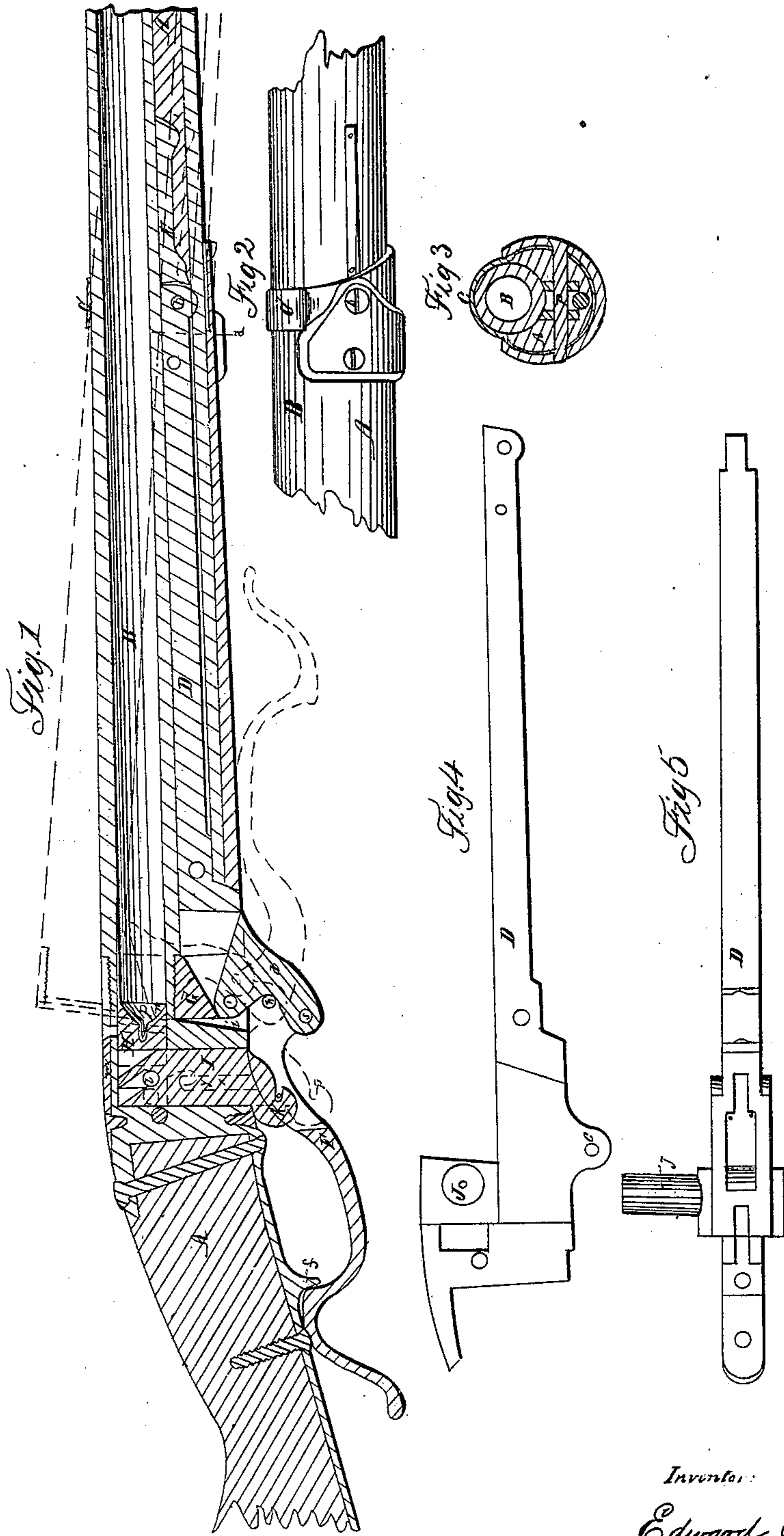


E. MAYNARD.

Breech-Loading Fire-Arm.

No. 8,126.

Patented May 27, 1851.



Inventor:

Edward Maynard

# UNITED STATES PATENT OFFICE.

E. MAYNARD, OF WASHINGTON, DISTRICT OF COLUMBIA.

## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 8,126, dated May 27, 1851.

*To all whom it may concern:*

Be it known that I, EDWARD MAYNARD, of Washington city, in the District of Columbia, have invented certain new and useful Improvements in Fire-Arms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 is a vertical longitudinal section of a musket constructed according to the principles of my invention; and Figs. 2, 3, 4, and 5 are views of detached or fragmentary portions of the same.

My invention relates to that class of fire-arms which are loaded at the breech of the barrel; and it consists of several distinct parts, which are not necessarily used in connection, but which, when so used, unite in forming a breech-loading fire-arm containing certain valuable qualities not heretofore embodied in such an implement.

The first part of my invention consists in combining, with a musket or other fire-arm whose barrel is disconnected from its breech and is pivoted to the stock at some point intermediate between its butt and its muzzle, a lever beneath the stock, by means of which the barrel is turned upon its pivot to raise and to depress its butt, which lever also locks the barrel to its breech when the butt is depressed and unlocks it therefrom to allow the butt to be raised.

The second part of my invention consists in combining with the improvement above specified a piston breech-pin, which, by the movement of the lever in depressing the butt of the barrel and locking it in place, is made to move the cartridge forward in the barrel and to close the opening at the butt, which also, by the movement of the same lever in unlocking the barrel, is made to open the butt before the latter rises under the action of the lever.

The remaining parts of my invention relate to the construction and arrangement of the several parts of fire-arms, and are designed to add to their efficiency, while they at the same time enable me to alter and modify fire-arms already constructed, and particularly the United States Government musket, in such manner as to embody the improvements above specified with an increase in strength and durability.

The fire-arm represented at Figs. 1, 2, 3, 4, and 5 is an example of a musket so modified. It contains the ordinary stock, A, and the barrel B. The barrel B has its breech sawed off, leaving a straight tube open at both extremities. The stock A is sawed in two pieces or sections at the hinder edge of the band C, and a thin wedge-shaped piece is removed, as shown at *a*. The hinder section is slotted to admit a strap, D, which is more fully represented in elevation and plan at Figs. 4 and 5, and which extends from that part of the stock usually occupied by the breech of the gun in a forward direction to the middle of the band C. The hinder extremity of the front section of the stock is also slotted to admit a short strap, E, which is forked at its hinder extremity to embrace the front end of the hinder strap, D, and extends forward into the front section to strengthen it. The adjoining extremities of the two straps are perforated transversely to admit a screw, *b*, which passes through the band C, the forward portion of the stock, and the holes in the straps, as shown in section at Figs. 1 and 3, thus forming a pivot on which the forward section of the stock and the barrel secured thereto can be turned to raise or depress the butt of the barrel, at the same time firmly securing the band C to the stock and connecting the whole with the strap D. The hinder part of this strap is enlarged, as shown at Figs. 4 and 5, to form the breech of the musket, to contain the piston breech-pin, and to afford means for hanging and moving the lever and connecting it with the movable members upon which it operates. This lever F is bent, its two arms being nearly at right angles with each other. It is pivoted at the intersection of its two arms to ears *c*, which depend from the lower side of the strap D. Its longer arm, when the butt of the barrel is depressed, extends backward in a direction parallel with the lower side of the stock, and is of such form that it constitutes the trigger-guard. The shorter arm of the lever F, which, when the butt of the barrel is depressed, extends downward from the strap D, is forked at its lower extremity, and is connected, by means of a link, *d*, with the lower forked extremity of a stirrup, G, to which the butt of the barrel is firmly screwed. The link *d* extends upward through a slot in the strap D,

which is of the proper size and form, as shown at Fig. 5, to receive the lower extremity of the stirrup G, whose front side, when the butt of the barrel is depressed, bears firmly against the shoulders *e* of the slot, and thus prevents the barrel from being moved forward from the breech by the explosion of the charge. When the butt of the barrel is depressed, the lever, link, stirrup, barrel, and strap occupy the positions in which they are respectively represented in Fig. 1, and when the butt of the barrel is to be raised the lever is moved downward and forward until the parts of the musket before mentioned occupy the positions in which they are represented in red lines in Fig. 1. On inspecting this figure it will be seen that when the butt of the barrel is depressed, the pivot *g*, which connects the lever F with the link *d*, occupies a position a little behind the straight line which passes through the centers of the pivots *h* and *i*. In this position, therefore, any force applied to raise the butt of the barrel will tend to draw the longer arm of the lever upward against the stock or to hold it more firmly in its place. Consequently the lever is made to act as a lock to hold down the barrel, and thus keep the latter in its place. In order to prevent the hinder extremity of the leather from accidentally dropping, it is constructed to spring and catch upon a snug, *f*, projected from the stock. The link *d* is bent to allow the pivot *h*, which connects the lever F with the ears of the strap D, to pass through from side to side. This bent form of the link requires a corresponding increase in the length of the slot in which it moves, and, as it is an important requisite in fire-arms that no place should be left for the entrance and accumulation of dirt, the link is of such shape that its front extremity, when depressed, closes the mouth of the slot.

That portion of the strap D which forms the breech of the gun has a cylindrical socket formed in it to admit a piston breech-pin, H. The latter is of such diameter that it will just enter and close the open butt of the barrel, as shown at Fig. 1, and the socket in which it is inserted is so situated with respect to the barrel that when the butt is depressed the socket forms a continuation of the bore. The hinder extremity of this piston breech-pin is slotted vertically, to admit the upper extremity of a flat bolt, I, which slides vertically in a corresponding slot in the strap, and extends downward into the hinder arm of the lever, which is slotted to admit it. The lower extremity of this sliding bolt is formed into a hook, *k*, which engages upon a pin, *o*, passed transversely through the lever. The upper extremity of the sliding bolt has a slot formed in it to admit a pin, *l*, which passes transversely through the piston breech-pin, and is secured thereto. This slot is of such shape that when the bolt is moved upward its hinder edge, bearing upon the pin *l*, forces the piston-breech forward into the butt of the barrel and locks it in that position, while by re-

versing the movement of the sliding bolt the forward edge of the slot bearing against the pin moves the piston-breech backward in its socket, and thus draws its front extremity out of the barrel. This downward and upward movement of the sliding bolt is effected by the movement of the lever. As the hinder arm of the latter is depressed, the pin *o*, acting upon the hook *k*, draws the bolt downward until the pin, which in its movement describes the arc of a circle of which the lever-pivot *h* is the center, is drawn out of the hook and occupies the position in which it is represented in red lines in Fig. 1, thus leaving the sliding bolt and the piston breech-pin at rest. As this movement of the pin is effected while the link-pivot *g* is moving almost horizontally, or nearly parallel with the barrel, the latter is not appreciably moved until the piston breech-pin is withdrawn from the butt, after which the continued forward movement of the lever will raise the butt of the barrel. When the lever F is turned back to depress the butt of the barrel, the pin *o* re-engages with the hook *k*, and thus returns the sliding bolt to its place, by which operation the piston-breech is moved forward and caused to enter the butt of the barrel. The sliding bolt I is prevented from being accidentally withdrawn from the strap D by a screw, *x*, which passes transversely through a vertical slot, *y*, in the sliding bolt. The butt of the barrel is raised in order that the cartridge may be inserted into it. To facilitate this operation, that portion of the butt which receives the cartridge is bored out somewhat larger than the rest of the barrel. This enlargement of the butt permits the insertion of a larger ball than could be inserted in the muzzle, so that the ball, when the charge is fired, is slugged or caused to pack tightly in the bore. The shoulder formed at the junction of the chamber with the bore also serves to prevent the cartridge from being thrust too far into the barrel.

Cartridges for a gun of this construction should be made slightly longer than the chamber in the butt, so that the tail of the cartridge when in place will project a little beyond the butt of the barrel; hence, when the butt of the barrel is depressed, the projecting extremity of the cartridge will be cut off by the combined action of the edge of the butt of the barrel and the upper edge of the breech, which act upon it like shears. In order to facilitate this operation, and at the same time to provide for wear, the upper portion of the breech is faced with a tempered steel plate, *m*, which is screwed down to the breech, and can be moved forward as its front edge wears away.

The piston breech-pin H is perforated to permit the passage of fire from the nipple on which the percussion-cap or primer is exploded by the hammer of the lock. This perforation *n* extends backward a short distance through the center of the breech-pin until it meets a hole bored transversely into the side thereof.

This latter hole, when the breech-pin is in its most forward position, exactly corresponds with the hole in the tube J, to which the nipple is secured. When, therefore, the piston breech-pin is moved backward in its socket in the operation of raising the butt of the barrel for loading, the transverse hole in it no longer corresponds with that in the nipple-tube, the communication from the nipple to the barrel is broken, and is not re-formed until the breech-pin is moved forward. As this is the last movement which is made in depressing the butt, it is evident that the charge cannot be fired from the nipple before all parts of the gun are in their proper positions. In order to facilitate the firing of the charge, the central perforation of the breech-pin is widened out, as at *p*, Fig. 1, to allow the tail of the cartridge to open, and the powder from the opened tail to distribute itself loosely therein, which distribution insures its more thorough combustion and renders the firing of the charge more certain. In order to prevent the smoke formed in firing from passing backward and clogging the socket of the breech by forming soot therein, a ring-channel, *s*, is formed half in the butt of the barrel and half in the periphery of the piston breech-pin. Suitable openings are also made to allow the gases collected in this ring-channel to pass out into the air.

The foregoing description is deemed by me sufficiently explicit to enable a mechanic skilled in the art of constructing fire-arms to apply my improvements. It is evident that the construction and arrangement of the several parts of such an implement, and the manner of operating them by the lever, may be

modified to a very great extent without departing from the principles of my invention.

What I desire to secure by Letters Patent and claim as my invention in that class of breech-loading fire-arms in which the barrel is disconnected from the breech, and is pivoted at some point intermediate between its butt and its muzzle to the stock, is—

1. A lever beneath the stock, by means of which the barrel is turned upon its pivot to raise and to depress its butt, and is locked to its breech when the butt is depressed, and is unlocked therefrom to allow the butt to be raised, the several members of the implement being arranged and operating substantially as herein set forth.

2. In combination with the above-claimed device, a piston breech-pin which, by the movement of the lever to depress the butt of the barrel and to lock it in place is made to move the cartridge forward in the barrel and to close the butt thereof, and which by the movement of the lever to unlock and raise the barrel is made to unclose or open the butt of the barrel before the latter rises under the action of the lever.

3. The sliding bolt I, constructed with slot and hook, or their equivalents, and arranged as herein set forth, in combination with a lever-handle, for the purpose of imparting motion to the piston breech-pin from the lever beneath.

In testimony whereof I have hereunto subscribed my name.

EDWARD MAYNARD.

Witnesses:

ANTHY. HYDE,  
THO. R. SUTER.