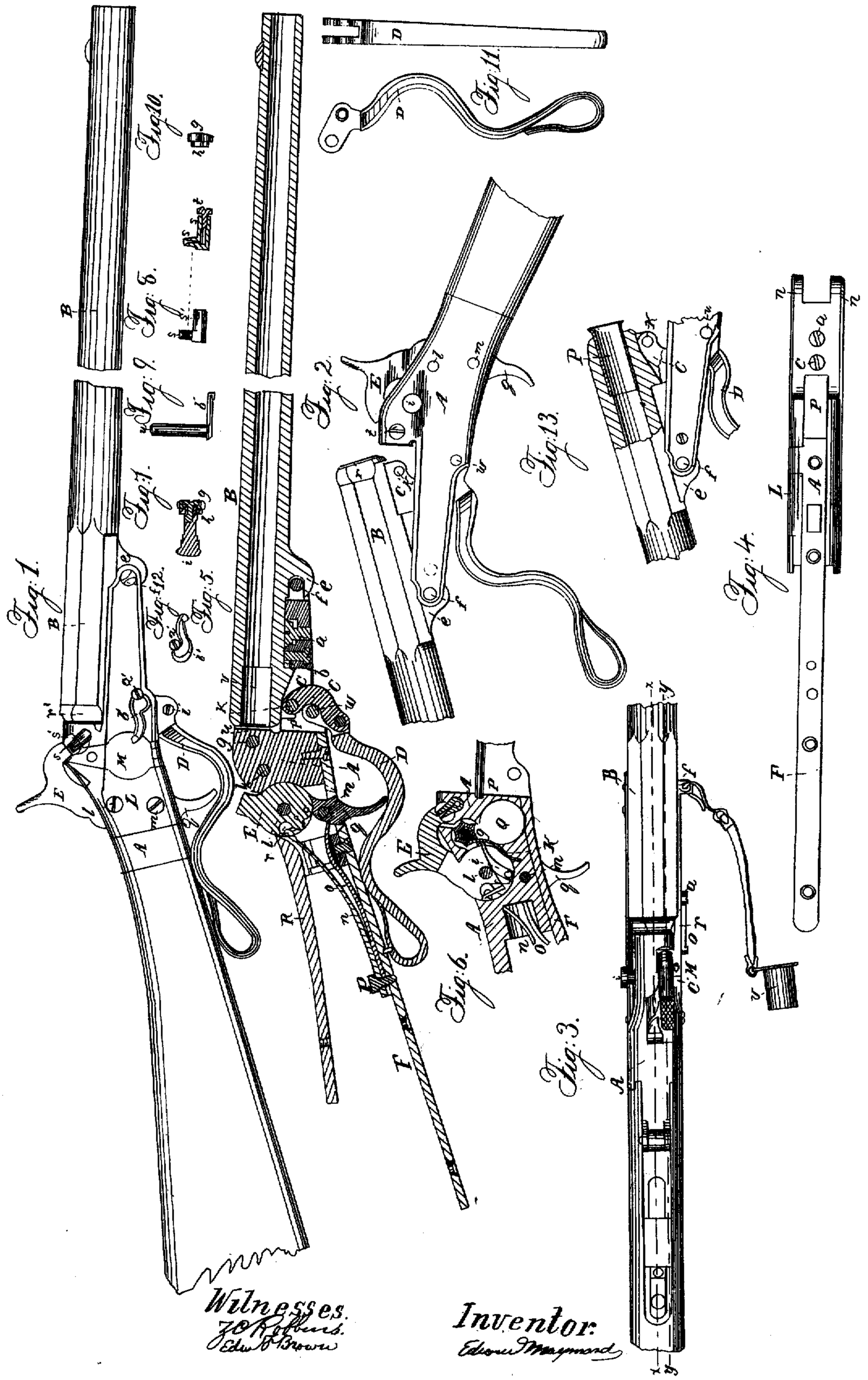
# E. MAYNARD.

## Breech-Loading Fire-Arm.

No 26.364. Patented Dec. 6, 1859



# UNITED STATES PATENT OFFICE.

EDWARD MAYNARD, OF WASHINGTON CITY, DISTRICT OF COLUMBIA.

## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **26,364**, dated December 6, 1859.

*To all whom it may concern:*

Be it known that I, EDWARD MAYNARD, of the city of Washington and District of Columbia, have invented an Improved Breech-Loading Fire-Arm; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

Figure 1 is a view of the main features of my improved fire-arm as seen from the right-hand side; Fig. 2, a view of a portion of the same as seen from the left-hand side. Fig. 3, a top view of the breech-piece and some of the other parts of the fire-arm, which are either combined with or are contiguous to the breech-piece; Fig. 4, a view of the under side of the breech-piece and some of the parts which are combined therewith; Fig. 5, a section in the line *x x* of Fig. 3; Fig. 6, a section in the line *y y* of Fig. 3; and the remaining drawings represent by plan and sectional views various parts of the fire-afm in detail.

Similar letters indicate like parts in each of the drawings.

The form of the breech-piece A and the manner of connecting the same with the barrel B of my improved fire-arm are clearly represented in the drawings. The fulcrum-pin *f*, which forms a portion of the jointed connection between the barrel and the breech-piece, is received into apertures in a pair of ears, *n' n'*, at the extremity of the projecting front portion of the breech-piece; and a hook, *e*, on the under side of the barrel fits accurately within the said ears at the same time that it closely embraces the said fulcrum-pin, as shown in Figs. 4 and 5.

The connection of the breech-piece A, the barrel B, and the actuating-lever D with each other is clearly represented in Fig. 5, and may be described as follows: At its fulcrum end the lever D has two parallel projections, which are doubly perforated, as shown in Fig. 11. The fulcrum end of said lever is received into the slot *p'* in the projecting front portion of the breech-piece, and is securely jointed to the sides thereof by means of the pin *w*, which passes through the perforations nearest to the end of the lever. One end of the curved link C is received into the space between the ears *c' c'*, which descend from the under side of the butt of the barrel, and is jointed to said ears by the pin *k'*. The other end of the said curved link passes between the parallel parts of the double fulcrum end of the lever D, and is jointed thereto by means of the pin *l'*, which passes through the perforations near the inner extremities of the said portions of the head of the lever. A shoulder, *d*, descends from the under side of the barrel, between the front ends of the ears *c' c'*, which shoulder, when the barrel is thrown into the position shown in Fig. 5, bears against an adjustable block, *b*, that is fitted into a groove in the inner surface of the projecting front portion of the breech-piece, immediately in front of the slot *p'*, and in such a manner that by means of the set-screw *a* the butt-end of the barrel can be brought against the face of the abutment of the breech-piece with any desired degree of tightness. The aforesaid adjustable bearing-block *b* is prevented from being thrown out of its place by the screw *c*, which passes to the said block through an aperture in the aforesaid portion of the breech-piece, which aperture is enough larger than the shank and head of said screw to allow the said block to be moved toward the front or rear to any necessary extent. The beveled front end of the block *b* fits accurately against the beveled head of the adjusting-screw *a*, whose screw-shank passes outwardly through a screw-aperture in the aforesaid portion of the breech-piece, and there presents a rounded and finished appearance, which may be nicked for the purpose of enabling the said screw to be turned from the outer side of the breech-piece. By turning the screw *a* in the proper direction it will readily be perceived that the face of the butt of the barrel can be brought up against the face of the abutment of the breech-piece with a sufficient degree of force to form a close joint between the two, the hook *e* being of such a length as to allow the requisite and necessary longitudinal movement of the barrel upon the fulcrum-pin *f*; but for the purpose of insuring a perfectly tight joint between the abutment of the breech-piece and the butt of the barrel, I insert a flange-bottomed metallic cup, *v*, into the chamber of the barrel, and then so adjust the position of the block *b* as to cause the radiating flange of said cup to be closely embraced between the face of the abutment of the breech-

piece and the annular face of the butt of the barrel when the barrel is brought to the position shown in Fig. 5. The aforesaid metallic cup *v* may be connected to the perforated head of the fulcrum-screw *f* by means of a strap or a chain, to be used with loose ammunition; or any number of flange-bottomed metallic cups of the proper size may be charged with powder and projectiles and be carried to the field by the soldier or sportsman for ready and rapid firing. Each of the aforesaid metallic cups must have a small aperture formed in the center of its bottom to receive the priming-fire, which passes through the central perforation in the abutment of the breech-piece; and I have ascertained by practical experience that the filling of the small apertures in the bottoms of the aforesaid metallic cups with some greasy composition renders them, when charged, perfectly water-proof, while it does not in the slightest degree impede the entrance of the priming-fire. I give the actuating-lever D such a shape that when the barrel is in the position for firing shown by Fig. 1 the said lever will form a guard for the trigger. The link C must be slightly elastic, and should be made of the toughest and strongest metal. The shape of this link is such that the pivots *m' l'*, which serve to combine it with the barrel and with the actuating-lever, will be in such positions with relation to the pivot-pin *w* that when the said parts are in the positions shown in Fig. 5 a line projected through the center of the pins *k'* and *w* will be tangential to the front side of the pin *l'*. This arrangement causes the greatest amount of leverage to be exerted upon the barrel just before the actuating-lever is brought home to its closed position, and therefore the link C exerts a considerable degree of retaining force upon the lever D after it has reached its closed position. The said lever is protected against lateral strains when it is in its closed position, and it is also held more securely in said position by a short pin, which descends from the under strap, F, and enters an aperture in the portion of the lever which bears against said strap, as shown in Fig. 5. The under strap, F, projects rearwardly from its connection with the under side of the body of the breech-piece, and is secured to the under side of the stock. The lever D can easily be thrown into the position shown in Fig. 2, and when in said position the butt of the barrel is elevated a sufficient distance above the abutment of the breech-piece to entirely uncover the opening to the chamber of the bore for the withdrawal or the reception of the metallic cup *v*. The pin *w*, which connects the extremity of the lever D with the breech-piece, is retained in its position therein by the overlapping head of the screw *a'*, whose shank is received into a screw-aperture within the breech-piece; but by turning the pin *w* into the position represented by Fig. 12 a groove, *z*, in a portion of the length of one side of the same receives a portion of the projecting head of the retaining-screw *a'*, and thereby allows the said pin to be drawn out far enough and only far enough to detach it from its hold upon the lever D, and as soon as this has been done the barrel can be readily detached from the breech-piece by unhooking it from the pin *f*, and then drawing the lever D up through the slot *p'* in the projecting front portion of the breech-piece.

The above-mentioned pivot-pin *w* carries a right-angular arm, *b'*, upon its front end, which enables the said pin to be easily turned upon its axis, and then withdrawn to the desired extent without the aid of instruments.

To facilitate the removal of the flange-bottomed metallic cup from the chamber of the barrel, I form on opposite sides of the butt of the same rearwardly-tapering and slightly-concave faces *r' r'*, of sufficient depth at their after extremities to enable the flange of the cup to be readily taken hold of by the thumb and finger of the user when the barrel is thrown into the position shown in Fig. 2. Within that portion of the breech-piece which is covered by the plate L a recess is formed for the reception of the circular-shaped body of the hammer E. The hammer is combined with the mainspring *n* by means of the link *r* and the requisite recesses in the body of the hammer, as shown in Figs. 5 and 6. The sear-spring O and the mainspring *n* are both combined with the under strap, F, by means of the screw *p*, and from that point the said springs pass forward to the hammer and to the trigger through a notch in the stock and an aperture in the breech-piece. The aforesaid plate L is secured in its position upon the breech-piece by the pins *l* and *m*, as shown in the drawings, the former pin also serving as a pivot for the hammer. A perforation in the left-hand side of the breech-piece, which opens into the delivery-throat of the primer-magazine, receives the shank of the burr-headed pin *i*, upon whose inner extremity the ratchet-wheel *h* and the feeding-wheel *g* are placed, and are securely combined therewith by means of a screw, as shown in Fig. 7.

The pawl *j*, which communicates motion from the lower portion of the body of the hammer to the ratchet-wheel *h*, is jointed to the said portion of the body of the hammer, and is always kept in a working position by means of a guiding projection from the breech-piece near the outer extremity of said pawl, and by a spring which projects from its upper side and bears against a projecting pin from the body of the hammer, all as shown in Fig. 6.

For the purpose of preventing the abrasion of the mouth of the chamber during the operation of cleaning out the barrel of my improved fire-arm, I shall insert therein, preliminary to said operation, an open flaring tube, P, substantially as represented in Fig. 13.

Having thus fully described my improved

breech-loading fire-arm, what I claim therein as my invention, and desire to secure by Letters Patent, is—

1. The peculiar manner of connecting the barrel to the breech-piece—viz., the hook *e* on the under side of the barrel taking hold of the pin *f* (or the equivalent thereof) at the front end of the breech-piece, while the link C, the lever D, and the joint-pins of said link and lever are arranged in such a manner with relation to the slot in the breech-piece and the ears on the under side of the butt of the barrel as to form a treble-jointed and compound leverage connection between the breech-piece and the butt of the barrel of such a character that the barrel can be instantly thrown from a firing position to a loading position, and vice versa, and also of such a character that the barrel can be easily and quickly detached from the breech-piece, or be securely united thereto, substantially in the manner herein set forth.

2. The combination of the metallic block *b*, the screw *c*, and the screw *a* with each other and with the front portion of the breech-piece in such a manner with relation to the shoulder *d* on the under side of the barrel that the joint between the butt of the barrel and the abutment of the breech-piece can be tightened or loosened, substantially in the manner herein set forth.

3. The retaining of the pivot-pin *w* in its position within the breech-piece by means of the overlapping head of the screw *a'*, but this only when the longitudinal groove *z* in one side of a portion of the length of said pivot-pin is so located that when the pin is turned to the position shown in Fig. 12 (or any other previously-determined position) it may be drawn out far enough and only far enough to detach the said pin from its hold upon the lever D, and thereby allow the barrel to be separated from the breech-piece, substantially in the manner herein set forth.

4. When the pivot-pin *w* is retained in its position within the breech-piece by the overlapping head of the screw *a'* in such a manner that it can be loosened by partially turning the same upon its axis, the arm *b'* upon the outer end of said pin, which enables it to be readily turned upon its axis, and partially withdrawn from its place without any mechanical assistance, substantially as herein set forth.

5. When the barrel is connected to the breech-piece in the within-described manner, the producing of a tight joint between the butt of the barrel and the abutment of the breech-piece by combining therewith a flange-bottomed metallic cup, substantially as herein set forth.

6. Giving the opposite faces *r r* of the butt of the barrel such a shape that the flange-bottomed metallic cup *v* can be easily taken hold of by the thumb and finger of the free hand of the user when the barrel is thrown into the loading position, substantially as herein set forth.

EDWARD MAYNARD.

Witnesses:
Z. C. ROBBINS,
EDM. F. BROWN.