S. HOWARD.

Breech-Loading Fire-Arm.

No. 36,779 Patented Oct 28, 1862.

Witnesses
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SEBRE HOWARD, OF ELYRIA, OHIO.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **36,779**, dated October 28, 1862.

To all whom it may concern:

Be it known that I, SEBRE HOWARD, of Elyria, in the county of Lorain and State of Ohio, have invented a new and Improved Breech-Loading Fire-Arm; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification—

Figure 1 being a side view of said fire-arm; Fig. 2, a view of the under side of the same; Figs. 3 and 4, longitudinal sections in the line *v v* of Fig. 2; Fig. 5, a transverse section in the line *z z* of Fig. 3; Fig. 6, a side view of the bayonet D and a portion of the barrel C, with which it is connected; and Fig. 7 is a view which more clearly illustrates the manner of connecting the barrel C with the breech-piece B than is shown in the other drawings.

The stock A and the barrel C of my improved breech-loading fire-arm are connected with each other by means of a hollow metallic breech-piece, B, which contains and conceals from view every portion of the gun-lock with the exception of a portion of the trigger *e* and the two jointed levers F and G, as represented in the drawings.

The lock of my improved breech-loading gun consists, essentially, of the tubular piston E, the hammer-rod H, the mainspring *b*, the sear *c*, the bridle *d*, the trigger *e*, the set-trigger *g*, the set-pin *y*, and the jointed levers F and G, the said parts being arranged with each other in the manner represented in the accompanying drawings.

Fig. 4 represents the aforesaid parts of my improved breech-loading gun as being in a proper position for the reception of a loaded cartridge, to be inserted through the opening *a'* in the right-hand side of the front portion of the breech-piece B, and Fig. 3 represents the said parts in the position that they are thrown into by the movement which carries the said cartridge forward into the chamber of the barrel, the said movement also serving the purpose of cocking the gun, if desired, preparatory to the instantaneous firing of the same. The solid head *o* of the tubular piston E receives the recoil of the cartridge at the instant of discharging the same; or, in other words, it acts in the place of the breech-pin in other guns. The after end of the hammer-rod H is guided in its movements by passing through a small aperture between the front and rear portions of the breech-piece B, as shown in Figs. 3 and 4. The mainspring *b* embraces the hammer-rod H, and acts between the head *a* of said rod and the bottom of the tubular piston E. Two pins, *n n*, pass outward through holes in the solid head *o* of the tubular piston E from a valve-plug, *q*, which is placed within the said piston, and which is so arranged that for the desired distance it has a free longitudinal play within said piston. The said pins *n n* occupy such relative positions that when the valve-plug is driven forward by a blow from the head *a* of the piston-rod H the said pins will strike on opposite edges of the cartridge in the chamber of the gun, and with sufficient percussion force to explode the fulminating composition in the bottom of said cartridge. I sometimes supply the valve-plug *q* with a central pin, by which I am enabled to use cartridges in my improved fire-arm that are furnished with nipples and percussion-caps. The valve-plug *q* is fitted with such a degree of accuracy on its seat within the tubular piston E as to render it impossible for any gas to escape from the chamber of the fire-arm into the interior of said piston to injure the mainspring *b* and the other portions of the gun-lock. An ear, *r*, projecting from the under side of the tubular piston E, through the slot *c'* in the under side of the breech-piece B, is pivoted to the inner end of the solid lever F, while the outer end of the U-shaped lever G is pivoted to the ear *x*, which descends from the under side of the front end of said breech-piece, which arrangement enables the requisite sliding movements to be imparted to the said tubular piston, and also enables the said levers to be shut into the closed position shown in Fig. 4. The curved outer end of the lever F forms the trigger-guard of my improved fire-arm. The projection from the inner surface of the lever F, which shuts into the slot *c'* in the under side of the breech-piece B, is of such a shape that when the said lever is in the closed position shown in Fig. 3 the said pro-

jection forms a closely-fitting and a rigid block between the after end of the said slot and the after end of the tubular piston E; and the set-trigger *g*, the set-pin *y*, and the sear *c* of the lock are so arranged with relation to each other and to the cavity *l* in the after end of the projection from the inner face of the lever F that during the action of throwing the tubular piston E from the position represented in Fig. 4 to that represented in Fig. 3 the after end of the projection from the inner face of the lever F will strike against the inclined outer end of the set-pin *y*, and force inward the said pin to the position shown in Fig. 4, in which position the head of said pin will bear so firmly against the under side of the head of the sear *c* as to render it impossible to detach the sear from its hold upon the hammer-rod H until after the set-pin has been moved forward by drawing backward the set-trigger *g*, and the said forward movement exerted upon the set-pin *y* will thrust its outer end into the cavity *l* in the after end of the inwardly-projecting portion of the lever F, as represented in Fig. 3, and thereby prevent the possibility of the levers F and G being thrown outward by any force that may be exerted upon the tubular piston E at the instant of discharging a cartridge in the chamber of the fire-arm, and also prevent the said levers F and G from being accidentally thrown outward from any sudden movement of the fire-arm. It therefore necessarily follows that the set-trigger *g* must be pressed to its forward position again before the levers F and G can be thrown outward preparatory to reloading the gun. The sear *c* is located within a recess in the block *t*, and works upon a pivot-pin. The said block *t* is secured in its proper position within the cavity in the after portion of the breech-piece B by means of the screw *b'*. The spring-hooks *p p*, which are combined with the head portion of the tubular piston E, and which project beyond the same, pass into recesses prepared for them in the butt of the barrel C, as shown in Fig. 3. The said hooks are of such a shape that they will pass over the flange of a metallic cartridge at the moment that the said piston attains the position shown in Fig. 3, and consequently, when the said piston is withdrawn, the metallic cartridge that is grasped by the hooks *p p* will also be withdrawn into the open space within the aperture *a'* in the right side of the breech-piece B.

Near to the butt of the barrel C there is an enlargement, *e'*, thereof, which terminates in abrupt shoulders, and from the under side of which an ear, *w*, projects, as represented in the drawings. The butt portion of the barrel, which rearwardly projects from the enlargement *e'* of the same, is fitted accurately within the mouth of the breech-piece B, and it is securely retained in said connection by means of the loop *h*, which is hinged to the ear *x*, that projects from the under side of the front end of the breech-piece B, and embraces the ear *w*, that descends from the under side of the enlargement *e'* of the barrel. The set-screw *m*, which works through a screw-aperture in the outer extremity of the loop *h*, enables the said loop to be more securely retained in its holding position.

It will be perceived that the movement of tubular piston E from the position represented in Fig. 4 to that shown in Fig. 3 must ordinarily cause the hammer-rod H to be caught and retained in the cocked position shown in Fig. 3, the said stoppage being effected by bringing the shoulder on the under side of said hammer-rod in contact with the head of the sear *c*, the contraction of the mainspring *b* necessarily following from the continued movement of the tubular piston and the stoppage of the hammer-rod; but if the trigger *e* be drawn upon with sufficient force to depress the head of the sear *c* at the same time that the lever F is drawn down to the position shown in Fig. 3, my improved gun can be loaded without cocking the same.

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

1. Combining the barrel and the stock of my improved fire-arm with each other through the medium of the hollow breech-piece B, which has an oblong opening in the side thereof for the temporary reception of a metallic cartridge; but this I only claim when the said cartridge is driven forward into the chamber of the barrel of the fire-arm, and is then provided with an unyielding recoil-block, by means of the tubular piston E, and the levers F and G, which are combined with each other and with the hollow breech-piece B, substantially in the manner herein set forth.

2. Opening and closing the lateral aperture in the breech-piece of my improved breech-loader by means of the tubular piston E, which fits accurately within the bore of the main compartment of said breech-piece, and is operated therein in a longitudinal direction, substantially in the manner herein set forth.

3. Operating the tubular piston E by means of the levers F and G, in connection with the slot in the under side of the tubular portion of the breech-piece B, substantially in the manner herein set forth.

4. The arrangement of the trigger *e*, the bridle *d*, the sear *c*, and the sear-spring *i* with each other and with the hammer-rod H, the mainspring *b*, the tubular piston E, and the levers F and G, substantially in the manner and for the purpose herein set forth.

5. The arrangement of the set-trigger *g* and the sliding pin *y* with the sear *c* and the lever F, substantially in the manner and for the purpose herein set forth.

6. Combining the barrel C with the breech-pin B by slipping a portion of the butt of the former within the mouth of the latter, and then securing said connection by means of the

ears *x* and *w*, the hinged loop *h*, and the set-screw *m*, in the manner herein represented and described.

7. Combining the toothed and movable valve-plug *q* with the head *o* of the tubular piston E, and with the valve-seat within the same, in such a manner that a slight degree of inward pressure upon said valve-plug will produce a perfectly tight joint at that end of the said tubular piston, substantially as herein set forth.

The above specification of my new and improved breech-loading gun signed and witnessed this 7th day of December, 1861.

SEBRE HOWARD.

Witnesses:

Z. C. ROBBINS,

C. HOWARD.