TOWNSEND & CLEMENT.

Breech-Loading Fire-Arm.

No. 44,127. Patented Sept 6, 1864.

Fig. 1

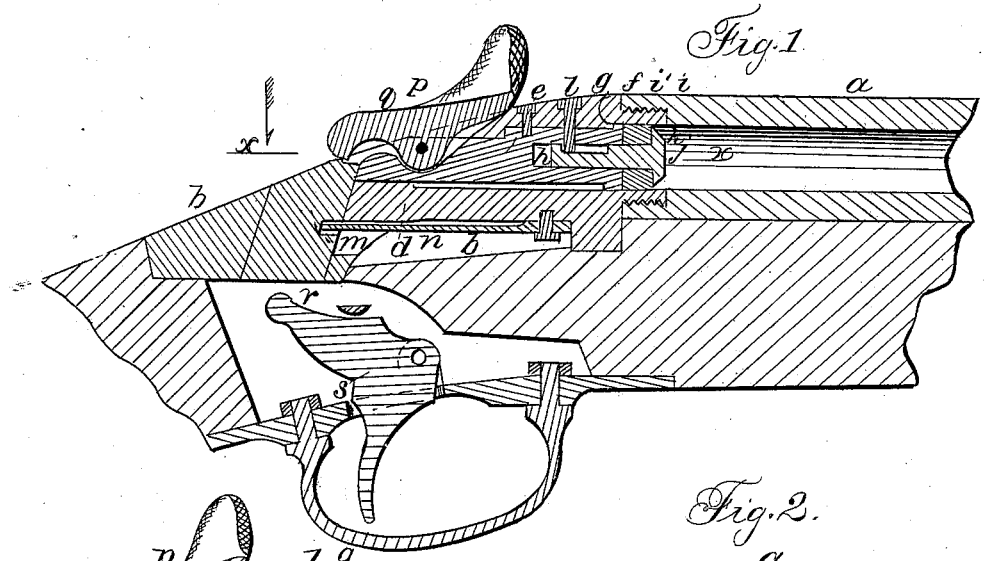


Fig. 2.

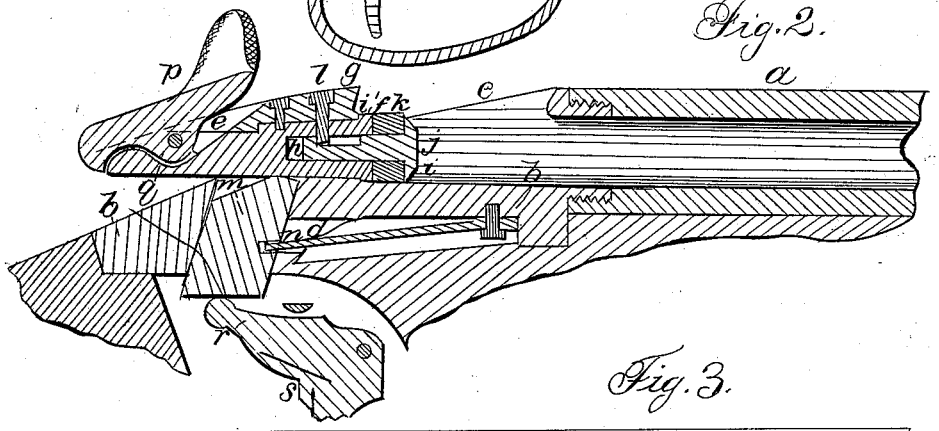


Fig. 3.

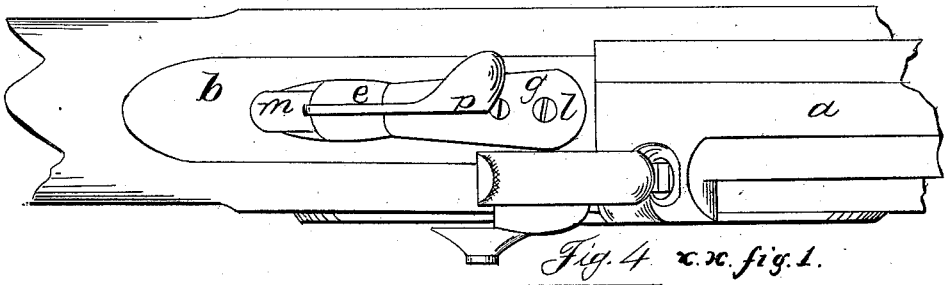
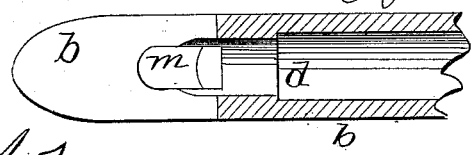


Fig. 4 x.x. fig. 1.



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UNITED STATES PATENT OFFICE.

FREDERICK TOWNSEND, OF ALBANY, NEW YORK, AND NATHAN S. CLEMENT, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **44,127**, dated September 6, 1864.

To all whom it may concern:

Be it known that we, FREDERICK TOWNSEND, of Albany, in the State of New York, and NATHAN S. CLEMENT, of Worcester, in the State of Massachusetts, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and we do 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, in which—

Figure 1 is a longitudinal section of our said improvements as applied to a musket, representing the breech closed; Fig. 2, a like section with the breech open; Fig. 3, a top view, and Fig. 4 a horizontal section taken in the plane of the line *x x*, Fig. 1.

The same letters indicate like parts in all the figures.

Our said invention relates to improvements in that class of breech-loading fire-arms in which the breech-pin is drawn out backward to open the breech of the barrel for the insertion of a cartridge.

In the accompanying drawings, *a* represents the barrel, and *b* a fixed breech-piece screwed into the rear end of the barrel in the same manner as the breech-pin is usually secured in muzzle-loading guns. The bore of the barrel is extended right through the said breech-piece *b*, and as this extension of the bore is in line with the barrel, and the upper surface of the breech-piece is curved and inclined downward in line with the grasp of the stock, the bore extends through such curved surface, the opening thus formed being extended forward, as at *c*, to within a short distance of the rear end of the barrel, thus forming an opening of sufficient capacity to admit of readily inserting the cartridges into the chamber of the barrel. The bore is extended of equal diameter to within a short distance of the rear end, and then of a slightly-reduced diameter, having a shoulder at *d*, to act as a stop to prevent the breech-pin carrier from being drawn entirely out.

The breech-pin carrier *e* is cylindrical and fitted to slide freely but accurately in the smaller portion of the bore of the breech-piece *b*, and the front end for a short distance at *f* is made of a slightly-enlarged diameter, to fit the largest portion of the bore of the breech-piece *b*, leaving a shoulder which strikes against the shoulder of the bore at *d*, to form a stop when the breech-pin carrier is drawn back and prevent it from being entirely drawn out, while at the same time the reduced diameter of the bore at one end and the enlarged diameter of the carrier at the other act as guides to insure freedom of motion in sliding the breech-pin carrier in and out. The upper portion of this carrier *e* is cut away to form a seat for a cap-plate, *g*, which is secured to it, and which is so formed as to entirely fill and close up the opening *c* in the upper part of breech-piece *b* when the carrier is pushed home after inserting a cartridge, as represented in Fig. 1.

In the front end of the carrier *e* there is a concentric cylindrical hole, *h*, to which is fitted, so as to slide therein freely but accurately, the stem *i* of a metallic button, *j*. The button is of slightly less diameter than the bore of the barrel, that it may not touch it, and between the front end of the carrier and the button, and fitted to the stem thereof, is placed an annulus, *k*, made of vulcanized india-rubber, and of such outer diameter as just to fit without friction the bore of the rear end of the barrel. The stem *i* of the button is notched, as at *i'*, to receive the end of a screw or pin, *l*, which prevents it from being drawn out; but the said notch is of sufficient length to permit the button *j* and its stem to have end-play. After a cartridge has been inserted, the carrier *e*, with its breech-pin consisting of the india-rubber annulus and metallic button, with its sliding stem, is pushed forward to inclose the cartridge in the chamber of the barrel, which is readily done, as there is no binding of the breech-pin so constituted; but when the discharge takes place the expansion of the gases acting on the face of the metallic button *j* forces it back and compresses the india-rubber annulus longitudinally, which has the effect of expanding its diameter into such close contact with the bore of the chamber as to effectually prevent all escape of gases, the expansion being so sudden as to prevent fouling matter from entering between the surface of the india-rubber and the bore of the chamber.

To prevent the breech-pin and carrier from

being driven back by the force of the discharge, there is an abutting piece, *m*, fitted to slide in a mortise in the rear end of the breech-piece *b*, and which is borne up or forced upward by the tension of a flat spring, *n*, attached to the under part of the breech-piece. The moment the breech-pin and carrier are driven home this abutting piece springs up behind the carrier and locks them; and to effectually prevent accidents the abutting piece is at an angle of little more than ninety degrees with the axis of the carrier, so that the force of the recoil tends only the more to secure the abutment. To draw back the carrier with its breech-pin for the insertion of another cartridge, it is necessary in the first place to depress the abutting piece *m*, and while it is held down to draw back the carrier.

As the rapidity of firing depends in a great measure upon the small number of movements to be made, we have so constructed and arranged the parts that by a single pull backward the abutting piece is depressed, held down, and the carrier pulled back for the insertion of a cartridge, and by a single push forward the carrier and breech-pin are pushed home to inclose the cartridge and locked by the abutting piece. To effect this, in addition to what has been above described, there is a small lever, *p*, fitted to work in a slot in the rear end of the carrier *e*, and which is there pivoted by a fulcrum-pin, *q*. The rear end of this lever bears on the upper end of the abutting piece *m*, to force it down below the carrier *e*, and its under face is round, so as to slide thereon freely as the carrier is drawn back. The forward and upper part of the lever is curved and milled to form a finger and thumb piece, and projects but slightly above the upper surface of the carrier, as any large projection on that part of a gun would be seriously objectionable, particularly for military purposes. By a slight pull backward on the front end of this lever with the forefinger the carrier is unlocked and pulled back, and by a push forward with the thumb it is forced home and locked. When the abutting piece *m* is depressed, its lower end bears on the lever *r* of the trigger *s*, so that it cannot reach the sear of the lock, and therefore it will be impossible to fire the charge by the lock unless the carrier and breech-pin are driven home and locked.

From the foregoing it will be seen that the entire mechanism, with the exception of the lock, is contained in and attached to the breech-piece, and that the only thing which projects outside of the stock or breech when the gun is loaded is the small finger and thumb lever; and it will also be seen that by our said improvements we are enabled to produce a breech-loading gun which is effective, safe, simple, cheap, and not liable to derangement, but which can be applied to any muzzle-loading gun by simply taking out the breech-pin, slightly enlarging the cavity in the stock, and substituting our improved breech-piece with its appendages.

We do not herein claim the breech-piece with the bore extended through it for the insertion of a cartridge into the rear end of the barrel; nor a breech-pin carrier sliding therein to inclose the cartridge; nor do we claim, broadly, the locking or bolting of the breech-pin carrier to prevent it from being forced back by the recoil; nor the depressing of the trigger when the breech-pin is not driven home and locked, these things having been heretofore accomplished, but by means not so practical, simple, and efficient as our invention.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. Making the bore in the breech-piece smaller at the rear than along the main part of its length, in combination with making of the breech-pin carrier with the front end of larger diameter than along the main portion of its length, substantially as and for the purpose described.

2. The arrangement of the abutting piece fitted to slide in a mortise extending through the thickness of the breech-piece, so that its upper end shall extend to the surface thereof, to be visible when the carrier is locked, and with its lower end extending below to depress the lever of the trigger when the carrier is not locked, as described.

3. The arrangement of the finger-lever fitted to and having its fulcrum in a slot in the breech-pin carrier, and its rear end resting on the upper end of the abutting piece, as herein described, in combination with the carrier and the abutting piece, so that by a single pull backward the abutting piece shall be depressed and held down and the carrier drawn back, as set forth.

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N. S. CLEMENT.

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