George H. Ferriss.

Imp'd. Breech Loading Gun.

No. 119,834. Patented Oct. 10, 1871.

Fig. 1.

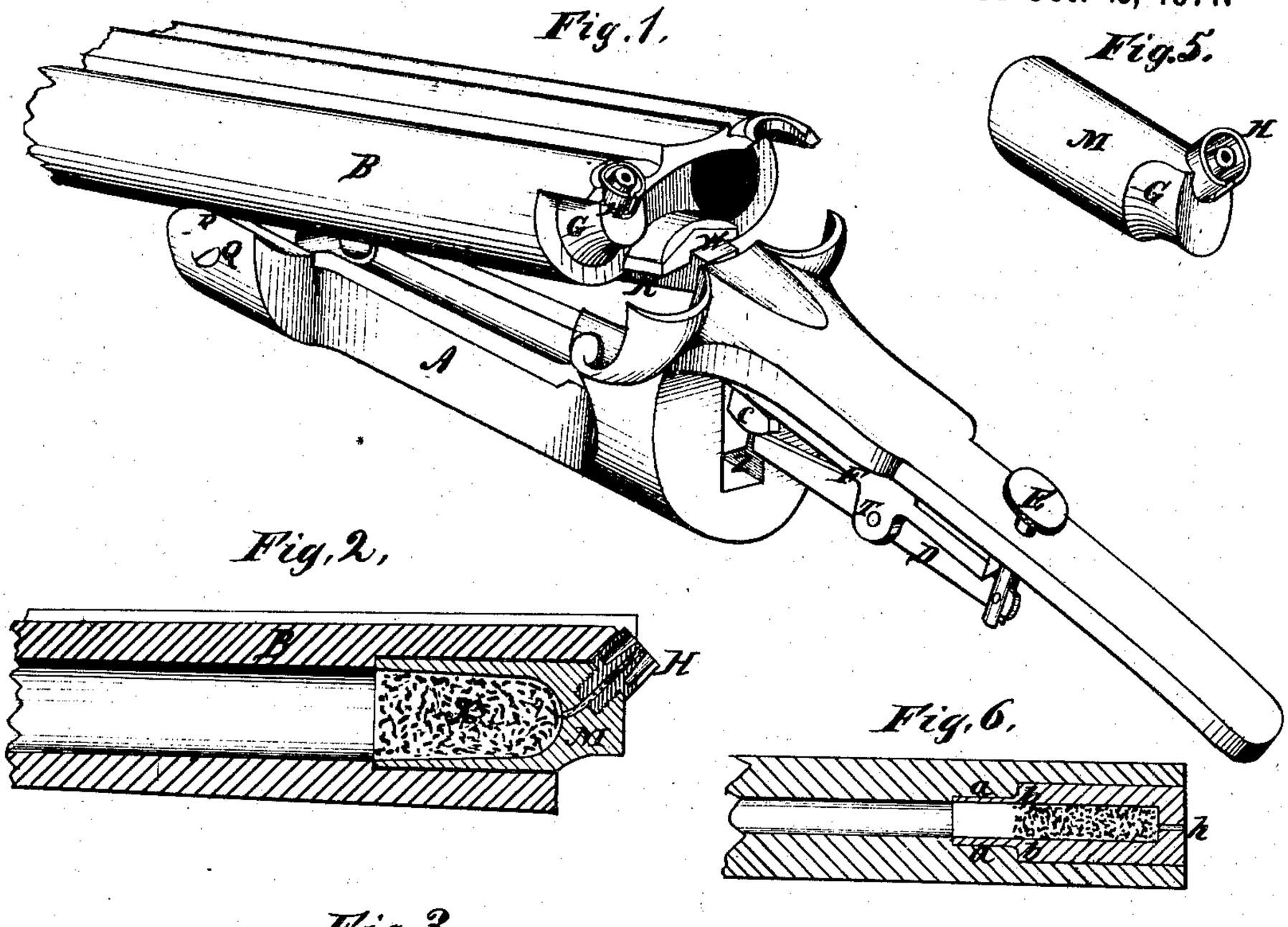


Fig. 5.

Fig. 2.

Fig. 6.

Fig. 3.

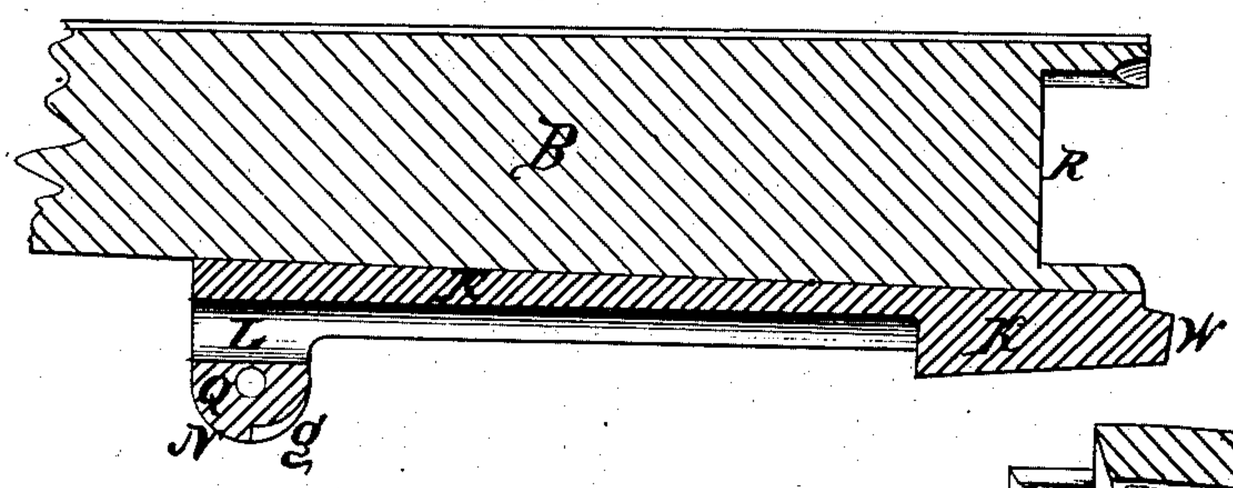
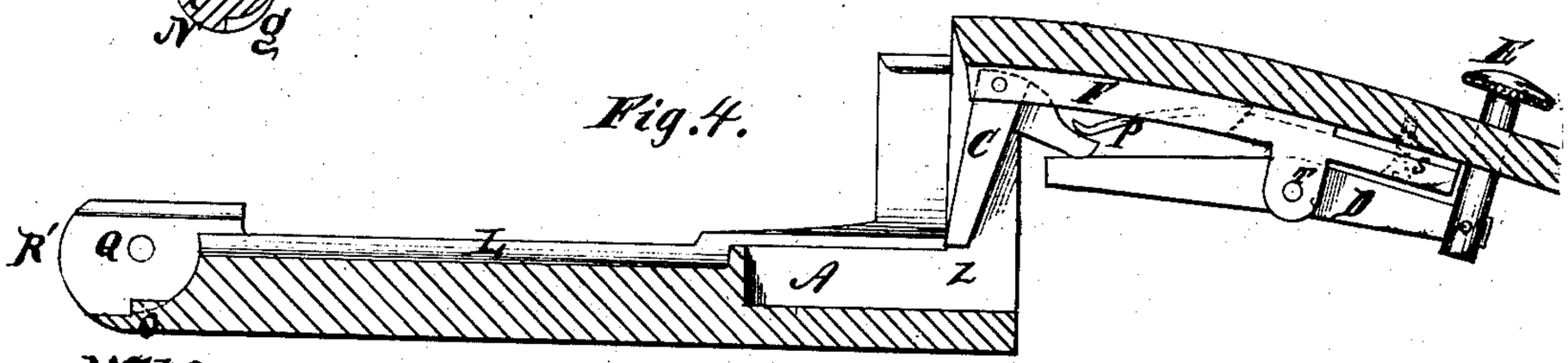


Fig. 4.



Witnesses:

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119,834

UNITED STATES PATENT OFFICE.

GEORGE H. FERRISS, OF UTICA, NEW YORK.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 119,834, dated October 10, 1871.

To all whom it may concern:

Be it known that I, GEORGE H. FERRISS, of the city of Utica, in the county of Oneida and State of New York, have invented a new and Improved Breech-Loading Gun, of which the following is a specification:

Figure 1 is a side elevation of that part of the barrels and the break-off and the breech of the gun which contains the devices for locking and unlocking the barrel and for resisting the longitudinal strain of the powder. Fig. 2 is a longitudinal vertical section through the center of one barrel, and of a cartridge, embodying my new improvements, as to the shape of its inside bottom and outside bottom cavity, and my peculiar cone or nipple. Fig. 3 is a longitudinal vertical section through the center of the rear half of a double-barrel gun between the barrels, showing opening in end of barrel for drawing the cartridge with the fingers; also, catch for holding down the barrel, opening for ramrod, tongue for hinge, and a stopping mechanism to prevent the breech of the barrels from being elevated too high. Fig. 4 is a vertical longitudinal section through the center of Fig. 1, the barrels of the gun being removed, showing the devices for locking and unlocking the barrel, the opening for ramrod, and the stopping mechanism to prevent the barrels from being elevated too high. Fig. 5 is a perspective view of the cartridge and cone, showing the concavity of the side and bottom of the cartridge to afford a hole for the fingers, and the cone surrounded with a curb. Fig. 6 is a longitudinal vertical section of a barrel in whose rear end is placed a cartridge, the sides of this cartridge, near its rear end, being made of an extraordinary thickness.

A is the break-off and frame-work, of one solid piece, forming the base at the breech of the barrels. B B are the barrels of the gun. C, Figs. 1 and 4, is a pivoted bent lever forming a latch by catching over the projection W. There is a slot, Z, in the break-off for the admission of bent lever C, and also to admit its play, Figs. 1 and 4. D is a lever, working on a fulcrum at T. One end of this lever D passes under the rear end of bent lever C. The other end of the lever D is attached, by a pivot, to the upright thumb-piece E, and is operated by said thumb-piece. F is a frame, which supports the bent lever C, lever D, thumb-piece E, and spring P. This piece F is made separate from the break-off, so as to permit of easy removal for repairs, and so that an injury to any of the parts supported by it will not require the substitution of a new break-off. This spring P is fastened at its rear end into frame F by screw S, and operates by pressing upon the top of the rear arm or limb of the bent lever C, and thus pressing forward the front arm or limb of the said lever C. K is a piece extending along under the barrel or barrels, as will be hereinafter described. The front end of this piece K extends downward and forms the tongue or center N (see Fig. 3) of a hinge. Through this tongue-hinge N, and parallel with the barrel B, is bored a hole, L, for the reception of the ramrod. The rest of the bottom of piece K, between this hinge and where the projecting piece K begins, is grooved to admit the ramrod. Upon the hinge-tongue N a shoulder at *g* is formed by cutting into the lower periphery of N and toward its center. This tongue-hinge N fits between two ears, R′ R′. (See Figs. 1 and 4.) These ears R′ R′ are formed upon the front end of the frame-piece A, and are pivoted to the tongue N by pivot Q. On the piece A (see Fig. 4) between the ears, and on the center of the cavity which fits to the periphery of the tongue, is formed a raised shoulder, O, which fits into the cavity *g*, Fig. 3. This stop-piece O prevents the breech from lifting beyond a proper height. In the top of frame A is a groove, L, corresponding to the groove L in K, to admit the ramrod. A part of the rear end of the barrel B is cut away, as shown at R, (see Figs. 1 and 3,) leaving a small projection or remnant of the barrel at the top and another at the bottom. This cutting away of the barrel is for the purpose of admitting the fingers in drawing the cartridge, and thus facilitating the drawing of the cartridge. M, Fig. 5, is the cartridge, of which X, Fig. 2, is the inside cavity which receives the powder. The bottom of this cavity X is made in the form of a basin or hollow cone. With this cavity in the bottom, when the cartridge is fired the slanting sides of this basin-bottom gives the powder in the rear end of the cartridge an oblique direction forward, thereby assisting in propelling the ball or charge forward, and also preventing at the rear end of the cartridge direct lateral pressure upon the sides of the barrel. The rear end of the cartridge is narrowed down by its sides and bottom being made concave, as shown at G, Figs. 2 and

5, for the purpose of giving a strong hold upon it for the fingers in withdrawing it from the barrel after fire. H (see Figs. 1, 2, and 5) is the percussion-cone or nipple screwed into the cartridge, Fig. 2. This cone is surrounded by a curb to protect the cartridge from exploding when carried about. This curb is attached to the cone independently of the cartridge. *h* (see Fig. 6) is a cartridge, peculiar in having the forward portion of the shell *a a* made smaller in circumference and thinner in thickness than the rear end of said shell. This rear end is made of an extraordinary thickness. The front portion *a a* is joined to the thick rear part by a shoulder at *b*. This shoulder may be of any desirable shape; or the outside of said cartridge may taper from rear to front. The diameter of the bore of this cartridge is the same from rear to front. The object of making the sides of the cartridge at its rear end thick is to give strength to a rifled cartridge where the powder first explodes. The object in making the front end *a* of the shell thin is to allow the cartridge to expand and cut off the leakage of gas between its outside and the inside of the barrel.

The mode in which my locking device operates is as follows: The breech being closed, when it is desired to unlock the barrels in order to insert the cartridge the thumb-piece E is pressed down; E in turn presses down lever D, and D, overcoming the spring P, lifts the rear end of bent lever C. As this rear end of lever C is lifted its front end is brought back, and thus releases the projecting catch W. The barrels are then unlocked, and can be immediately raised up until stopped by the stop-piece O at *g*. The cartridge M is then inserted, and the barrels are brought down and locked by the lower end of the forward arm of the lever C being pressed forward by spring P and sliding over catch W; the piece is then ready to be fired.

The lock of this gun is the ordinary lock of ordinary guns, with this exception, that the striking end of the hammer is not hollowed out; but has a slight projecting hub to strike the nipple within the curb without striking the curb.

I claim as my invention—

1. The projecting piece W, whenever it projects beyond the rear end and below the center of the barrel, in combination with a bent lever, as C, substantially as and for the purposes specified.

2. The bent lever C, operating within or partially within the slot Z in the break-off upon the projecting catch W, substantially as and for the purposes herein described.

3. The thumb-piece E, in combination with lever D, pin T, and bent lever C, substantially as and for the purposes specified.

4. A cartridge, without reference to its interior shape, the bottom and sides only of which are cut away at or near its rear end, in a concave or other form, so as to facilitate the grasping of the cartridge while permitting attachment of the nipple upon its top near its rear end, substantially as and for the purposes set forth.

5. The recess R in the rear end of the barrel, to give room in drawing the cartridge, substantially as herein described.

6. A curb surrounding a cone or nipple, provided with a slit for the purpose of withdrawing the percussion-cap from the cone after fire.

7. The piece F, when made separate from the break-off or piece A, for the purpose of holding the pivoted levers C and D.

GEORGE H. FERRISS.

Witnesses:

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