

JOSEPH RIDER.

Magazine Fire Arms.

No. 118,152.

Patented August 15, 1871.

Fig. 1

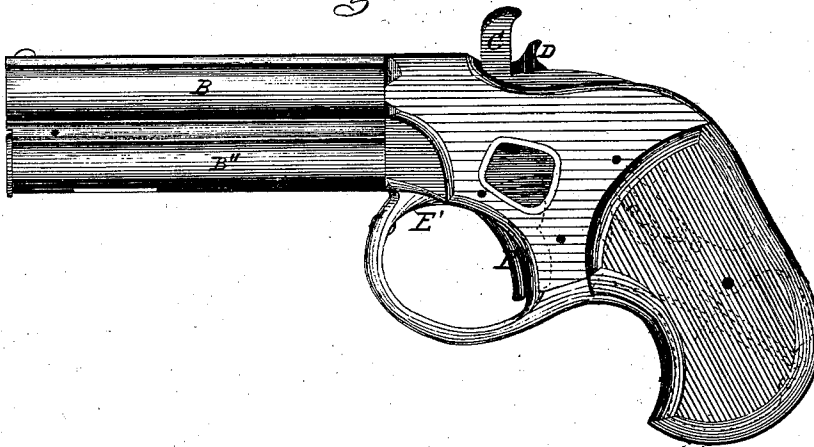


Fig. 2

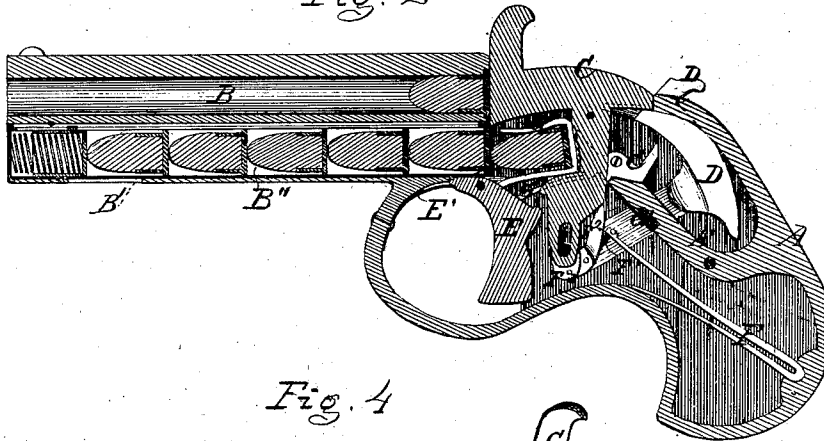
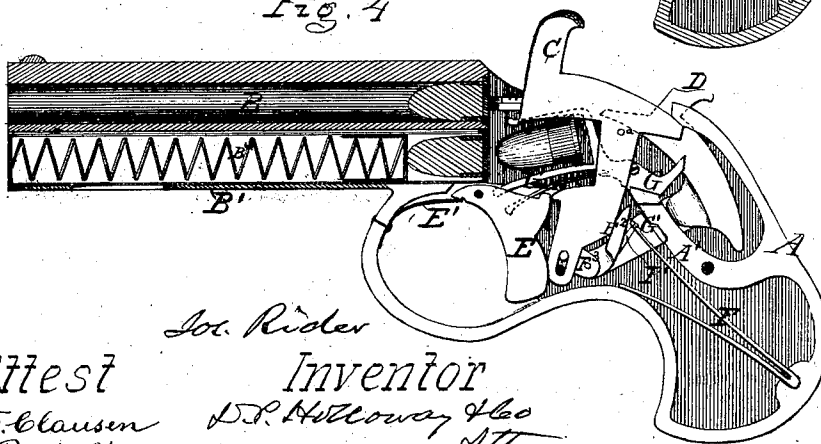


Fig. 4



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UNITED STATES PATENT OFFICE.

JOSEPH RIDER, OF NEWARK, OHIO.

IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. 118,152, dated August 15, 1871.

To all whom it may concern:

Be it known that I, JOSEPH RIDER, of Newark, in the county of Licking and State of Ohio, have invented certain Improvements in Magazine Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing making part of this specification, in which—

Figure 1 is an elevation of a pistol having my improvements applied to it, showing the parts in the position which they assume when the arm is discharged, it showing also the magazine for retaining the cartridges and the aperture for loading through the stock or handle. Fig. 2 is a vertical central section, showing a charge in the barrel, the magazine filled, and a charge in the carrier ready to be deposited in the barrel, the breech-piece and hammer being in position for discharging by pulling the trigger. Fig. 3 is a vertical central section, showing the expelled case, which has been discharged, a fresh charge in the carrier ready to be deposited in the barrel, the hammer in its cocked position, and the breech-piece in its rearmost or unlocked position. Fig. 4 is a vertical central section, showing a charge within the barrel, one in the carrier, and one in the magazine, the hammer being in its cocked position and the breech-piece in its intermediate position and in a state of rest, where it is held by pressing the trigger against it. Fig. 5 is a vertical central section, showing the position of the parts when the charges are inserted through the stock or handle. Fig. 6 is an elevation of the cartridge-carrier, showing also a portion of the stock, to which it is secured, the spring which in part controls its movement, and the spring which presses against the rear charge in the magazine. Figs. 7, 8, 9, and 10 are elevations—rear and top views of the breech-piece—Figs. 7 and 10 showing the retractor attached thereto. Fig. 11 is an elevation of the tumbler and a portion of the hammer, the stirrup-lever, the stirrup, and the mainspring. Fig. 12 is a rear view of a portion of the hammer, the breech-piece, the stirrup-lever, and the stirrup, and the pin or fulcrum upon which the hammer and breech-piece turn. Fig. 13 is a perspective view of the mainspring, showing its construction. Fig. 14 is a vertical section on line *yy* of Fig. 15, showing the trigger and sear. Figs. 15 and 16 are elevations of the trigger and sear, and showing how they are ar-

ranged with reference to each other. Fig. 17 is a rear view of the same. Fig. 18 is a side view of the hammer and of the sear, showing the construction of each and their arrangement with reference to each other, the dotted lines showing the hammer in its cocked position, where it is held by the sear. Fig. 19 is a section on line *xx* of Fig. 18. Figs. 20 and 21 are side views of the hammer and breech-piece, showing their arrangement with reference to each other. Fig. 22 is a view, partly in elevation and partly in section, of the magazine, it being shown as filled with cartridges. Fig. 23 is a section of the magazine and a portion of the arm, showing the telescope-tube drawn out and the cartridge being inserted.

Corresponding letters refer to corresponding parts in all the figures.

This invention relates to magazine and breech-loading fire-arms; and it consists in the construction, combination, and arrangement of some of the parts of which it is composed, as will be more fully explained hereinafter.

In constructing pistols with my improvements connected therewith I use for the stock or handle a frame-work, *A*, of metal or other suitable substance, of the form shown in the drawing or of any other form adapted to receive and hold in position the parts which are to be attached to it. I prefer, however, to construct this frame substantially as shown in the drawing, as it affords the means of readily securing in position the mainspring by inserting it in a groove in the rear end thereof; and it also furnishes the means for holding the carrier which carries the charges from the magazine to the barrel in position, this being effected by the curved bar or web *A'*, which is attached to the frame *A* and extends inward for some distance, it being of such width as to form supports to which to attach the side plates of the stock or handle. Owing to the fact that this portion of the bar *A'* is of the same width as the outer bar of the frame, the plates may be secured thereto without causing them to be bent or broken by the screws which secure them. From the point where the side plates are attached this bar or web is reduced in thickness to enable it to pass between the breech-piece and the hammer and hold the carrier and its spring in their proper positions. This frame also forms the guard for the trigger, and to it the barrel and

the magazine are attached, its front portion forming a receiver for the charges when it is loaded through the receiver, and without drawing out the magazine-tube. The barrel B may be of any desired form and length and be attached to the receiver or frame A in any suitable manner. The tube or receptacle B' for the magazine may form a part of the barrel, it having a hole bored in it for that purpose, or it may consist of a separate tube, to be brazed, soldered, or otherwise fastened to the under side of such barrel, as shown. In this tube B' the magazine B'' is inserted, it being provided with a spiral spring, which is capable of being contracted into a short space, as shown in Fig. 2, and of expanding so as to carry backward all of the charges and deliver them into the carrier, as shown in Fig. 4. The outer end of this tube is provided with a cap for the spring to rest against, and the encircling tube has an aperture through which to insert the charges, as shown in Fig. 23. It also has a portion of its surface slitted, so that it can be bent outward and form a spring to keep it from moving too easily in the tube B', as shown in Fig. 22. At the inner end of this tube a guide-pin is placed, which prevents it from turning while being moved in the tube B' and from being entirely withdrawn therefrom, the last-named tube being provided with a groove for the purpose of receiving said pin. The breech-piece C, being that part of the arm which receives the recoil, is constructed as shown in Figs. 7, 8, 9, and 10, or in any other suitable form, its position, when the arm is discharged, being that shown in Fig. 2, this being its most elevated position, it being shown in its lowest or most depressed position in Fig. 4, and in its extreme rearward position in Fig. 3. The peculiarity of the construction of this piece is that it has in its face, or in that portion which bears against the shell of the cartridge when it is in its position in the barrel, a slot for allowing the point of the hammer to pass through for the purpose of discharging the arm, and this slot also serves the further purpose of permitting the carrier to pass upward sufficiently far to deliver its charge or ammunition to the barrel. It will be seen that this breech-piece has two motions or movements, one in a vertical direction and then an oscillating or partially-rotating movement, the vertical movement being provided for by a slot, b, in its lower end, or in that portion through which the fulcrum-pin passes. Upon the rear side of this breech-piece and near its lower end there is formed an inclined plane or beveled portion, as shown in Fig. 2, it being for the purpose of allowing the stirrup-lever to raise it into the position shown in Fig. 2 after it has been moved back into the position shown in Fig. 3, for the purpose of cocking the arm, and again returned to its original position. The lower portion of this piece is made much thinner than the upper portion for the purpose of allowing it to be pivoted upon the same fulcrum with the hammer and yet allow the carrier to ply between them; it may, however, have two downwardly-projecting arms and allow the carrier and the hammer to ply between them. It will be observed that the upper

portion of this piece is of such form as to fit snugly a slot or space in the recoil-plate of the frame A, so that when in its most elevated position it will be supported by such frame or plate and receive the recoil of the discharge and transfer it to the recoil-plate of the frame without being moved out of its position. It also has a projecting thumb-piece upon it for operating it. This thumb-piece may, however, be placed upon the side of the breech-piece, or in any other position or place where the breech-piece can be operated by it. The construction of the hammer D is shown in Figs. 18 and 19, where it will be seen that its lower end is provided with what constitutes a tumbler, to which the stirrup-lever is attached, and also that it is provided with a notched projection, into or against which the sear falls to hold it in its cocked position. Upon the upper front portion of this hammer there is a projecting point which, in discharging the arm, passes through the slot in the breech-piece and comes in contact with the rear end of the cartridge-case and causes the contents to be ignited. The projection upon the lower end of the hammer, which serves as a tumbler or lever, is slotted to receive the stirrup-lever, as shown in Fig. 11. The trigger E is shown in Figs. 15, 16, and 17, and consists of a piece of metal, which is pivoted to the frame A, it being cut away upon one of its sides so as to receive the sear E', as shown in Figs. 15 and 16, the sear being pivoted to it and so arranged that, as the trigger is drawn back for the purpose of discharging the arm, a shoulder formed thereon shall come in contact with the inner end of said sear and lift it out of the notch or away from the shoulder of the hammer, and thus allow the mainspring to throw the hammer forward. The spring F, to which the hammer D is connected, has its rear end supported in a groove formed in the frame A, from which point it extends to and is connected with the stirrup F', its front portion being reduced in width to allow it to pass between the breech-piece and the hammer, so that it may be thus connected. The stirrup is pivoted to the stirrup-lever at its lower end, and consequently the mainspring is used as a medium for raising the breech-piece to its most elevated position as well as for discharging the arm. The carrier G consists of a thin piece of metal of substantially the form shown in Figs. 2 and 6, its forward end being bifurcated so as to receive a cartridge, as shown in Fig. 2, and it also has an arm or spring, G'', projecting from its lower edge at about the angle shown, this arm or spring being for the purpose of pressing against the cartridge or case while it is in the magazine, so that the spring therein shall not throw the same back at any but the proper time. It also serves as a spring, which, when the charges are inserted through the aperture in the receiver, as shown in Fig. 5, may have its forward end pressed upward so as to permit them to be pushed forward into the magazine, and as each one is inserted and the pressure upon the spring is relieved it will spring downward and hold the charge in its place in the magazine, so that the carrier may have its forward end depressed for

the purpose of receiving the charges and carrying them up to the proper position to be inserted into the barrel, as the carrier cannot be thus depressed while a charge remains in the receiver below it; and in order that it may give the proper direction to the charge or ammunition the upper surface of the lower portion of the receiver, or that arm of it which is next to spring G'', is made convex or with a double-inclined surface, as shown, so that the ammunition or charge may assume a horizontal position when brought opposite to the aperture in the barrel. The rear end of this carrier is of the form shown, it having upon its rear end the double-beveled or V-shaped formation, the object of which is to provide the means of elevating the front end of the carrier when the breech-piece is moved backward, this being effected by means of a pin, a, passed through it or by a projection formed upon its inner surface, which is to be so arranged that when said breech-piece is drawn or forced back said pin or projection shall bear upon the beveled surface of the carrier and raise its front end into the proper position to bring the cartridge into a position to be forced into the barrel. Forward of the pivotal point of the carrier there is another beveled surface or inclined plane, formed by the upper arm of the carrier, against which the pin or projection upon the breech-piece bears when said breech-piece moves forward, and which depresses the forward end of the carrier so that it is out of the way of the hammer as it is forced forward to discharge the arm.

It will be seen that the construction of the carrier is such that when its front end is in its most elevated position the lower arm G'' thereof bears upon the rear end of the case next to it in the magazine and prevents it from being pushed backward, which, if allowed to occur, would prevent the carrier from being returned to its proper position for receiving another charge, which it does when in its lowest or most depressed position, the charge while in the carrier preventing those in advance of it from being pushed backward, until, by again elevating the carrier, its lower arm comes in contact with it and holds it, as above described.

To withdraw the metal case from the barrel, a retractor, H, is provided, which slides in a groove formed in the frame or handle A, as shown in Fig. 5. This retractor may consist of a thin piece of metal, its front end being split, as shown in Fig. 7, so that one portion may act as a spring for keeping it in its place, while the other portion is provided with a hook or projection, which, when the breech-piece is in the position shown in Fig. 2, passes in by and engages the flange upon the metal case which contains the charge, and thus withdraws it when the breech-piece is carried to the position shown in Fig. 3, in doing which the front end of the carrier is suddenly elevated and the case is thrown out as represented in that figure. This retractor is operated by the breech-piece, there being a recess in its side, as shown in Fig. 20, for the purpose of receiving a projection upon the face of the retractor. When the parts are in the proper position the inner surface

of the breech-piece is in contact with the retractor, which holds it in its groove, its projection entering a recess in the breech-piece, and thus the two are compelled to move together; and in order that the retractor may move in a straight line while that portion of the breech-piece to which it is attached is moving through the arc of a circle the recess in the breech-piece is made larger than the projection upon the retractor, so as to allow for the change of position necessary for such movements; and it is also of such form as to permit of the vertical movement of the breech-piece without imparting such motion to the retractor.

The operation of this arm is as follows: The parts having been constructed substantially as described and placed in the positions shown in Figs. 1 and 2, the first operation is to depress the breech-piece by pressing with the thumb upon the thumb-piece, the slot in its lower end permitting it to pass down in a vertical line far enough to permit its upper surface to pass beneath the recoil-plate of frame A. When this has been done, and while the thumb is upon the breech-piece, and the index-finger is upon the trigger, the breech-piece is pushed back into the position shown in Fig. 3, which operation carries back the hammer also to its cocked position. When in consequence of the force exerted upon the breech-piece through the mainspring acting upon the stirrup-lever, the moment the pressure of the thumb is released the breech-piece is carried forward, and when it arrives at its proper position it is carried upward by means of the stirrup-lever acting upon the inclined surface upon its rear edge and is permanently locked against the recoil-plate. Should the action of the spring at any time prove insufficient for causing the upward movement of the breech-piece the projection upon its front edge will be in contact with a projecting point upon the trigger, and a slight pressure thereon will carry it up to its proper position, and although some of the force of the mainspring has been expended in thus moving the breech-piece there will still be enough left in it to carry forward the hammer with sufficient force to cause the discharge of the arm. When the breech-piece has been returned to the position from which it started, pressure is applied to the trigger by means of the finger, which will carry its rear end backward, and the shoulder upon its upper end will come in contact with the sear and raise it so as to release it from its control of the hammer, which will at once be thrown forward, and its projecting point will pass through the slot in the breech-piece and against the case which contains the charge, and will cause its contents to be ignited. Should the hammer at any time or by any means be released from the control of the sear before the breech-piece has been returned to its most elevated position the arm could not be discharged for the reason that the point of the hammer could not project through the breech-piece far enough to come in contact with the case containing the explosive substance. For this reason the arm is rendered a very safe one, and can only be discharged when all of the

parts have been returned to their proper positions by the operator.

In loading this arm the telescopic tube which constitutes the magazine may be withdrawn far enough to admit the ammunition through the aperture in the side of tube B' and the charges inserted, when the tube may be returned to its closed position; or the charges may be inserted through the aperture in the side of the receiver in the frame, at which time the parts will be in the position shown in Fig. 5, where the breech-piece is shown as locked in a position intermediate between its most rearward and forward positions by a pin, c, which passes through the side plate of the handle and bears upon a spring on its inner surface, the pin and spring being so arranged that by pressing upon the outer end of said pin its inner end will come in contact with the breech-piece and hold it in the position shown while the charges are being inserted; after which by pulling the breech-piece back slightly the spring will throw the pin outward and the breech-piece will pass forward to its vertical position. In either case they will be taken by the carrier when its forward end is in its depressed position, and when the breech-piece is carried backward, so that, as its forward end is elevated, it will carry the charge up to the proper position, when, as the breech-piece is again returned, it will, in the act of being thus returned, take the same from the carrier and force it into the barrel; and this operation will be repeated as often as the breech-piece has the necessary movements imparted to it.

I have shown my improvements only as applied to a pocket-pistol, and have described them in connection with such a pistol, but it is evident that they are equally applicable to other types of pistols and to other forms of fire-arms; and I wish it to be understood that I do not limit my improvements to their application to any particular form or character of arms, but reserve the right to apply them to all forms to which they are applicable.

In using the term breech-piece in the following claims I intend to limit the meaning of the term to include only a breech-piece which is separate from and operated independently of the hammer, and not to include those cases in which one piece performs the double function of a breech-piece and hammer.

What I claim as my improvement in magazine fire-arms, and desire to secure by Letters Patent, is—

1. In combination, a magazine, a carrier for transferring the cartridge from the magazine to the barrel, and a breech-piece and hammer arranged to operate at one movement by means of a thumb-piece, substantially as set forth.

2. In combination with a magazine and breech-piece and hammer arranged to operate at one movement by means of a thumb-piece, a carrier, which transfers a cartridge from the magazine to the barrel, and at the same time expels the shell of the discharged cartridge, substantially as set forth.

3. A breech-piece, constructed with a slot or

recess, combined with and arranged to receive the carrier, and also the hammer, substantially as set forth.

4. A breech-piece, which has both a vertically-reciprocating and oscillatory motion, and provided with a thumb-piece, by which it is operated from above, in combination, in a magazine arm, with the carrier, substantially as set forth.

5. In combination with a recessed breech-piece, a thin carrier, arranged to be received in the recess in and operated by the breech-piece, substantially as set forth.

6. In combination, the breech-piece and a carrier, constructed with two beveled surfaces for throwing up the carrier with the backward movement of the breech-piece, and throwing it down with the forward movement of the same, substantially as set forth.

7. A carrier, constructed with a recess to receive the cartridge from the magazine, and an arm or spring to bear against the base of the cartridge remaining in the magazine when the carrier is thrown up, and also to permit the charges to be inserted through the receiver and hold them in position in the magazine after they are thus inserted, substantially as set forth.

8. In combination with the retractor, a breech-piece having a recess to receive a pin on the retractor, and admit of the two movements of the breech-piece, substantially as set forth.

9. A breech-piece, constructed with a beveled surface, acting in combination with the stirrup-lever and spring to raise the breech-piece, substantially as set forth.

10. In combination with the breech-piece C and hammer, a spring, which is arranged to perform the double function of raising the breech-piece and bringing down the hammer, substantially as set forth.

11. The combination of the spring-stirrup, and stirrup-lever with the tumbler, pivoted in relation to each other, substantially as set forth.

12. The arrangement of the projections upon the trigger and breech-piece in such relation to each other that the breech-piece may be raised by the positive action of the trigger, substantially as set forth.

13. The breech-piece trigger and sear, arranged as shown in relation to each other, so that the former cannot act upon the latter until the breech-piece has been raised to its proper position for the explosion of the cartridge, substantially as set forth.

14. The arrangement of the exploding-pin or point on the face of the hammer in such relation to the hole in the head of the vertically-reciprocating and oscillating breech-piece, through which the former so acts on the fulminate that the pin or point cannot be brought in contact with the cartridge unless the breech-piece is raised to its proper position, substantially as set forth.

15. A trigger, constructed with a recess to receive the carrier, and in combination therewith, substantially as set forth.

16. A web, A', constructed substantially as described, to support the plates of the handle and the carrier, and at the same time so as not to in-

terfere with the action of the breech-piece and hammer, and used in combination therewith, substantially as set forth.

17. In combination, with a magazine fire-arm, the carrier G, the upper surface of the lower arm of which, or of the arm which is next to the spring, has a convex or double-beveled surface for allowing the charge to assume a horizontal

position when brought opposite to the aperture in the barrel, substantially as shown.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

Witnesses:

JOSEPH RIDER.

D. P. HOLLOWAY,

B. EDW. J. ELLS.