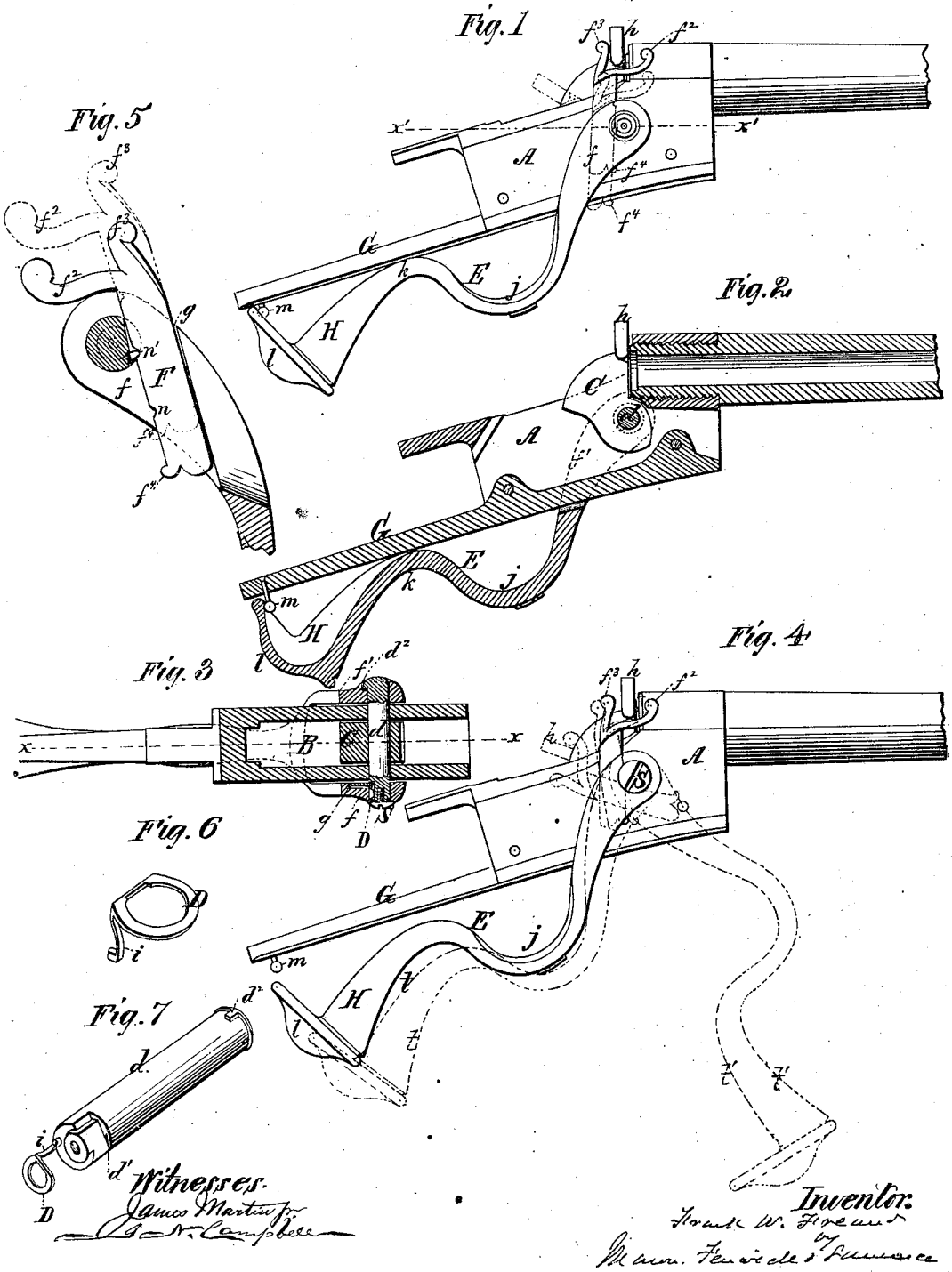
F. W. FREUND.

Guard-Lever and Means for Operating the Breech-Block of Breech-Loading Fire-Arms.

No. 162,374. Patented April 20, 1875.



UNITED STATES PATENT OFFICE.

FRANK W. FREUND, OF DENVER, COLORADO TERRITORY.

IMPROVEMENT IN GUARD-LEVERS AND MEANS FOR OPERATING THE BREECH-BLOCK OF BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **162,374**, dated April 20, 1875; application filed March 19, 1875.

CASE C.

To all whom it may concern:

Be it known that I, FRANK W. FREUND, of Denver, county of Arapahoe and Territory of Colorado, have invented a new and Improved Guard-Lever and Pistol-Grip, and a means for operating the breech-block of breech-loading fire-arms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a longitudinal section in line *x x* of Fig. 3; Fig. 3, a section on line *x' x'* of Fig. 1; and Fig. 4, a side elevation, showing the movements of the guard-lever when used to open the breech of the gun. Figs. 5, 6, and 7 show parts of the gun in detail.

In this improvement, A is the frame which supports in position the several operating parts, and upon which they articulate. This frame is constructed with an opening or longitudinal slot, B, in which the breech-block C articulates upon a pin, *d*, which passes transversely through said frame and the breech-block C and prongs of the guard-lever E, as shown.

The main object of this invention is to afford the means whereby the breech-block may be operated, either separately or by the guard-lever, as may be desired. To effect this a slide, F, is attached between one of the forks of the forked guard-lever and the frame A, and in rear of the transverse pin *d*, on which pin the forward ends of the forks *f* and f^1 articulate during the movements of said guard-lever. This slide F is guided in its up-and-down movements by an open slot or groove, *g*, cut in the inner face of the prong *f*, into which slot the said slide is seated, as shown; and when properly seated in said slot the forward edge of the slide is made to travel against the pin *d*, which for such purpose is cut away, so as to form a shoulder, d^1, which shoulder, abutting against the inner face of the slide F, prevents the slide from frictional contact with the side of the frame A during the up-and-down movements of said slide.

By reference to Fig. 7 it will be seen that the pin *d* is provided near one end with a detent, d^2, projecting therefrom, as shown, which detent, when in place, seats itself into a corresponding slot cut in the prong f^1, so that when the pin is in working position the pin and guard-lever are made to articulate together simultaneously whenever the guard-lever is moved, and during which act the slide F is carried bodily forward or back in accord with the forward or back movement of the guard-lever.

The slide F is constructed of a single piece of metal, terminating at its upper end in projections somewhat in forked form, as at f^2 and f^3, one of which forked ends, f^2, occupies a position in front, and the other, f^3, in rear, of the thumb-piece *h* of the breech-block C, when it is desired to open or close the breech-block by the movement of the guard-lever. In other words, when the slide F is moved up, as in Fig. 1, so as to open the breech-block by the movement of the guard-lever, the projections f^2 and f^3 of the slide F will straddle the thumb-piece *h*, so that the movement of the guard-lever, carrying with it the slide, will cause the projections f^2 and f^3 to strike the thumb-piece *h*, and so open or close the breech-block, as the case may be.

It will be seen that when the breech-block is closed, and the guard-lever in position, as shown in Fig. 1, the projection f^3 impinges against the rear of the thumb-piece *h*, while the projection f^2 is some distance forward of, and out of contact with, the front face of the thumb-piece, which condition allows of the depression of the guard-lever for the purpose of half-cocking or full-cocking the gun (as may be desired, through proper mechanism connecting the lower guard with the gun-lock) before the projection f^2 shall strike the thumb-piece on the depression of the guard-lever.

In order to arrest an undue upward movement of the slide F, a slight projection, or other equivalent means, as at f^4, is made on the lower end of the slide, which projection strikes against a portion of the forked end *f* of the guard-lever, when the slide is elevated to a

proper extent; and the downward movement of the slide is limited by a portion of the projection f^2, which overlaps and rests upon the forward part of the end f of the guard-lever when said slide is thrown down, as indicated in Fig. 1, so that its forked ends f^2 and f^3 do not straddle the thumb-piece h.

When the slide F is thrown down to its lowest extent and the guard-lever closed, the gun can then be cocked and the breech-block manipulated by the hand of the operator without any movement of the guard-lever and slide, during which act the lower edge of the thumb-piece h, in its movements, will be out of contact with every portion of the slide F. By reference to Figs. 6 and 7 it will be seen that the pin d has a metal spring-cap adapted to be seated upon its shouldered end. This spring-cap D is in **D** form, so that when the corresponding end of the pin is inserted into the cap, the latter will be prevented from turning on the pin, and both will then turn together to and fro by the movement of the guard lever. This cap has a small spring, i, projecting from its main portion, as shown in Figs. 6 and 7, so that when the slide F is placed in working position, the inner edge thereof will slightly press upon or force back the spring i. The slide, then, being elevated to a position to work the breech-block, this spring will seat itself into the notch n, thus retaining the slide in such elevated position; and when the slide is depressed to its lowest extent, the said spring will then seat itself in the notch n' of the slide, and thus in either case retain the slide in a desired position. The pin d having been inserted through the frame A, forks f and f^1, and breech-block C, all of these several parts, including the spring-cap on said pin, are secured in place by the screw S applied thereto, as shown.

In order to retain the slide F entirely out of contact with the frame A, this slide is dovetailed on its rear edge and made to travel in a corresponding groove (shown in Fig. 3) properly cut in the back of the open slot g.

The guard-lever E, it will be seen, is peculiarly constructed—first, in that it is made entirely of one piece; and, second, that it terminates, as at H, in the likeness of the "butt" of a pistol, in that portion which is grasped by one of the hands of the operator in the act of firing, thus affording a pistol-grip on this lever during such act.

It is made as clearly represented in Figs. 1, 2, and 3, having a bow form at j for the trigger-guard, and from the point k, at which the rear of the trigger-guard terminates, it is made of increased width and oval form in cross-section in the outline of a pistol-butt, as shown. Its extreme rear end l is formed like the rear end of pistols, which have such end in egg form in plan view. The guard-lever thus forms a pistol-gripe, H, in that portion which is in rear of the trigger-guard j, which rear portion may be hollowed out, so as, in fact, to form a partial shell rather than a solid portion of metal for such grip. The rear end of the trigger-blade G is provided with a pin-button, m, projecting therefrom, as shown, over which button the hollowed-out end l (see Fig. 2) of the pistol-grip may be sprung, so as to cause a portion of the button m to enter the cavity of the part l, and thus retain the parts in the position shown in said figure.

The operation is as follows: The gun having been fired off, the guard-lever, slide, and breech-block will then be in the position as shown in Fig. 1. To reload by the use of the guard-lever, such lever is then slightly depressed, as shown in full lines in Fig. 4, which act, through proper mechanical appliances in connection with such lever, will half-cock the gun. This act will cause the projection f^2 of the slide F to approach a certain distance toward the thumb-piece h. A still further depression of the guard-lever, as shown by dotted lines t t in Fig. 4, is then made, thus causing the gun to be fully cocked and the projection f^2 to approach still nearer, but not touch, the thumb-piece h. A further and full depression of the guard-lever, as indicated by dotted lines t' t' in said figure, will then cause the projection f^2 to throw open the breech-block to its full extent, and force out of the gun-barrel the cartridge which has been exploded, and allow a new cartridge to be inserted in its place. This being done the guard-lever is then brought back to its original position shown in Fig. 1, the projection f^3 during this movement coming in contact with the thumb-piece, and forcing the breech-block against the rear end of the gun-barrel, and thus completing the forcing home of the newly-inserted cartridge into the gun-barrel, after which the gun is fully ready to again be fired.

Under certain circumstances the operator may be in such a position that he cannot, or may not wish to, use the guard-lever and slide to prepare the gun for firing. In such case the slide F is shoved down out of contact with the thumb-piece h of the breech-block, and he can then cock the gun and manipulate the breech-block with his fingers alone without moving the guard-lever at all.

It is obvious that the distance between the projections f^2 and f^3 may be such as to operate the breech-block when the hammer is either half or full cocked, whether the guard-lever solely or the hand of the operator is used for opening the breech and cocking the hammer, as in my patent dated March 16, 1875; and, further, that the mechanical appliances for holding the hammer and breech-block in given positions, as shown in my application for a patent for improvement in breech-loading fire-arms filed in the Patent Office concurrent with this application may be applied in connection with this improvement when the arm is to be operated by either the hand or guard-lever; but under such construction, if the lever is connected with the thumb-piece, the hammer can only be moved

to the half-cock by the lever, and must be fully cocked by hand.

It will be seen that by my construction and application of the slide F for effecting the movements of the breech-block, I leave such block, and also the breech-pin, solid, and thus utilize the full strength of these parts for resisting the explosion of a heavy charge of powder.

What I claim is—

1. The combination of a breech-block, an operating-lever, and an intermediate connecting device, the lever and connecting device being applied outside of the frame of the arm, substantially as described.

2. A guard-lever having its rear end constructed in the form of the lower part of a pistol-stock, substantially as described.

3. The slide F, constructed with the projections or arms f^2 f^3, with a play-space between, adapted to operate the breech-block, substantially as described.

4. The cap-spring D, in combination with the pin *d* and slide F, substantially as and for the purpose described.

FRANK WM. FREUND.

Witnesses:
J. N. CAMPBELL,
J. W. HAMILTON JOHNSON.