frame C are cut away for about one-third of their height, (see Figs. 12 and 13,) the remaining part made thinner, and the bottom removed, thus forming a channel K through the frame C in a vertical direction. Within this channel the magazine M is placed.

Referring particularly to Figs. 3, 14, 15, 17, and 18, it will be seen that the magazine M consists of two main parts—a lower rectangular portion or box M' and a cylindrical upper part $M^2$, the axis of which lies in a horizontal plane, a portion of its right side and bottom being cut away, as shown in Figs. 14 and 15. Within the box M', the internal width of which is slightly greater than the rim of the cartridge to be placed therein, is a carrier N, on which the cartridges rest and by which they are elevated at suitable times by means of a spring O, one end being secured within the fore-stock, the other end passing through a slot in the front wall of the magazine. Guiding-pieces $m$, secured to the front and rear walls within the part M' of the magazine, have their opposing faces curved, that the cartridge may move with greater ease, and separated a distance equal to the length of the cartridges contained therein. Projecting laterally from each side of the carrier N are two pins $n$, which pass through slot $m'$ in the side walls of the magazine and project a short distance into grooves $k$ $k$, formed in the side walls of the channel K. (See Figs. 12 and 13.) To return the carrier N to the bottom of the magazine for the purpose of refilling, a yoke L, Figs. 1, 3, 4, and 5, is used. This yoke consists of two pins $l$ $l'$ and a connecting-plate $l^2$. The plate $l^2$ lies close against the fore-stock a short distance in front of the magazine (see Fig. 1) and is adapted to be rocked or vibrated on its pivot formed by the pin $l$, journaled in the fore-stock. The pin $l'$ at the other end of the plate $l^2$ passes through a curved slot $b^6$ into the interior of the fore-stock above the spring O. When the yoke L is swung downwardly on the pin $l$, the pin $l'$ carries the spring O with it, and consequently the carrier N. When the yoke is raised, the spring naturally follows. A stop $b^7$ holds the yoke in its two positions.

Pivoted within the cylindrical portion $M^2$ of the magazine is the intermittently-rotating cartridge-feeding and shell-discharging device P, consisting principally of a shaft $p$, to which is fixed a body carrying four curved arms $p^2$, their normal position being that shown in Fig. 14. The rear end of the shaft $p$ carries a spring-controlled stop-wheel P' and a ratchet-wheel $P^2$, the latter being rotated intermittently by mechanism operated by lugs $f^3$ $f^4$ on the actuating-lever F.

The mechanism for rotating the arms $p^2$ may be briefly described as follows: Arranged to slide vertically in bearings $m^{13}$ on the rear wall of the magazine is a rod Q, the

upper end of which is formed into a spring and adapted to engage the ratchet-wheel $P^2$. A finger $q^6$ projects a short distance rearwardly from the rod Q and is then bent laterally, so as to lie in the pathway of the lugs $f^3$ $f^4$, heretofore described. When the actuating-lever is drawn back, the lug $f^4$ strikes the finger $q$ just before the actuating-lever reaches the end of its movement. This movement raises the rod Q and turns the ratchet-wheel one-quarter of a revolution, there being but four teeth on the ratchet-wheel. A spring $p^4$ bears against the stop-wheel P′ and holds it against further rotation. As the actuating-lever returns the lug $f^3$ strikes the stud $q$ and draws down the rod Q into position for another quarter-turn of the ratchet. Each movement of the ratchet throws out the empty shell and brings a new cartridge into loading position.

For the purpose of supporting the cleaning-rod the stock of my gun is bored, as at $a$, Fig. 11, in which is placed a telescopic cleaning-rod. A cavity is also formed in the stock for carrying patches and closed by a cover $a^2$.

The barrel B has two lugs $b$ $b'$ depending from its under side, which fit in suitable slots in the fore-stock, the lug $b'$ being held by a swinging hook $b^2$, locked in position by a spring-catch $b^3$.

The operation of my invention is as follows: Assuming the magazine to be empty and the parts in the position shown in Figs. 3 and 11, except that the hammer rests on the firing-pin, the first operation to be performed is that of loading the magazine. The gun is held in the left hand, forward of the magazine, while with the right hand the yoke L is operated to depress the spring O and lower the carrier N. The forefinger of the right hand is then placed in the hole $f$ of the actuating-lever and the said lever drawn back. The first movement of the actuating-lever raises the recoil-block $D^2$ from the abutment $c^{10}$ and into its seat $d$ in the breech-bolt D, by reason of the connection of the finger $f'$ and lug $d'$, (see Fig. 5,) carrying the rib $d^2$ into the notch $i$ in the firing-pin, thus locking it securely against movement in any direction. The breech-bolt D after the recoil-block $D^2$ becomes disengaged from the abutments and seats itself is carried rearwardly by the finger $f'$ until the limit of movement has been reached, (see Fig. 4,) where it will be seen that the hammer has been carried to full-cock, the sear being in engagement with the second notch $h^4$. Just before the limit of movement has been reached the lug $f^4$ on the actuating-lever comes in contact with the finger $q$, raising the rod Q and turning the shaft $p$ through one-quarter of a revolution, further movement being arrested by the engagement of the spring $p^4$ with the stop-wheel P′. This movement of the shaft $p$ turns the arms $p^2$ sufficiently to eject through the open side of the magazine the empty shell should one have been in the gun. It will be understood that when the breech-bolt D is retracted the curtain D′ attached thereto will also be drawn back, thus opening the magazine. Fresh cartridges having been placed against or upon the arms $p^2$, as in Fig. 15, upon rotation of the feeding and discharging device P in the direction of the arrow the cartridges will fall into the magazine on coming in line with it. Should the carrier N be in the position shown in Fig. 15, the cartridges would pass around with the arms instead of entering the magazine. As soon as the magazine is filled the next two cartridges will pass around with the arms $p^2$, one cartridge being in position for entering the barrel, while the other is ready to be carried into place at the next movement to reload. The magazine being filled, the pressure of the middle finger of the operator against the extension $f^{10}$ of the actuating-lever will cause said lever to move forward, carrying with it the breech-bolt D, the forward end of which on striking the cartridge will force it into the barrel and the extractor into engagement with the rim of the cartridge. The cartridge having been forced home, the recoil-block $D^2$ is drawn down by the finger $f'$, so as to engage the abutments $c^{10}$ of the grooves $c^2$, locking the breech-bolt D firmly in place against the cartridge and taking the full force of the recoil. At the time the recoil-block $D^2$ engages the abutments the rib $d^2$ (see Figs. 5, 6, and 8) is withdrawn from the notch $i$ in the firing-pin, leaving the latter free to move when struck by the hammer.

The magazine may be readily taken from its socket by moving the breech-bolt rearwardly until it is free of the magazine. The catch $m^{10}$ (see Fig. 1) being then withdrawn from the notch $m^{12}$ in the side of the magazine, the latter is free to be taken from its channel.

The gun is held to the shoulder in the usual manner, the right hand of the user grasping the stock, his forefinger passing through the hole $f$ in the actuating-lever, his middle finger resting against the extension $f^2$, his third finger under the arm $F^{10}$, and his fourth finger above the finger $f^{10}$. It will thus be seen that the recoil-block $D^2$ is held with great firmness against its abutments when firing. Should a cartridge-shell stick in the barrel, as sometimes happens, so that it cannot be withdrawn by the forefinger operating the actuating-lever, the arm $F^{10}$ overcomes this difficulty by its greater leverage. By alternately pressing the forefinger and the middle finger the cycle of operations of loading and firing may be performed without removing the gun from the shoulder.

Having thus described my invention, I claim—

1. In a magazine-firearm, a pivoted actuating-lever combined with mechanism for loading and firing and for discharging empty shells by the exertion of pressure alternately applied above and below the pivoting-point by separate fingers of the user or operator

on said actuating-lever, substantially as set forth.

2. In a magazine-firearm, the combination of an actuating-lever, a breech-bolt for carrying a cartridge into the barrel and closing the breech, a firing-pin passing through said breech-bolt, and a recoil-block, pivoted to the breech-bolt and having a depending lug connected to the actuating-lever, for disengaging the firing-pin and locking the breech-bolt when the breech is closed, and for unlocking said bolt and engaging said pin before the breech is opened, substantially as set forth.

3. In a magazine-firearm, the combination of an actuating-lever, a breech-bolt for carrying a cartridge into the barrel and closing the breech, a firing-pin through said breech-bolt, and a recoil-block, pivoted to the breech-bolt and having a depending slotted lug connected to the actuating-lever, for disengaging the firing-pin and locking the breech-bolt when the breech is closed, and for unlocking said bolt and engaging said pin before the breech is opened, substantially as set forth.

4. In a magazine-firearm, the combination of an actuating-lever, a pivot therefor, said lever having an opening through it above the pivot and an extension below the pivot, and a trigger carried by the lever adapted to be actuated by means introduced through the opening, substantially as set forth.

5. In a magazine-firearm, a pivoted actuating-lever having a recess formed in its rear edge, in combination with a trigger mounted in said recess, one end of which projects into an opening formed in the actuating-lever above the pivoting-point while the other end is pivoted thereto below the pivoting-point, substantially as set forth.

6. A magazine-firearm, having a frame, a barrel, and a vertical socket formed through the frame in the rear of the barrel, combined with a magazine-box adapted to enter said socket, an upwardly-forced carrier in said box, a horizontal shaft mounted above the carrier and below the barrel, a series of arms upon said shaft, and means operated by the actuating-lever for intermittently rotating the said arms whereby the cartridges may be brought into line with the barrel and the empty shells discharged.

7. In a magazine-firearm, the combination of a magazine-box, a carrier adapted to be continuously forced upwardly, pins projecting from each side of the carrier and passing through slots in each side of the magazine, a spring to actuate the carrier, and means for acting on the spring to lower the carrier to the bottom of the magazine, substantially as set forth.

8. In a magazine for a firearm, the combination of a box or receptacle, a carrier therein, a spring for elevating the carrier, a series of intermittently-rotatable arms in the upper section of the box or magazine, a ratchet-wheel and a stop-wheel on the shaft of said rotatable arms, and means for operating the ratchet-wheel, substantially as set forth.

9. In a magazine-firearm, the combination of a frame, a magazine, a carrier therein, a spring for raising the carrier, a yoke, one arm of which serves as a pivot, and the other within the frame to depress the spring, and a catch outside the frame for holding the yoke in a raised or lowered position, substantially as set forth.

In testimony whereof I hereunto set my hand.

JOHN B. MAHANA.

Witnesses:
J. F. VAN NAME,
A. I. ROBBINS.