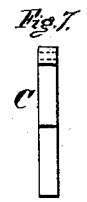
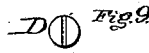
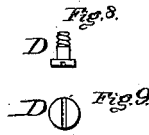
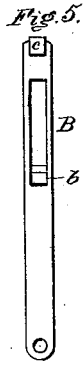
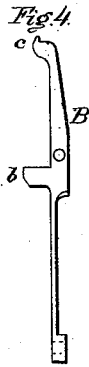
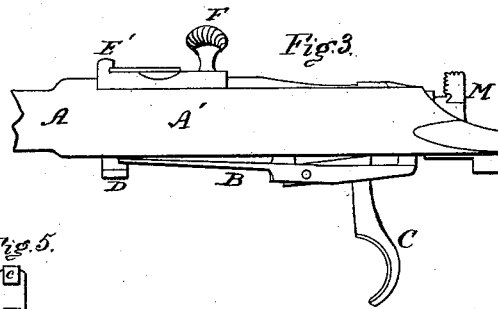
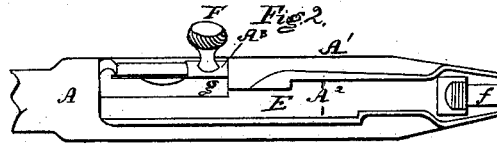
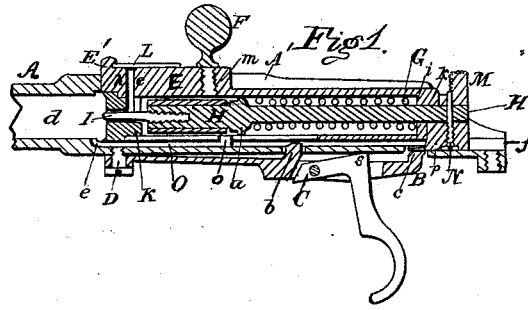


E. ENGEL.

BREECH-LOADING FIRE-ARMS.

No. 191,124.

Patented May 22, 1877.



Witnesses:
 F. B. Townsend.
 Edith Brookes.

Inventor:
 Ernst Engel
 by his Attorney
 Colborne Brookes

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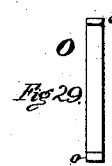
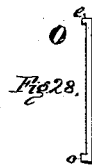
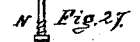
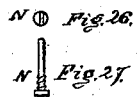
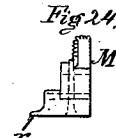
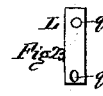
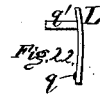
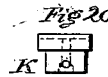
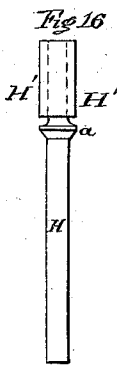
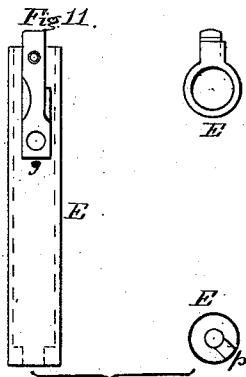
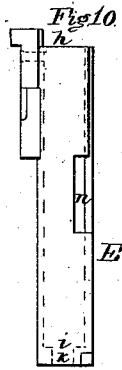
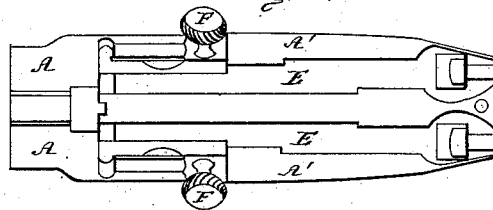


Fig. 31.



Witnesses:

F. B. Townsend.
Edith Brookes

Fig. 30.
O-C

Inventor:

Ernst Engel
by his attorney
Collins Brookes

UNITED STATES PATENT OFFICE.

ERNST ENGEL, OF ST. PETERSBURG, RUSSIA.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **191,124**, dated May 22, 1877; application filed September 22, 1875.

To all whom it may concern :

Be it known that I, ERNST ENGEL, of the city of St. Petersburg, in the Empire of Russia, have invented certain new and useful Improvements in Breech-Loading Fire-Arms, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

My invention relates to improvements in breech-loading fire-arms, the nature of which will be fully understood by reference to the accompanying drawings, in which—

Figure 1 represents a vertical section; Fig. 2, a plan, and Fig. 3 a side, view of the breech end of a gun-barrel with my improvements applied thereto. Figs. 4 to 30 show parts separately. Fig. 31 represents a double-barreled rifle constructed according to my invention.

In each of the views similar letters are employed to indicate corresponding parts wherever they occur.

A represents the barrel, which, up to the part shown by Fig. 1, is formed with a cylindrical smooth bore, and at *d* is formed of sufficient diameter to receive the cartridge.

A¹ represents the housing for the breech-piece E, and is an enlarged extension of the rear of the barrel A. The breech-piece E is arranged to slide to and fro, as desired, in a channel formed in the housing A¹.

To the under side of the housing A¹ is connected, by means of a screw, D, the spring B, which is provided with two projections or catches, *b c*, which pass through slots or openings in the under side of the housing A¹, as shown in Fig. 1.

In the bottom of the housing A¹ is formed a groove or channel, *f*, in which the extractor O and the dog M slide backward and forward.

The housing A¹, as shown by Fig. 2, is provided with a slot, A², which, at A³, is recessed in order to allow the extension *g* from the breech-piece E (when such breech-piece is partially turned around on its axis) being held therein, in order to hold the said breech-piece firmly in position to resist the discharge of the gun.

The recess A³ is formed sufficiently wide to allow of the free insertion and extraction of the cartridges.

The breech-piece E, as shown by Figs. 1, 10, and 11, is formed cylindrical, and is provided with a head, K, through the center of which passes the needle I, which is screwed into the forward end of the rod or plunger H, which is pressed forward by means of a spiral spring, G, arranged around the plunger H, and pressing at one end against the rear *i* of the breech-piece E, while at its forward end it bears on a rim or projection, *a*, on the plunger H.

The head K of the breech-piece E is held in position by means of a pin, *q'*, Figs. 22 and 23, passing through the hole *e*, and held in position by means of spring L, to which it is attached, and which is held in position at one end by passing into a notch in a projection, E', while at its opposite end it is provided with a projection, *g*, adapted to be received and held in a corresponding recess in the extension *g*.

F is the operating knob or handle, which is, by preference, formed with a screw-shank, *m*, by which it is connected to the extension *g*.

In the under side of the breech-piece E, I form an elongated slot, *n*, for the passage of the projection *b* of the spring B, and also for the hook *o* of the extractor O, in order that when the breech-piece E is drawn backward the extractor may have a similar movement communicated to it, and cause its front hook *e* to come against the rim of the cartridge and extract the same from the barrel.

p is a notch formed in the rear of the breech-piece E, as shown by Fig. 11, for the reception of the dog M when the gun is being fired, thereby securely locking the breech-piece by preventing it from turning.

The sliding rod H, as shown by Fig. 17, as previously described, is provided with a rim or projection, *a*, which also serves to engage with the projection *b* of the spring B.

The rod H, at its forward end, is provided with an enlargement, on the opposite sides of which are formed grooves or channels H', for the reception of the catch or stop *c*, formed on the end of the spring B, for the purpose of preventing the revolution of rod H when the same has been drawn backward.

The channels H' are formed in duplicate, and the rim or projection *a* extended around

the rod H, in order that when one side has become worn by use the rod may be turned over, thereby presenting fresh surfaces to act in conjunction with the catches *c b*.

The needle I is connected to the rod H by an elongated screw-thread, in order that when it has become worn or damaged it may be adjusted by simply unscrewing the same.

The dog M is connected to the end of the rod H by means of a screw, N, as shown by Figs. 1 and 24.

C represents the trigger, which is pivoted at C' in a slot or recess, B', formed in the spring B, as shown by Figs. 1 and 6.

The operation of the device is as follows: The dog M being drawn back by the thumb of the right hand, so as to compress the spring G, the catch *r* of the dog M will first drop behind the projection *c* of the spring B, and, if allowed to remain there, will hold the breech-piece so that it can neither be turned nor moved backward by reason of the projection *c* passing over the catch *r*, while the dog M is retained in the groove or channel *f*, and also in the notch *p* of the breech-piece E.

When the dog M has been drawn fully back, the rim or projection *a* of the rod H depresses the spring G, and causes the projection *b* to fall behind the rim *a*, and, by the elasticity of the spring B, to be forced up into the groove H' of the head of the rod H.

A slight pressure being applied to the knob F from right to left, the breech-piece E is, by the action of the spring G, caused to fly back and carry with it the extractor O, the hook *e* of which seizes and withdraws the spent cartridge from the barrel.

A fresh cartridge being now inserted, the knob F is seized by the fingers and thumb of the right hand, and the breech-piece E is pushed forward and turned to the right, the rod H remaining with its catch *a* behind the projection *b*, thereby compressing the spring G, and the cartridge is pressed into the barrel by means of the head K of the breech-piece E. The parts will now be in the position for firing, to effect which it is simply necessary to pull the trigger C, when its elbow S, coming in contact with the under side of the housing A', will cause the spring H to be deflected, so as to withdraw the stop *b*, leaving the catch *a* free, so that the rod H will be immediately

caused to fly forward by the pressure of the spring G, and the needle I will strike the cartridge and cause the ignition thereof.

In order to take the mechanism apart the dog M is drawn partially back by the right thumb, and the knob F is turned to the left until the breech-piece is liberated, when it will fly back of itself.

The spring H is then removed by taking out the screw D, when the whole breech-piece E, as well as the extractor O, may be withdrawn from the housing A'.

The screw N is then withdrawn from the dog M, and the spring L is turned on one side away from its stops, and the pin *q'* withdrawn, after which the parts will come apart automatically.

The respective parts are put together in the reverse order.

The mechanism heretofore described is applicable particularly to single-barreled arms; but the same is equally applicable to double-barreled pieces, as shown by Fig. 31.

In this case the parts are constructed and operated in an exactly similar manner in duplicate, except that the breech-piece E on one side is operated to turn to the right, while on the other it turns to the left.

Further description of the same is, therefore, unnecessary.

Having thus described my invention, I would have it understood that what I claim, and desire to secure by Letters Patent, is—

1. The combination, in a breech-loading fire-arm, of a trigger and the spring B, having the two projections *b* and *c*, with the spring needle bar or rod H, its projection *a*, and the catch *r*, as set forth.

2. The within-described needle-bar H, provided with the projection *a* and the two slots H' H', as and for the purpose set forth.

3. The combination of the breech-piece E with the detachable head K and the spring-pin *q'*.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of July, 1875.

ERNST ENGEL.

Witnesses:

N. TSHEKALOFF,
C. L. F. VOSS.