C. E. BILLINGS.

BREECH-LOADING FIRE-ARM.

No. 169,335. Patented Nov. 2, 1875.

Fig. 1.

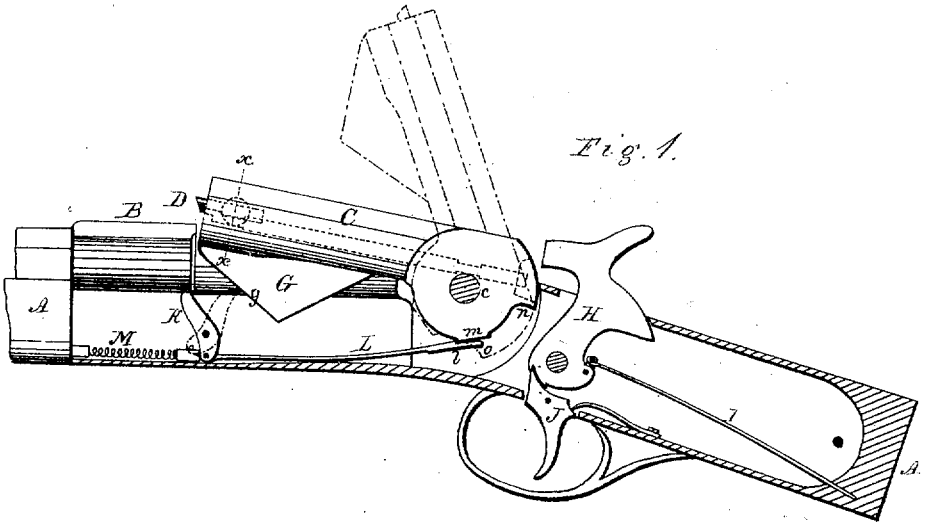


Fig. 2.

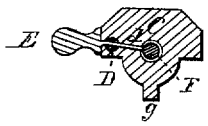
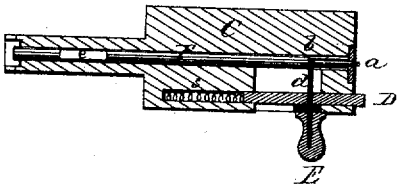


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES E. BILLINGS, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **169,335**, dated November 2, 1875; application filed May 3, 1875.

To all whom it may concern:

Be it known that I, CHARLES E. BILLINGS, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My invention relates to that class of breech-loading fire-arms which are provided with a backward and upward moving breech-block in the rear of the cartridge.

My invention consists in the combination and arrangement of the parts of the locking-bolt and firing-pin, whereby the firing-pin is always retracted when the breech is opened or closed. It also consists in the combination of devices for extracting the cartridge-shell by opening the breech after the piece has been discharged.

In the accompanying drawing, Figure 1 is a side view of my improvement with the side plate which covers the working parts removed so as to show the interior mechanism. Fig. 2 is a cross-section through the breech-block on the line *x x* of Fig. 1. Fig. 3 is a horizontal section through the breech-block, showing the connection between the locking-bolt and the firing-pin.

A A is the stock. B is the barrel. C is the movable breech-block, turning upward and backward upon the hinge *c*. D is the locking-bolt for securing the breech-block in place when it is closed. It is operated by the handle E upon the side of the breech-block, and is pressed forward by the spring *s* placed in a recess within the breech-block. F is the firing-pin, running from end to end of the breech-block within a suitably-formed recess or chamber. It is cylindrical in form and moves freely back and forth a small distance in the usual manner. At its forward end it is provided with the projection *a*, which passes through the forward end of the breech-block for the purpose of acting upon and firing the fulminate of the cartridge when the firing-pin is driven suddenly forward by a blow from the hammer H. This projection *a* is upon the outer edge or circumference of the pin F, and this latter is so placed in the breech-block that, when it is closed, the diameter of F corresponds with the lower half of the vertical diameter of the bore of the barrel. The pin F is also made reversible, so that when one side is uppermost the projection *a* is at the center of the bore for firing a central-fire cartridge, and when the other side is uppermost it is at the edge of the bore for firing a rim-fire cartridge. A short distance back from the front of the breech-block the pin F has a shoulder, *b*, against which the arm *d*, connected with the locking-bolt D, rests when both the parts F and D are in their most forward position. If D is drawn back it draws back the pin F, while F is free to move independently of D when the latter is in the position shown in the drawing. It will therefore be observed that the opening or closing of the breech-block, which requires the retracting of the bolt D, will always retract the firing-pin F, so that it cannot come in contact with either the cartridge or the end of the barrel. The firing-pin F has a flattened portion, *e*, where it passes over the pin *c*, forming the hinge-joint of the block C. This retains it in place and prevents its turning or being withdrawn. H is the hammer of a lock, operated in the customary manner by a spring, I, and trigger J. This hammer strikes the rear end of the firing-pin to drive it forward and ignite the charge. It enters a recess in the breech-block at its rear end, and serves to lock the breech-block when shut. G is a projection upon the under side of the hinged breech-block C. Its inclined front surface *g* serves as an inclined plane to force in the cartridge, as the breech-block is closed, in case the whole length has not been properly inserted into the barrel. K is the ejecting-lever. Its upper end enters a slot in the rear end of the barrel, and rests under the rim of the cartridge-case when the arm is charged in the position shown by the full lines in Fig. 1. It turns upon a pin, *k*, and is attached at its lower end to the spring-bar L. This bar L rests and slides upon the bottom of the lock-case, so that its rear end presses upward against the rear end of the breech-block under the part forming the hinge.

It has a nick, *l*, which engages with a projection, *m*, upon the breech-block when the breech has been opened to the position shown by the full lines in Fig. 1. This starts the cartridge-case by the pushing forward of the bar L. As the breech-block continues to open the rear part of the projection *m* pushes off the end *o* of the bar L, so that the nick *l* is released and the bar L remains stationary until the projection *n* upon the breech-block comes in contact with the end *o* of the bar. This again moves it forward and completes the extraction of the cartridge when the breech is fully open, as shown by the dotted lines in Fig. 1.

What I claim as my invention is—

1. The combination of the locking-bolt D with the firing-pin F, by means of the connecting-pin *d* and shoulder *b*, so that the firing-pin is retracted whenever the breech is opened or closed, but is free to move forward sufficiently to fire the charge when the breech is locked, substantially as herein described.

2. The combination of the lever K and the spring-bar L with the projections *m* and *n* on the rear of the breech-block to form an extracting mechanism operated by the movement of the breech-block, substantially as herein described.

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Witnesses:

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