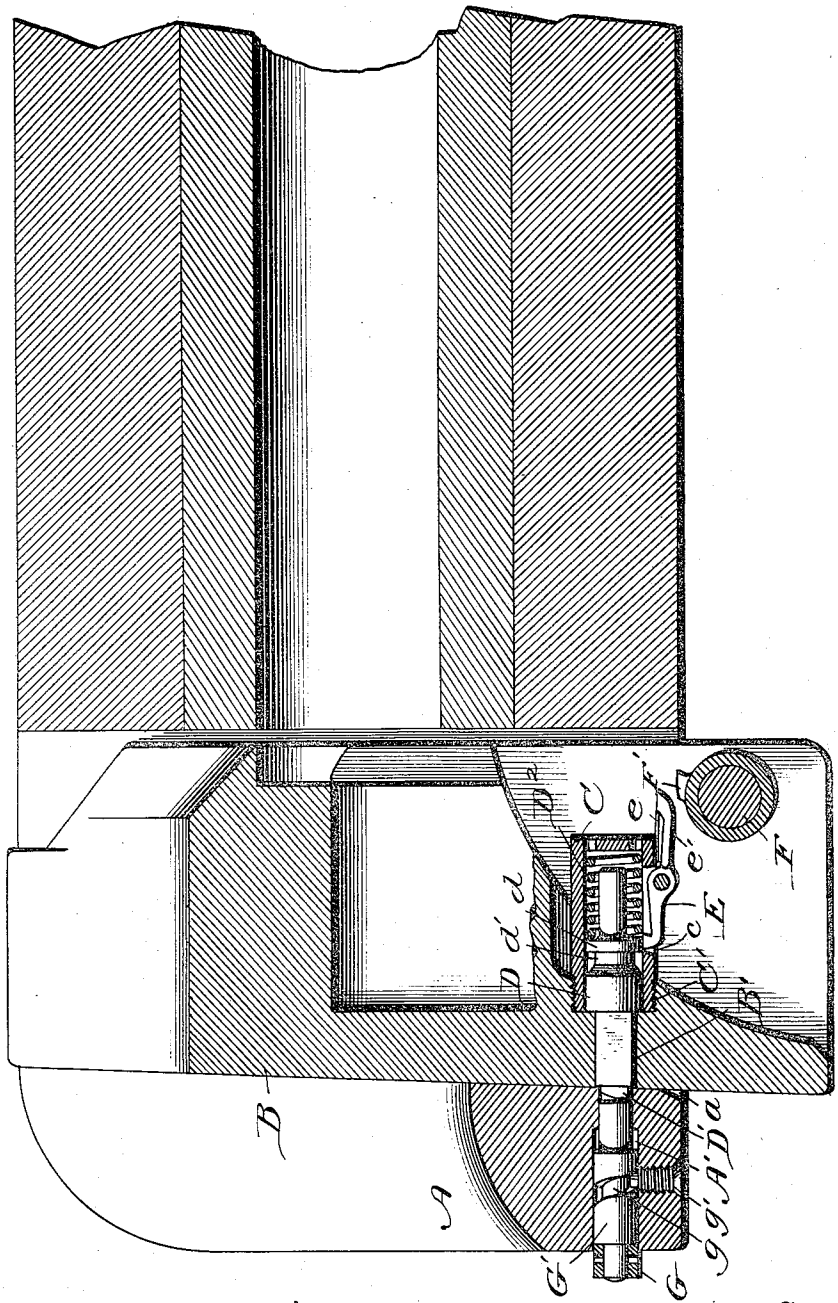
(No Model.) 2 Sheets—Sheet 1.

L. V. BENÉT.

SAFETY BREECH LOCK FOR GUNS.

No. 533,860. Patented Feb. 12, 1895.



Witnesses,
H. C. Fraser
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Fig. 2.

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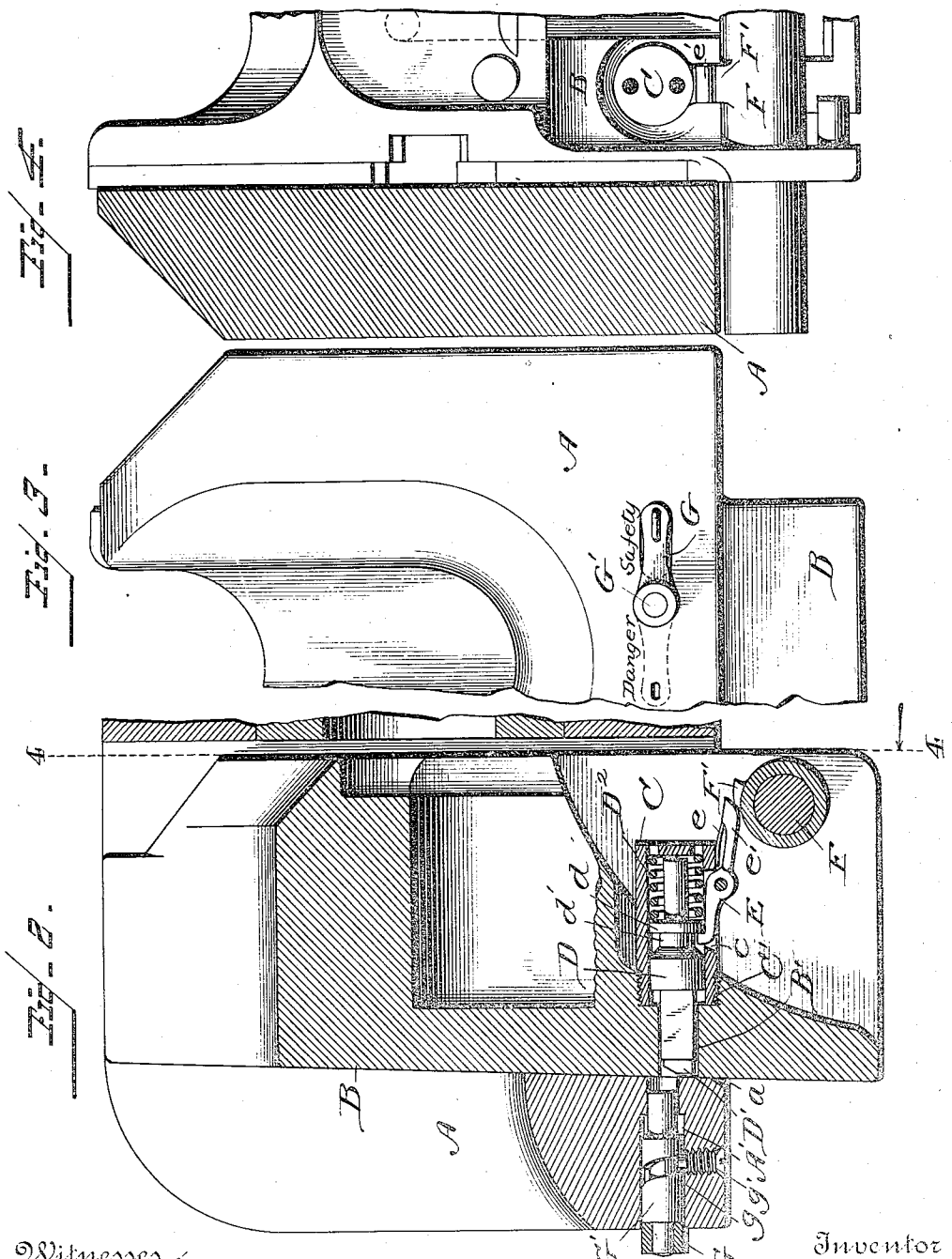

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UNITED STATES PATENT OFFICE.

LAURENCE V. BENÉT, OF PARIS, FRANCE, ASSIGNOR TO THE HOTCHKISS ORDNANCE COMPANY, LIMITED, OF LONDON, ENGLAND.

SAFETY BREECH-LOCK FOR GUNS.

SPECIFICATION forming part of Letters Patent No. 533,860, dated February 12, 1895.

Application filed March 3, 1893. Renewed December 5, 1894. Serial No. 530,930. (No model.) Patented in France March 9, 1888, No. 189,228.

To all whom it may concern:

Be it known that I, LAURENCE V. BENÉT, a citizen of the United States, residing temporarily at Paris, in the Republic of France, have invented a new and useful Improvement in Safety-Locks for Guns, of which the following is a specification, and for which I have obtained a French certificate of addition dated April 29, 1881, to Letters Patent No. 189,228, dated March 9, 1888.

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

All guns are liable to what is technically known as "hang fires" 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.

My invention is designed to prevent such accidents; and my invention consists essentially of a bolt mounted on a gun held normally in engagement with the breech mechanism to lock it by a spring or other suitable yielding device and automatically throw it out of engagement therewith on the recoil of the gun after firing.

In the accompanying drawings which illustrate my invention: Figure 1 is a view partly in cross section of my safety lock applied to the breach mechanism of the well known Hotchkiss quick firing gun, in which the safety lock is shown in the locked position at the moment that the hammer has struck the primer of the cartridge but before the discharge of the gun. Fig. 2 is a view partly in cross section of the same after the firing of the gun, with the safety lock retracted and the breech block partially withdrawn. Fig. 3 is an end view of the device for throwing the safety lock out of action. Fig. 4 is a view partly in cross section on the line 4—4 of Fig. 2 showing the forward end of the breech block.

A Figs. 1 to 4 is the breech of the gun and B the breech block.

C is a box or case containing the safety lock device. In this instance the box C is screw threaded at its open end by which it is secured in its seat C′ in the breech block, but it may also consist of a chamber recessed in the breech block itself.

B′ is a passage through the breech block forming a prolongation of the case and centering with a similar passage A′ drilled through the breech A when the breech block is in the closed position and the gun is ready for discharge.

D is the safety bolt or piston having a limited longitudinal play in the case C in the line of the recoil of the gun.

When the bolt D is thrust toward the breech of the gun its extremity D′ projects through the passage B′ beyond the rear face of the breech block, ready to engage in the corresponding chamber A′ in the breech and when the bolt is retracted, it lies flush with the rear face of the breech block. A coiled spring D^2 located within the case C and abutting between a collar *d* on the bolt D and the end of the case holds the bolt normally in position to engage with the aperture A′ of the breech.

E is a sear pivoted to the case C and thrown into engagement through a slot *c* in the case with the groove *d′* of the bolt D when the spring D^2 is compressed against the bolt. A spring *e* lodged between the the tail *e′* of the sear and the case C, holds the sear normally in position to engage with the bolt and lock it when the latter is retracted out of the way of the breech.

F is the shaft or axis of the firing hammer, on which is mounted a cam F′ in position to

engage with the tail e' of the sear E and to withdraw the latter from engagement with the bolt on the cocking of the hammer after the discharge.

The operation of my invention is as follows: When the gun is in the position shown in Fig. 1, at the moment that the hammer has struck the primer of the cartridge but before the discharge of the piece, the extremity D' of the safety bolt which is thrust out by the stress of the spring D^2 engages in the chamber A' of the breech. It is now impossible to open the breech as all movement of the breech block is prevented by the bolt D. On the discharge the gun recoils but the bolt by its inertia does not partake of this motion, but the spring D^2 is compressed against it until the sear E actuated by its spring e rises and engaging in the groove d' in the bolt D prevents the latter from resuming its original position. The breech of the gun may now be opened. As the breech block descends the hammer is cocked and the revolution of the shaft F brings the cam F' in position to encounter the tail e' of the sear E raising it and releasing the bolt D which resumes its normal position under the stress of the spring D^2. On closing the breech the beveled extremity D' of the bolt encounters the inclined plane a on the breech A and the bolt is forced back but not sufficiently to engage the sear E. When the breech is completely closed the extremity D' of the bolt is thrust into the passage A' in the breech by spring D^2 and the breech is again locked.

To open the breech without firing the gun or to render the safety lock inoperative, I provide a lever G which is keyed to a bolt G' located in the chamber A' of the breech. A spiral groove g on the bolt engages with the guide screw g' controlling the throw of the bolt. When the lever G is given a half turn to the left to the position marked "Danger" the bolt G' moves forward completely closing the chamber A' thus preventing the entrance of the safety bolt D and the breech may now be opened or closed at will.

It is evident that the aperture closing the device mounted in the breech may be employed with any safety lock, automatic or otherwise, in which the chamber or recess engages with a bolt or other device on the safety lock.

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

1. The combination with the breech of a breech loading gun having the chamber A' and a bolt in the breech block adapted to engage in said chamber of the lever G, its spirally grooved shaft G' located in said chamber A' and guide screw g' mounted in the breech and engaging in said groove, substantially as described.

2. The combination with the breech of a breech loading gun, of the breech A having the chamber A', the lever G, its spirally grooved shaft G' located in said chamber and the guide screw g' mounted in the breech and engaging in said groove, of the breech block B having a safety lock engaging in said chamber when the same is open, and rendered inoperative when the same is closed, substantially as described.

3. The combination with the breech of a breech loading gun having the chamber A, and a bolt in the breech block which registers with said chamber when the breech is closed, of a rod or shaft located in said chamber and longitudinally adjustable therein, whereby said bolt is permitted to engage or prevented from engaging said chamber at will, and a device mounted on the breech for adjusting said rod or shaft, substantially as described.

4. In a breech loading gun, the combination with the gun breech having a recess, and means to open and close said recess, of the breech block having a bolt which registers with said recess when the breech is closed, substantially as described.

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

LAURENCE V. BENÉT.

Witnesses:
M. GRALL, Jr.,
TH. FAVARGER.