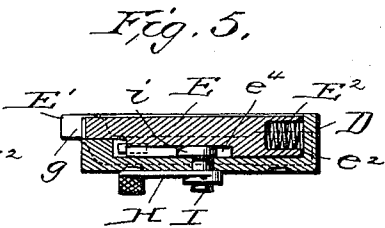
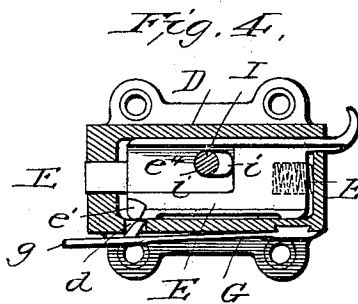
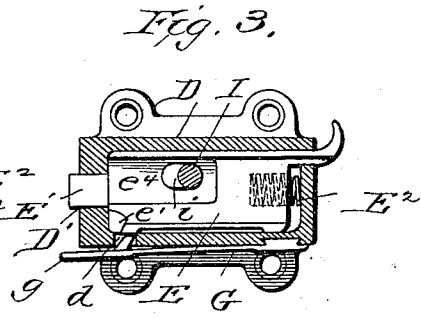
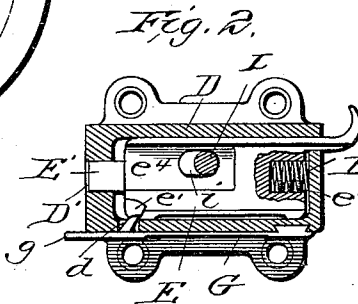
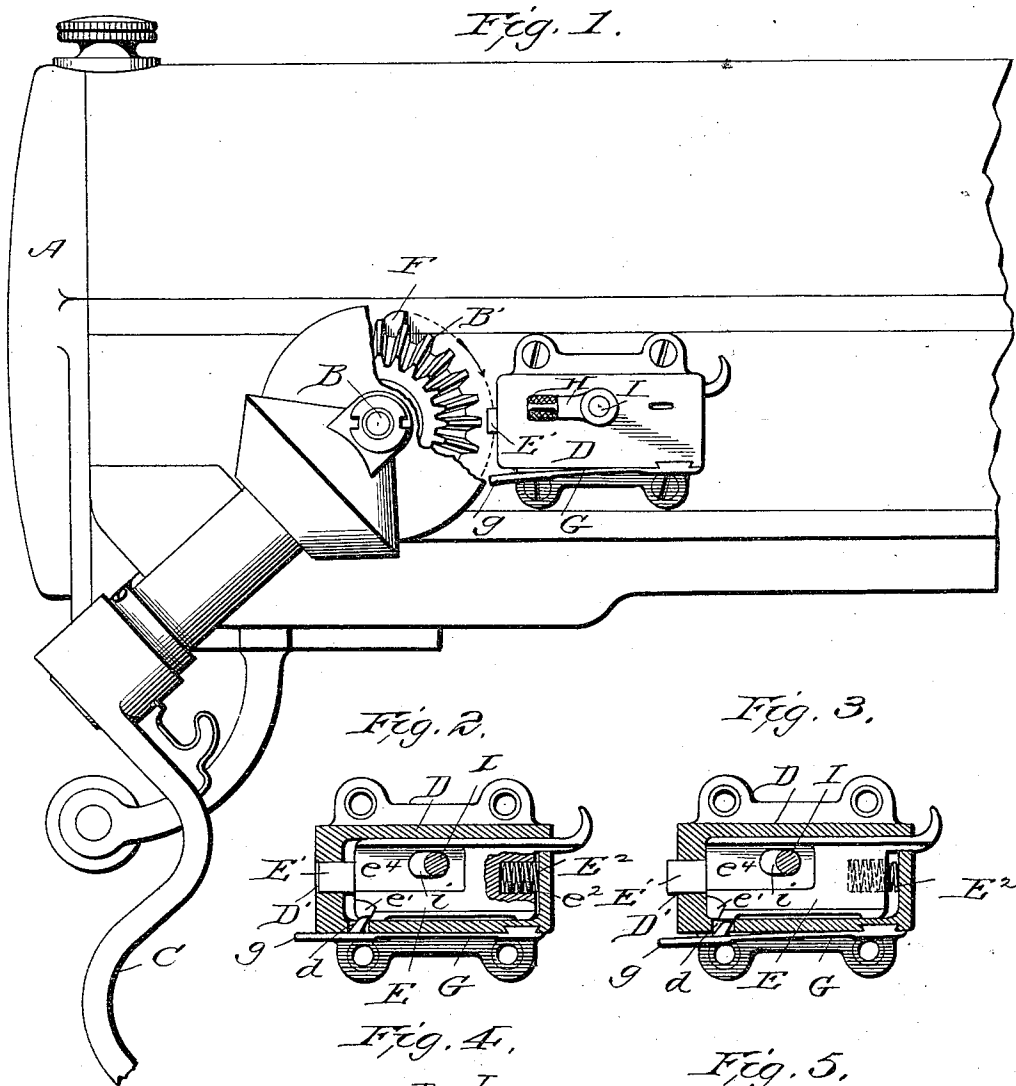


(No Model.)

L. V. BENÉT.
SAFETY LOCK FOR MACHINE GUNS.

No. 533,859.

Patented Feb. 12, 1895.



Witnesses.
Alfred Spinden
Albert Spinden.

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UNITED STATES PATENT OFFICE.

LAURENCE V. BENÉT, OF PARIS, FRANCE, ASSIGNOR TO THE HOTCHKISS
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SAFETY-LOCK FOR MACHINE-GUNS.

SPECIFICATION forming part of Letters Patent No. 533,859, dated February 12, 1895.

Application filed June 27, 1894. Serial No. 515,848. (No model.)

To all whom it may concern:

Be it known that I, LAURENCE V. BENÉT, a citizen of the United States, residing at Paris, in the Republic of France, have invented new and useful Improvements in Safety-Locks for Guns, of which the following is a specification.

All guns are liable to what is technically known as "hang fire" and this is particularly the case when "brown" and "smokeless" powders are employed, as a defect in the priming may cause a very appreciable time to elapse between pulling the lanyard or the fall of the firing pin and the discharge of the piece. In the heat of action when the gun is being fired at its maximum rapidity, the cannoneer operating the breech mechanism works almost automatically, and may, (as has occurred) open the breech after the primer has been struck but before the discharge of the piece, thus causing a disastrous accident. In a machine gun, where, as in the well known Hotchkiss revolving cannon, the rotating of the barrels, the loading and firing mechanism and the extraction and discharge of the cartridges are actuated by the rotation of a single shaft through its various connections, the cannoneer turns the crank continuously, and a "hang fire" cartridge may explode during extraction, or even upon the ground, with equally grave results.

Heretofore the safety lock as far as known to me, has been so located in the gun breech that it engages directly with the gun body or vice versa, or it has been so located in the gun breech as to engage with a recess in the breech-block crank, or vice versa. In both instances it has the great disadvantage of occupying a position difficult of access to the cannoneer, and of having a construction which renders it unavailable where the adjacent parts of the breech and breech block are concealed or under cover, or otherwise inaccessible. In the second instance, the recessing of the breech-block crank, either to engage with or to contain the safety lock is a source of great weakness to a part of the gun mechanism which when in use, is subject to a severe strain, and for this reason is practically unavailable.

The object of my invention is to remedy these objections by providing a means for

locking automatically an exterior part of the breech block operating mechanism of a quick firing machine or other gun, in such a manner that the mechanism cannot be operated and the breech opened before the discharge of the piece except by a definite and conscious action on the part of the cannoneer; by providing means for automatically unlocking or releasing the breech operating mechanism immediately upon the discharge of the piece, and to provide means for throwing the safety lock out of action when it is desired to manipulate the gun without firing, as at drill.

My object is to further provide a safety locking device which can be equally well applied to the breech operating mechanism, the firing mechanism or the barrel revolving mechanism of a gun either one or all, to maintain the breech closed until after firing, and whether such operating mechanism be concealed in the breech block as in the case of the Hotchkiss revolving cannon, or in any other inaccessible location, where such mechanism is actuated by an exterior projecting, rotatable or movable part.

My invention consists in placing a spring-safety lock actuated by inertia in the path of a laterally projecting exterior rotating rocking or moving part of the firing, breech actuating or barrel revolving mechanism of the gun, and in providing it with a sear so located in respect to such part, that said safety lock shall be automatically caused to lock said rotating, rocking or moving part, by the movement of said part itself into a position in which the gun breech is closed, until said safety lock is withdrawn by the firing of the gun, whereupon the above operation is again repeated.

My invention further consists in a particular locking cam device, by which the safety lock can be thrown out of action at will.

In the accompanying drawings which illustrate my invention: Figure 1 is a view of the safety lock applied to the bevel pinion on the crank shaft of the well known Hotchkiss revolving cannon. Figs. 2, 3, and 4 are detail views of the safety lock shown in Fig. 1 with the front plate removed, and Fig. 5 is a horizontal longitudinal section through the same.

A Fig. 1 is the breech piece, B the main shaft, B' the pinion of the mechanism, and C

is the crank for manipulating the shaft and pinion, all of a well known construction.

D is the box or case attached to the frame of the gun.

E is the safety bolt. E' is its extremity projecting through the aperture D' in the case.

F is a stop mounted upon the pinion B' in position to engage with the bolt when the latter is thrust forward and the pinion is revolved.

E² is the coiled spring located in the recess e² in the rear of the bolt and abutting against the end of the case.

G is the spring sear secured to the case D and engaging through the slot d with the notch e' of the bolt, when the latter is thrust back and the spring compressed.

g is the tail of the sear projecting into the path of the stop F on the pinion B'.

In this instance the operation of the safety lock is as follows: When the gun is in the position shown in Fig. 1 the firing pin has struck the primer of the cartridge. In order to reach the point at which the barrels begin to revolve opening the breech, the pinion B' and with it the stop F is turned through an angle of ninety degrees, but if the discharge of the gun has not taken place, the projecting extremity E' of the safety bolt encounters the stop F on the pinion before the full movement is completed and prevents the opening of the breech. If the discharge has taken place the gun recoils and the inertia of the bolt overcomes the resistance of the spring E, compresses it and allows the sear G to spring up and maintain the bolt withdrawn in the position shown in Fig. 2. The pinion B' can now complete its revolution and the stop F striking the tail g of the sear G forces it down releasing the bolt E which resumes its original position under the stress of the spring E². In the event of a hang fire the bolt E may be withdrawn by means of the handle e³ and the stop F allowed to pass. To throw the safety lock completely out of action, as when operating the gun at drill, I mount the lever H on a shaft I passing through the face of the box and projecting into a recessed chamber e⁴ in the bolt E. On the shaft I is the eccentric cam i which bears against the end wall of the chamber e⁴ when the lever is turned to the danger position, holding the bolt sufficiently withdrawn to permit of the stop F, but not sufficiently to permit the sear to engage.

I do not limit myself to the combination of the safety lock as constructed by me with the pinion B' and the stop F as it is evident that any laterally projecting exterior part rotating

or moving in the path of the safety lock, will be within the scope of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a breech loading gun the main shaft B the pinion B' mounted on said shaft, the stop F on said pinion, and a safety lock having a bolt held normally in the path of the stop by a spring, and withdrawn from under the stop by means of the recoil of the gun, substantially as described.

2. In a breech loading gun, the main shaft B, the pinion B' mounted on the shaft, the stop F on said pinion and a safety lock having a bolt held normally in the path of the stop by a spring, and withdrawn from under the stop by means of the recoil of the gun, and a spring sear for locking said bolt when withdrawn having an arm projecting into the path of said stop, substantially as described.

3. The combination of a case D, the bolt E located therein and having the recessed chamber e⁴, the spring E² located in the recess e² in the rear of the bolt, the spring sear G, the lever H on the exterior of the case, its shaft I passing through the face of the case and the eccentric cam i mounted on the shaft and bearing against the walls of the recess e⁴ in the bolt E, substantially as described.

4. In a breech loading revolving gun having the pinion B', the combination with the stop F on the pinion, of the case D secured to the gun, the bolt E located therein having the recesses e² and e⁴ and normally projecting into the path of the stop F, the spring E² located in the recess e² in the rear of the bolt, the spring sear G having the tail g projecting into the path of the stop F, the lever H on the exterior of the case, its shaft I passing through the face of the case, the eccentric cam i mounted on the shaft within the recess e⁴ of the bolt, and the handle e³ of the bolt, substantially as described.

5. The combination with a safety lock for a gun, said lock having a bolt adapted to be actuated by the recoil of the gun, of a locking cam located in the path of said bolt and a device to throw said cam into and out of engagement with said bolt, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LAURENCE V. BENÉT.

Witnesses:

CHARLES KURER,
THEODOR FAVARGEE.