

J. W. LUNDGREN & M. Z. VIAU.  
BREECH LOADING FIREARM.

No. 548,075.

Patented Oct. 15, 1895.

Fig. 1.

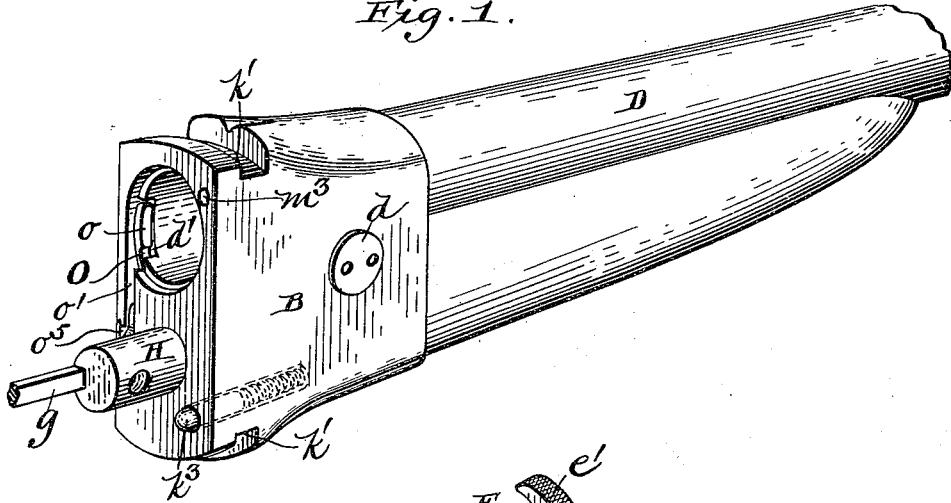


Fig. 2.

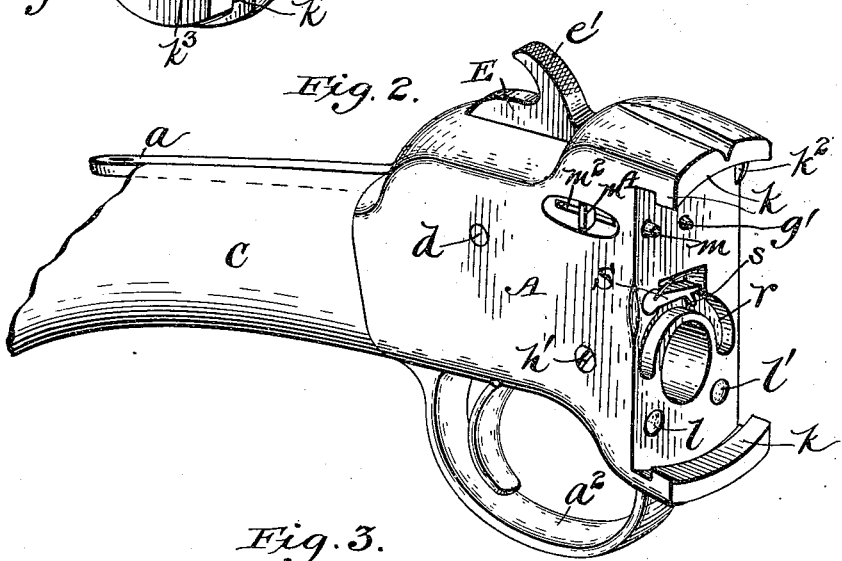
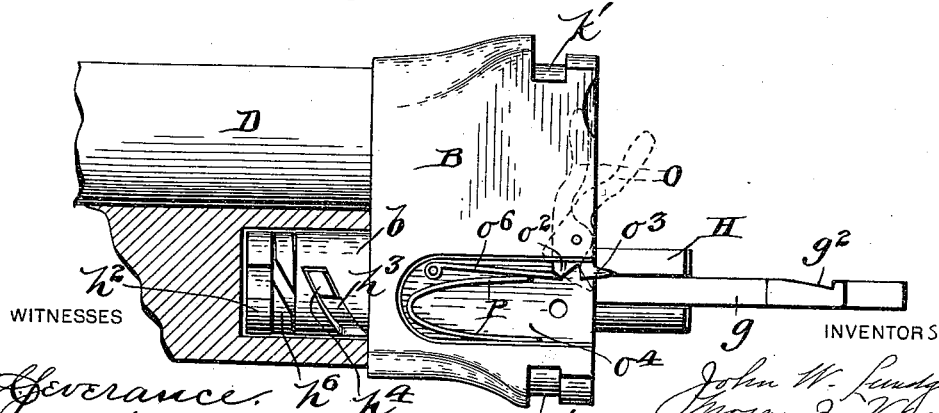


Fig. 3.



Witnesses  
 Clarence K. K.  
 W. Harry Murray

INVENTORS  
 John W. Lundgren  
 Moses Z. Viau  
 By their Attorneys  
 Mason & Francis



# UNITED STATES PATENT OFFICE.

JOHN W. LUNDGREN AND MOSES Z. VIAU, OF DULUTH, MINNESOTA.

## BREECH-LOADING FIREARM.

SPECIFICATION forming part of Letters Patent No. 548,075, dated October 15, 1895.

Application filed June 21, 1896. Serial No. 553,597. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN W. LUNDGREN and MOSES Z. VIAU, citizens of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Breech-Loading Firearms; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in breech-loading firearms, and has particular relation to shell-ejecting and cocking mechanism.

The invention consists of the combination of a breech-block containing a hammer and operating mechanism and a trigger, a breech movably connected to said breech-block, a spirally-grooved projection on said breech, a longitudinally-movable pin connected to the hammer, a projection of said pin engaging the spiral groove of the projection on the breech, whereby said pin is actuated upon the movement of the breech and a suitable barrel and stock.

It also consists of the combination of a breech-block containing a suitable hammer and operating mechanism and a trigger, a rotary breech connected to said breech-block, a cartridge-ejector pivoted in the breech, a spring engaging said ejector and adapted to throw it open or closed, a projection on the breech-block adapted to strike a portion of the ejector and start its movement, a gun barrel and stock.

The invention also consists of certain other novel constructions, combinations, and arrangements of parts, all of which will be hereinafter more particularly set forth and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 represents a detail perspective view of the breech of a gun embodying our invention. Fig. 2 represents a detail perspective view of the breech-block of said gun. Fig. 3 represents a side elevation of said breech. Fig. 4 represents a detail side elevation of the gun-barrel. Fig. 5 represents a central vertical longitudinal section through a gun embodying our invention, the stock and the barrel

being broken away. Fig. 6 represents a front elevation partly in section of the gun embodying our invention. Fig. 7 represents a detail central vertical section similar to Fig. 5, but with the hammer in the cocked position, and Fig. 8 represents a detail top plan view showing the locking-pin and its restraining spring.

A in the drawings represents the breech-block; B, the breech; C, the gun-stock, and D the barrel. The breech-block, as shown in the drawings, is hollow and is provided with the usual rearwardly-extending tangs  $a$  and  $a'$  for attaching it to the stock of the gun. It is also provided with a trigger-guard  $a^2$  and a trigger-aperture  $a^3$ . The trigger is pivoted in the aperture by a pin  $a^4$ , and is provided at its upper end with two curved arms  $a^4$  and  $a^5$ . The hammer E is pivotally mounted on a pin  $e$ , which has its ends mounted, one in the solid wall of said breech-block and the other in the opposite removable wall  $a^6$  of said breech-block. The object of this latter wall being removable is to permit ready access to the interior of the breech-block. The hammer is either provided with a roughened thumb-piece  $e'$ , as shown in the drawings, or said thumb-piece may be omitted and the top segmental surface of the hammer roughened to form a thumb-hold. The right side of the hammer is provided with a curved spring-engaging arm  $e^2$ , against which the free end of a hammer-spring  $e^3$  bears. This spring has approximately the shape of a cyma and has its rear end thickened and confined against vertical movement by the overhanging lip of a lug  $a^7$ , formed on the tang  $a'$ . The lower periphery of the hammer is notched at  $e^4$  and  $e^5$ , and said notches are engaged by the end of the arm  $a^4$  of the trigger, one when the hammer is in its lower position and the other when it is cocked. Said hammer is provided upon its left side with a stud  $e^6$  and an aperture  $e^7$ . A pawl  $f$  has its stud  $f'$  loosely mounted in said aperture  $e^7$ , and bears with its opposite end against the arm  $a^5$ , and also against the top of a longitudinally-movable rod  $g$ , which will be hereinafter described.

A spiral spring  $h$  loosely surrounds the pin  $e$ , and has one end rigidly fixed to the stud  $e^6$  and the other engaging the top of the pawl  $f$ .

It will be seen from the foregoing that the pawl *f* normally presses downward upon the arm *a*<sup>5</sup> of the trigger, with the result that the arm *a*<sup>4</sup> is elevated, so as to engage the notches 5 in the hammer. The top of the breech-block is provided with the usual spring-pressed firing-pin *g*<sup>1</sup>, adapted to be struck by the hammer to force it forward.

The breech is pivotally connected to the 10 breech-block by the rod H, which passes loosely through the lower portion of the breech and enters a recess in the breech-block, where it is rigidly secured by a screw *h*<sup>1</sup>. This rod H is grooved longitudinally to receive the pin 15 *g*. This pin is provided at its rear end with an enlargement, having a notch *g*<sup>2</sup> formed therein, whereby said pawl *f* is engaged by said pin on the forward movement of the same, thus cocking the hammer. This longitudinal 20 movement of the said pin takes place, upon the return of the breech-block, in the following manner.

The forward part of the breech is provided with a hollow stud *b*, through which the rod H 25 passes, the head *h*<sup>2</sup> of the rod resting against a heavy close spiral spring *h*<sup>3</sup>, which surrounds the outer end of the rod and rests in turn against the outer end of the stud. The spring *h*<sup>3</sup> is spiral when in its normal condition, but when compressed, as shown in the 30 drawings, it forms a spring-ring. The stud is provided with a spiral slot *h*<sup>3</sup>, in which a projection *h*<sup>4</sup> of the pin *g* works. It will thus be seen that as the breech is opened or closed 35 and revolves on the rigid rod H the projection *h*<sup>4</sup> will travel in the slot *h*<sup>3</sup> and thus push the pin *g* in and out, the spiral spring *h*<sup>3</sup> holding the breech firmly against the breech-block.

Overhanging segmental pendent flanges *k* 40 are provided at the top and bottom of the breech-block and are adapted to take into grooves *k*<sup>1</sup> of similar shape, formed on the upper and lower sides of the breech, when the gun is in its closed position, and thus the block 45 and the breech proper are held firmly together. The breech-block is also provided with a screw *k*<sup>2</sup>, whose head projects beyond the edge of the breech-block and thus prevents any movement of the breech to the left.

To hold the breech in either an open or 50 closed position we provide it with a suitable spring-actuated friction-pin *k*<sup>3</sup>, whose end projects beyond the inner face of said breech and is adapted to engage recesses *l* and *l*<sup>1</sup>, respectively, 55 formed in the breech-block.

As an additional and positive means of holding the breech and breech-block in the closed position, we provide the locking-pin *m*. This pin is mounted in a recess in the breech-block 60 with a friction-spring *m*<sup>1</sup> bearing upon its side, and is operated by a thumb-piece *m*<sup>2</sup>, with which it communicates through a slot *m*<sup>3</sup> in the breech-block. The pin is adapted, 65 when the breech is in a closed position, to be thrust forward and engage a recess *m*<sup>3</sup>, formed in the said breech, and thus effectually lock the same against any lateral displacement.

The barrel D is secured in the upper part of the breech by a pin *d*, which passes through a groove in the former. The barrel is cut 70 away at its inner end, as at *d*<sup>1</sup>, to accommodate the operative end *o* of the cartridge-ejector O. This ejector is pivoted in a slot *o*<sup>1</sup> in the breech and has its lower end provided with an oblique heel *o*<sup>2</sup> and a sharp beveled 75 sided toe *o*<sup>3</sup>. A U-shaped spring P is set in a recess *o*<sup>4</sup> in the breech and bears with its free end against a pivoted bar *o*<sup>5</sup>, which bar bears at its full beveled end against the oblique heel *o*<sup>2</sup> when the ejector is set. The recess *o*<sup>4</sup> is covered by a suitable cover or plate 80 *o*<sup>5</sup>, secured in position by screws. When the ejector is set the toe *o*<sup>3</sup> projects beyond the rear face of the breech and moves in a segmental groove *r*, formed in the breech-block. 85 A spring-actuated pawl S is pivoted in the breech-block so that it projects into said segmental groove and is provided upon its under side with an obliquely-arranged flange *s*.

When the breech-block is broken after firing 90 and the breech is rotated to the left the toe *o*<sup>3</sup> strikes the flange *s*, which pushes it inward, thus throwing the beveled heel off the upper end of the ejector to spring outward 95 and eject the empty cartridge. A fresh cartridge is then inserted and the breech-block closed, the act of closing said breech-block cocking the hammer, as before described, and returning the ejector to its first position by 100 the upper end of said ejector striking against a beveled portion *t* of the breech-block, and being thus pushed inward and set. The hammer can also be cocked by hand if so desired.

Having now described our invention, what 105 we claim as new, and desire to secure by Letters Patent, is—

1. In a self cocking fire arm, the combination of a breech block containing a hammer and operating mechanism and a trigger, a 110 breech movably connected to said breech block, a spirally grooved projection on said breech, a longitudinally movable pin connected to the hammer, a projection of said pin engaging the spiral groove of the projection 115 on the breech whereby said pin is actuated upon the movement of the breech and a suitable barrel and stock, substantially as described.

2. In a fire arm, the combination of a breech 120 block containing a suitable hammer and operating mechanism and a trigger, a rotary breech connected to said breech block, a cartridge ejector pivoted in the breech, a spring engaging said ejector and adapted to throw 125 it open or closed, a projection on the breech block adapted to strike a portion of the ejector and start its movement, a gun barrel and stock, substantially as described.

3. In a fire arm, the combination of a breech 130 block containing a suitable hammer and operating mechanism and a trigger, a projecting rod provided with a longitudinal groove and having one of its ends secured in said breech

block, a rotary breech mounted on said rod  
 and provided with a hollow spirally grooved  
 projection through which said rod passes, a  
 longitudinally sliding pin mounted in a groove  
 in said rod and connected to the hammer and  
 the spiral groove of the projection on the  
 breech, whereby the hammer is cocked upon  
 the closing of the breech, a barrel and a stock,  
 substantially as described.

4. In a fire arm, the combination of a breech  
 block containing a suitable hammer and oper-  
 ating mechanism and a trigger, a rod having  
 one end rigidly secured in said breech block,  
 a rotary breech mounted on said rod, a car-  
 tridge ejector operated by the rotation of said  
 breech and comprising a pivoted ejector  
 proper, a spring engaging said ejector and  
 adapted to throw it open or closed, and a pro-  
 jection on the breech block adapted to start  
 the movement of said ejector when the breech  
 is rotated, a hammer cocking mechanism also  
 operated by the movement of said block, a  
 barrel and a stock, substantially as described.

5. In a fire arm, the combination of a breech  
 block containing a suitable hammer and oper-  
 ating mechanism and a trigger, a rod having  
 one end secured to said breech block, a rotary  
 breech mounted on said rod, a spirally grooved  
 projection on said breech, a longitudinally  
 movable pin mounted in a groove in said rod  
 and having a projection engaging the spiral  
 groove of the projection on the breech, where-  
 by it is moved longitudinally upon the move-  
 ment of the breech, a spring pressed pawl  
 pivoted to the hammer and engaging both the  
 trigger and said longitudinally movable pin  
 whereby the hammer is cocked upon the lon-  
 gitudinal movement of said pin, a barrel and  
 a stock, substantially as described.

6. In a fire arm, the combination of a breech  
 block containing a suitable hammer and oper-

ating mechanism and having segmental over-  
 hanging flanges, a trigger, a rod having one  
 end secured to said breech block, a rotary  
 breech mounted on said rod and having seg-  
 mental grooves corresponding and interlock-  
 ing with the said segmental flanges, a barrel  
 and a stock, substantially as described.

7. In a fire arm, the combination of a breech  
 block containing a hammer and operating  
 mechanism and a trigger, a rod connected at  
 one end to said breech block, a breech mount-  
 ed on said rod, a spirally grooved projec-  
 tion on said breech, a longitudinally movable  
 pin mounted in a groove in said rod and con-  
 nected to the hammer, a projection on said pin  
 engaging the spiral groove of the projection on  
 the breech whereby said pin is actuated upon  
 the movement of the breech, a pivoted car-  
 tridge ejector, a spring engaging the lower  
 end of the same, a spring pressed pawl on the  
 breech block adapted to engage the said e-  
 jector when the breech is operated and start  
 its action, the spring continuing the same, a  
 barrel and a stock, substantially as described.

8. In a fire arm, the combination of a breech  
 block containing a suitable hammer and oper-  
 ating mechanism and a trigger, a rod having  
 one end secured to said breech block, and the  
 opposite end provided with an enlarged head,  
 a rotary breech on said rod and a spring be-  
 tween the head of said rod and the breech to  
 force the latter firmly against the breech  
 block, a barrel and a stock, substantially as  
 described.

In testimony whereof we hereunto affix our  
 signatures in presence of two witnesses.

JOHN W. LUNDGREN.  
 MOSES Z. VIAU.

Witnesses:

JAMES T. WATSON,  
 E. W. BARKER.