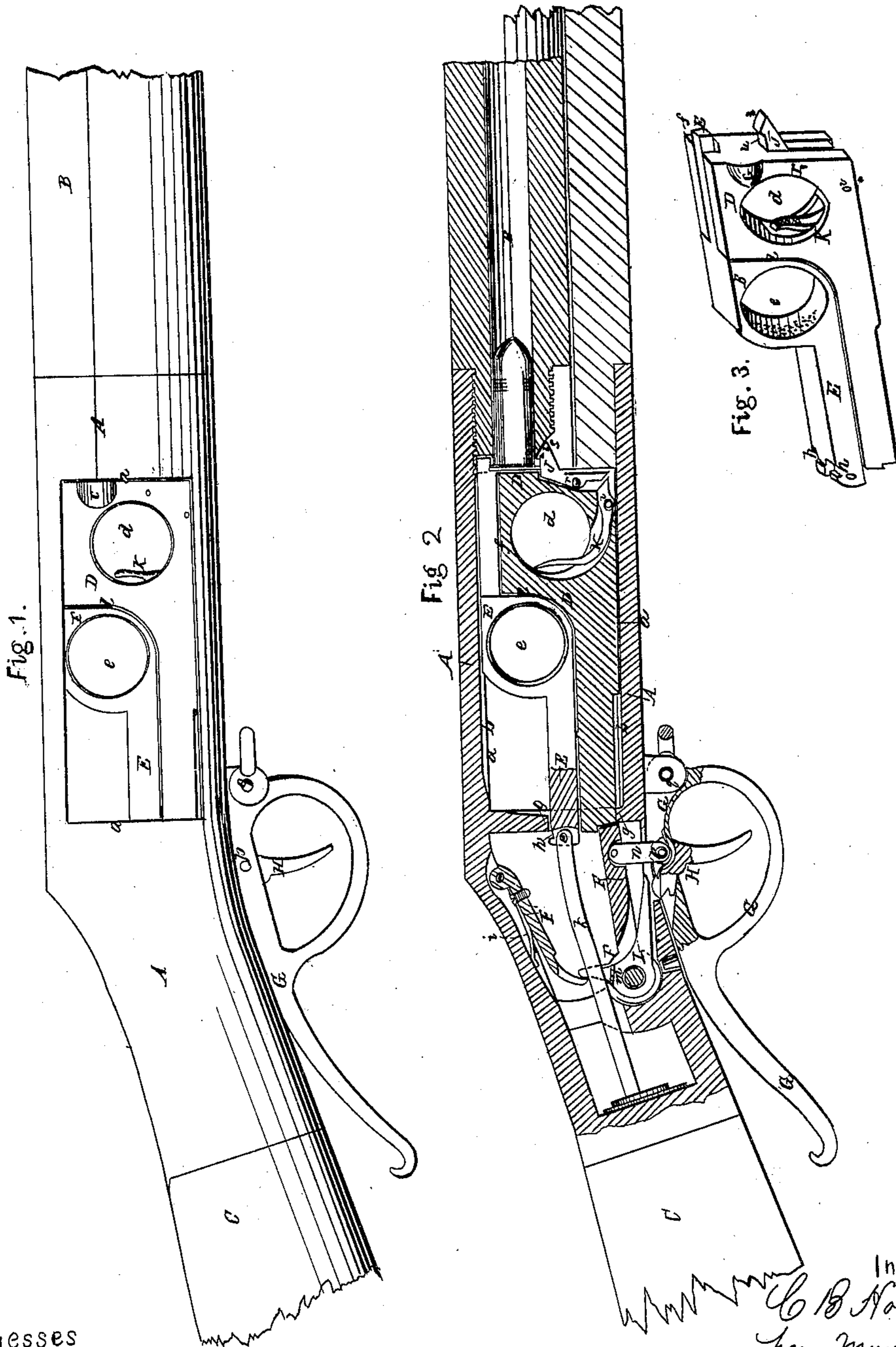


C. B. HOLDEN  
 Breech-Loading Fire-Arm.

No. 34.859.

Patented Apr 1, 1862.



Witnesses

*J. Columbus*  
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# UNITED STATES PATENT OFFICE.

CYRUS B. HOLDEN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND S. H. BOWKER, OF SAME PLACE.

## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 34,859, dated April 1, 1862.

*To all whom it may concern:*

Be it known that I, CYRUS B. HOLDEN, of the city of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of the breech and parts of the stock and barrel of a musket with my improvements. Fig. 2 is a central longitudinal vertical section of the same. Fig. 3 is a perspective view of the breech and hammer.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a novel arrangement and combination of a breech-pin and hammer; also, in a novel mode of locking the breech-pin; also, in a novel mode of applying the trigger in connection with the device which locks the breech, for the prevention of accidental explosion of the charge; also, in a novel arrangement of the sear, and mode of combining the same with the trigger and hammer.

A is the breech-frame, of malleable iron or other metal, having the barrel B screwed into it, and connecting the barrel with the hind part of the stock C. In this frame, immediately in rear of the barrel, there is an oblong cavity *aa*, the upper and lower sides of which are parallel, and which is entirely open on the right side of the gun, as shown in Fig. 1. The top and bottom of the cavity have grooves *bb* formed in them, as shown in Fig. 2, to guide the sliding breech-pin D, which works parallel with the bore of the gun. This breech-pin consists of a flat piece of steel, either made slightly wider or thicker than the caliber of the bore, or with protuberances on each side opposite to the bore, as shown at C in Figs. 1 and 3, to give it the necessary width. It has a hole, *d*, for the reception of one of the fingers of the right hand to draw it back, and its front part is made much deeper than the back part, to admit of this hole. The back part, which is nearly square, passes through a slot, *g*, provided for it in the frame A, in rear of the cavity *aa*. The front end may be

made with a valve or piston-like protuberance to enter the barrel, or with a flat face, as represented, to abut against the rear end of the barrel, the latter construction being preferably adopted when metallic cartridges are to be used.

E is the hammer, arranged to slide on the top of the breech-pin D, within the cavity *aa* of the frame A. This hammer is made from a flat piece of steel of a width or thickness equal to that of the breech-pin, and made deep enough in one part to admit of its having a hole, *e*, large enough for the reception of one of the fingers of the right hand to cock it. The front part is reduced in width, to make it work in and through a groove, *f*, in the top of the breech-pin, and its extremity is made of suitable form to penetrate the cartridge, or otherwise effect the explosion of the percussion priming. The back part works through the back of the cavity *aa* of the frame A, in the same slot, *g*, with the breech-pin, and on the top of the part which protrudes rearward through this slot is formed the cock-notch *h*, for the reception of the edge of the sear F', which is pivoted by a pin, *i*, to the upper part of the interior of the frame A, and which has applied to it a spring, *j*, to throw it into the notch *h* when the hammer is drawn back far enough. The blow of the hammer is produced by a spiral spring (not shown) within the back of the stock, the connection with such spring being made by a rod, *k*. The deeper portion of the hammer is so arranged behind the deeper portion of the breech-pin, as shown at *l* in Fig. 1, that it may be pushed or drawn back by the breech-pin, and cocked by the act of opening the breech of the gun for the reception of the cartridge, which is inserted into the rear of the barrel through the open cavity *aa* of the frame after the breech-pin has been drawn back.

F is a stop for locking the breech-pin in position to close the breech, consisting of a straight bar arranged to swing from its back end upon a fixed pin, *m*, arranged transversely within the back part of the frame A, and of such length that its front end may be raised up behind the breech-pin, after the latter has been pushed up close against or into the rear end of the barrel, and thereby caused to abut

against the rear of the said pin and secure it against the recoil consequent upon the discharge of the gun. When the front end of this stop is sufficiently depressed for the breech-pin to pass over it, the said pin may be drawn back by inserting the finger through the open cavity *a a* into the hole *d*.

The stop *F* is operated by means of a trigger-guard lever, *G*, working on a pin, *q*, under the frame *A*, with which lever it is connected for the purpose by means of a link, *n*, the pulling down of the said lever removing the stop from behind the breech-pin, and the raising of the said lever, after the breech-pin has been pushed forward, replacing the stop behind the said pin. The trigger *H* works on the pin *p*, which serves the two purposes of attaching the lower end of the link to the lever *G* and of attaching the trigger to the said lever. The heel of the trigger acts upon the sear *F'* to liberate the hammer, through the agency of an elbow-lever, *I*, working on the same pin, *m*, as the stop *F*. This lever *I* and the sear are both forked, to allow the rod *k*, before described, to pass through them.

By the attachment of both trigger *H* and breech-pin stop *F* to the guard-lever *G*, as described, the trigger is prevented from being brought to a position for acting upon the sear to liberate the hammer while the breech-pin is unlocked, and by allowing the breech-pin to pass over the stop *F*, when drawn back to open the breech, the trigger is prevented from being brought into the above-mentioned position while the breech is open. These two features of my invention are important, as they insure safety from the accidental explosion of the charge.

*J* is a hooked dog for taking hold of and withdrawing from the barrel the discharged cartridge-cases.

The metallic cartridges used are made with a flange around the base or butt, and the hook *u* of the dog *J* catches in front of this flange. The dog is fitted into a mortise in the lower part of the front of the breech-pin *D*, and attached to the said pin by means of a small transverse pin, *r*, upon which the said dog works like a lever. The hook of the dog protrudes from the breech, to enter a notch, *s*, provided for it in the bottom of the barrel, and the point in front of the hook is beveled, as shown at *t*, Figs. 2 and 3, so that the hook may slip under the flange of the cartridge-case within the barrel. The lower end of the dog is beveled, to be operated upon by the beveled front end of a trigger or finger-lever, *K*, which is placed within a mortise in the bottom of the breech-pin, where it works on a small transverse pin, *v*. The rear end of the lever *K* protrudes into the back part of

the finger-hole *d* of the breech-pin, so that on inserting the finger and moving it back to draw back the breech-pin its pressure comes first on the said lever *K*, and so draws back its rear end and causes its front beveled end so to act upon the lower beveled end of the dog *J* as to cause the hook of the latter to be thrown high enough to insure its catching the flange of the cartridge-case and withdrawing the latter as the dog is brought back with the breech-pin by the continued pull of the finger.

To load the gun, the lever *G* is first pulled down, to remove the stop *F* from behind the breech-pin, and the first or second finger of the right hand inserted in the hole *d*, to draw back the breech-pin, which operation also causes the withdrawal of the empty cartridge-case, if any be contained in the barrel, and the cocking of the hammer. The cartridge is then inserted in the rear of the barrel, the breech-pin moved forward, and the lever *G* moved close up to the frame *A*, to lock the breech, when all is ready for firing. The hammer may, however, be let forward gently and allowed to rest against the cartridge, if it be not desired to fire immediately after loading, and may be recocked by inserting a finger in the hole *e* and drawing it back.

The trigger acts upon the sear to liberate the hammer by pressing up the lower arm of the lever *I*, and so throwing back the upper arm of said lever against the curved under side of the sear.

This invention makes an arm of very simple and cheap construction, as there is very little fitting of the parts required.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The sliding breech-pin *D* and sliding hammer *E*, constructed and arranged in combination with each other, and applied to work either together or separately, in an open-sided cavity, *a a*, in the frame *A*, substantially as herein specified.

2. The stop *F*, applied and arranged in connection with the trigger-guard lever, and in combination with the sliding breech-pin *D*, substantially as and for the purpose herein specified.

3. The trigger *H*, applied in combination with the trigger-guard lever *G*, and the stop *F*, substantially as and for the purpose herein set forth.

4. The seat *F'* and elbow-lever *I*, applied in combination with each other, and with the hammer and trigger, substantially as herein specified.

CYRUS B. HOLDEN.

Witnesses:

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