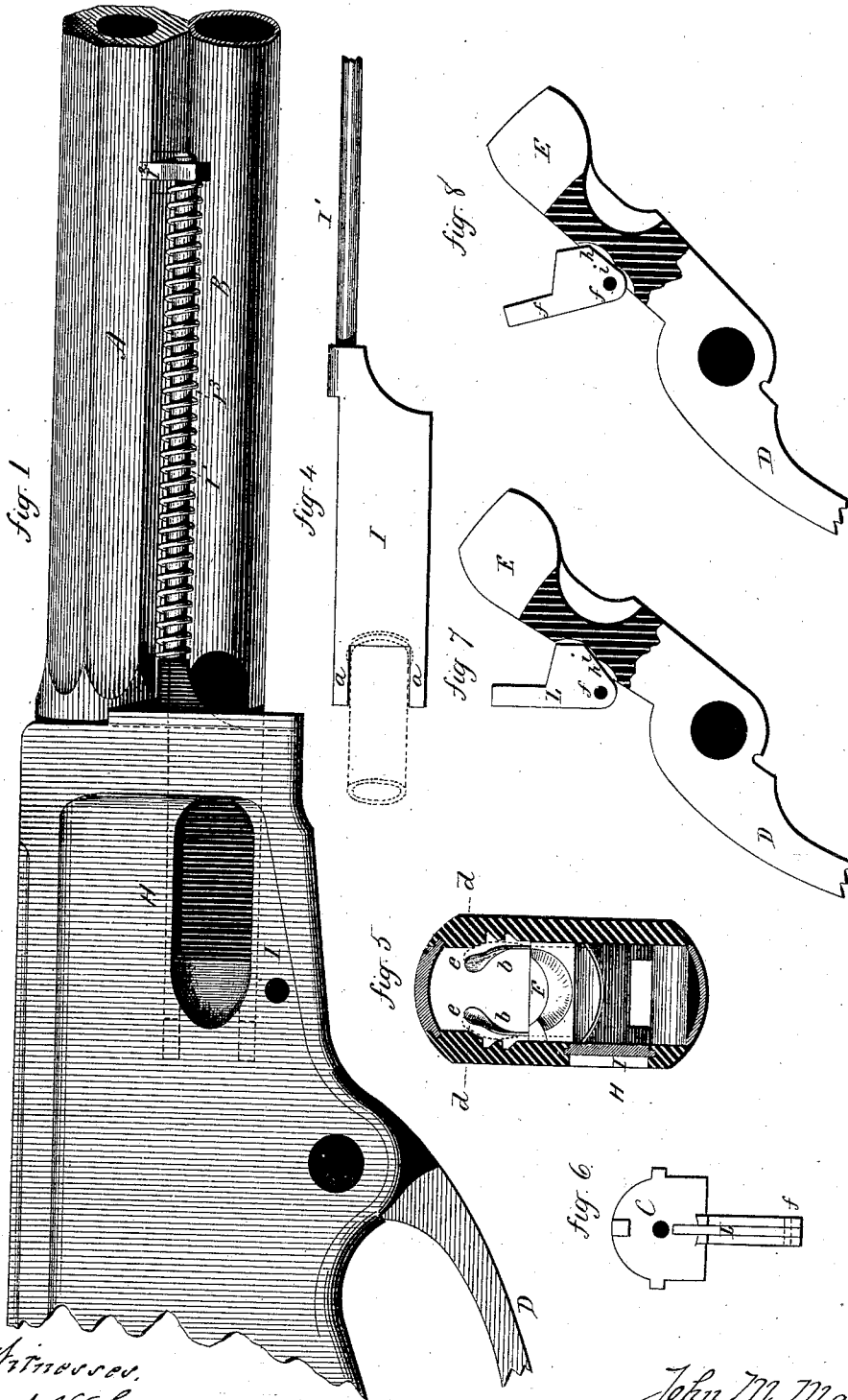


J. M. MARLIN.
Magazine Fire-Arm.

No. 222,414

Patented Dec. 9, 1879.



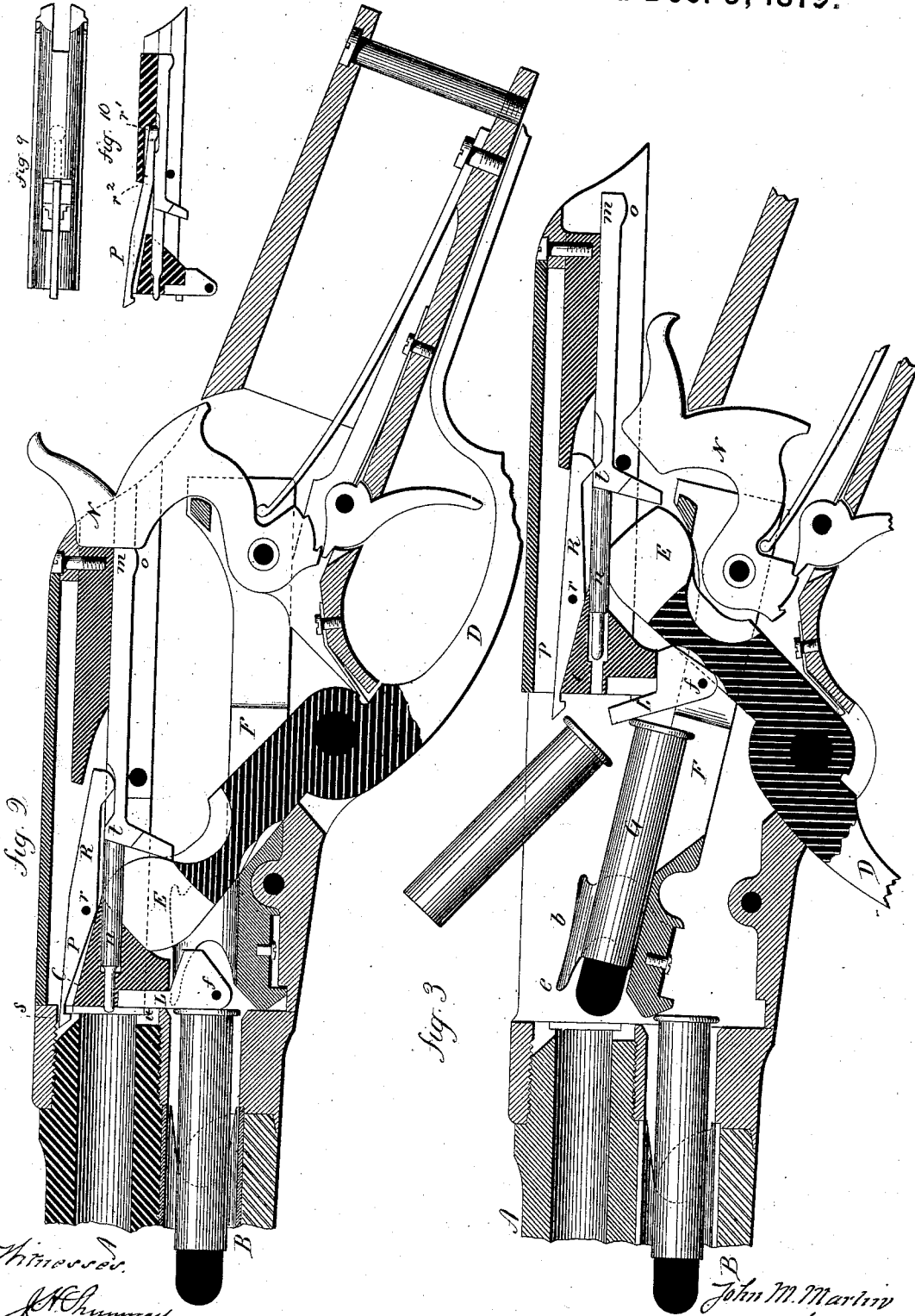
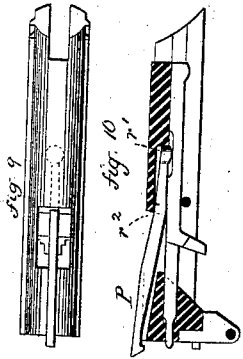
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UNITED STATES PATENT OFFICE.

JOHN M. MARLIN, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. **222,414**, dated December 9, 1879; application filed June 18, 1879.

To all whom it may concern:

Be it known that I, JOHN M. MARLIN, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Magazine Fire-Arms; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, which said drawings constitute part of this specification, and represent, in—

Figure 1, side view, with the wood shield removed from the magazine; Figs. 2 and 3, longitudinal sections in different positions; Fig. 4, slide detached; Fig. 5, transverse section at the forward end of the mortise in the frame, looking to the rear, and showing the forward end of the carrier-block; Figs. 6, 7, and 8, detached views; Figs. 9 and 10, modification of the extractor.

This invention relates to an improvement in that class of magazine fire-arms in which the magazine is arranged beneath the barrel, and a carrier provided at the rear to transfer the cartridge from the magazine to a position substantially in line with the rear open end of the barrel, from which they are moved forward into the barrel by the advancing bolt, which also serves to close the breech, and particularly to an improvement in the arm for which Letters Patent were granted to Andrew Burgess, dated November 26, 1878, No. 210,181; and the invention consists in the construction and arrangement of parts, as hereinafter described, and particularly recited in the claims.

A is the barrel, open at the rear; B, the magazine, also open at the rear; C, the longitudinally-sliding bolt or breech-piece, operated by a lever hung below, one arm, D, of which forms the trigger-guard, and the other arm, E, working in a slot in the breech-piece, moves the breech-piece from the closed position seen in Fig. 2 to the open position seen in Fig. 3, and return, the arm E in the closed position forming a brace against a shoulder in the breech-piece, as seen in Fig. 2; F, the carrier, also operated by the arm E of the lever, so that as the breech-piece is opened a cartridge will follow it from the magazine onto the carrier, and then, during the last part of the opening movement, the carrier will be raised, as seen in Fig. 3, to present the cartridge G

in a position forward of the breech-piece and in line with the barrel, and so that when the breech-piece is closed the cartridge will be forced forward from the carrier into the barrel, and then during the last part of the closing movement the carrier will be dropped, all as in the said Burgess patent. In that arm, as also in several other magazine-arms of this class, an opening, H, is made through the side of the frame in line with the magazine, so that, pressing forward the slide which covers it, the mouth of the magazine will be exposed for the introduction of cartridges. This slide is usually provided with a spring, the tendency of which is to force the slide to its closed position, and so that to introduce cartridges the point of the cartridge is placed against the slide and pressed forward, forcing the slide forward and permitting the cartridge to pass beneath it into the magazine. This slide has usually been arranged in connection with the magazine, and dependent upon it as a guide or support, and any slight displacement of the magazine causes the slide to bind and interfere with the proper working of the arm. To overcome this difficulty I construct the slide I with a long tail-piece, I', (see Figs. 1 and 4,) parallel with the barrel, and supported at its forward end by a lug, I², on the barrel, as seen in Fig. 1, and entirely independent of the magazine, the slide itself guided in the frame, as seen in Fig. 5. Around the tail-piece a spiral spring, I³, is arranged, the tendency of which is to hold the slide in its closed position, as seen in Fig. 1. By thus arranging the slide and supporting it with its spring independent of the magazine, and by parts of the arm, which by no possibility can be displaced, the operation of the slide is of the freest character under all conditions.

Another difficulty experienced in this method of charging the magazine arises from introducing cartridges head first into the magazine, the introduction being as easy one way as another. To avoid this difficulty I construct the slide with a finger, a, on both the upper and lower sides, projecting from the rear end, as seen in Figs. 1 and 4, and distant from each other less than the diameter of the head of the cartridge. The cartridge is therefore introduced between the fingers and inserted point first, the operation being precisely

the same as if the fingers were not present; but if by mistake the head of the cartridge be presented and pressed forward it will force the slide forward, but the head, because of its being broader than the space between the fingers, will be stopped by the fingers, as indicated in broken lines, Fig. 4; hence it is very difficult to introduce the cartridge head first into the magazine.

Near the forward end of the carrier there is arranged a pair of spring-fingers, *b b*, one at each side, and between which the cartridge passes from the magazine onto the carrier. These fingers extend up over the cartridge, as seen in Fig. 5, so as to prevent the cartridge from being thrown too high up, or out of position, by a quick upward movement of the carrier; but as these fingers must fall with the carrier, and before the cartridge is inserted into the barrel, they must yield so as to open in passing down each side of the cartridge; hence it is desirable to make the springs very light—so light that there is a possibility of the cartridge being forced upward and away from them by the momentum given to the cartridge by a very sudden or quick movement of the lever. To avoid this possibility the springs are bent outward at their upper ends, as seen at *e*, Figs. 2 and 5, so that they will strike the sides of the mortise in the frame before they would open far enough to permit the cartridge to pass out. Below this point, which is at *d*, the mortise in the frame is made wider, as seen in Fig. 5, and so that as the carrier falls the upper ends of the fingers *b b* may spread into this widened portion and freely pass the cartridge.

L is the ejector, which consists of a lever hung to the breech-piece upon a pivot, *f*, similar to the ejector in the Burgess patent before referred to; but in the Burgess patent the ejector is operated by a stationary stud or projection on the frame, against which the ejector strikes just before the opening movement is completed, so as to force the cartridge or shell from the extracting devices. This necessitates a complicated construction of the ejector, which I simplify by making the ejector a plane piece and hanging it free upon the pivot *f* in a slot in the breech-piece, as seen in Fig. 6, and on the rear edge of the ejector-piece an incline, *h*, is formed, and which, as the breech-piece approaches its extreme opening movement, strikes a cam-shaped point, *i*, on the lever, as seen in Fig. 7. At that time the breech-piece is moving longitudinally, while the lever is tending downward; hence the movement of the breech-piece longitudinally is faster than the point *i* on the lever, and the inclined part of the ejector will ride upon the point *i* on the lever and cause the ejector to be thrown forward, as seen in Fig. 8, and with sufficient force to eject the shell, as seen in Fig. 3, thus avoiding any stationary connection between the ejector and the frame.

The firing-pin *n* is arranged substantially as in the Morse arm, and in like manner retracted

by the lever before the breech-piece opens, and so as to remain in that condition until the breech-piece is completely closed, and then is driven forward by the hammer *N*. The rear end, *m*, of the firing-pin works against the hammer to force it to full-cock in the opening of the breech-piece in the usual manner. Usually in this construction the firing-pin bears or rides upon the hammer throughout its entire movement, both in opening and closing. To avoid this I make a projection, *o*, upon the under side of the rear end of the firing-pin, which is sufficient to force the hammer to full-cock; then passing from it, as in Fig. 3, it avoids contact between the hammer and firing-pin throughout the remainder of its movement, both in opening and closing.

The extractor consists of a lever hung to the breech-piece on a pivot, *r*, its forward arm, *P*, constructed with the usual hook-shaped end *s* to act as a latch to pass over and drop in front of the flange of the cartridge. This extractor is usually made elastic, hence is not positive, because if an obstruction be offered equal to the elasticity it will fail to fall into its position forward of the flange, or will slip off from the flange when an attempt is made to extract the cartridge.

To make the action of the extractor positive it is hung free upon the pivot *r*, and the arm *R* extends to the rear into the path of the shoulder *t* on the firing-pin, and so that in rear of the said shoulder the extractor is free to vibrate up and down.

When the breech-piece is forced forward, as seen in Fig. 2, the extractor-hook lies forward of the flange, and may or may not drop into position in front of the flange; then, by the rear movement of the firing-pin, produced as before described, before the breech-piece begins to move, the shoulder *t* on the firing-pin passes beneath the rear end of the extractor-lever, and forces the forward end down, as seen in Fig. 3, holds it there until the breech-piece is fully withdrawn and its return or forward movement commences, and thus holds the cartridge or shell which it has engaged in the barrel firmly against the breech-piece and the projection *u* below until it is ejected, as before described.

The pivot *r* for the extractor may be dispensed with by the construction seen in Figs. 9 and 10. The forward part of the extractor-lever remains the same; but at the extreme rear the end *r'* is enlarged, and in the breech-piece is a groove terminating at the rear in a recess corresponding to the enlargement *r'* of the extractor-lever, as seen in Fig. 9, but so as to allow the rear end of the lever to play freely up and down.

At the forward end of the groove, as at *r''*, the lever takes a seat or bearing which is practically the fulcrum on which the lever turns, being held up to its place by the firing-pin below, and by the enlargement *r'* prevented from longitudinal movement.

I claim—

1. In a magazine fire-arm, the combination of the barrel and magazine, both opening to the rear, with a charging-opening in the side of the frame in rear of the magazine, and a slide operating to close said charging-opening and guided in the frame, and a tail-piece extending forward from said slide and supported forward directly on the barrel and independent of the magazine, substantially as described.

2. A magazine fire-arm having the magazine-charging opening closed by a slide, the said slide constructed with fingers at its rear end, and projecting rearward distant from each other less than the diameter of the head of the cartridge to be introduced, and substantially as described.

3. In a magazine fire-arm, the spring-fingers *b*, arranged on the carrier, with their projecting ends *c*, combined with the mortise in the frame, made broader downward from a point

immediately below the point where the said fingers are in their most elevated position, and whereby the said fingers are rigidly held over the cartridge in the elevated position, but free to expand, substantially as and for the purpose described.

4. In a fire-arm, the combination of a longitudinally-sliding breech-bolt, the lever by which said bolt is moved, formed at the point of engagement with the ejector, substantially as described, and pivoted to the frame of the gun, and the ejector pivoted in the breech-bolt and arranged to strike the lever near the extreme opening of the breech-bolt and be thereby turned upon its pivot to expel the cartridge-shell, substantially as set forth.

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Witnesses:

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