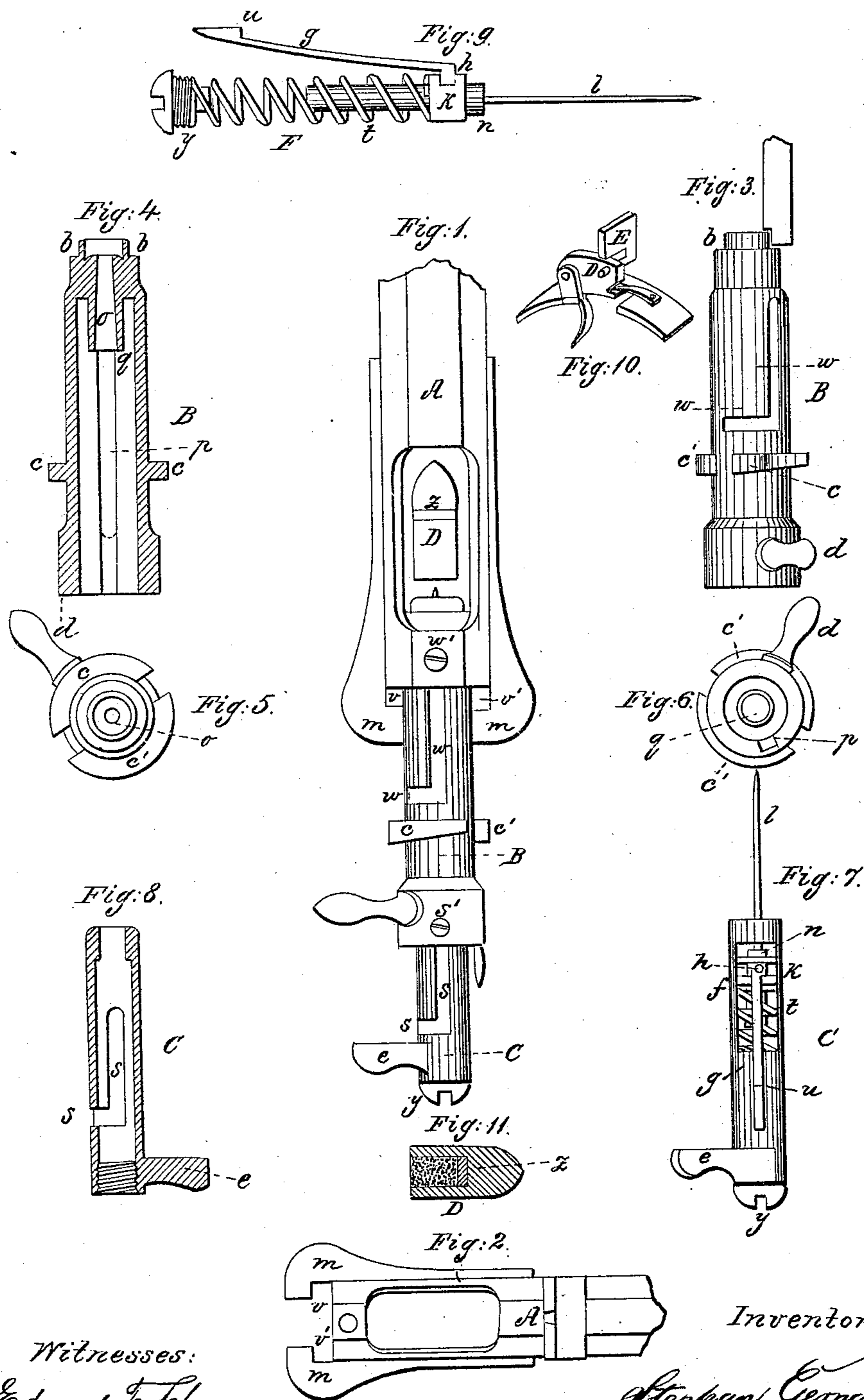


S. GERNGROSS.  
Breech-Loading Fire-Arm.

No. 110,353.

Patented Dec. 20, 1870.



Witnesses:  
Edmund F. Schreiner  
Fred Indest.

Inventor:  
Stephan Gerngross.

# United States Patent Office.

STEPHAN GERNGROSS, OF ST. LOUIS, MISSOURI.

Letters Patent No. 110,353, dated December 20, 1870.

## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, STEPHAN GERNGROSS, of St. Louis, in the county of St. Louis and State of Missouri, have invented certain new and useful Improvements in Fire-Arms; and do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention appertains to that class of breech-loading fire-arms in which the fulminate is lighted by the friction or percussion of a needle which passes through the cartridge or charge; and

It consists in the construction and arrangement of a fire-lock which shall combine strength, safety, and simplicity.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing which forms a part of this specification, and in which—

Figure 1 is a plan view of the breech of the arm and the fire-lock with opened chamber, ready to receive the charge or cartridge;

Figure 2 is a plan view of the breech of the gun, the lock being removed;

Figure 3 is a plan view of the exterior part of the fire-lock;

Figure 4 is a longitudinal section of the same;

Figure 5 is a front view; and

Figure 6, a rear view of the same part of the fire-lock.

Figure 7 is a view of the needle-chamber, with needle and spring;

Figure 8 is a longitudinal section of the needle-chamber;

Figure 9 is an enlarged view of the needle, with the needle-seat or socket, guide, and spring-catch;

Figure 10 is a perspective view of the trigger; and

Figure 11 is a longitudinal section of a filled ball or bullet for short fire-arms.

My fire-lock consists of two essential parts, B and C.

The exterior part B is a tube, provided with a groove, *w*, running longitudinally for a certain distance, and, at its rear end, is turned at right angles across the tube, as represented in fig. 3.

A stud, *w'*, is screwed into the rear part of the barrel A, and fits into the groove *w*, by means of which the motion of the tube B, in opening and closing the chamber, is regulated.

Two wedge-shaped and nearly semicircular flanges or shoulders, *c c'*, project from the outer surface of the tube B, and fitting into recesses, *v v'*, at the rear end of the barrel A, secure the lock when the chamber is closed.

The front end of the tube B is provided with an

elastic lip, *b*, which fits within the rear part of the barrel at the front end of the chamber, thereby effecting a perfectly tight joint, and prevents any escape of gas.

The middle of the front end *b* is provided with a passage, *o*, for the needle, and from said passage into the tube B extends a short tubular projection, *q*, as shown in fig. 4, which projection serves as a seat against which the socket of the needle strikes at firing.

A groove, *p*, is cut into the lower part of the tube B, in which the spring-catch slides.

The handle *d*, at the rear end of said tube, serves to push the lock back and forth, and to turn it in opening or locking the same.

The interior part of the lock or needle-chamber C is a tube, provided with a groove, *s*, shaped similar to the groove *w* on the tube B.

This groove *s* receives a stud, *s'*, on the inner side of the rear end of the tube B, so that the needle-chamber C may work in the same manner as the tube B, forming what is generally called a bayonet-lock.

The needle-chamber C is also mortised at *f*, as shown in fig. 7, to allow free play of the spring-catch *g*; and at its rear end it is provided with a projection, *e*, which serves as a handle to move the needle-chamber.

The needle *l* is fastened into its socket *k*, which has a pin or stud, *t*, extending toward the rear and serving as a spindle for the spiral spring F.

When cocked, this rod *t* rests against the screw *y*, which is introduced into the rear end of the tube C, closing the same.

The spring F bears against the inner end of this screw *y* and against the rear end of the needle-socket *k*, as shown in fig. 9.

The spring-catch *g* is attached to the socket of the needle by a small screw, *h*, and is provided with the hook or shoulder *u*.

The face of the needle-socket is lined with an elastic packing, *n*, which receives and checks the shock of the needle at firing.

The breech of the barrel A, with its arms or flanges *m m*, forming the recesses *v v'*, as shown in fig. 2, may be made of one single piece of metal.

The trigger is composed of three parts, as shown in fig. 10; the lever D, the bit E, and the spring G.

When the lever is pulled the bit rises, and when released the spring G presses it in the position of rest.

The operation of my fire-lock is as follows:

The needle-chamber C, with the needle, is introduced into the tube B, and held therein by the stud or screw *s'*, which fits in the groove *s*, and allows the needle-chamber to be moved back and forth, and also to turn when the same is at the rear end of said groove.

When the tube or chamber C is drawn back the

shoulder *u* of the spring-catch *g* catches on the rim of the lock-tube B, and when released it slides forward in the groove *p*.

The lock is introduced into the breech of the gun and held by the stud or screw *w*, fitting in the groove *w*, and allowing the lock-tube to be moved in precisely the same manner as the needle-chamber can be moved.

Supposing the lock to be opened and in rest, as shown in fig. 1, the cartridge is introduced and the lock pushed forward and the handle *d* turned toward the right.

The wedged flanges *c c'*, passing and locking with the flanges *m m'* of the barrel, force the lock tube B firmly against the rear open end of the barrel, and thus form a tight and safe joint.

The gun is now loaded and in rest.

To cock, the needle-chamber C is pushed forward by means of the handle *e*, and said handle turned toward the right. The needle being arrested by the action of the spring-catch *g*, and the rear plate or screw *y* pressing forward, the spiral spring F is compressed and the gun is cocked.

In this position the projecting shoulder *u* of the spring-catch lies directly over the bit E of the trigger. By pulling the trigger the needle is released and springs forward, igniting the percussion-priming.

For short fire-arms I use a hollow bullet, D', in which the charge is filled, the fulminate or priming *z* being in front of the powder, as shown in fig. 11.

Having thus fully described my invention,

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

1. The combination of the needle-socket *k* with elastic packing *n*, spring-catch *g*, spring F, and the rear bearing *y* for said spring, all constructed and arranged to operate substantially as and for the purposes herein set forth.

2. In combination with the mechanism herein described for operating the needle, the needle-chamber C, provided with the angular groove *s* and handle *e*, substantially as and for the purposes herein set forth.

3. The lock-tube B, provided with lip *b* and angular groove *w*, and wedge-shaped cams *c c'*, substantially as and for the purposes herein set forth.

4. The combination of the lever D, bit E, and spring G, arranged for operation in connection with the spring-catch *u*, as shown and described, and for the purposes set forth.

STEPHAN GERNGROSS.

Witnesses:

EDMUND F. SCHREINER,  
JOHN V. STEINER.