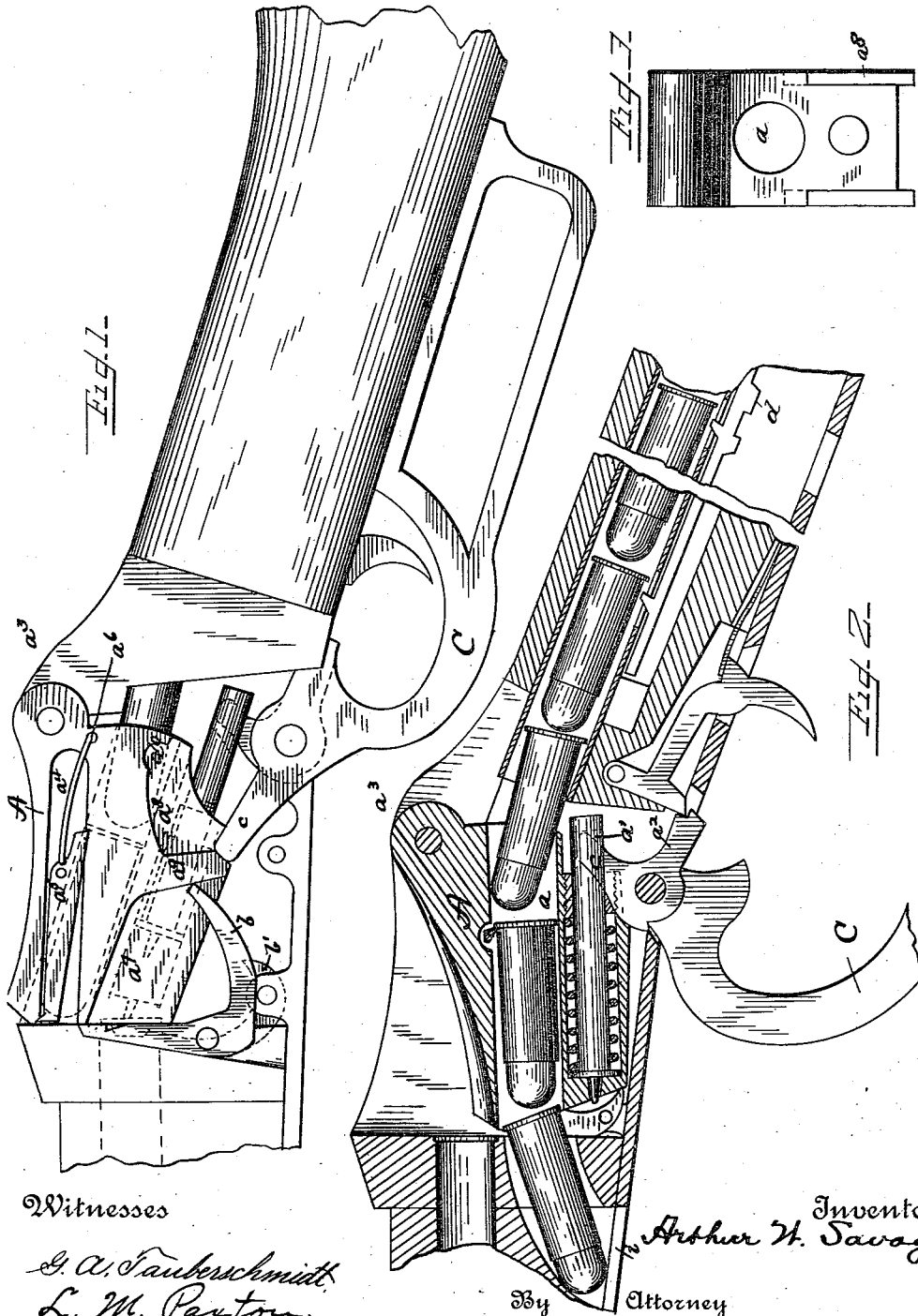


(No Model.)

A. W. SAVAGE.  
MAGAZINE FIRE ARM.

No. 378,525.

Patented Feb. 28, 1888.



Witnesses

G. A. Taubenschmitt  
L. M. Payton

By

Attorney

Inventor,

Arthur W. Savage

U. D. Stockbridge

# UNITED STATES PATENT OFFICE.

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

## MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 378,525, dated February 28, 1888.

Application filed November 11, 1887. Serial No. 254,938. (No model.)

### *To all whom it may concern:*

Be it known that I, ARTHUR WILLIAM SAVAGE, a subject of the Queen of Great Britain, at present residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Fire-Arms; 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 arms in which a breech-block pivoted at its rear end in the frame or receiver swings downward and backward to open the breech, commonly known as the "Martini-Henry" system. It is an improvement upon the arm patented to me by Letters Patent of the United States numbered 366,512 and dated July 12, 1887; and its object is to simplify and cheapen the construction.

In my former invention the breech-block was made in two parts, both swinging on the same pivot, with a passage between them for conducting the cartridges from the magazine in the rear stock to the chamber. In the present invention the breech-block is made in a single piece with a longitudinal opening through it, which forms a continuation of the magazine-tube and serves to conduct the cartridges to the chamber, as in the former case.

In the accompanying drawings, which illustrate my invention, Figure 1 is an elevation of an arm loaded and in condition for firing, with side plate removed. Fig. 2 is a section with the parts in position for charging the magazine, and Fig. 3 is a rear end elevation of the breech-block.

A designates the breech-block, which, as above indicated, is made in one piece, as usual in single-loaders of this class, and is pivoted in the frame at the rear end, to swing in a vertical plane to open and close the breech. The magazine is located in the rear stock, and is provided with the feeding-spring and with the holding-bar, as described in my former patent referred to.

The breech-block A has a longitudinal opening,  $a$ , through it, which forms a continuation of the magazine-tube, and through which the magazine is charged and the cartridges con-

veyed to the chamber. Below the opening  $a$  is the hammer-bolt  $a'$ , which is cocked through the operation of a dog,  $a^2$ , in the shape of a crank-lever, one arm of which passes through the rear end of the hammer-bolt and the other arm of which is engaged by the trigger to hold the parts in cocked position. The dog  $a^2$  is hung on the same pivot or bolt with the operating-lever C, by which it is turned when the latter is thrown down to open the breech, all as fully explained in my former patent referred to.

In order to provide for the opening or passage  $a$ , the breech-block is made deeper than in single-loaders, and the resisting-face is at the lower front corner, or diagonally opposite the pivot-pin  $a^3$ , upon which the breech-block swings. Thus when the breech is closed the forward part of the breech-block stands considerably higher than in ordinary cases, and the frame is also made somewhat higher than usual, so as to prevent the breech-block from projecting too much above the same.

In the side of the breech-block is a recess,  $a^4$ , in which is pivoted a detent,  $a^5$ , a lateral arm of which projects through an opening into the passage  $a$  and engages the flanges of the cartridges as they are successively fed forward. During the closing movement of the breech-block the forward end of the detent  $a^5$  is engaged by a shoulder on the rear face of the extractor  $b$ , by which the detent is rocked on its pivot and its lateral arm disengaged from the flange of the front cartridge, and the whole column is then free to be fed forward.  $a^6$  is a spring by which the detent is held in engagement with the cartridges till released by the extractor.

The extractor  $b$  has a long rearwardly-extending arm which is struck by the breech-block when the latter is thrown down to open the breech, whereby a strong leverage is exerted to start the spent shell from the chamber. On the opposite side of the arm is an ejector,  $b'$ , which is pivoted lower in the frame than the extractor, and whose rearward-projecting arm is shorter than that of the extractor. After the extractor has been turned to start the shell the continued movement of the breech-block causes the latter to strike the short arm

of the ejector, whereby a quick impulse is given to the shell to throw the same entirely out of the arm.

The breech-block is cut away at the sides, 5 as shown at  $a^7$ , to form recesses or spaces into which the arms of the extractor and ejector project. This provides for the necessary fall of the breech-block with the least depth of frame. At the rear the breech-block is also 10 provided with side recesses,  $a^8$ , in which the arms  $c$  of the operating-lever C work to open and close the breech. When the lever is thrown forward, the arms  $c$  bear against the rear walls of the recesses  $a^8$  and exert a leverage by which 15 the breech-block is thrown down, while the return movement of the lever causes the arms to bear against the front walls of the recesses, whereby the breech-block is raised. When the breech is fully closed, the arms  $c$  pass under 20 shoulders  $a^9$  at the sides of the breech-block and lock the latter in closed position.

The upper walls of the recesses  $a^8$  are curved, as shown, the curves forming arcs of a circle whose radius is equal to the length of the arms 25  $c$  of lever C, and whose center coincides with the axis of the lever when the breech-block is in position to bring the front end of the passage  $a$  into coincidence with the breech-chamber. At the rear upper corners of the recesses  $a^8$  are small auxiliary recesses  $a^{10}$ , which 30 permit the breech-block to fall to the position for charging the magazine, as illustrated in Fig. 2, and for operating the ejector to throw out the spent shell. When in this position, the 35 initial movement of the lever C to close the breech raises the breech-block far enough to bring the front end of the passage  $a$  into line with the chamber. Then the breech-block remains stationary till the arms  $c$  strike the front 40 walls of the recesses  $a^8$ , when it is further raised to fully close the breech.

The magazine is charged through an opening at  $i$  in the bottom of the frame and through 45 the breech-block, as represented in Fig. 2. A shoulder in the frame catches the first cartridge and holds it in the position indicated at  $i$ . When the next cartridge is inserted, the first is pushed back into the opening in the breech-block until its flange is caught by the 50 detent  $a^5$ , when the second will be caught and held in the position shown at  $i$ , and so on till the magazine is filled, the last cartridge being pressed back with the finger till its flange is caught by the detent.

55 The magazine being charged, the operation of the arm is as follows: When the operating-lever C is thrown forward, the holding-bar  $d$ , the teeth of which project into the magazine, is allowed to drop away from the latter and 60 release the cartridges, as fully explained in my former patent. Then the arms  $c$  press against the rear walls of the recesses  $a^8$ , by which the breech-block is drawn down and the breech opened. At the same time the dog  $a^2$  65 is turned on its pivot with the lever till its rear arm is engaged by the trigger. As the

breech-block approaches the limit of its downward movement, it first strikes the arm of the extractor  $b$  and starts the shell, if there be one in the chamber, and then immediately 70 strikes the arm of the ejector  $b'$ , by which the started shell is thrown entirely out of the arm. The return movement of the lever first raises the breech-block till the front end of the passage  $a$  coincides with the cartridge-chamber, 75 which is the loading position. Just before this position is reached the detent  $a^5$  is tripped and the cartridge within the breech-block released, so that it may move forward as soon as the loading position is reached. At this 80 point the breech-block remains stationary, while the arms  $c$  move forward along or in contact with the upper curved walls of the recesses  $a^8$  and until they strike the front walls to fully close the breech, as already explained. 85 This interrupted movement of the breech-block gives ample time for the cartridge to enter the chamber, and avoids all liability of its being caught by the rapid movements of parts during the earlier part of the movement of the 90 breech-block. The front end of the detent  $a^5$  is engaged by a shoulder on the rear face of the extractor, whereby it is rocked to release the cartridge held by its lateral arm. The continued movement of the block causes its front 95 end to press the extractor out of engagement with the detent, when the latter is thrown back into holding position by its spring  $a^6$ . The first cartridge having now passed the detent, 100 it is ready to be inserted into the chamber, and this is accomplished as soon as the opening  $a$  in the breech-block is brought into line with the chamber, the cartridge and those behind it being pressed forward by the feeding-spring in the usual manner. After the loading 105 is effected the breech-block continues its closing movement till the arms  $c$  pass under the shoulders  $a^9$ , when the arm is in condition for firing.

A gun with a breech-block having a passage 110 leading through the rear end to a groove or channel on top of the forward part, requiring special devices to guide the cartridges from the magazine to the cartridge-chamber, is not of my invention and is not herein claimed; 115 but

What I do claim is—

1. In a fire-arm, a block constituting a combined cartridge-conduit and breech-block made in one piece, pivoted at its rear end to swing 120 downward in opening and upward in closing the breech of the barrel, said block having a passage entirely through it, to form a closed conduit from the magazine behind to the cartridge-chamber in the barrel in front of said 125 block, substantially as described.

2. A block constituting a combined cartridge-conduit and breech-block made in one piece, pivoted at its rear end to swing downward in opening and upward in closing the 130 breech of the barrel, said block having a passage entirely through it to form a closed con-

quit from the magazine behind to the cartridge-chamber in the barrel in front of said block, in combination with an operating-lever arranged beneath the breech mechanism, substantially as described.

5 3. A combined cartridge-conduit and breech-block made in one piece, pivoted at its rear upper corner and swinging in a vertical plane to open and close the breech of the barrel, said  
10 block having a passage entirely through it to form a closed conduit from behind to the cartridge-chamber in front and carrying the firing mechanism, in combination with a magazine in the stock of the gun behind the block,  
15 and a lever for operating the breech-block arranged beneath the breech mechanism, substantially as described.

20 4. A combined cartridge-conduit and breech-block made in one piece, pivoted at its rear upper corner, having a passage entirely through it carrying the firing mechanism for igniting the charge, and a detent for normally arresting the cartridges in their forward movement.

but to release them one by one upon the upward movement of the block, in combination with the magazine in the rear stock and an operating-lever beneath the breech mechanism.

5. In a magazine fire-arm, the combination, with the chamber and with the magazine in the rear stock, of a swinging breech-block having a passage through it which forms a continuation of the magazine, and one or more side recesses, *a*<sup>s</sup>, and an operating-lever provided with one or more arms, *c*, which work in said recess or recesses to operate the breech-block, the top walls of the recesses *a*<sup>s</sup> being arcs of a circle concentric with the axis of the lever when the parts are in the loading position, substantially as and for the purpose described.

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

ARTHUR WILLIAM SAVAGE.

Witnesses:

EDWARD KENT, Jr.,  
C. SEDGWICK.