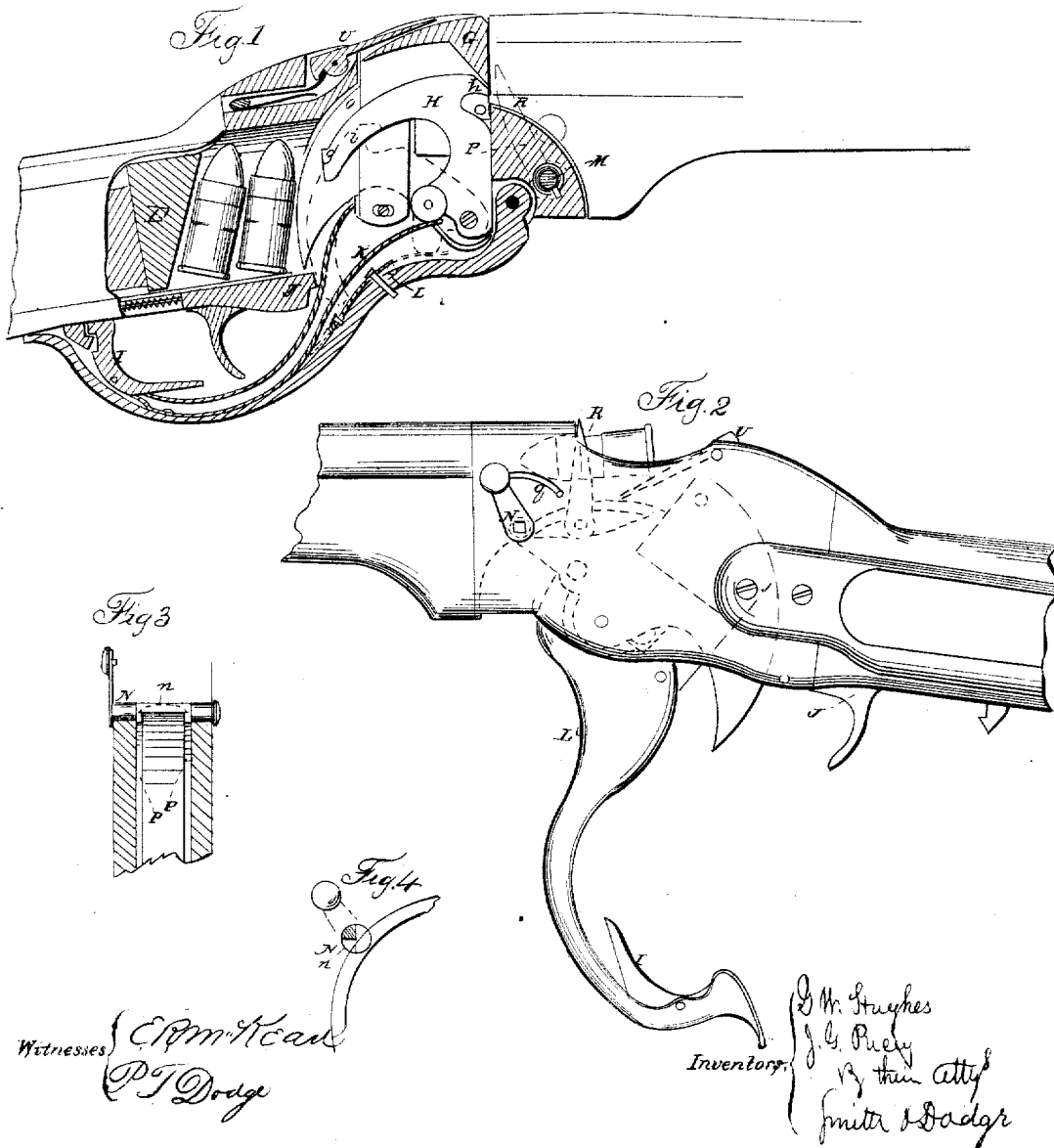


HUGHES & PUSEY.
Magazine Fire-Arm.

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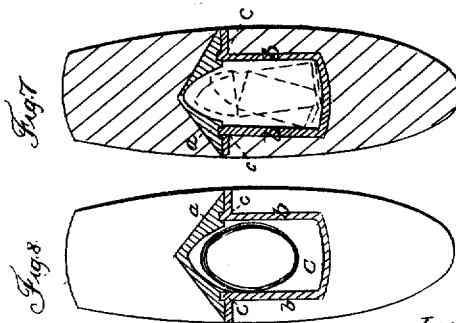
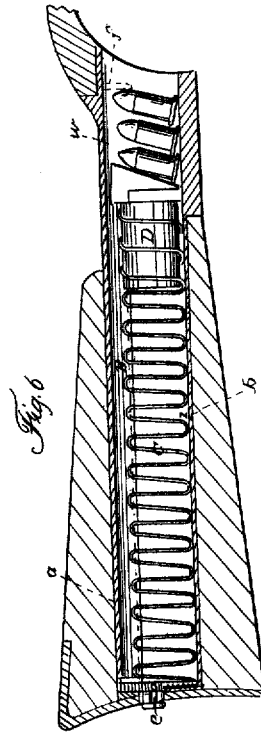
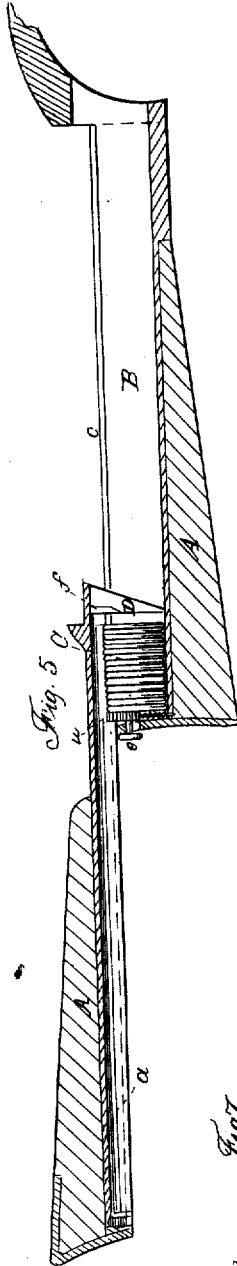
Patented Aug. 15. 1865.



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UNITED STATES PATENT OFFICE.

G. W. HUGHES AND J. G. PUSEY, OF PROVIDENCE, RHODE ISLAND,
ASSIGNORS TO BURNSIDE RIFLE COMPANY.

IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. 49,409, dated August 15, 1865.

To all whom it may concern:

Be it known that we, G. W. HUGHES and J. G. PUSEY, of the city of Providence and State of Rhode Island, have invented certain new and useful Improvements in Magazine Fire-Arms; and we hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, of which—

Figure 1 is a side elevation of the part containing the mechanism of the lock and cartridge-carrier, having the front broken away to show the internal arrangement. Fig. 2 is a side view of the same, showing the breech opened, ready to be used as a single breech-loader, and exhibiting the operation of a stop device for limiting the movement of the carrier-block. Fig. 3 is a plan, and Fig. 4 a sectional, view of the stop. Fig. 5 is a longitudinal vertical section of the stock and magazine, showing the latter opened, ready to be filled with cartridges. Fig. 6 is a similar view showing the magazine closed, with a portion of the cartridges in position. Fig. 7 is a vertical transverse section of the stock and magazine, showing the position of the cartridges; and Fig. 8 is a similar view, showing the oval spring used to feed the cartridges forward to the carrier block or frame.

The nature of our invention consists, first, in a magazine of novel construction, having no detached parts to be dropped or lost, and that will hold a large supply of ammunition; second, in carrier-frame of novel construction; third, in lock of peculiar construction and arrangement; fourth, in a stock of novel construction, and in various minor features to be hereinafter explained.

To enable others skilled in the art to construct and use our improved gun, we will proceed to describe it.

A in Figs. 5, 6, 7, and 8 represents the stock, made in the usual form, and divided transversely longitudinally, as there shown. This stock is then recessed or cut out in the direction of its length to receive the magazine, which is composed of two metallic pieces, *a* and *b*, the former being secured in the upper and the latter in the lower portion of the

stock, as clearly shown in Figs. 7 and 8, the main portion of the cavity being located in the lower part of the stock.

One of these metallic pieces is provided with grooves running longitudinally, and the other with corresponding flanges or projections *c* to fit therein, by which, when in place, the parts *a* and *b* are firmly locked together, but in such a manner as not to interfere with the longitudinal movement of the part *a*, as indicated in Fig. 5, the parts *a* and *b* being firmly secured to their respective portions of the stock A.

Within the magazine thus formed is located a spiral spring, C, which is oval in its cross-section, as shown in Fig. 8.

To the front of this spring C is attached a follower, D, the front end of which is inclined or beveled, as shown in Figs. 5 and 6, for the purpose of pushing or feeding the cartridges forward to the carrier-frame and presenting them in an inclined position thereto, as shown in Fig. 5.

Near the front end of the cap *a* of the magazine two pins or lugs, *f*, are secured in such a position as to fit into recesses on either side of the follower D, so that when the upper portion of the stock, with cap *a*, is drawn back the follower D is also forced back with it, compressing the spring C in the rear portion of the magazine, as shown in Fig. 5, whereby the magazine is opened, ready to receive its supply of ammunition.

A catch-bolt, *e*, operated by the knob *e*, serves to hold the cap *a* in place when the magazine is closed, and also to hold it open when the magazine is to be filled, the bolt *e* engaging in the recess *w* in the latter case.

The top of the magazine is arched and its bottom is made concave, as shown in cross-section in Figs. 7 and 8.

The cartridges are placed on end, and the concave bottom allows them to assume the positions indicated in dotted lines in Fig. 7, by which means they are packed closely, the flanges overlapping one another, as shown in Fig. 6.

This concave bottom is specially adapted to central-fire cartridges, as it is evident that if such be used their central base points containing the fulminate will not rest upon the bot-

tom of the magazine, and there will be less danger of accidental explosions from any fall or jar to which the arm may be accidentally subjected.

The stock A and the barrel F are firmly connected by a metallic breech-frame, E, which is cut out internally of such shape as to adapt it to receive the carrier-frame P and breech-block G, which, together with the hammer H and retractors R, are located therein, between the front end or mouth of the magazine and the rear end of the barrel.

The carrier-frame P is constructed of two segments of a circle, the front one being smaller or of less diameter than the other, and made solid or united on its periphery. The rear segment consists of two side pieces having a space between them of proper size and shape to permit the hammer H to be located therein, these portions being formed by an extension backward of the sides of the front segment, the rear portion being enlarged so as to form the arc of a larger circle, as indicated in Figs. 1 and 2, in the former of which figures this carrier-frame, together with the hammer H and breech-block G, are shown in place by a vertical longitudinal section. This carrier-frame is pivoted at a' .

The breech-block G consists of a solid block of metal of proper shape and size to cover the rear end of the barrel and fill the opening through the upper portion of the breech-frame when in place. The interior of this block G is recessed or cut out for the purpose of giving room for the upper portion of the hammer H, as shown in Fig. 1.

A small opening extends from the recess through to the front face of said block G near its lower edge, through which the nose h of the hammer strikes the flange of the cartridge at the lower side of the bore of the barrel; or by raising the hole and the nose of the hammer correspondingly, the cartridge may be struck at the upper side of the flange, or the parts may be so arranged as to have the hammer strike the cartridge at the center of the bore in case central-fire cartridges are used.

From the lower side of the breech-block G two arms, Y, project downward through the carrier-frame P, below which they are pivoted to the lever-guard O by the pin i' . These arms Y are made flat, and are recessed into the inner sides of the curved plates or side pieces forming the carrier-frame, so as to be flush therewith, and thus leave ample space and form no obstruction to the movements of the hammer H playing back and forth between them.

The upper edge of the carrier-frame has a rectangular notch cut therein of proper size to receive the breech-block G, the top of which is so curved as to form a continuation of the larger arc of a circle formed by the rear portion of the carrier-frame, as clearly shown in Fig. 2.

The arms Y are of such a length as to permit of a limited vertical movement of the

breech-block G independent of the carrier-frame P, which movement is necessary to allow said block to be forced up between the front and rear walls of the opening in the upper side of the breech-frame E, and thus be securely locked in place.

The hammer H is constructed as shown in Fig. 1, and being located in the interior cavity of the carrier-frame, as already described, is pivoted centrally upon the pin a' , upon which the carrier-frame is also pivoted.

A notch or projection, g , is provided, as shown in Fig. 1, near the rear end of the head, in which the dog or trigger J engages when the hammer is pulled or forced back, and thus holds it at full-cock ready for firing.

The mainspring K is located within the lever-guard O, which is chambered or recessed for that purpose. The guard O is made deep enough to allow the requisite play to the spring and allow the same to be covered by a piece or cover fitted in or upon the upper edge of the lever-guard, as indicated in Fig. 1; or the spring may have its edges nicely fitted to the side of the guard flush with its upper side, and thus obviate the necessity of any cover.

The spring K is secured by a screw or in any suitable manner to the rear portion of the guard at r , the rear end of the spring extending back of said point of attachment, and serving to operate the catch I, which locks the lever-guard up in position when the parts are in place ready for firing the arm.

The front end of the spring K extends forward far enough to come under the friction-roller e' , pivoted to the rearward projection of the hammer H, as fully shown in Fig. 1.

In the bottom of the recess in the guard O, and underneath the mainspring K, is attached a short spring, m , to which is attached a pin, L, the body of which rests in a hole through the lever-guard O. When the hammer H is cocked the mainspring K is pressed down upon the spring m , and thereby causes the end of this pin L to protrude through the hole and project outside of the lever-guard O, as indicated by the blue lines in Fig. 1, which represent the position of these parts when the gun is cocked. As the hammer is located inside of the carrier-frame, and out of sight of the person using the arm, this serves to inform him whether or not the gun is cocked, and thus also to prevent accidental discharges.

R represents the retractors, there being one on each side of the front segment of the carrier-frame, the two being rigidly secured to a pin, M, passing transversely through the front portion of the carrier-frame, as shown in Fig. 1. A spiral or coiled spring, o' , is located in a recess or annular chamber surrounding said pin M, and has one end attached to the pin, the other end being secured to body of the carrier-frame, by which means the retractors are kept pressed forward against the rear end of the barrel, as shown in Fig. 2, until by the rotation of the carrier-frame the shoulders at the front of the recesses in which the retractors

R work come in contact with the front edge of the retractors and carry them bodily backward with the carrier-frame P as the latter continues its backward motion.

In order to convert the arm at will from a repeater to a single breech-loader we add the stop N, which consists of a small rod or pin extending entirely through the stock or breech-frame underneath the barrel, and just in front of the front segment of the carrier-frame, as indicated by N' in Fig. 1, the hole in which it is seated being so located as to be bisected by the front wall of the recess or chamber in which the front segment moves. The body of this pin N is cut away to one-half of its thickness, as shown at n, Fig. 3, for a distance equal to the thickness of the carrier-frame, as there shown, in which case it is obvious that if the pin N be turned, as it may, by the lever-arm and knob l, so as to bring the remaining half outside of the line of the front face of P, the latter can be moved, as usual, to its full extent, its periphery passing readily through the space formed by cutting away one-half of the pin N, as already described. One-half of the remaining half of the body of the pin is then cut away in a similar manner, as shown in section in Fig. 4, but for a less distance, the cut stopping short at each end, and leaving the shoulders s s projecting inward a short distance beyond the shoulders p p, formed by the first cut, as shown in Fig. 3. A groove or recess, n', is also cut in each side of the front segment along its edge for a distance equal to the movement of the carrier-frame when it is intended to use the arm as a single breech-loader, and into these recesses or grooves the shoulders s fit when the stop is turned, as shown in Figs. 2 and 3. As the grooves n' do not extend to the lower edge of the front segment, but terminate in a shoulder at y, it is obvious that when the carrier-frame is rotated backward, with the stop so turned as to bring the shoulders s s out into the recesses n', the rotation or movement of the carrier-frame must cease the instant that the shoulder y is brought in contact with the shoulder s, in which case the lever-guard and carrier-block will occupy the position shown in Fig. 2. It will be seen that by this arrangement the motion of the carrier-frame is arrested before the mouth of the magazine is opened, and that while the parts are in this position a cartridge can be inserted into the rear open end of the barrel by hand, as shown in Fig. 2, and the contents of the magazine be thus retained for an emergency or any desired future use; and thus by simply moving the knob l from one to the other end of the groove g, Fig. 2, the arm can instantly be converted from a magazine or repeating arm into a single breech-loader, or vice versa, at the pleasure of the operator.

To facilitate the insertion of single cartridges by hand the upper portion of the breech-frame E is cut away, as shown at z, Fig. 2.

The operation is as follows: The magazine being filled with cartridges, the finger or thumb is pressed upon the catch I, which releases the lever-guard O, which is then thrown downward and forward. As the guard O begins to move the breech-block G is drawn down out of the mortise or opening in the top of the breech-frame E, whereby the parts are unlocked, when, by a further movement of the guard, the carrier-frame P and breech-block G are rotated backward upon the pivot a' until the front face of G is brought upon a line with the bottom of the magazine, when a cartridge is forced forward out of the magazine upon the carrier-frame in front of G, the base of the cartridge resting upon the face of G. At the same time the hammer H is carried back with the carrier-frame until its projecting point g is caught by the dog J, by which means the gun is cocked simultaneously. The movement of the lever O is then reversed, by which the carrier-frame and breech-block are rotated forward, and, of course, carrying with them in their movement the cartridge resting thereon, which is thus forced into the chamber at the rear end of the barrel, the hammer being retained by the dog J. As the lever O is brought back into position the face of the breech-block G is forced up against the end of the barrel, the block G being at the same time forced up into the opening in the top of the breech-frame E, by which means it is securely locked in place, and the arm can then be fired by simply pulling the trigger in the usual manner. In a similar manner the operation may be repeated as often as desired, the retractors each time removing the empty shell of the exploded cartridge as the lever is thrown forward.

If at any time it is desirable to uncock the gun it can be readily done by simply throwing the end of the lever-guard down a short distance and pulling the trigger, the first movement of the guard serving to draw down the breech-block G, so that the solid portion below the hole through which the nose of the hammer strikes will impinge upon the beveled or inclined portion of the hammer, and thus force it back away from the cartridge. Hence, if the trigger be pulled at any time when the breech-block is drawn down against the top of the carrier-frame, the body of the hammer will strike against the point x, and thus prevent the nose from striking through the hole. This is also a sure preventive of premature discharges, as the nose of the hammer cannot enter the hole until the breech-block is shoved entirely up and securely locked in place.

By this construction and arrangement of the various parts we obtain a most perfect arm—one that will contain, at least, twenty cartridges in its magazine; that can be fired very rapidly; is very compact, and free from all irregular projections, such as the ordinary gun-hammer is when located externally. These features render the arm well adapted to mili-

tary purposes, especially in the hands of mounted men; also, for use in the woods or as a sporting arm.

Having thus described our invention, what we claim is—

1. The magazine B, having a concave bottom, as shown, with the sliding cover constructed as described, so combined and arranged that the magazine can be filled without detaching any of the parts.

2. In combination with the magazine B, the oval spring C, substantially as described.

3. The bevel-faced follower D, in combination with the cap *a*, provided with the fingers *f*, arranged and operating substantially as and for the purposes set forth.

4. The carrier-frame P, cut away internally to permit the location of the hammer therein, substantially as shown.

5. The breech-block G, when recessed as shown and described, and having a hole for the nose of the hammer to strike through, as set forth.

6. The hammer H, constructed as shown, and located inside of the carrier-frame and breech-block, as and for the purpose set forth.

7. We claim locating the mainspring K in the lever-guard O, substantially as shown.

8. The indicator L, operating substantially as set forth, for the purpose of showing when the gun is cocked.

9. The coiled spring *o'*, located in the annular recess surrounding the shaft M of the retractors, as and for the purpose set forth.

10. The stop N, constructed and operating as herein set forth.

11. We claim making the under side of the sliding cover of the magazine concave or arched, substantially as shown, to fit it to the form of the bullet.

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