E. MAYNARD.

Breech-Loading Fire-Arm.

No. 30,537

Patented Oct. 30, 1860.

Fig 1

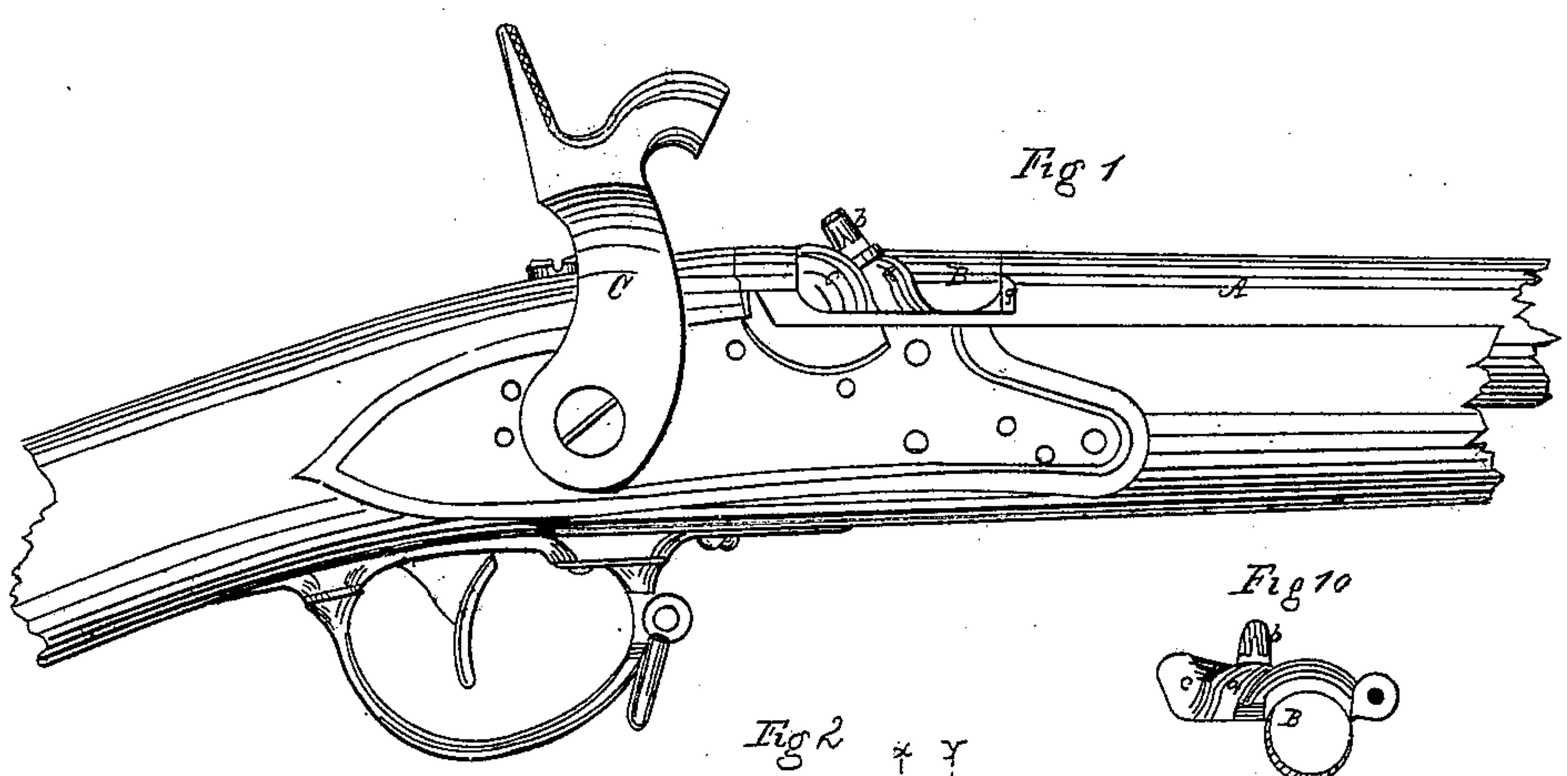


Fig 10

Fig 2

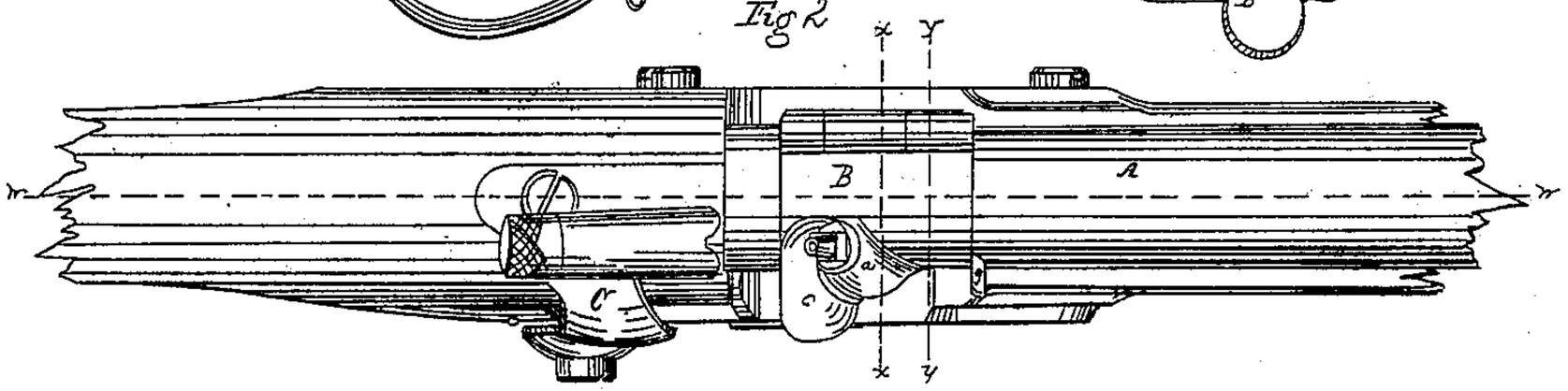


Fig 11 Fig 12. Fig 13

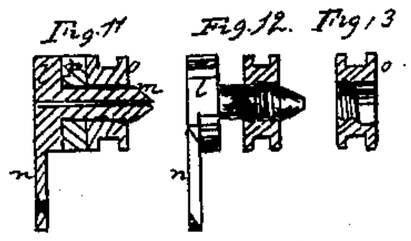


Fig 3.

Fig 4

Fig 6

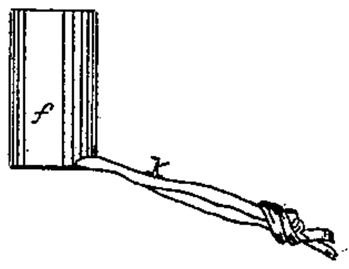


Fig 7

Fig 5

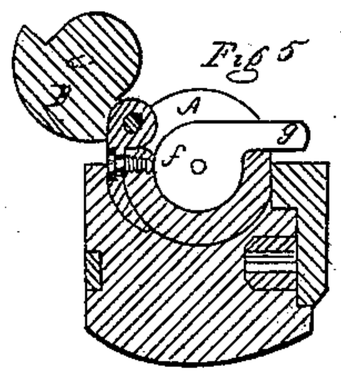


Fig 9

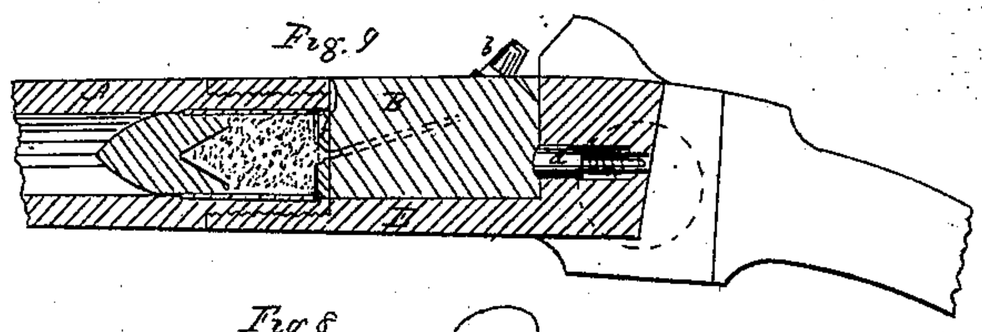
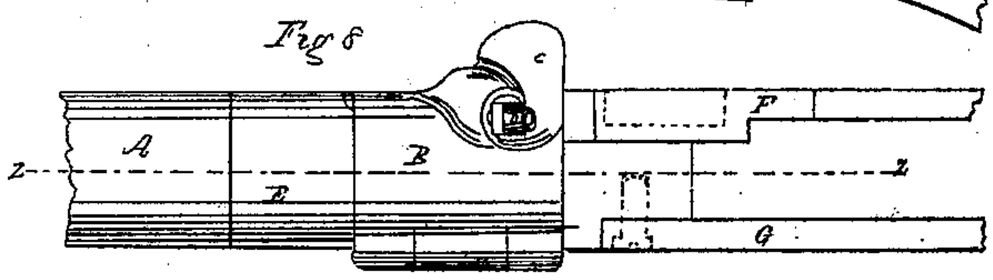


Fig 8



Witnesses:

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UNITED STATES PATENT OFFICE.

EDWARD MAYNARD, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVFMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **30,537,** dated October 30, 1860.

To all whom it may concern:

Be it known that I, EDWARD MAYNARD, of the city of Washington, and District of Columbia, have invented a new and 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, which form a part of this specification.

Figure 1 is a side view of the principal portions of my improved fire-arm; Fig. 2, a top view of the same; Fig. 3, a section in the line *w w* of Fig. 1; Fig. 4, a section in the line *x x* of Fig. 2; Fig. 5, a section in the line *y y* of Fig. 2; Fig. 6, a side view of the removable metallic chamber-cup of my improved fire-arm, and Fig. 7 a bottom view of the same. Fig. 8 is a modified form of the principal portions of my improved fire-arm, and Fig. 9 is a section in the line *z z* of Fig. 8.

The same letters indicate like parts in each of the drawings.

Access is had to the chamber of my improved fire-arm by cutting out the upper half of a small portion of the barrel thereof immediately in front of the front end of the breech-pin D, and the open space thus formed in said barrel is closed by a hinged cone-seat, B, which is of such a shape that its solid front end forms a firm and reliable support for the bottom of the metallic chamber-cup *f*, which carries the ammunition into the chamber of the barrel, the said cup also serving the purpose of shutting off all connection between the ammunition of a loaded fire-arm and the hinged cone-seat B thereof, save and except the small vent in the center of said chamber-cup, which is brought immediately opposite the outlet of the priming-vent of the cone-seat, as shown in the drawings. The wing *c*, which projects to the right from the after end of the hinged cone-seat B, enables the said cone-seat to be more readily thrown into the open and closed positions represented in the drawings.

The chamber-cup *f* may be removed from the chamber of the barrel A by means of a laterally-projecting arm, *g*, from the bottom of said cup, or by means of any suitable flexible attachment, *k*, Figs. 6 and 7, which may be made of leather, or of some fibrous cord, or of wire. A notch must be formed in the right-hand side of the extreme after end of the chamber of the barrel, of such a size and shape that the handle of the cup *f* can pass out freely through the same from the said chamber.

The hinged cone-seat B may be retained in its closed position by any suitable contrivance; but I prefer a spring friction-holder, *d*, such as is represented in the accompanying drawings. I would, however, remark that the perforation for the reception of the friction-holder *d* may be formed within the cone-seat B, and the cavity for the reception of the oval head of said holder may be formed in the face of the breech-pin D, should such an arrangement of the parts be preferred.

The method of constructing my improved fire-arm represented in Figs. 1, 2, 3, 4, and 5 of the accompanying drawings is one by which I am enabled at a small expense to convert muzzle-loading fire-arms into highly-efficient breech-loading arms. In some cases it will be preferable to combine the cone-seat B with a breech-piece, E, and then combine the said breech-piece with the butt of the barrel of the fire-arm by means of matching-screws, in the manner represented in Figs. 8 and 9. When thus constructed, it will sometimes be advisable to forge a lock-plate, F, onto the right-hand side of the breech-piece E, and to screw a side plate, G, onto the opposite side of the same.

In Fig. 9 the chamber-cup *f* is represented as being charged with powder, and with what is generally denominated the "minie-ball;" but the chamber-cup represented in Fig. 3 is charged with the form of projectile which I prefer above all others for breech-loading fire-arms. The chamber-cup *f* must have a bottom of sufficient thickness to give the requisite support to the arm, or other attachment by which it is withdrawn from the chamber of a gun after its ammunition has been discharged. This extra thickness may be given to the bottom of the cup by soldering a disk of metal of the requisite thickness on the original thin bottom of the cup.

By securing an empty metallic cup, *f*, within the chamber of my improved fire-arm, it

can be safely loaded from the muzzle in the ordinary manner of loading muzzle-loading arms.

The cone-seat B and the hinge which connects the same to the barrel or to the breech-piece of my improved fire-arm are so proportioned that a slight degree of longitudinal play of said cone-seat is permitted within the opening to the chamber of the barrel that is closed thereby. The object of thus proportioning the said cone-seat and its hinge is, first, to allow the cone-seat to be opened and closed with ease and freedom; and, second, to prevent the recoil of the cone-seat from injuriously straining the hinge thereof at the moment of firing the arm, the said recoil being received entirely upon the breech-pin.

The front end of the nearly semi-cylindrical portion of the cone-seat, which shuts down into the concavity at the bottom of the opening which communicates with the chamber of the barrel, has its angles rounded off; and a semicircular channel whose outer periphery corresponds with the outer periphery of the upper half the chamber of the fire-arm is formed in the front end of the outer semi-cylindrical portion of said cone-seat, as represented in Fig. 10. The object of giving the aforesaid shape to the front end of the cone-seat, is to form a small internal channel around the periphery of the bottom of the cup *f*, when it is placed within the chamber of the fire-arm and the cone-seat is closed upon it, for the purpose of serving as a receptable for the accumulation of the dirt produced by repeated discharges of the fire-arm, which would otherwise obstruct the movements of the cone-seat. If deemed advisable, a slight prominence may be given to that portion of front end of the cone-seat which comes opposite to the chamber of the barrel, as an additional protection against the rigid adhesion of said cone-seat to its closed position after many discharges, or from the effects of oxidation.

Ammunition fixed in paper cartidges, or in other cartridges of a similar character, or loose ammunition, can be used in my said improved fire-arm by inserting an expansible stopper within the chamber of the barrel immediately after the opened after end of said cartridge, or after a charge of loose ammunition.

Figs. 11, 12, and 13 of the drawings represent an expansible stopper that may be used for the above-mentioned purpose. Fig. 11 is a longitudinal section of said stopper; Fig. 12, a side view of the main portion *l m n* of the stopper detached from the other parts thereof; and Fig. 13, a detached section of the screw-nut *o*, which also forms a portion of said stopper. The screw-thread formed within the nut *o* passes from the inner end of the perforations in said nut only half-way through the same, and the remaining portion of said perforation is somewhat enlarged. The screw-threads on the end of the perforated shank *m* radiate entirely above the smooth surface of the remaining portion of said shank, and consequently it will be perceived that when the nut *o* has been screwed onto the shank *m* far enough to carry the threads of the latter entirely beyond the reach of the screw-threads within the former (or to the position shown by the red lines in Fig. 12) the said nut will have free play upon the smooth portion of the shank *m*. The elastic gasket *p* is held tightly in its position between the head of the stopper and the nut *o* when the latter is in the position shown in Fig. 11. When the gun is fired, the nut *o* will be forced back against the gasket *p*, and as the head *l* of the stopper is prevented from giving back by the abutting face of the cone-seat it follows, from the elastic nature of the gasket, that the instantaneous pressure thereupon at the moment of firing will increase its diameter, and thereby cause it, for the moment, to tightly pack the joint between the mouth of the chamber of the barrel and the face of the cone-seat. As an additional protection, the periphery of the nut *o* may be furnished with a lubricated packing; or the groove in said nut may be filled with some lubricating substance. The small perforation which extends from the face of the head of the stopper to the point of the shank *m* conveys the priming-fire from the outlet of the vent within the cone-seat to the powder within the chamber of the barrel.

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 employment of a solid-headed hinged cone-seat, B, for closing the lateral opening between the mouth of the chamber of the barrel and the solid head at the after end of said opening, when the proportions of the said cone-seat and the lateral opening which receives the same are such that a thin-sided metallic cartridge (either loaded or unloaded) can be readily placed within the chamber of the barrel when the cone-seat is in its open position, and then be securely retained in said chamber by throwing the cone-seat into its closed position, substantially as herein set forth.

2. When the mouth of the chamber of a breech-loading fire-arm is closed by the head of a hinged block, B, which forms the cone-seat of said arm, I also claim the placing of a thin-sided metallic cup within the said chamber for the purpose of forming a tight joint between it and the said hinged block, substantially as herein set forth.

3. Giving the bottom of the thin-sided chamber-cup *f* of my improved fire-arm such a degree of thickness and strength that either a laterally-projecting arm or a looped thong or cord may be combined therewith, of such a size and shape as shall enable the said cup to

be readily withdrawn from the chamber of the barrel, substantially as herein set forth.

4. When the lateral opening between the mouth of the chamber of the barrel and the solid head at the after end of said opening is closed by a properly-proportioned hinged cone-seat, I also claim so proportioning the hinges of said cone-seat that the recoil thereof at the instant of firing the arm will be wholly exerted against the solid head opposite the after end of said cone-seat.

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Witnesses:
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