

(No Model.)

2 Sheets—Sheet 1.

A. W. SAVAGE.

MAGAZINE GUN.

No. 366,512.

Patented July 12, 1887.

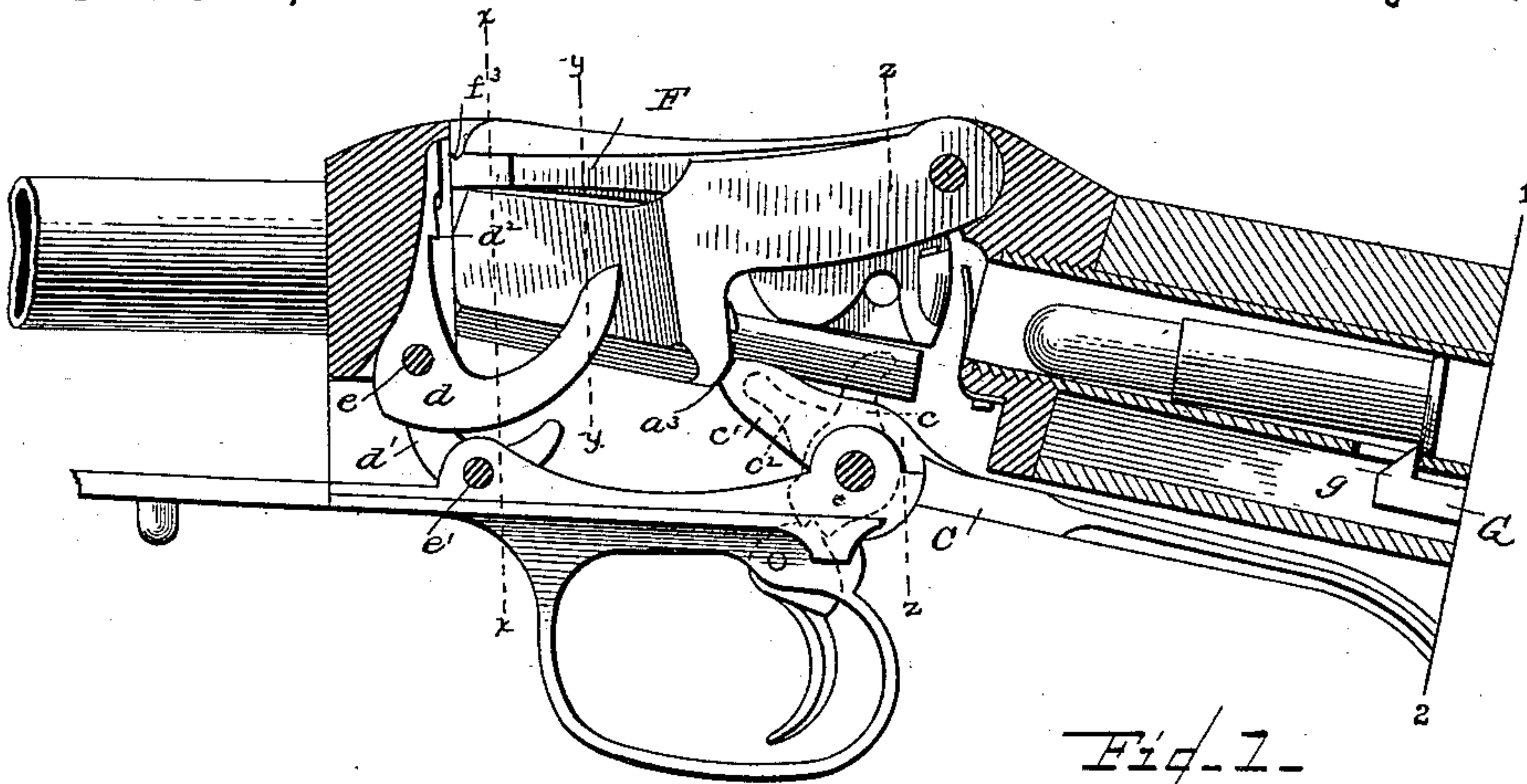


Fig. 1.

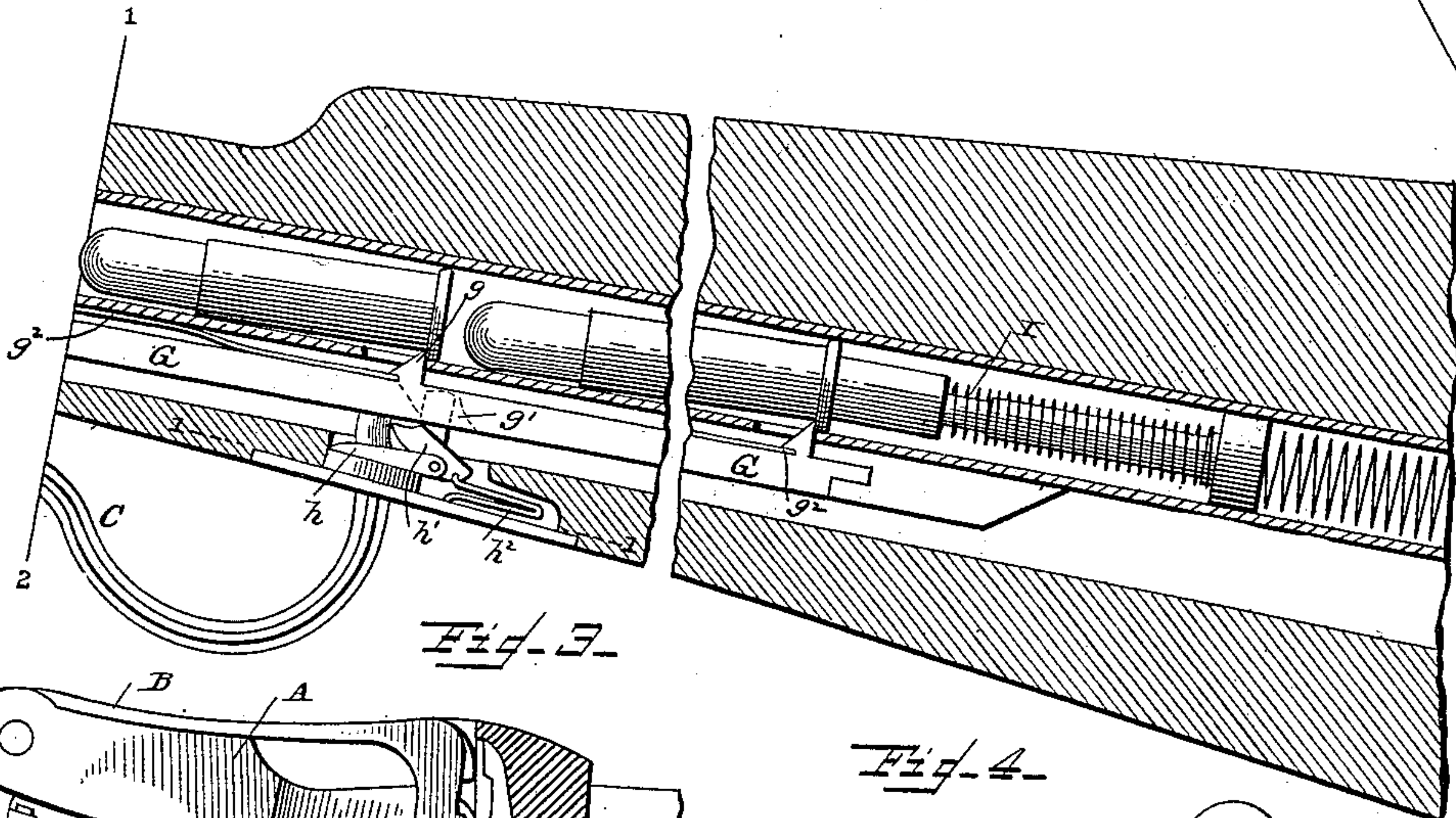


Fig. 2.

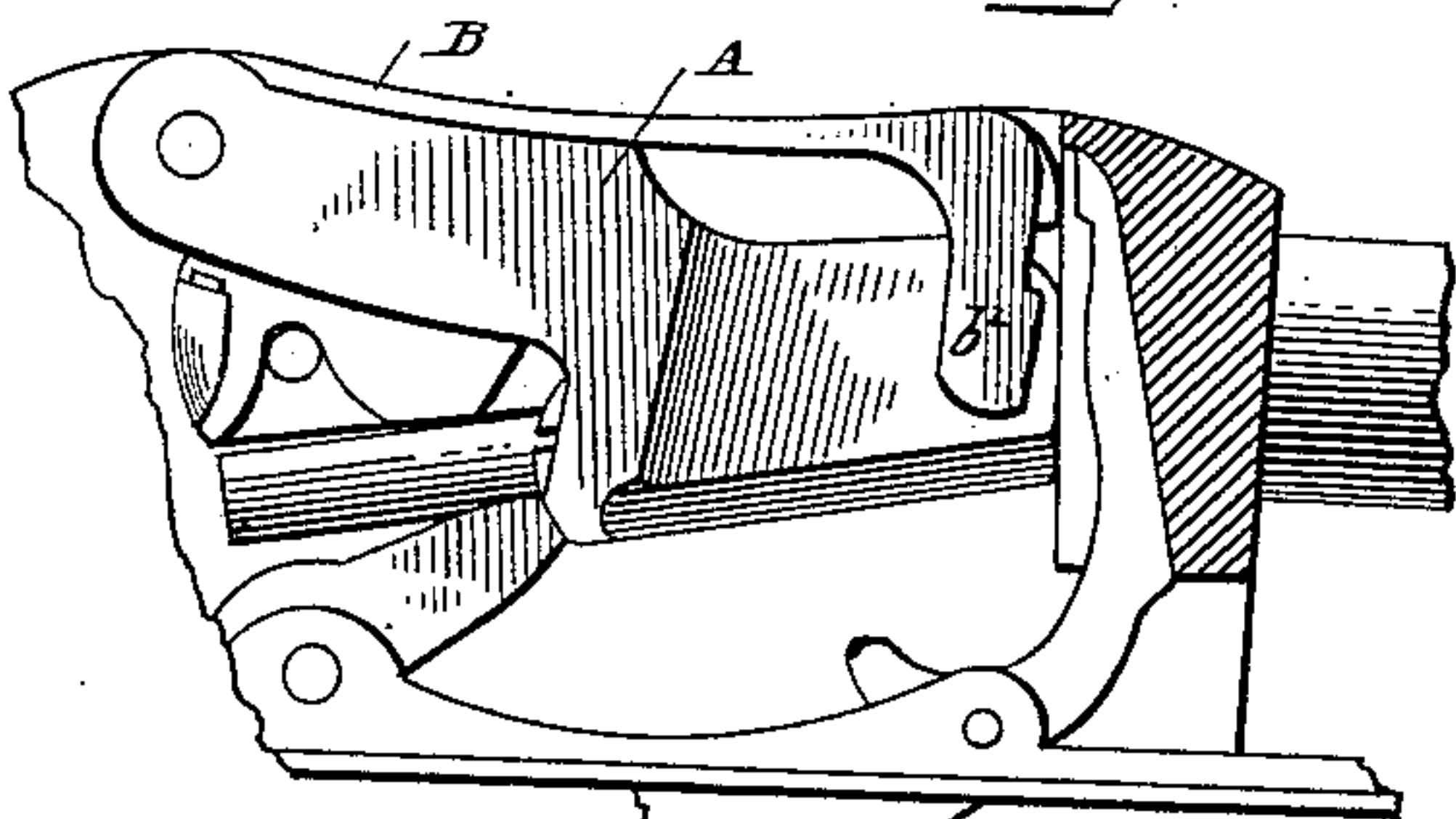


Fig. 3.

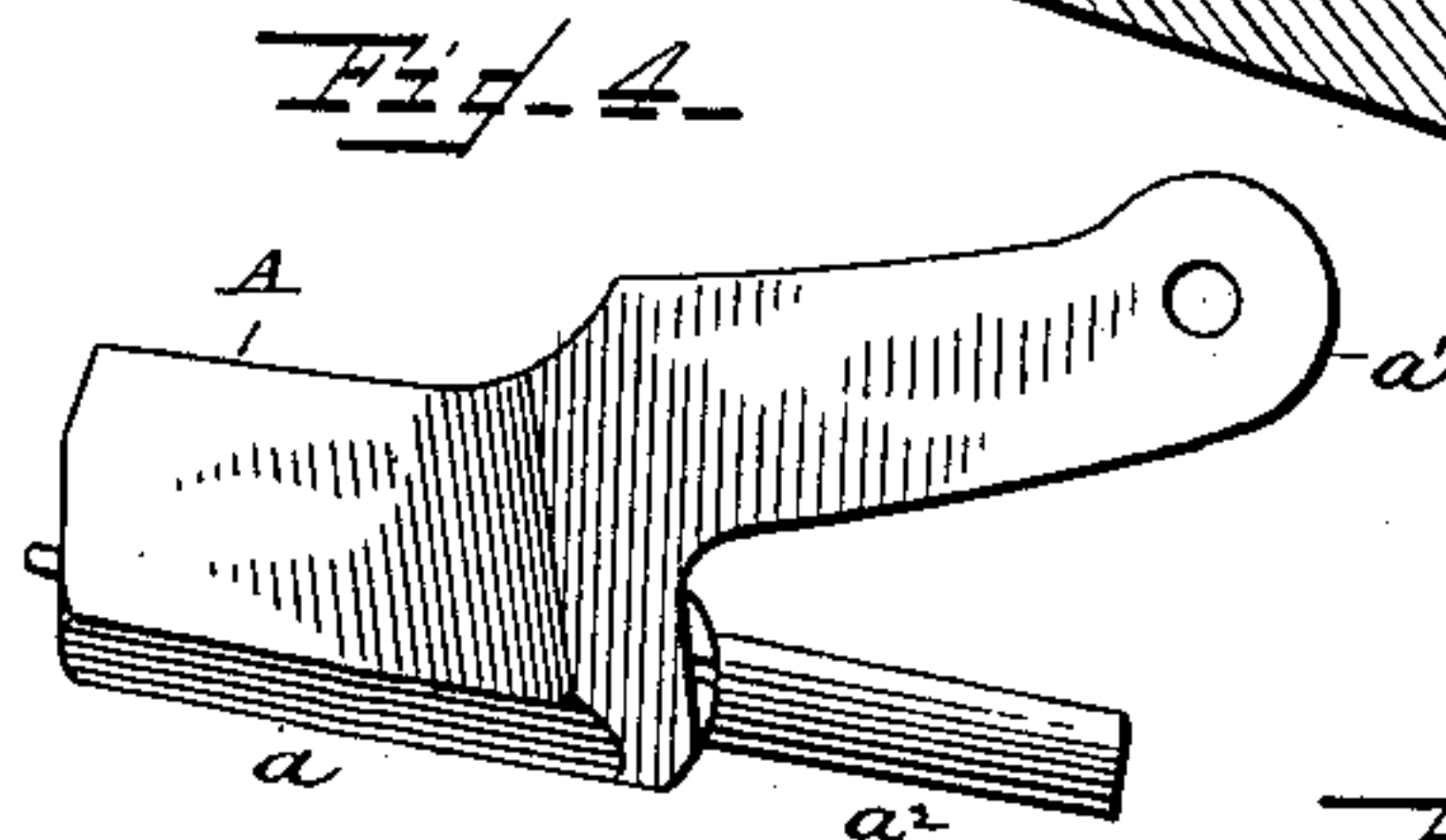


Fig. 4.

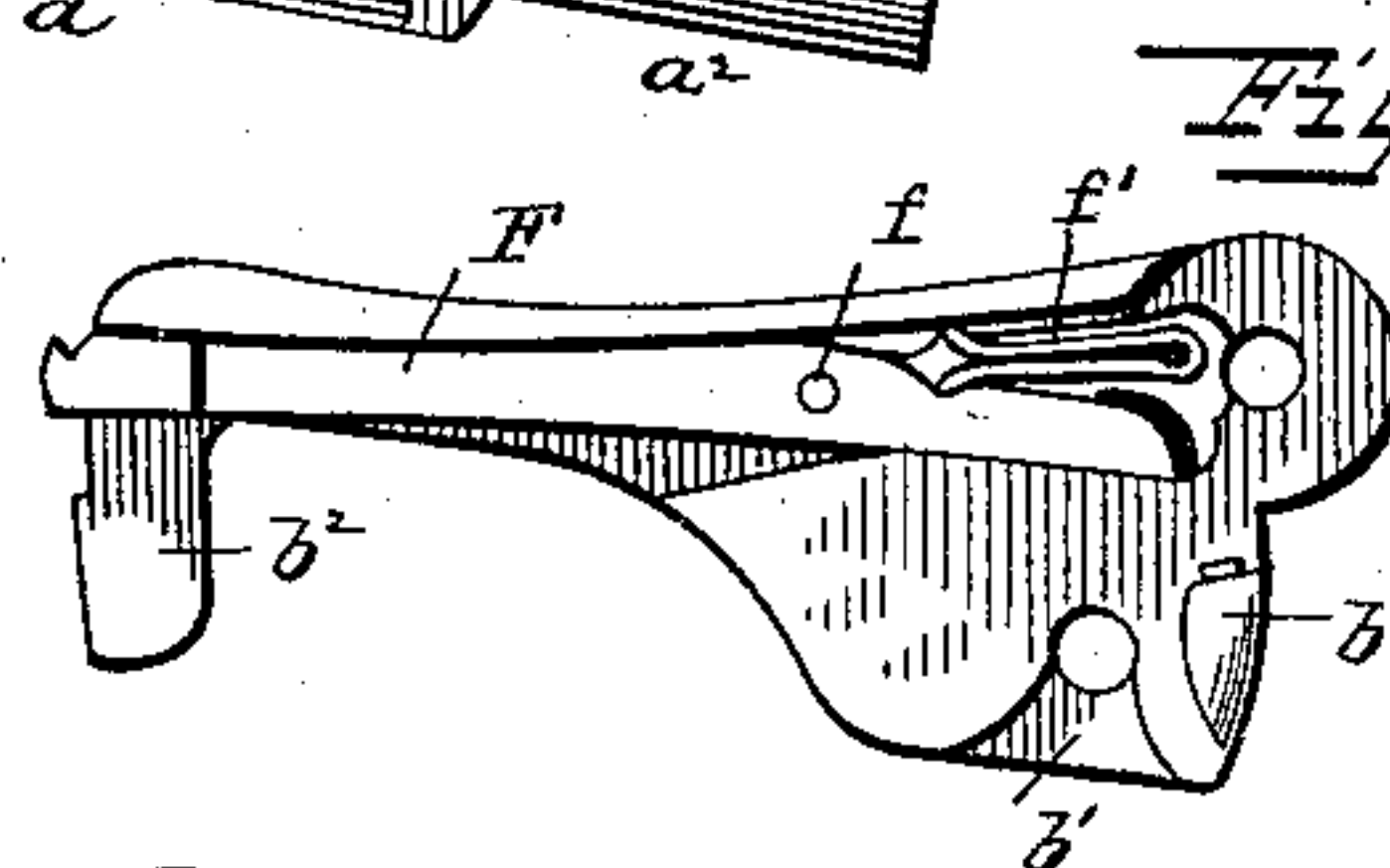


Fig. 5.

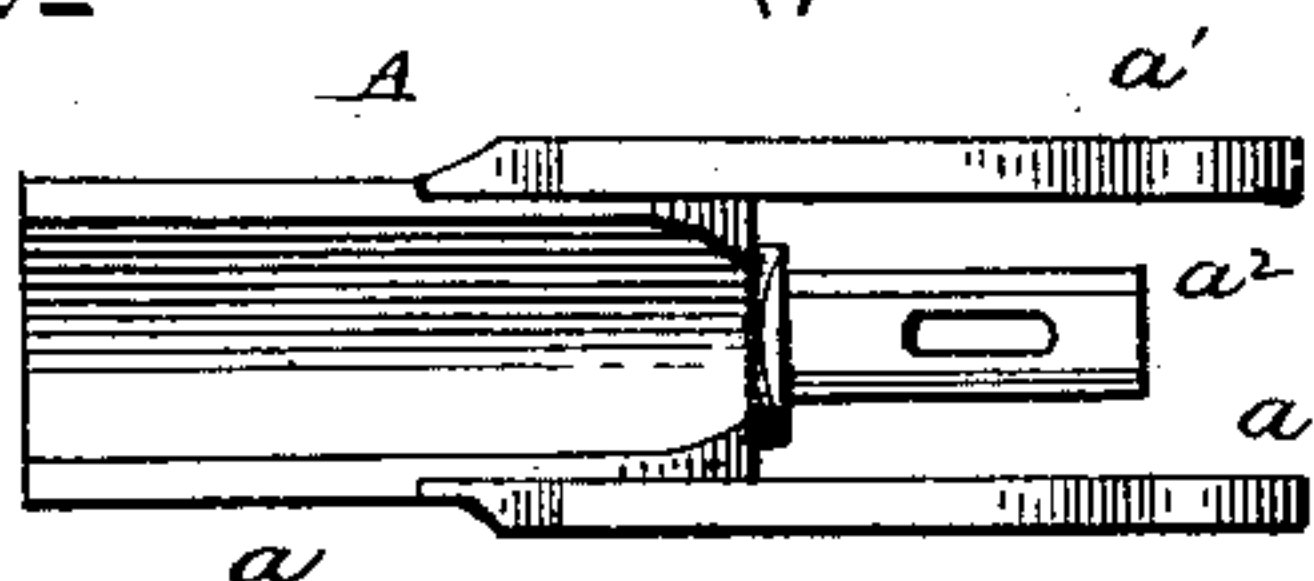
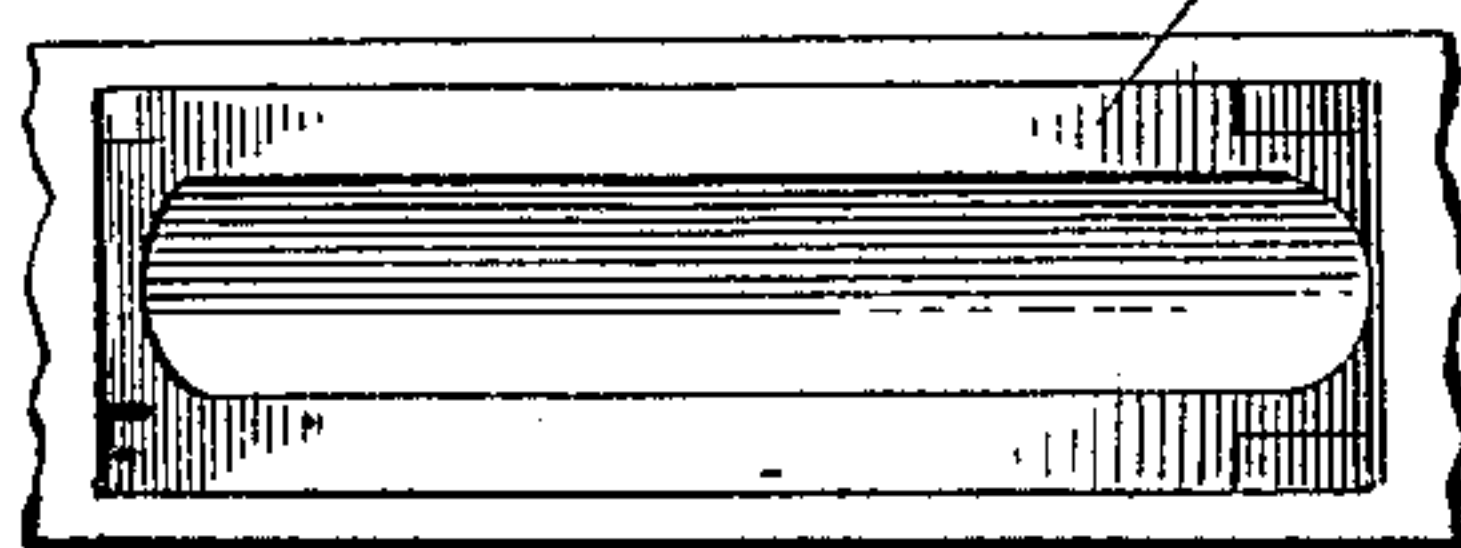


Fig. 6.



WITNESSES

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(No Model.)

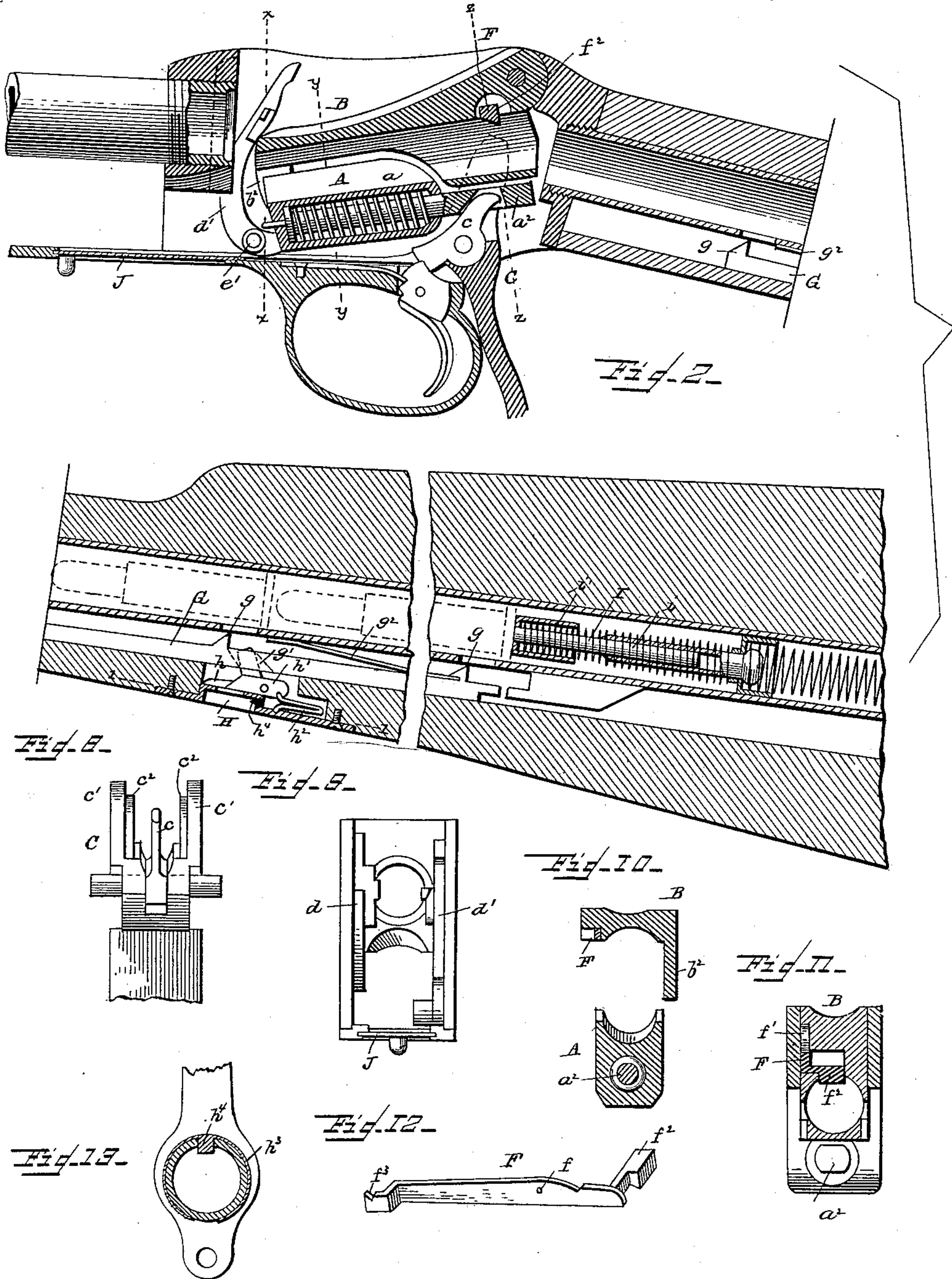
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UNITED STATES PATENT OFFICE.

ARTHUR WILLIAM SAVAGE, OF NEW YORK, N. Y., ASSIGNOR TO MARCELLUS HARTLEY, OF SAME PLACE.

MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 366,512, dated July 12, 1887.

Application filed June 8, 1887. Serial No. 240,678. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR WILLIAM SAVAGE, a subject of the Queen of Great Britain, residing at New York, in the county of New York and State of New York, 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 invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of magazine-guns in which the magazine is located in the rear stock.

The main objects of the invention are to provide a gun adapted to be used either as a magazine-gun or as a single loader, which shall be simple in construction, effective and reliable in operation, and easily manipulated; and to these ends the invention consists in the construction, arrangement, and combination of parts, hereinafter particularly pointed out in the claims.

In the accompanying drawings, which shall illustrate my invention and form a part of this specification, Figure 1 represents a view of the rear stock and frame of my gun, the stock being shown in section, and the side plate of the frame being removed to show the breech mechanism, the latter being in position as when the breech is closed. Fig. 2 represents a central longitudinal section through the frame, breech mechanism, stock, and magazine, the breech mechanism being in position as when the breech is open. Fig. 3 is a side elevation of the frame and breech mechanism with the side plate of the frame removed, the parts being in the same position as in Fig. 1, the view being taken from the opposite side. Fig. 4 is a side elevation, and Fig. 5 a plan view, of the breech-block. Fig. 6 is a side elevation of the breech-block cover or cartridge-guide. Fig. 7 is a plan view of the cover or cartridge-guide. Fig. 8 is a rear elevation of the upper end of the operating-lever, looking from the rear, showing also the dog for cocking the hammer. Fig. 9 is a vertical transverse section through the frame on the line $x x$, Figs. 1 and 2, the view being taken from the rear. Fig. 10 is a transverse

section through the breech-block and cover or guide at the line yy , Fig. 2. Fig. 11 is a similar section at the line zz , Fig. 2. Fig. 12 is a perspective view of the detent for holding the front cartridge between the breech-block and cover while the breech is open and until the parts are brought to the proper position in the closing movement to guide the cartridge into the chamber; and Fig. 13 is a section on the line 1 1, Fig. 2.

The breech system to which I have applied my invention is substantially that known as the "Martini-Henry," in which the breech-block is hinged or pivoted at its rear end in the frame of the arm, its front end swinging in a vertical plane to open and close the breech.

Referring now by letter to the accompanying drawings, A designates the breech-block, and B the breech-block cover or cartridge-guide. The breech-block is composed of the body portion a and two side arms, $a' a'$, which extend rearward from the body, and which are perforated to receive the cross-bolt which secures the breech-block in the frame, and upon which it swings in the usual manner. The body a of the breech block is bored out to receive the hammer a^2 , which consists of a spring-bolt, the rear end of which projects beyond the body a , and is slotted for the reception of a dog, c , by which it is cocked, in a manner to be hereinafter explained.

The cover or cartridge guide B is of a length and width to fit the mortise in the frame of the arm in which the breech-block works. Its rear end through nearly half its length has a sufficient vertical thickness to allow a channel to be formed therethrough for the passage of the cartridges as they escape from the magazine, the said passage being in line with and forming a continuation of the magazine when the parts are in their normal positions, as when the breech is closed.

The rear end of cover or guide B is cut away at the sides to allow it to enter between the arms $a' a'$ of the breech-block, and it is hung upon the same bolt or pivot with the breech-block, so as to swing therewith. It has, however, a limited independent movement, as will be hereinafter explained in describing the op-

eration of the arm. The top part of the cover overhangs the sides, as shown in Figs. 10 and 11.

At the rear part of the vertical enlargement of the cover, on both sides, below the pivot, are lateral lugs b , which form shoulders, against which the arms $c' c'$ of the lever C bear when the latter is turned forward, whereby a pressure is exerted to draw the cover and breech-block down into the position indicated in Fig. 2. Forward of the lugs b , and on both sides, are cavities or recesses b' , which receive secondary arms $c^2 c^2$ when the breech is opened. These secondary arms $c^2 c^2$ perform no function in the opening of the breech, their purpose being to throw the cover up into position in advance of the breech-block, which they do by bearing against the front walls of the recesses b' of the cover B. The closing of the breech is effected by the arms $c' c'$, which act against the rear face of the breech-block and force it into its fully closed position, and by passing under the shoulder a^3 they act as braces to lock it in this position. In the fork of the lever C, between the arms $c^2 c^2$, and secured by the same bolt or pivot upon which the lever turns, is a dog, c , the upper arm of which projects into a slot in the projecting stem of the hammer a^2 , as shown in Fig. 2, and the lower arm of which has a notch or detent with which the trigger engages. When the lever C is turned forward to open the breech, the dog c turns with it until the trigger engages the notch in its lower arm, whereby it is retained in that position when the lever is returned and the breech closed. As soon as the breech-block begins its closing movement it swings forward and away from the dog c , and as the hammer is held by the dog and cannot follow the forward movement of the breech-block it is drawn out and is held in that position until the dog is released by the pull upon the trigger, when the hammer is thrown forward by its spring, carrying with it dog c .

In order to increase the efficiency of the arm by facilitating the extraction of the spent shell after firing, I provide two extractors—or rather an extractor and an ejector—the office of the first being to start or loosen the shell and of the other to throw it out of the arm.

d designates the extractor, and d' the ejector. As illustrated in the drawings, the extractor d is on the left-hand side and the ejector on the right-hand. The extractor is fulcrumed at e on a screw or pivot that is inserted through the side of the frame. It has a long rearwardly-extending curved arm, which occupies the space between the side wall of the frame and the front end of the breech-block. When the breech is opened, the end of the curved arm is struck by the overhanging side of the cover B, whereby the extractor is turned upon its pivot to start the shell, the force available for this purpose being proportioned to the relative lengths of the two arms and the distance of the fulcrum from the chamber.

The ejector d' has its fulcrum at e' below that of the extractor d . It has also a rearwardly-extending curved arm, which stands in the path of and is struck by a downwardly-extending arm, b^2 , at the front end of the cover B. The vertical arm of the ejector being much longer than the rearwardly-extending curved arm, it follows that when the latter is struck by the arm b^2 a quick blow is imparted to the shell, which, after the latter has been started and loosened, is sufficient to throw it entirely out of the arm.

The cover B is longitudinally cut out or recessed along its side immediately under the overhanging top for the reception of the bar F, which lies flush with the side of the cover. It has its fulcrum at f , and its rear end is pressed down by a spring, f' , which is seated in the recess in rear of the fulcrum f . At the rear end of the bar F is a laterally-projecting arm, f^2 , which projects through an opening into the cartridge-passage formed through the enlarged rear end of the cover B, as represented in Fig. 2. At the outer end of the arm f^2 is a tooth or detent, which engages the flange of the front cartridge after it has entered between the breech-block A and cover B, (see dotted lines in Fig. 2,) and retains it until the parts reach the proper position during the closing movement to guide it into the chamber. The means for releasing the cartridge to allow it to be fed forward into the chamber will now be described.

At the front end of the bar F is a tooth, f^3 , which during the upward movement of the breech-block and cover is engaged and held by a similar tooth, d^2 , on the vertical arm of a bar or lever, whereby the front end of the bar F is drawn down relatively to the cover B, and the detent is raised out of engagement with the flange of the cartridge, when the latter is free to shoot forward into the chamber, its place being taken by the next one in the column. The fulcrum f is so arranged that but a slight movement of the cover B is necessary, after the teeth $f^3 d^2$ become engaged, to release the cartridge, and so soon as this is effected a cam on the front end of the cover acts upon a similar cam on the extractor and presses the latter forward, when the bar F is returned by the spring f' to its normal position relatively to the cover B, when the detent is in position to hold the cartridge, which is then between the breech-block and the cover, until the gun has been fired and the shell ejected, when it is released and fed forward, as already explained, and is succeeded by the next one in line.

Cartridges have been exploded in the magazines by the impact resulting from the recoil of the arm in firing or from handling; and in order to avoid all liability of such explosions it becomes necessary to provide means for holding the cartridges apart in the magazine while the gun is being fired or manipulated, and for this purpose I have devised the following instrumentalities, viz: In a groove in the stock below the magazine I locate a toothed

bar, G, the teeth g of which project into the magazine through suitable openings in its under side. These teeth engage the flanges of these several cartridges in the magazine and hold them against forward movement, and they are so spaced that the cartridges are held slightly apart to prevent the bullet of one cartridge from striking the cap or primer of the preceding one. The bar G has both longitudinally reciprocating and vertical movements relatively to the magazine, these movements being imparted by the following means: In the lower part of the stock is a socket, H, which receives the rear end of the operating-lever C. On the top of this socket, between suitable ears, h , is pivoted a bent or angular lever, h' , the upper end of which is pressed forward by a spring, h^2 , between the lower end and the socket-plate. This lever h' extends into a notch, g' , in the side of the bar G. When the breech is closed and the end of the lever C is pressed into the socket H, it strikes the under side of the lever h' and turns its forward end upward and backward, whereby the bar G is raised against the pressure of springs g^2 , which are attached to the upper side thereof and press against the magazine-tube to throw the bar down when released by the withdrawal of the end of lever C from the socket H in the act of opening the breech. This upward movement causes the teeth g to enter the magazine and engage the flanges of the cartridges. After this is effected the continued movement of the lever carries the bar backward, and by reason of the spacing of the teeth, as already described, slightly separates the cartridges and holds them in this separated position till released by the withdrawal of the lever C. As soon as the lever C is withdrawn the spring h^2 rocks the lever h' , throwing the upper end forward, whereby the bar G is also carried forward and is permitted to be pressed down by its springs g' to liberate the cartridges in the magazine, in order to allow them to be fed forward by the magazine-spring to charge the barrel. In order that the last cartridge may be fed into the chamber, I place an auxiliary piston, I, in advance of the main piston in the magazine, which auxiliary piston is smaller than the main piston in order that it may follow the cartridge between the breech-block and cover or guide B. This auxiliary piston has a stem, i , which projects through the main piston, and is surrounded and pressed forward by a light auxiliary spring, i' , which surrounds the stem i . When the magazine is filled with cartridges, the auxiliary piston is pressed back, its spring being lighter and weaker than the spring of the main piston; but when the main piston reaches the end of the magazine-tube, where it is arrested by a slot, the spring i' expands and throws the small piston forward to drive the last cartridge into the chamber, the spring i' being of sufficient strength for this purpose.

As a means for retaining the end of the operating-lever in the socket H, I show an annu-

lar spring, h^3 , which fits upon the outside of the socket and has at its center a projecting tooth or catch, h^4 , which projects through an opening in the side of the socket (see Fig. 13) and engages a notch in the end of the lever when the latter is pressed home. The ends of the spring h^3 yield to allow the tooth or catch to be pressed out when the lever enters or leaves the socket, and by their resiliency again draw it back when free to do so.

The magazine is charged through an opening in the lower part of the frame, which opening is provided with a sliding door, J. It is charged when the breech is open, as represented in Fig. 2, by introducing the cartridges successively head foremost through the charging-opening into the channel between the breech-block and cover and pressing them back till their flanges are caught by the detent f^2 . The last cartridge inserted remains between the breech-block and cover till released during the closing movement of the parts, when it is pressed forward into the chamber of the gun, as already explained.

The operation of the arm is as follows: The magazine being charged and the breech-block closed, as represented in Fig. 1, when the lever C is thrown down to open the breech, the bar G is released and is thrown forward and downward by the action of the springs h^2 g^2 . This releases the cartridges and leaves them free to be moved forward by the action of the spring-piston in the magazine. The breech being fully opened, the spent shell (or the cartridge, if the gun has not been fired) is extracted and thrown out. Then as the breech is being closed the cartridge between the breech-block and cover is released by the action of the extractor upon the bar F, and is pressed forward into the chamber. When the breech is fully opened, the trigger falls into engagement with the dog e and holds the latter. Then as the breech is being closed the hammer is drawn back and the arm is cocked and ready for firing as soon as the breech is fully closed.

When a cartridge is inserted by hand, as in the case of a single-loader, the extractor is pressed forward by the flange, and the tooth d^2 thereon is carried out of the path of the tooth f^3 at the end of the bar F, and the breech is closed without tripping the detent and releasing the cartridge between the breech-block and cover. The gun may therefore be used as a single-loader as long as or whenever desired, while the magazine is held in reserve. To close the breech without charging the chamber, press the extractor forward with the thumb or finger while the breech is being closed. This enables the gun to be carried or put away in an unloaded and uncocked condition.

This specification describes the preferred construction and arrangement of elements constituting my improvements. It should be understood, however, that it is intended to embrace all modifications and changes within the scope of the claims hereto appended.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a pivoted breech-block and a hollow overlying cover or guide separate therefrom, to serve as a conduit or passage for cartridges from the magazine to the gun-chamber.

2. In a magazine fire-arm, the combination of a breech-block pivoted at its rear end, and a hollow overlying cover separate therefrom, to serve as a conduit for cartridges from the magazine to the gun-chamber.

3. In a magazine fire-arm, the combination of a breech-block pivoted at its rear end, and an overlying cover or guide separate therefrom and pivoted on the same pivot, and adapted to swing with the breech-block, the two parts forming a passage for the cartridge from the magazine to the chamber, substantially as shown and described.

4. In a magazine fire-arm, the combination of a breech-block, a hollow overlying cover separate therefrom, such parts articulating at their rear end on the same axis, and an operating-lever to impart the opening and closing movements to said breech-block and to lock the same in its closed position, substantially as described.

5. In a magazine fire-arm, the combination of a breech-block pivoted at its rear end, an overlying cover or guide separate therefrom and pivoted on the same pivot, and adapted to swing with the breech-block, the two parts forming a passage from the magazine to the chamber, and a detent carried by the cover or guide and projecting into said passage, substantially as described.

6. In a magazine fire-arm, the combination of a breech-block pivoted at its rear end, an overlying cover or guide separate therefrom and hung on the same pivot, and adapted to swing with the breech-block, the two parts forming a passage from the magazine to the chamber, a detent carried by the cover or guide and projecting into said passage, and means, substantially as described, for operating said detent.

7. In a magazine fire-arm, the combination of a breech-block provided with rearwardly-extending arms, by which it is hung in the frame, and an overlying cover or cartridge-guide hung on the same pivot, and having an enlarged rear portion which extends between the arms of the breech-block, and which has a passage through it forming a continuation of the magazine.

8. In a magazine fire-arm, the combination of a breech-block and an overlying cover or cartridge-guide hung on a common pivot, the cover having a passage through its rear portion, and the adjacent sides of the breech-block and cover being channeled to form a continuous passage from the magazine to the chamber, substantially as described.

9. In a magazine fire-arm, the combination of a magazine, a detent carried by the breech-block, and which engages and releases the car-

tridges from the magazine, and a lever provided with a shoulder or hook normally in the path of such detent when the carrier is being raised, but free to be pushed out of its path, whereby the carrier may be raised to close the breech without engaging said lever and detent to trip the latter.

10. In a magazine fire-arm, the combination of the breech-block pivoted at its rear end, an overlying cover or cartridge-guide hung on the same pivot and adapted to swing with the breech-block, the two parts forming a passage from the magazine to the chamber, a detent carried by the cover and projecting into said passage, and a shoulder or hook on the extractor to operate said detent, substantially as described.

11. In a magazine fire-arm, the combination of the breech-block pivoted at its rear end, an overlying cover or cartridge-guide hung on the same pivot and adapted to swing with the breech-block, the two parts forming between them a passage from the magazine to the chamber, a detent carried by the cover and projecting into said passage, a shoulder or hook on the extractor to operate said detent, and a cam on the cover to disengage the extractor from the detent, substantially as shown and described.

12. The combination, with the pivoted and swinging breech-block and the hammer-bolt carried thereby, of the guard-lever having arms *c' c'* to operate the breech-block, the dog *c*, mounted between said arms on the same pivot with the lever and engaging the hammer-bolt, and a trigger for holding and releasing the dog, substantially as shown and described.

13. In a breech-loading fire-arm, the combination of two pivoted extractors of unequal leverage arranged on opposite sides of the chamber, and a rising and falling breech-block which engages said extractors successively to withdraw and then eject the cartridge shell, substantially as shown and described.

14. In a magazine fire-arm, the combination of a breech-block provided with rearwardly-extending arms, by which it is pivoted in the frame, an overlying cover or cartridge-guide pivoted on the same pivot and adapted to swing with the breech-block, and having an enlargement which lies between and extends below the arms of the breech-block, and an operating-lever having two pairs of arms, one pair engaging lugs or shoulders on the sides of said enlargement to draw the parts down and open the breech, and the other pair entering recesses in the sides and serving to raise the parts, substantially as shown and described.

15. In a magazine fire-arm, the combination, with a magazine-tube, of a holding-bar provided with teeth or shoulders, the distances between which exceed the length of a cartridge, having a movement toward the magazine to project its teeth into the same and a movement backward to successively engage and separate the cartridges, together with an

operative mechanism to move such bar, substantially as described.

16. In a magazine fire-arm, the combination, with a magazine-tube, of a holding-bar provided with teeth or shoulders, a pivoted lever for imparting an upward and backward movement to said bar to project its teeth into the magazine and engage and hold the cartridges, and mechanism engaged by the extremity of the breech-operating lever to operate such bar, substantially as described.

17. In a magazine fire-arm, the combination, with a magazine-tube, of a toothed holding-bar capable of being moved toward the magazine to project its teeth into the same and then draw back to engage and separate the cartridges therein, a lever pivoted in the stock to engage and actuate the holding-bar, and the lever for actuating the breech mechanism, the end of which engages and actuates the first-named lever, substantially as shown and described.

18. In a magazine fire-arm, the combination, with a slotted perforated magazine-tube, of a

toothed holding-bar capable of being moved toward and from the magazine to project its teeth into the same and then draw back to engage and separate the cartridges therein, a pivoted lever for imparting said movements, and a spring to actuate said lever in one direction and return the parts to normal position, together with the breech-operating lever, whose end engages said pivoted lever to operate the same, substantially as and for the purpose described.

19. In a fire-arm, the combination of an operating-lever, a socket in the stock to receive the end of said lever, and a catch to retain the same therein, said catch consisting of a spring encircling said socket and having a tooth which projects thereinto through its walls, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR WILLIAM SAVAGE.

Witnesses:

JNO. M. HENDERSON,
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