

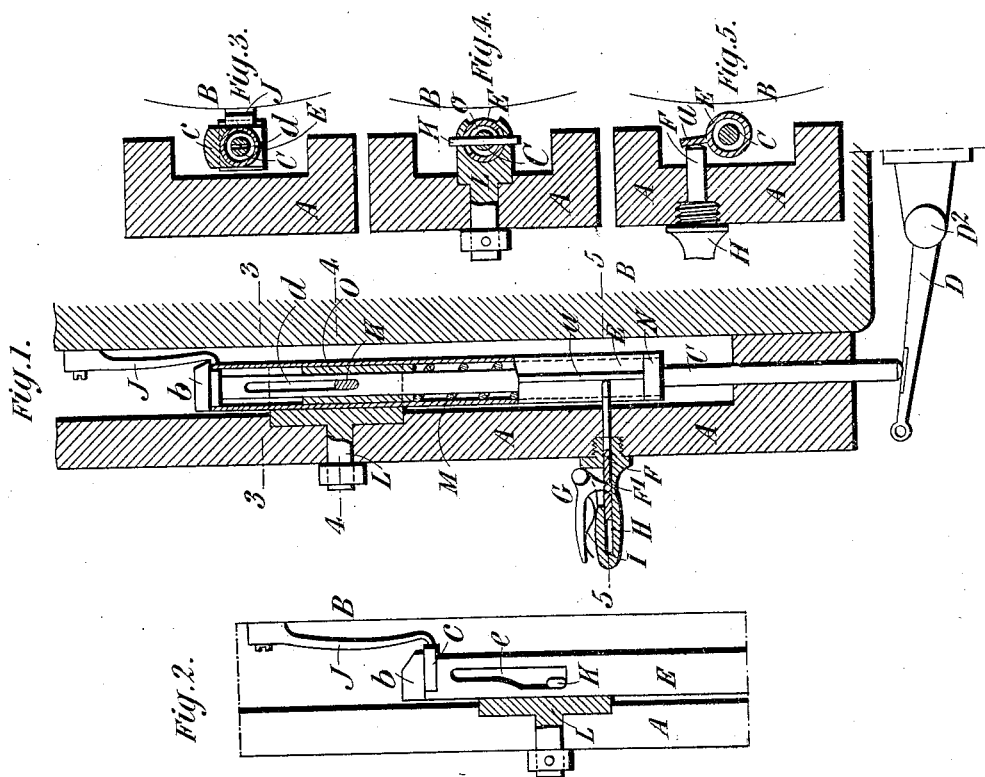
(No Model.)

2 Sheets—Sheet 1.

J. B. G. A. CANET.
FIRING MECHANISM FOR ORDNANCE.

No. 522,509.

Patented July 3, 1894.



Witnesses:
D. W. Rea.
Thos A. Green

Inventor:
Jean B. G. A. Canet
By James L. Norris
att'y.

(No Model.)

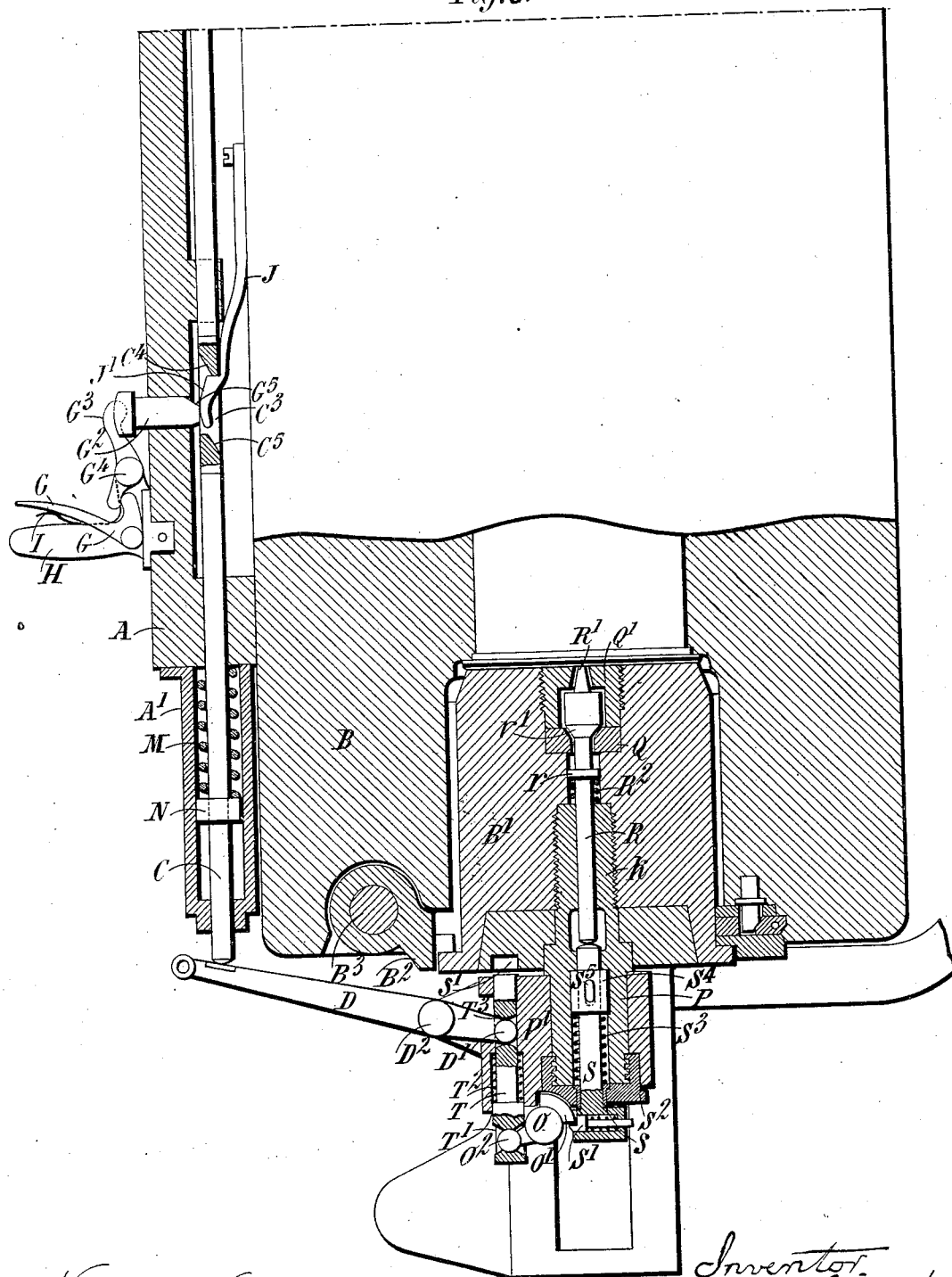
2 Sheets—Sheet 2.

J. B. G. A. CANET.
FIRING MECHANISM FOR ORDNANCE.

No. 522,509.

Patented July 3, 1894.

Fig. 6.



Witnesses:
a. B. Norris.
J. A. Saul.

Inventor.
Jean B. G. A. Canet.
By James L. Norris, atty.

UNITED STATES PATENT OFFICE.

JEAN BAPTISTE GUSTAVE ADOLPHE CANET, OF PARIS, FRANCE.

FIRING MECHANISM FOR ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 522,509, dated July 3, 1894.

Application filed April 27, 1893. Serial No. 472,076. (No model.) Patented in France July 2, 1892, No. 222,753.

To all whom it may concern:

Be it known that I, JEAN BAPTISTE GUSTAVE ADOLPHE CANET, engineer, a citizen of the Republic of France, and a resident of Paris, France, have invented certain new and useful Improvements in and Relating to Firing Mechanism for Breech-Loading Guns, (for which I have obtained a patent in France, No. 222,753, bearing date July 2, 1892,) of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to firing mechanism for breech-loading guns, and is more especially intended to be applied to quick-firing guns. It is well known that such guns are commonly fired by striking a fulminating or detonating composition, it being usual to act either directly or indirectly through a more or less rigid lanyard, which in practice is inconvenient.

By my present invention I have overcome the objections which exist against the firing devices heretofore in use and I have provided mechanism whereby the firing hammer can be released with a very slight effort on the part of the gunner by means of a disengaging device which is so constructed that all the parts thereof return automatically to their original position after being released.

In the accompanying drawings which illustrate my invention, Figure 1 is a longitudinal section showing one form of my improved releasing apparatus. Fig. 2 is a plan of a portion of said apparatus hereinafter described. Figs. 3, 4 and 5 are transverse sections taken on the lines 3, 3; 4, 4; and 5, 5 respectively of Fig. 1. Fig. 6 is a horizontal central section of the breech end of a gun with the breech-block in position, showing the percussive firing device constructed according to a modification of my invention.

Like letters denote corresponding parts throughout the drawings.

Referring to Figs. 1 to 5, A is a bracket secured to a non-recoiling part of the gun mounting.

B is the gun.

C is a rod longitudinally movable in bearings in the bracket A. The rear end of the said rod C bears against the lever D which controls the trigger of the percussive firing mechanism.

E is a sleeve surrounding the rod C and provided on its exterior surface with a longitudinal

rib or fin *a* against which the inner end of a bar F is adapted to bear. The said bar is controlled by a bell crank lever G which is pivoted to a stud or handle H screwed into the fixed part A.

I is a spring adapted to press the long arm of the lever G away from the stud or handle H and thereby through the short arm of the said lever which is engaged with a slot F' in the bar F, withdraw the said bar F from the aforesaid rib *a*.

The forward end of the rod C is enlarged to form a collar or head *b* which for a purpose hereinafter described can engage with a spring hook J fixed to the gun or to a part movable with the gun. The sleeve E is loose on the rod C and can turn thereon. It has formed at its forward end an eccentric collar *c* Figs. 2 and 3 the purpose of which is to press back the spring J and disengage the same from the collar *b* of the rod C when the sleeve E is partially rotated as hereinafter described. The normal position of the one sided collar *c* is that shown in Fig. 3. The sleeve E is supported at its forward end in a claw L which is secured in the fixed bracket A. K is a pin fixed in the said claw L and which passes through a longitudinal slot *d* formed in the rod C thereby preventing the rotation of the said rod when the sleeve E is partially turned while allowing longitudinal movement of said rod. The said pin also passes through a longitudinal slot *e* formed in the sleeve E. This latter slot however is at its rear end sufficiently wide to allow of the required turning movement of the sleeve E and is of diminishing width from its rear to its forward end at which extremity it is only of the same width as the pin K. One side of the said slot is made straight and parallel with the axis of the sleeve, while the other side thereof as shown in Fig. 2 is inclined as, and for a purpose, hereinafter described.

O is a ring surrounding the rod C and inclosed in the sleeve E which ring is fixed by the pin K to the claw L. The said ring constitutes an abutment for one end of a spring M which is inclosed in the sleeve E and the other end of which presses against a collar N fixed on the rod C. The said spring is compressed when the rod C is pushed forward, and when released it serves to push the said rod back again.

To place the device in a position ready for

use, the rod C is pushed so far forward that the collar *b* engages with the hook J, the said hook then retains the rod in this operative position wherein the lever D aforementioned bears against the rear extremity of the rod C. If now the releasing lever G is depressed, which it may be by a slight pressure of the finger, the short arm thereof operates the bar F and causes the said bar which bears against the rib *a* of the sleeve E to partially rotate said sleeve whereupon the eccentric head *c* of the said sleeve acts on the spring J and disengages the same from the collar *b* of the rod C as shown in Fig. 2. The latter rod now being released is immediately driven back by its spring M and so operates the firing-lever D and fires the gun. During the rearward movement of the rod C and sleeve E the inclined side of the slot *e* in the said sleeve slides along the pin K and in so doing operates to turn back the sleeve to its initial angular position. During the recoil after firing the firing-lever D is carried back clear of the rod C, and the parts of the trigger-mechanism are then free to return to their initial position as will be hereinafter explained. Moreover during the recoil the hook J moves with the gun and again becomes engaged with the collar *b* of the rod C. The forward face of the said collar is inclined as shown in Figs. 1 and 2 to permit the hook to slide past the collar during the recoil. When the gun runs out again the hook remains in engagement with the collar *b* and thus pulls the rod C and its sleeve E with it, and thereby compresses the spring M ready for the next firing. The firing-lever D is also by the running out movement brought again in contact or nearly so with the rod C. The parts are thus all restored to their initial position and are ready to be operated again to fire the gun by the pressing of the lever G in the manner above described.

In the firing mechanism at the side of the gun illustrated in Fig. 6 the rod C is operated to effect the firing by a spring M which is compressed between a collar N fixed on the rod and the end of the bracket A. The said spring is inclosed in a tubular part A' fixed to the said bracket A. Near its forward end the rod C is provided with a slot C³ having oblique ends C⁴, C⁵ for a purpose hereinafter specified. The spring hook J which is fixed to the gun or to a part that recoils with the gun is adapted to enter the said slot and thus become engaged with the rod C. When so engaged with the rod the curved face J' of the hook bears against the end of a pin G² which is adapted to slide axially in a bearing in the bracket A, and the head of which serves as the point of application of a lever G³ which is pivoted at G⁴ to the bracket A. The tail end of the lever G³ bears against and is controlled by the short arm of the releasing lever G. The operation of this mechanism is as follows: that is to say, by pressing the releasing lever G, the pin G² is pushed

inward so as to force the hook J out of the slot C³ and clear of the rod C whereupon the spring M acts to drive the rod C backward and thus operates the firing-lever D to fire the gun. In the rearward movement of the rod C the oblique face C⁴ of the rod C is brought in contact with an inclined part G⁵ of the pin G² and operates to press the said pin outward again thereby replacing the levers G, G³, in their initial position. By the recoil movement of the gun after firing, the spring hook J moving with the gun is brought once more into a position wherein it can re-enter the slot C³ of the rod C. Should the gun recoil beyond this position the curved end of the hook will slide over the oblique face C⁵ of the rod C, returning over the said face when the gun again runs out so as to re-enter the slot C³ and become engaged with the rod C. Then the continued running out movement of the gun will carry the rod C with it and will compress the spring M, thus restoring the parts to their initial position ready for the next firing operation.

The remaining parts illustrated in Fig. 6 are as follows: B is the gun; B' is the breech-block; B² is the carrier bracket which is hinged to the gun on a pivot or hinge pin B³ in the usual manner. P is a tube screwed concentrically into the breech-block. Q, Q' are two rings or plugs the first named of which is placed loosely in an axial cavity in the forward end of the breech-block, and the other of which is screwed into said cavity and retains the ring Q in place. R is the firing pin, the point R' of which can project beyond the face of the breech-screw. Said firing pin is controlled by a spring R² which bears against a collar *r* formed on the pin. Another collar *r'* formed on the pin forms a valve the seat of which is constituted by the ring Q. Said valve operates to prevent the access of powder gases to the breech-mechanism, in case any should escape past the rear end of the cartridge. Behind the pin R is the firing hammer S which is formed with an enlargement at its rear end in which enlargement is mounted a spring detent S'. On the hammer is placed a screw nut S², which is adapted to be screwed on the end of the tube P. There is also a bush *s* which abuts against the said nut and there are also mounted on the hammer a spiral spring S³ and a sleeve S⁴, the latter being retained by a pin S⁵ passing through the hammer but so constructed as to allow the sleeve S⁴ a certain amount of endwise play on the hammer. The object of the pin S⁵ is to limit the play of the hammer with respect to the sleeve S⁴. When these parts are in place, the nut S² is screwed on the tube P and the sleeve S⁴ bears against a shoulder formed within the said tube, the forward end of the hammer being just clear of the firing pin. On a bracket P' which forms a bearing for the external projecting part of the tube P is pivoted a lever *o*, one end *o'* of which constitutes a cam and engages

with the spring detent S'. The other end of the said lever o terminates in a ball o² which engages with a slot T' formed in a rod T that is adapted to slide in the bracket P' in a direction parallel to the axis of the gun. T² is a spring which is compressed between a shoulder formed on the rod T and the bracket P', which spring operates to press the said rod in the rearward direction. The inner spherical end D' of the firing-lever D previously referred to engages with a second slot T³ formed in the rod T and operates to slide the said rod to and fro when the said lever D is oscillated about its pivot D². The operation of this device is as follows: When the lever D is moved backward either by pulling on a lanyard fastened in the eye of the said lever or by the operation of the rod C above described, the rod T is thereby moved forward and caused to turn the lever o and through the detent S' draw back the hammer S and thus compress the spring S³. In this movement, the cam portion of the lever o describes an arc of a circle while the detent S' moves in a straight line, and consequently at a certain part of the movement the detent escapes from the cam o' and releases the hammer. The latter thereupon is driven forward by its spring until arrested by the sleeve S⁴ coming in contact with the aforesaid internal shoulder of the tube P. By reason however of the inertia acquired by the hammer, and the fact that it can move through the sleeve S⁴ for a short distance, the hammer continues its forward movement so far as to strike and drive forward the firing pin and fire the gun. In so doing the hammer carries inward the bush s and operates to slightly compress the spring S³ between the said bush and the sleeve S⁴. The hammer is then brought back to its initial position of rest by its spring S³.

When the gun recoils, the lever D is withdrawn from the rod C and is then free to return to its initial position which it does under the pressure of the spring T², and at the same time turns back the lever o and causes the cam part o' of said lever to force back and then to re-engage with the spring detent S'. All the parts of the firing-mechanism are thus returned to their initial position.

To prevent firing before the breech-screw is properly screwed home, I so arrange that the forward end of the rod T shall be in close proximity to the rear end of the breech-screw and I provide a recess s' in the breech-screw in such position that said recess is in line with the rod T when and only when the breech-screw is properly screwed home. The rod T can be moved forward to fire the gun when but not until the recess s' is opposite the end of the rod, that is to say, when the breech is properly closed.

What I claim is—

1. In a breech-loading gun, the combination of a bracket or support, a recoiling gun, trig-

ger mechanism and an actuating lever therefor mounted on and carried rearward by the recoiling of the gun, and lever-operating mechanism arranged in operative connection with said bracket or support and set to operate the actuating lever of the trigger mechanism by the forward movement of the gun, substantially as described.

2. In a breech-loading gun, the combination, with the gun and its trigger-mechanism, of a hook J secured to a part that recoils with the gun, and an axially movable spring-controlled rod C adapted to be engaged by said hook and to be moved forward to compress the controlling spring thereof during the running out of the gun, the rear end of said rod being in a position to strike the firing lever when released from the hook, substantially as described, for the purposes specified.

3. The combination, with the gun and its trigger-mechanism, of the hook J secured to a part that recoils with the gun, a spring-controlled rod C adapted to slide axially in fixed bearings on the gun carriage, and to be engaged by said hook J during the running out of the gun, the rear end of the said rod being in a position to strike the firing lever D when released from the hook J, and means for disengaging the hook J and thus liberating the rod C, substantially as, and for the purpose, specified.

4. The combination, with a gun and its trigger-mechanism, of a spring-controlled rod C axially movable in stationary bearings, and the rear end of which is adapted when released to strike the firing-lever D, a slot C³ in said rod, a hook J secured to a part that recoils with the gun and adapted to enter said slot C³ and thus engage the rod C, and the pin G² lever G³ and lever G, for disengaging the hook J from the rod as required, substantially as, and for the purpose, specified.

5. The combination, with a gun, and its trigger-mechanism, of a spring-controlled rod C axially movable in stationary bearings, and the rear end of which is adapted when released to strike the firing-lever D, a slot C³ in said rod, a hook J secured to a part that recoils with the gun and adapted to enter said slot C³ and thus engage the rod C, the pin G², lever G³ and lever G for disengaging the hook J from the rod as required, an inclined part C⁴ at the forward end of the slot C³ and a corresponding inclined part G³ on the end of the pin G² whereby the said pin is moved out again during the rearward movement of the rod C when said rod is released, substantially as described, for the purpose specified.

In witness whereof I have hereunto set my hand this 7th day of April, 1893.

JEAN BAPTISTE GUSTAVE ADOLPHE CANET.

Witnesses:

CHARLES T. THIRION,
HUGH P. KING