H. A. BUCK.

Breech-Loading Fire-Arm.

No. 214,098. Patented April 8, 1879.

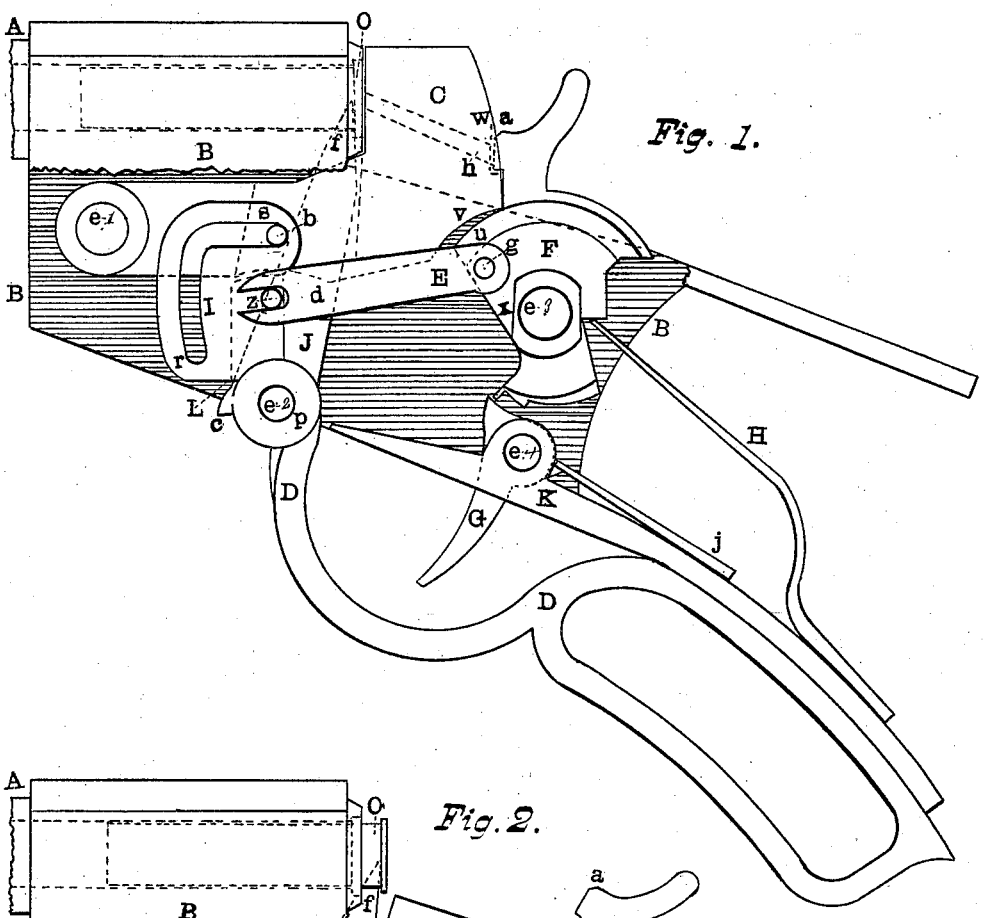

Fig. 1.

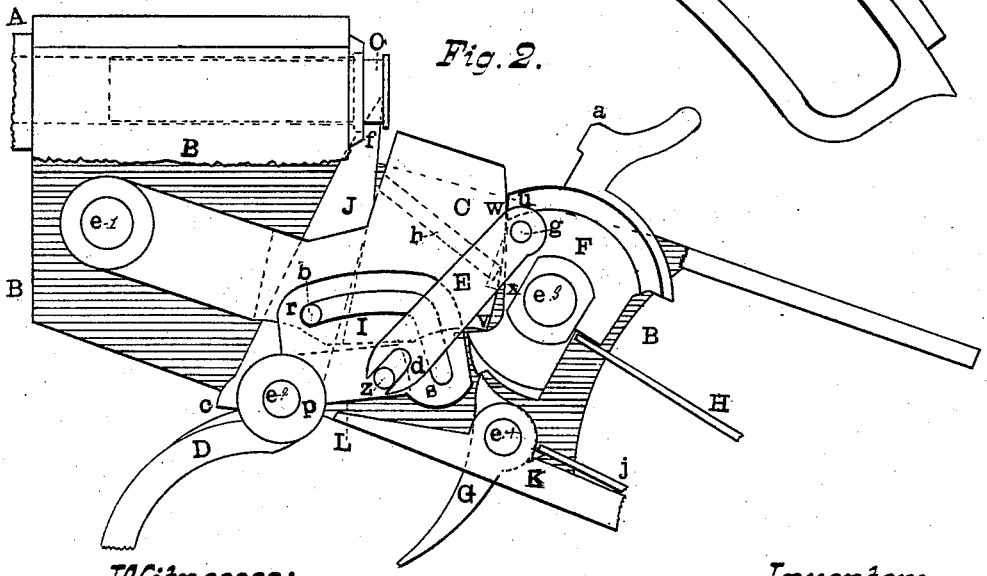

Fig. 2.

Witnesses;
Walter S. Miller
Edward B. Bartow

Inventor;
Henry A. Buck
By Allen Webster Atty

2 Sheets—Sheet 2.

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Fig. 3.

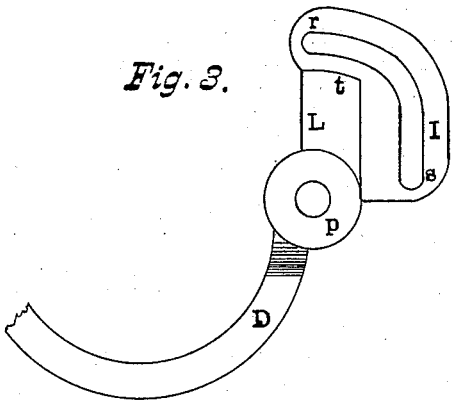


Fig. 4.

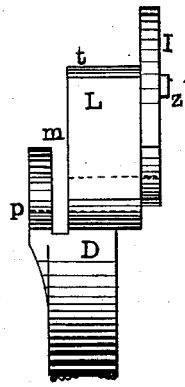


Fig. 5.

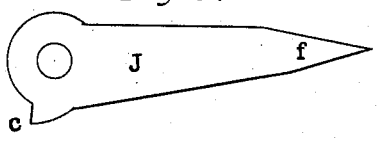
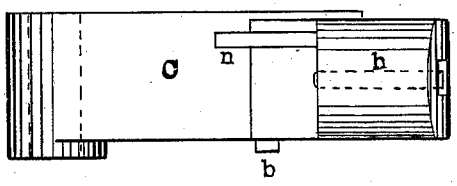


Fig. 6.



Witnesses;
Walter S. Miller
Edward P. Barton

Inventor;
Henry A. Buck
By Allen Webster atty.

UNITED STATES PATENT OFFICE.

HENRY A. BUCK, OF WEST STAFFORD, CONNECTICUT, ASSIGNOR OF ONE-HALF HIS RIGHT TO HENRY WHITON, OF SAME PLACE.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **214,098**, dated April 8, 1879; application filed January 29, 1879.

To all whom it may concern:

Be it known that I, HENRY A. BUCK, of West Stafford, in the county of Tolland and State of Connecticut, have invented new and useful Improvements in Breech-Loading Fire-Arms, of which the following is a specification.

This invention relates to the lock mechanism of breech-loading fire-arms, and devices for extracting the shell and opening and closing the breech.

The mechanism in most of the breech-loaders now in use is faulty. Some of the objectionable features which I claim to overcome are as follows: In none of the breech-loaders, to my knowledge, are the parts so arranged as to force a tightly-fitting cartridge into the cartridge-chamber. A loosely-fitting cartridge is therefore used, thereby increasing the recoil. Especially is this seen when, at the time of firing, the head of the cartridge does not bear against the breech-block. Again, the explosion of the cartridge forces the shell back against the breech-block, rendering the removal of the breech-block very difficult in many of the guns now in use. In many styles, also, is there great danger by reason of the premature discharge before the breech-block is in place and locked, as in the so-called Remington, Stevens, Dexter, and others. In many, also, the parts are small and numerous, rendering the mechanism complicated, springs being often relied upon, especially to force the cartridge-shell from the chamber. The weakening or breaking of any of these springs, which is very liable to happen, renders the arm unfit for use until repaired. In rapid firing it is desirable that the gun be cocked by the same motion that opens or closes the breech; and although I am aware that this is done in some arms, yet there are none, to my knowledge, in which the hammer, after being so raised, can be lowered without exploding the cartridge; hence, if the gun be not fired at once, the hammer or exploding device is left with the spring strained until the gun is fired.

Another objectionable feature of most of the breech-loaders is, that too many motions are required to place the gun in readiness for firing after the explosion of each cartridge.

The object of my invention is to produce a breech-loading fire-arm which shall have the fewest parts possible consistent with safety and effectiveness, with all the motions of all the parts, except the hammer and trigger, positive, and not dependent upon springs, and in which a tightly-fitting cartridge can be used with ease, in which the recoil is reduced to a minimum, and in which one motion cocks the gun, opens the breech, and ejects the shell, and a return motion places the arm in readiness for firing after the cartridge is inserted.

The invention therefore consists in a shell or frame, to which the barrel is rigidly attached, within which frame the breech-block and lock mechanism operate; in the combination of a breech-block having a side cam device, provided with a pin, a hammer, a slotted connecting-arm, and an operating-lever; and, finally, in the general construction and arrangement of the parts by which the gun is cocked, the breech opened, and the shell extracted by one motion of the lever, and the cartridge forced in, and the breech closed, and the block locked in place by another motion of the lever, leaving the gun cocked.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a side view of my invention, with one side of the frame B removed, being broken away below the barrel and back of the hammer, disclosing to view the position of the parts at the moment of discharge. Fig. 2 is a view of the same, showing the position of the parts at the time of the insertion of the cartridge. Figs. 1 and 2 are views looking at the device from the left. Fig. 3 is a view of the cams which operate the breech-block, with a part of the lever to which it is attached. Fig. 4 is a view of the same as seen from the right of Fig. 3, or, in other words, a view of the cam when in the gun if seen from the direction of the barrel. Fig. 5 is a side view of the extractor, and Fig. 6 is a top view of the breech-block.

I make the lock frame or shell B of one piece, as seen in Figs. 1 and 2, in which the left side

is broken away below the barrel and back of the hammer.

The breech-block C is made with a front vertical wall and a rear curved surface, of the shape shown in Figs. 1, 2, and 6, and is pivoted ahead of and below the rear end of the barrel at the point e^1.

By this construction of the breech-block I obtain an upward and forward movement when closing the breech, thus forcing a tightly-fitting cartridge in place by a slow motion, which cannot in any way explode the cartridge, and leaving the rear end of the cartridge bearing against the breech-block, thus doing away with the recoil, which is always noticeable when the cartridge does not bear against the breech-block at the time of explosion. Again, the recoil of the shell does not have the effect of wedging the breech-block in place, making it difficult to move, as is the result in some breech-loaders.

The breech-block is drawn down by the action of the cam device I, which, being moved backward by the forward motion of the lever D, causes the pin *b*, on the side of the breech-block C, to traverse the slot *s* until it reaches the point *r*, thus drawing the breech-block downward and opening the breech. The breech is closed by a reverse motion of the lever D, which brings the large cam L (see Fig. 4) against the lower side of the breech-block C, forcing it into place, and at the same time gradually forcing the cartridge home, leaving the rear end of the cartridge, however, bearing against the breech-block. The cam L being in an upright position, bearing against the lower side of the breech-block, renders it impossible to open the breech by any force from the cartridge without breaking the parts.

The lower and rear end of the breech-block is made a section of a circle, to allow the hammer to roll below it, (see Fig. 1,) thus rendering it impossible to explode the cartridge by the action of the hammer until the breech is closed and the breech-block securely locked in place; and it will be seen that if the trigger should fail to engage in the hammer-notches at the time the hammer is raised it cannot at any time while the lever D is away from the stock explode the cartridge, as its motion downward cannot be more rapid than the cam device I, to which it is attached by the connecting piece or arm E, thus lowering the hammer gently to place, or allowing it to catch at half-cock.

The arm or piece E fits on the pin *g* and the hammer F, and is slotted at the end *d*, to allow it to move on pin *z*.

It will be seen that a backward motion of the cam device I, in which is pin *z*, will force the piece or arm E in the same direction, thus cocking the gun. A reverse motion of the lever replaces the parts as when the lever D was first moved, with the exception of leaving the gun cocked. The hammer may then be lowered in the ordinary manner if it is not desired to fire the gun, or by pressure on the trigger, which, being disengaged in the ordinary manner, allows the hammer to descend rapidly, striking the pin *h*, which strikes and explodes the cartridge.

I make the ejector of the shape shown in Fig. 5. It fits within the slot *m* between the cam L and piece P, (see Fig. 4,) and turns on the same pin with lever D. It passes upward through the slot *n* in breech-block C, and fits within a recess or chamber in the rear end of the barrel, just in front of the flange on the cartridge. At its lower end is the projection *c*, against which the lever D strikes when carried forward, thus giving the ejector J a positive, powerful, and rapid motion backward at the point *f*, which, bearing against the flange on the shell, forces it outward.

It will be seen that a moderately quick motion of the lever D will throw the shell clear from the chamber.

The main or hammer spring H and trigger-spring *j* are substantially the same as in the ordinary gun, and their shape and position may be changed. I make no claim upon these.

It will also be seen that part of the lever D may be used as the trigger-guard, as I have shown it; or the trigger-guard may be made separate, and the lever D lie over it; or the lever D might rest against the part of the arm ahead of the pin e^2, and the motions of the lever be the opposite of the ones shown, without altering the general arrangement and construction described. I deem, however, the method and operation shown and described the best and most convenient.

I make the piece K (see Figs. 1 and 2) separate, and secure it to the shell or frame B by screws or pins, though it may, if desired, be made a part of the frame B, and the whole cast or forged in one piece.

It will be seen that I do away entirely with the use of springs, except the two mentioned, and that all the parts are of a good and convenient size to manufacture.

If it is desired, a bolt or some other device for striking the firing-pin, or for striking the cartridge, may be substituted for the hammer shown, without any alteration of the principle of my device, and with but very little change in the shape of the parts.

The great advantage of my device over all now in use will be seen in the fact that all the motions are positive except the hammer and trigger, as stated, all the parts being operated by the movement of the lever D, and each following the other in regular order. On moving the lever D forward the gun is first cocked. The breech-block then moves downward and backward away from the breech. The extractor then throws the shell from the chamber.

On a fresh cartridge being placed in the breech, the lever D is brought back to place, which closes the breech, forcing the cartridge home, and locking the breech-block in place, leaving the gun cocked ready for firing.

The advantage of the breech-block moving

in the arc of a circle in contradistinction to sliding vertically within the breech-piece is, that in the latter a loosely-fitting cartridge has to be used, so as to drive it home with the thumb; whereas in the former a closely-fitting cartridge is used, which is gradually fed or driven home, after being inserted, by the breech-block in its upward and forward movement, caused by mechanism, the lower edge of the shell resting upon the front wall thereof until it assumes the vertical position, closing the breech.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a breech-loading fire-arm in which the barrel and frame are rigidly connected together, the combination of a breech-block pivoted under the barrel so as to move in the arc of a circle, a lock mechanism, and a pivoted lever, all constructed substantially as described, whereby the breech of the barrel is opened to receive the charge and the hammer thrown into a cocked position for firing simultaneously, substantially as described.

2. The combination, in a breech-loading fire-arm, of the breech-block C, cam device I, provided with side pin *z*, hammer F, connecting-arm E, slotted at its lower end to engage with the pin *z*, and pivoted at the other end to the hammer, and the operating-lever D, substantially as and for the purposes set forth.

3. The combination, in a breech-loading fire-arm, of a breech-block having a side pin, a cam device with a side pin and slot, a connecting-arm slotted at one end and pivoted at the other end to the hammer, an ejector, and a pivoted lever having a forward movement, whereby the forward movement of the lever causes the hammer to be locked, the breech-block to be thrown downward, and the ejector moved rearward.

HENRY A. BUCK.

Witnesses:
G. A. ASHLEY,
ALLEN WEBSTER.