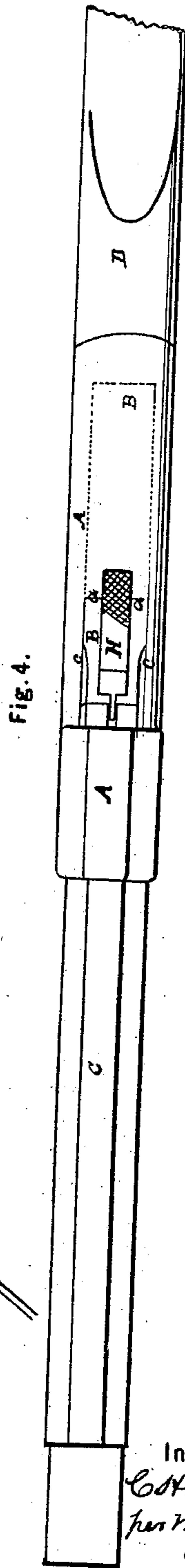
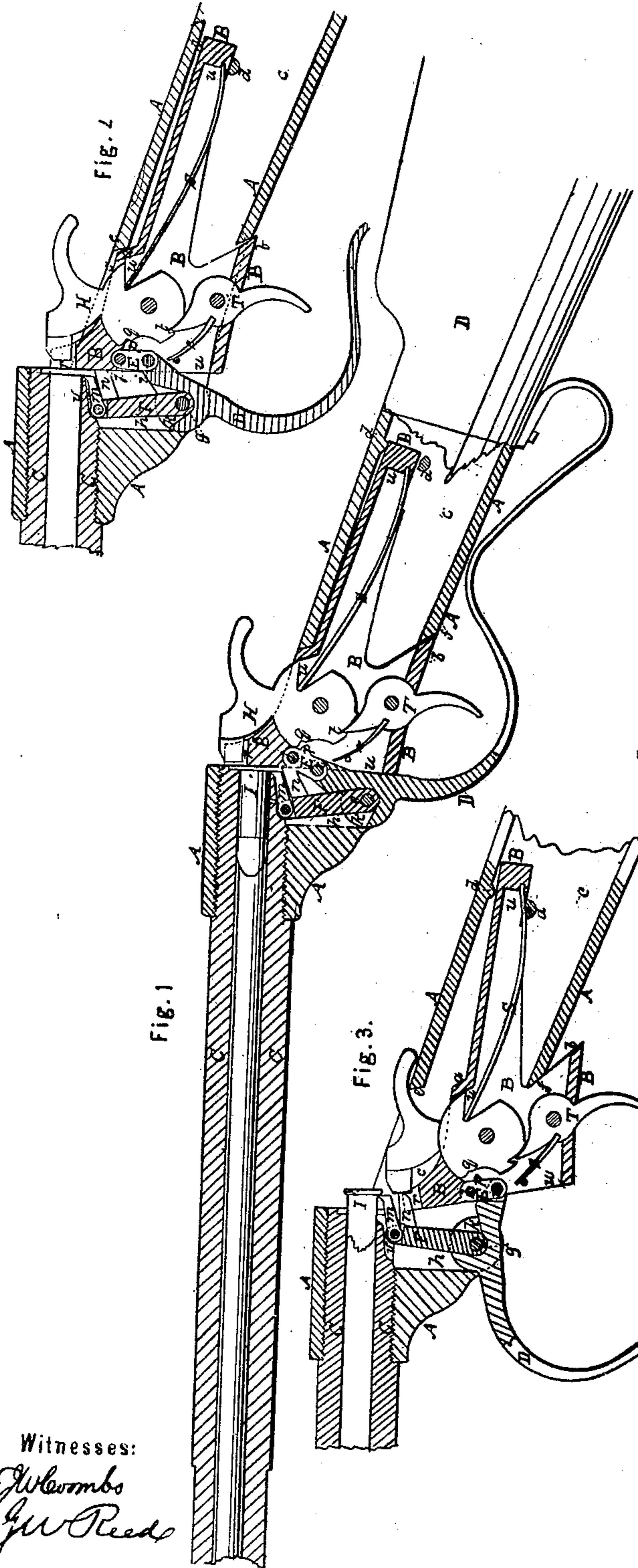


C. H. BALLARD.
Breech-loading Fire-arm.

No. 2,627.
No. 33,631.

Patented Nov. 5, 1861.



Witnesses:
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UNITED STATES PATENT OFFICE.

C. H. BALLARD, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 33,631, dated November 5, 1861.

To all whom it may concern:

Be it known that I, C. H. BALLARD, 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—

Figures 1, 2, and 3 are central longitudinal sections of the breech and parts of the stock and barrel of a rifle with my improvement, showing the breech and lock in different conditions. Fig. 4 is a top view of the same.

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

This invention consists in a novel construction of and mode of applying a movable breech for breech-loading; also, in the arrangement of all the parts of a lock of a breech-loading fire-arm within a slot in the movable breech; also, in certain novel means of bringing the lock to half-cock by the act of opening the breech; and, further, in certain means whereby the cartridge-drawing device, after having drawn the cartridge, is returned to a recess within the barrel, out of the way of the movable breech and lock, by the force of the mainspring of the lock acting through the hammer.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the breech-holder, made of malleable cast-iron or other metal, receiving the movable breech B, and serving for the connection of the barrel C and stock D. The breech B consists of a long parallel-sided block of steel or other suitable metal, having its front part deeper than the rear part, the deeper part terminating in two shoulders, *a* and *b*. This breech is fitted to work up and down, as well as longitudinally, within a parallel-sided cavity, *c c*, in the breech-holder A, and its rear portion is fitted to slide longitudinally between fixed guides *d d*, provided for it in the breech-holder, such guides being so formed with rounded faces as to permit the front end of the breech to move upward to the position represented Fig. 1 and downward to that shown in Fig. 3. In the first-named position the flat front face of the breech fits up to the

rear end of the barrel C and closes the chamber, and its shoulders *a* and *b* fit up to corresponding shoulders, *e* and *f*, provided in the interior of the breech-supporter, to sustain the breech against recoil; and in the other position the front part of the breech has dropped down through the front part of the breech-holder, to open the chamber for the reception of the charge, which is inserted from the rear in a metallic cartridge, I. The breech B is slotted out nearly its whole length, as shown at *u u*, for the reception of the several parts of the lock—viz., the hammer H, the trigger T, the mainspring S, and the trigger-spring *s*, which are or may be arranged relatively to each other in substantially the same manner as in an ordinary gun-lock; and it is to enable it to receive these parts that it is made of the length and form represented and described, the said parts being all attached to it and entirely independent of the stock and barrel of the gun. In the upper and front part of the breech there is a narrow slot, *r*, through which the hammer strikes upon and explodes the priming of the cartridge. D is the breech-operating lever, which also constitutes the trigger-guard, working on a fixed fulcrum, *g*, inserted through a slot, *h*, in the breech-holder A, in front of the breech and below the barrel. This lever is connected with the breech by a link, E, and two pins, *i j*, the said link and a portion of the lever being received within the slot that is provided in the breech for the lock. The said lever D has provided in it, concentric with its fulcrum-pin *g*, a sector-shaped mortise or cavity, *k*, for the reception of a small lever, F, which carries the dog *m*, by which the discharged cartridge-cases are withdrawn from the chamber, the said lever F being fitted to work on the fulcrum-pin *g*. The said dog *m* is pivoted to the upper end of the said lever F, and works in a narrow groove, *v*, provided for it in the rear and under portion of the barrel, in such manner that it may catch the flange which is formed around the rear of the metallic cartridge, and the said lever F has projecting from its rear, near its upper end, a rigid horn, *n*, upon which the hammer acts, as hereinafter described, to return the lever and dog after they have withdrawn a cartridge. The link E, above mentioned, has upon its rear edge a protuberance, *p*, which acts in a notch, *q*, in

the hammer butt or tumbler to half-cock the hammer during the act of opening the breech. When the cartridge has been inserted in the chamber and the breech closed, as shown in Fig. 1, the piece is fired by cocking the hammer by hand, and drawing the trigger in the manner common to ordinary fire-arms. When the discharge has been performed, the lever D is drawn downward and forward, by which means it is caused to give the front end of the breech a downward movement to open the chamber, and this movement is accompanied by a slight backward movement between the guides $d d$, the latter movement being necessary to enable the breech to clear the face of the rear end of the barrel and the surrounding front face of the cavity $c c$ in the breech-supporter, and being produced by the upper front edge of the breech sliding down the side faces. During this movement of the breech the protuberance p on the link E is brought by the bending of the joint i into operation within the notch q in the hammer butt or tumbler in the manner illustrated in Fig. 2, and caused to throw back the hammer past the position of half-cock, so that the sear of the trigger may drop behind the half-cock notch t , in readiness to lock the hammer at half-cock when the lever D is moved upward toward the stock. During this movement of the breech to the position in which the chamber is entirely uncovered and the rear end of the cartridge entire exposed, the lever F remains undisturbed, owing to the room allowed for it in the cavity k of the lever D; but as soon as the cartridge is entirely exposed, the front end of the cavity k comes in contact with the lever F, and the continued movement of the lever D causes the said lever F to move backward, and causes the dog m , by catching against the front of the flange of the cartridge-case, to draw the said case so far from the chamber, as shown in Fig. 3, as to permit it to be laid hold of by the thumb and finger and withdrawn entirely from the gun by hand. In the latter portion of the above-described movement of the levers D and F the horn n of the latter lever is pressed back against the face of the hammer, and the hammer is forced back some distance beyond the position of half-cock, but not to the posi-

tion of fullcock, and when the lever D is no longer pulled forward, the strain produced on the main-spring S of the lock presses forward the hammer against the horn n forcibly enough to press back the levers F and D to the position in which the dog m is drawn entirely back into the groove v in the barrel, where it will permit the insertion of a new cartridge into the chamber. When the new cartridge is put in, the lever D is pulled backward and upward close up to the bottom of the stock, where it is to be secured by a spring-catch, and in this position of the said lever the axes of the pins g , i , and j are all in the same plane, and consequently the breech is locked in a closed condition.

I do not claim, broadly, the application to a fire-arm of a movable breech having a longitudinal and an upward and downward or swinging movement; but

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

1. The breech B, composed of a long block with shoulders $a b$, fitted to corresponding shoulders, $e f$, within the breech-supporter A, and arranged, in combination with a lever, D, to move upward and downward, as well as longitudinally, within a parallel-sided cavity in the said supporter, under the control of guides $d d$ above and below its rear portion, all substantially as herein specified.

2. The arrangement of all the parts of the lock of breech-loading rifle or other small-arm within a slot in the movable breech, substantially as herein specified.

3. The link E, having a protuberance, e , applied in combination with the lever D, the breech, and the hammer, for the purpose of bringing the hammer to half-cock by the act of opening the breech, substantially as herein specified.

4. Combining the lever F with the hammer H by means of a horn, n , or its equivalent, substantially as and for the purpose herein specified.

C. H. BALLARD.

Witnesses:

HARTLEY WILLIAMS,
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