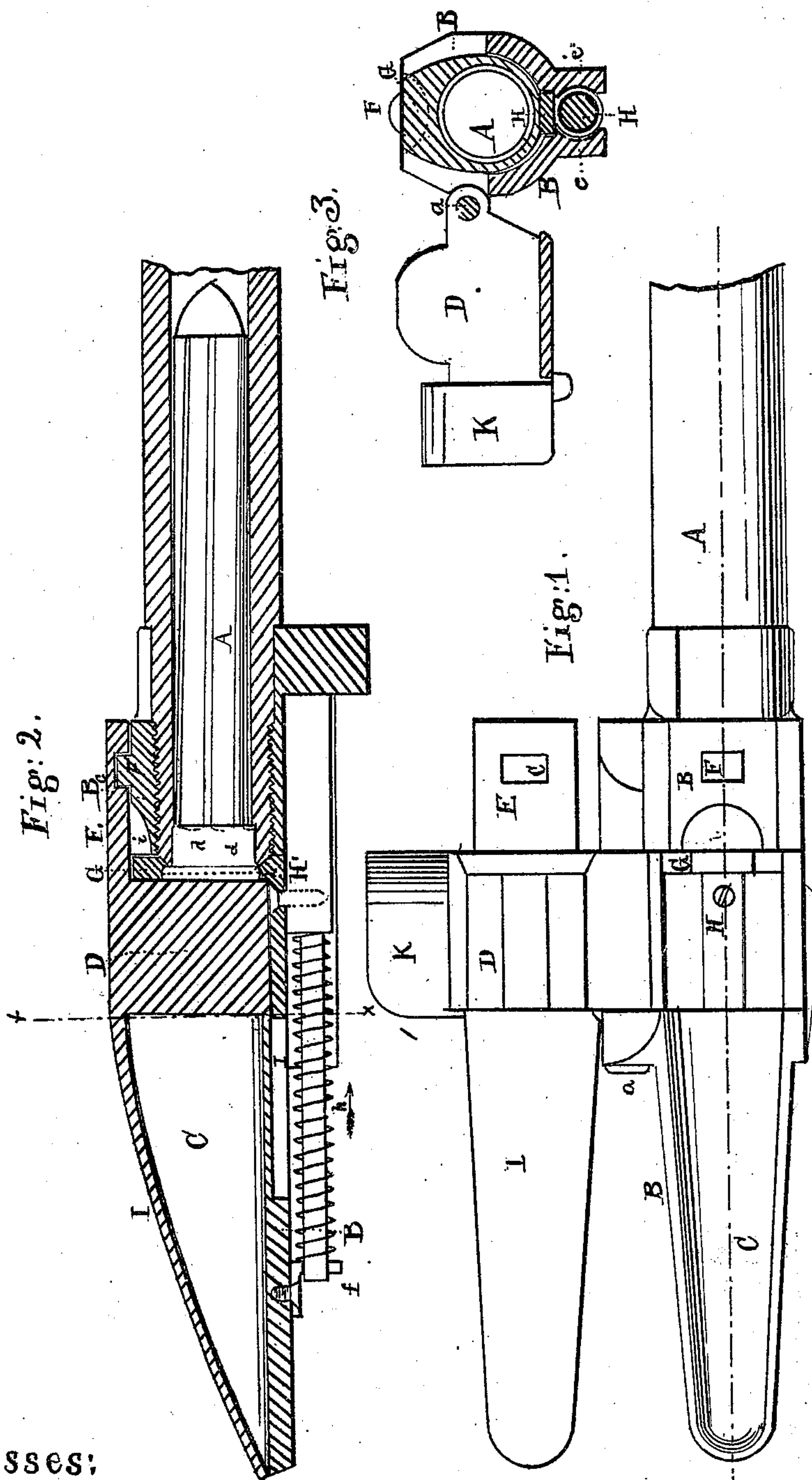


H. BERDAN.
Breech-loading Fire-arm.

No. 45,899.

Patented Jan. 10, 1865.



Witnesses:

Wm. S. McNamee
Geo. French

Inventor:

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HIRAM BERDAN, OF NEW YORK, N. Y., ASSIGNOR TO LEVI P. MORTON, TRUSTEE OF HIRAM BERDAN, ABIA A. SELOVER, AND WM. B. BENSON, OF SAME PLACE.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 45,899, dated January 10, 1865.

To all whom it may concern:

Be it known that I, HIRAM BERDAN, of the city, county, and State of New York, have invented a new and useful Improvement in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of my improvement, showing the breech-latch open. Fig. 2 is a side sectional elevation showing the breech-latch closed. Fig. 3 is a cross-sectional elevation through the line *x x*, the breech-latch being open.

Similar letters of reference indicate corresponding parts.

One of the objects of this improvement is to facilitate the removal of the shell of the cartridge after it has been exploded in the gun.

Another object of the improvement is to completely protect the working parts and surfaces of the breech mechanism from the rain and from the entrance of dirt.

The drawings represent only a portion of a breech-loading gun. The lock, stock, and such portions as are not here represented are to be constructed according to any of the known methods commonly practiced by persons skilled in the art.

A is the barrel, which may be of any desired form, either rifled or smooth bore. The barrel is attached in the ordinary manner to the breech-holder B, the front part of which receives and holds the barrel, and the rear part is intended to fit into and be attached to the gun-stock in the common manner. That portion of the breech-holder B which is immediately behind the breech of the barrel is cut out, so as to form an open groove or channel, C, through which, in the act of loading, the cartridge may be pushed, and by which groove the cartridge will be guided directly into the breech of the barrel A. After the insertion of the cartridge, the breech of the barrel is closed by means of a swinging latch D, which consists of a solid block of metal of the form shown, hinged upon one side of the

breech-holder at *a*. The sides of the breech-holder B are cut out in form corresponding to the form of the latch D, so as to permit the latter to open and shut behind the breech of the barrel, as shown in the drawings. Fig. 2 indicates the position of the latch D when closed, and Figs. 1 and 3 the position when opened. The portion of the breech-holder B in the rear of the latch D supports the latter in the act of firing. The shell of the discharged cartridge is extracted from the breech by means of a longitudinally-sliding ring or extractor, G, which is made quite thin and is arranged to stand directly against the rear end of the barrel, as shown in the drawings. In the act of inserting the cartridge the body of the latter is passed right through the ring G. The diameter of the ring is such that while the body of the cartridge may pass through it into the barrel A the head or flange of the cartridge is arrested by the edges of the ring. The red lines indicate the position of the cartridge-flange within the ring G. The latch D closes directly against the rear face of the ring G, the edge or opening of which is countersunk so that the head or flange of the cartridge will fit into the ring, flush with the rear face thereof, and thus permit the latch to close tight against the rear face of the ring and against the head of the cartridge. The front face or edge of the opening in the ring G is also countersunk to receive the projecting edge of the gas-lip *d*, which projects in the usual manner from the rear of the barrel A. When the latch D is closed, the ring G, and with it the head of the cartridge, is pressed firmly up against the rear of the barrel.

The ring G is attached and supported at its lowest part upon a longitudinal slide, H, which moves in a corresponding groove, I, in the lower part of the breech-holder B, as shown. The slide H is joined to or may be made solid with another slide, H', arranged directly under the slide H, as shown. The slide H' moves between flanges or guides *e' e'* on the under part of the breech-holder B, which flanges serve also to strengthen the said breech-holder. The rear portion of the slide H' is cylindrical and is guided and supported by passing through a ring-guide, *f*, as shown,

arranged upon the slide *H'*. Between the guide *f* and the head of the slide is a spiral spring, *h*, the action of which is to press the slide forward in direction of the arrow. On the upper end of the breech-holder *B* there is a finger-cavity, *i*, deep enough to allow the finger to be well introduced against the front upper surface of the ring *G*, and in order to remove the cartridge-shell it is simply necessary to open the latch *D* and pull back the ring *G* with the fingers. The head or flange of the cartridge-shell being retained within the ring, the cartridge will be withdrawn by the backward movement of the ring, as described. When the ring is relieved, the spring *h* will by self action push forward the slide *H'*, and thus carry the ring *G* to its place against the rear of the barrel, leaving the projecting cartridge to be removed by hand or to fall out by elevating the muzzle of the gun.

I do not claim, broadly, the use of a sliding shell-extractor. They are usually made to push upon one side of the cartridge-shell only, or in the form of a fork, so that they act unevenly upon the flange of the shell and render its extraction difficult. The use of a complete ring causes the force used in withdrawing the cartridge to be very equally applied to the flange of the shell and renders the removal of the shell very easy.

In most of the breech-loading guns the slide or device which carries the cartridge-extractor is operated by means of a lever, trigger, or other device, which projects through the breech-holder to the outside thereof to a point where it can be operated. This adds expense and complication to the fire-arm and makes an opening for the rain to enter, which, it will be observed, is wholly obviated in my improvement by the peculiar construction of the cartridge extractor or ring *G* with a finger-piece at top and a plate, *E*, to cover and protect it.

In ordinary breech-loading fire-arms when a channel is employed to guide the cartridge, its surfaces are exposed to dust and mud, and

much dirt or grit is thus carried forward into the gun by the act of inserting the cartridge. It will further appear that when the muzzle is depressed any water falling into such a channel will be conducted through the cavity beneath the latch and will rust the mechanism for extracting the cartridge and opening and closing the breech.

I protect all of the above parts and obviate the above objections by extending from the rear part of the latch *D* a protecting-cover, *I*, made of a form to correspond with the external shape of the upper surface of the breech-holder *B*, substantially as shown, and from the front of the said latch a plate, *E*, which protects the ring *G* and all the moving parts connected therewith, and the joints between the latch and the barrel. The cover *I* and plate *E* or any equivalent thereof attached to or extending in any suitable manner or direction from the breech closer or latch *D* will cover and protect the cartridge-channel and the surfaces or joints of the parts adjacent to and pertaining to the breech loading or operating mechanism. By the use of these covers those parts of the gun which come into play during the act of loading and withdrawing the cartridge-shell are always maintained in a clean and effective condition, ready for instant use, and there is no liability of the carrying forward of dirt into the barrel by the act of inserting the cartridge.

I claim as new and desire to secure by Letters Patent—

1. The protecting-plate *E*, swinging in a plane transverse to the barrel, in combination with the ring *G*, substantially as and for the purposes set forth.

2. The protecting-cover *I* and protecting-plate *E*, in combination with the latch *D*, as herein specified.

HIRAM BERDAN.

Witnesses:

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