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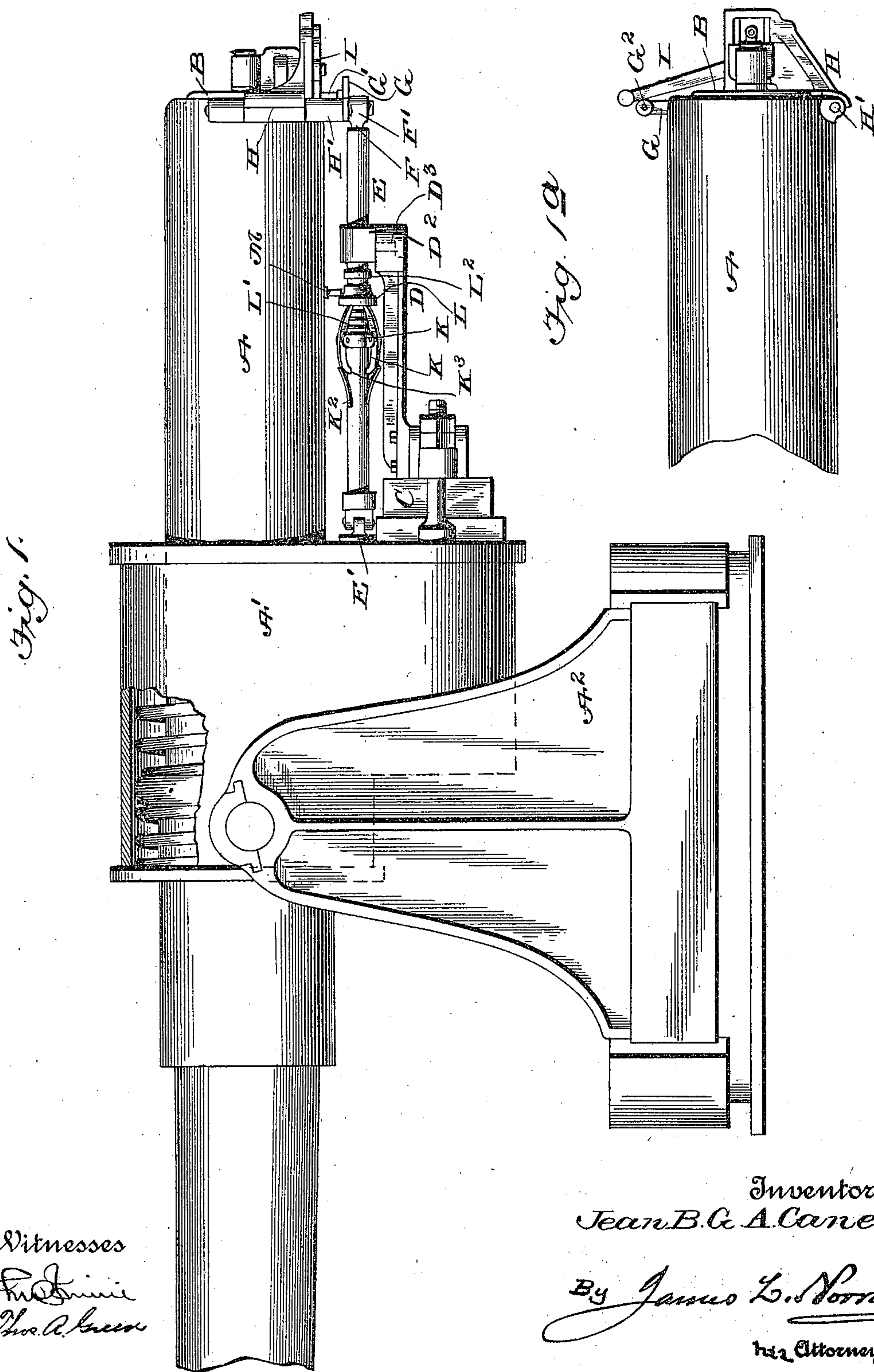
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J. B. G. A. CANET.

AUTOMATICALLY OPERATED BREECH MECHANISM FOR GUNS.

No. 521,400.

Patented June 12, 1894.



Witnesses
Johnnie
Hos. A. Green

Inventor
Jean B. G. A. Canet &
By James L. Norris
his Attorney

(No Model.)

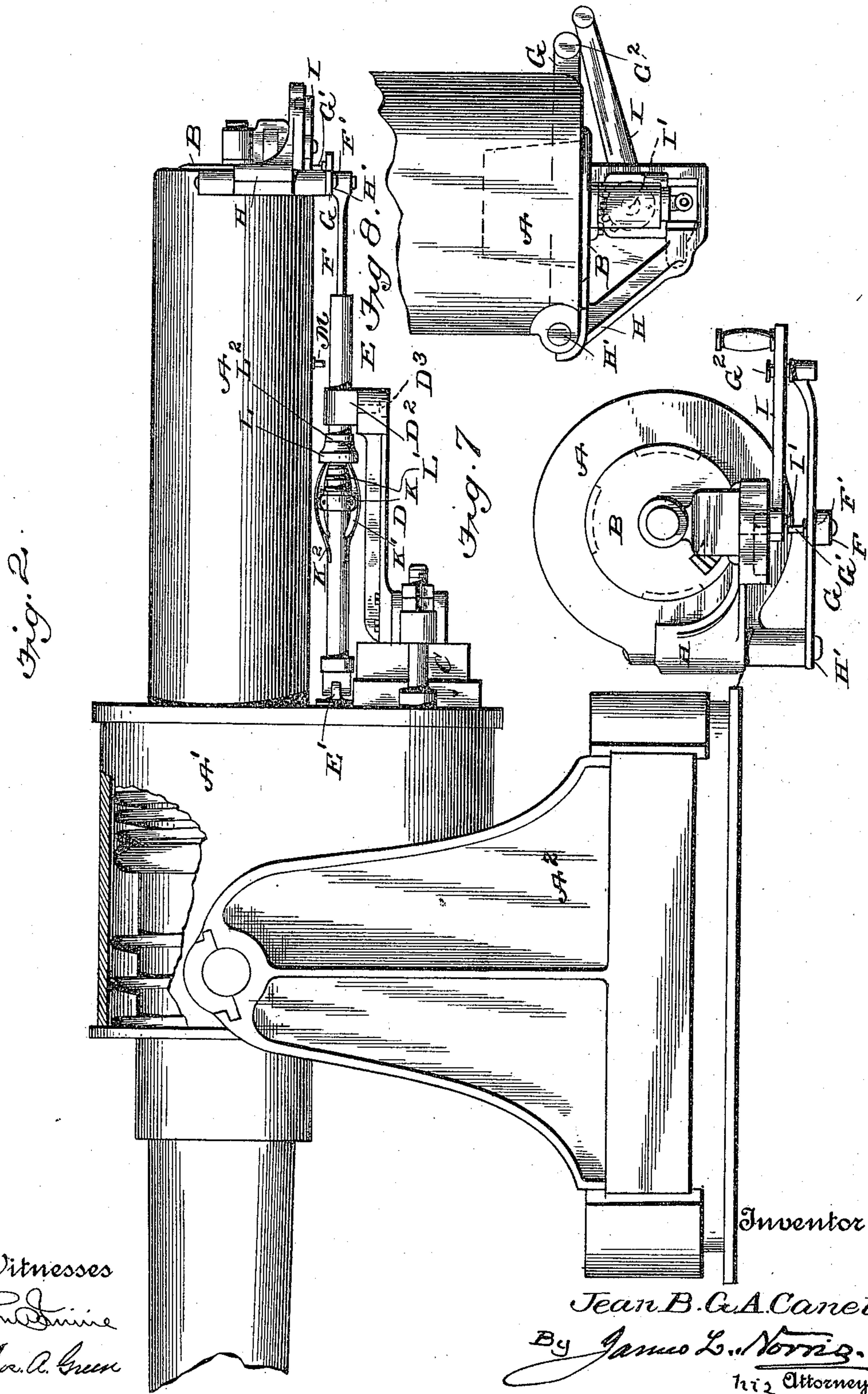
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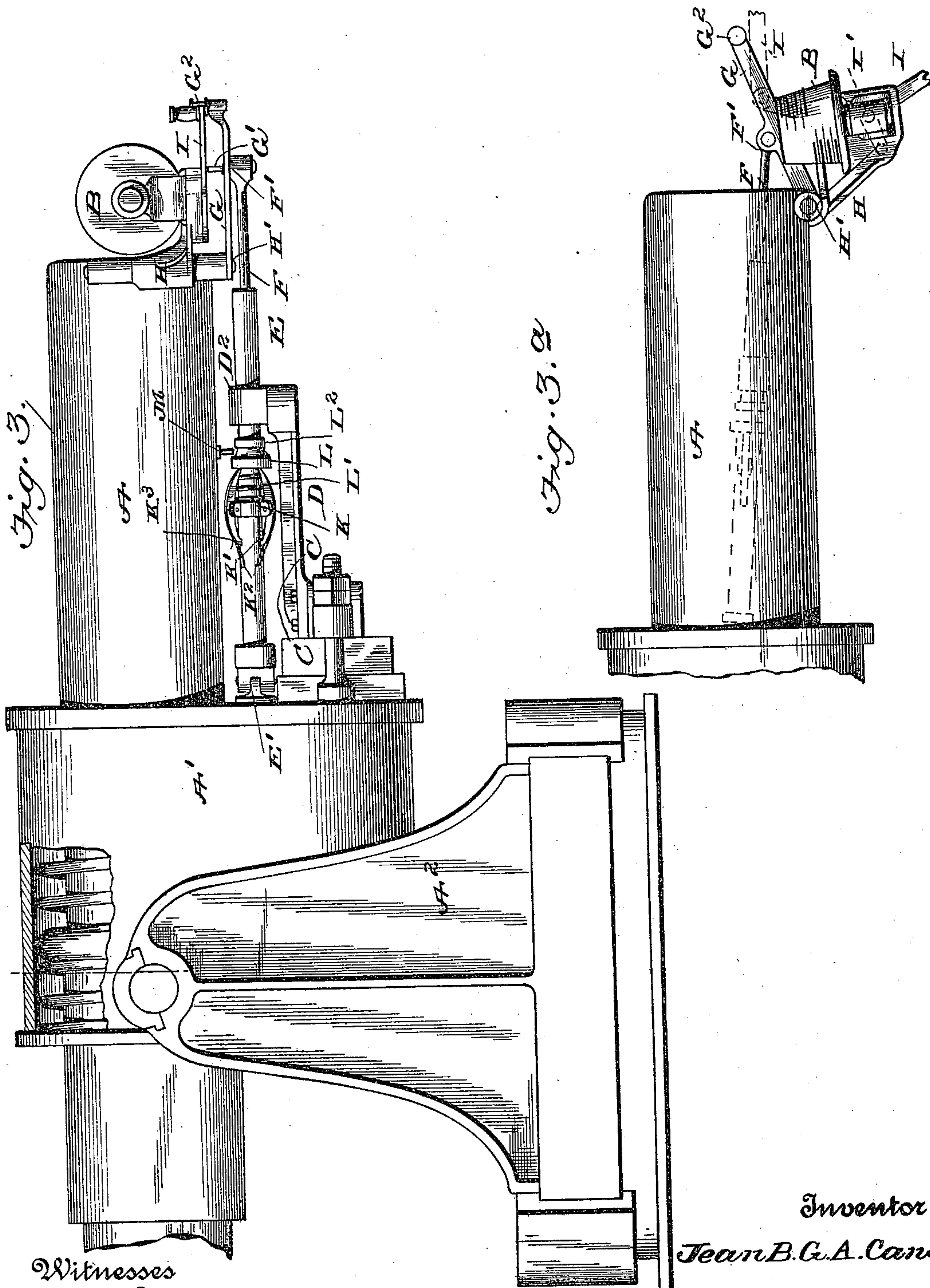
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Thos. A. Green

Inventor

Jean B. G. A. Canet

By James L. Norris
his Attorney

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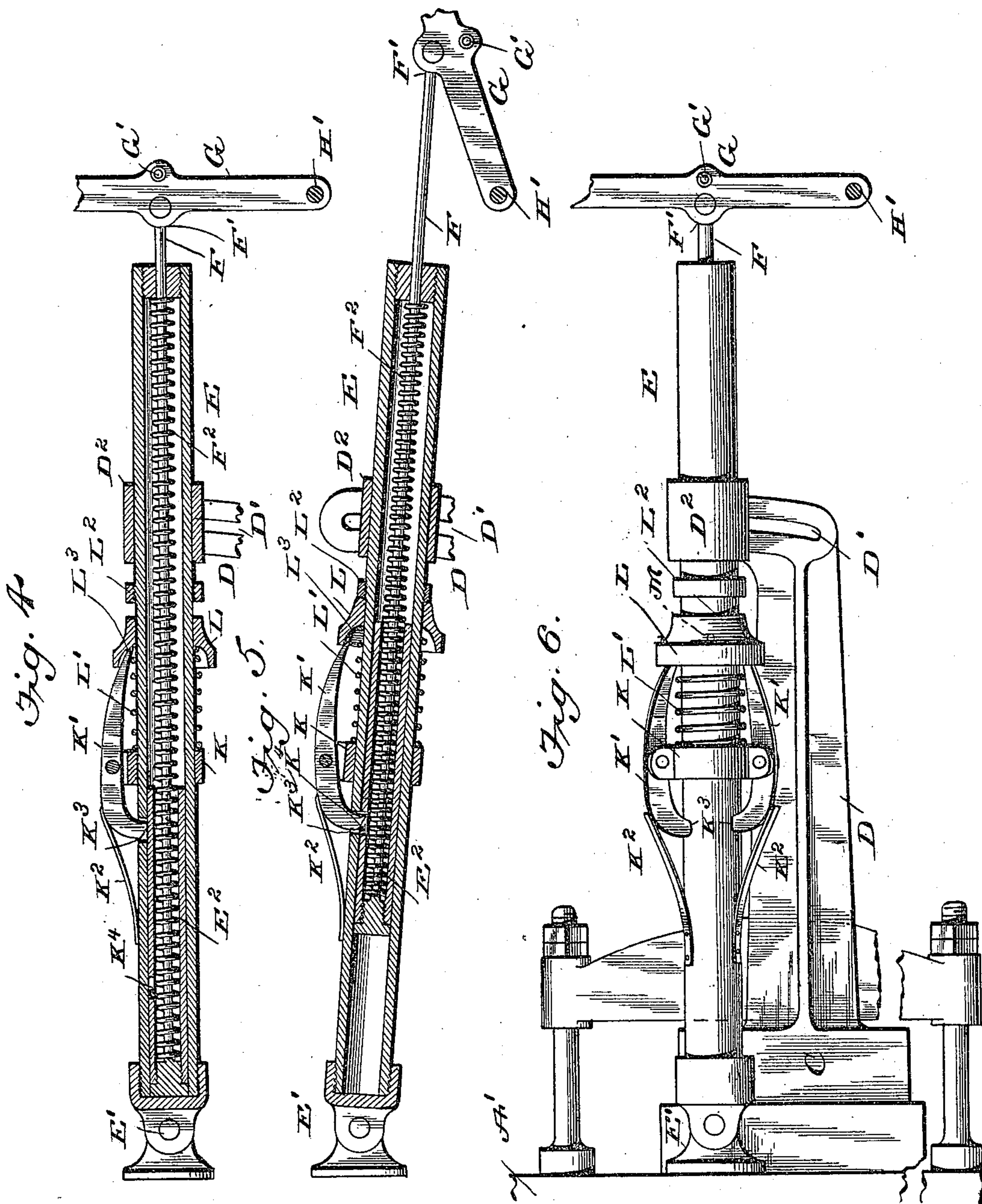
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Witnesses

John A. Green
Thos. A. Green

Inventor

Jean B. G. A. Canet.

By *James L. Norris.*

Attorney

(No Model.)

5 Sheets—Sheet 5.

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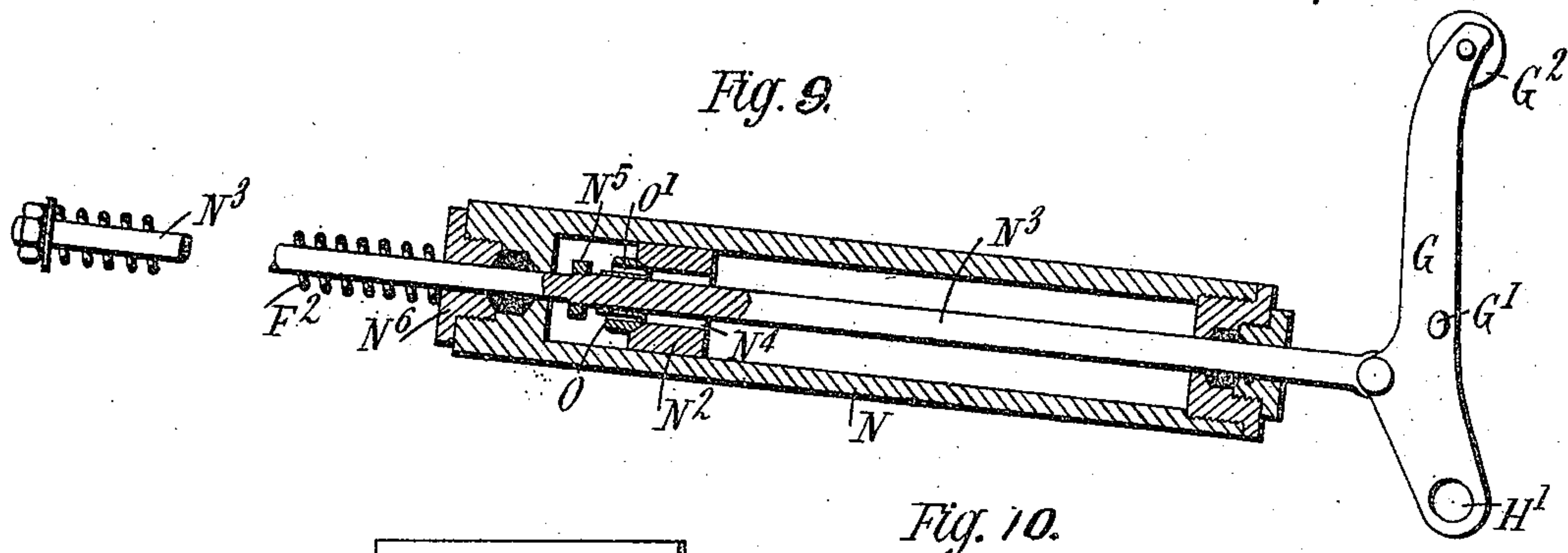


Fig. 10.

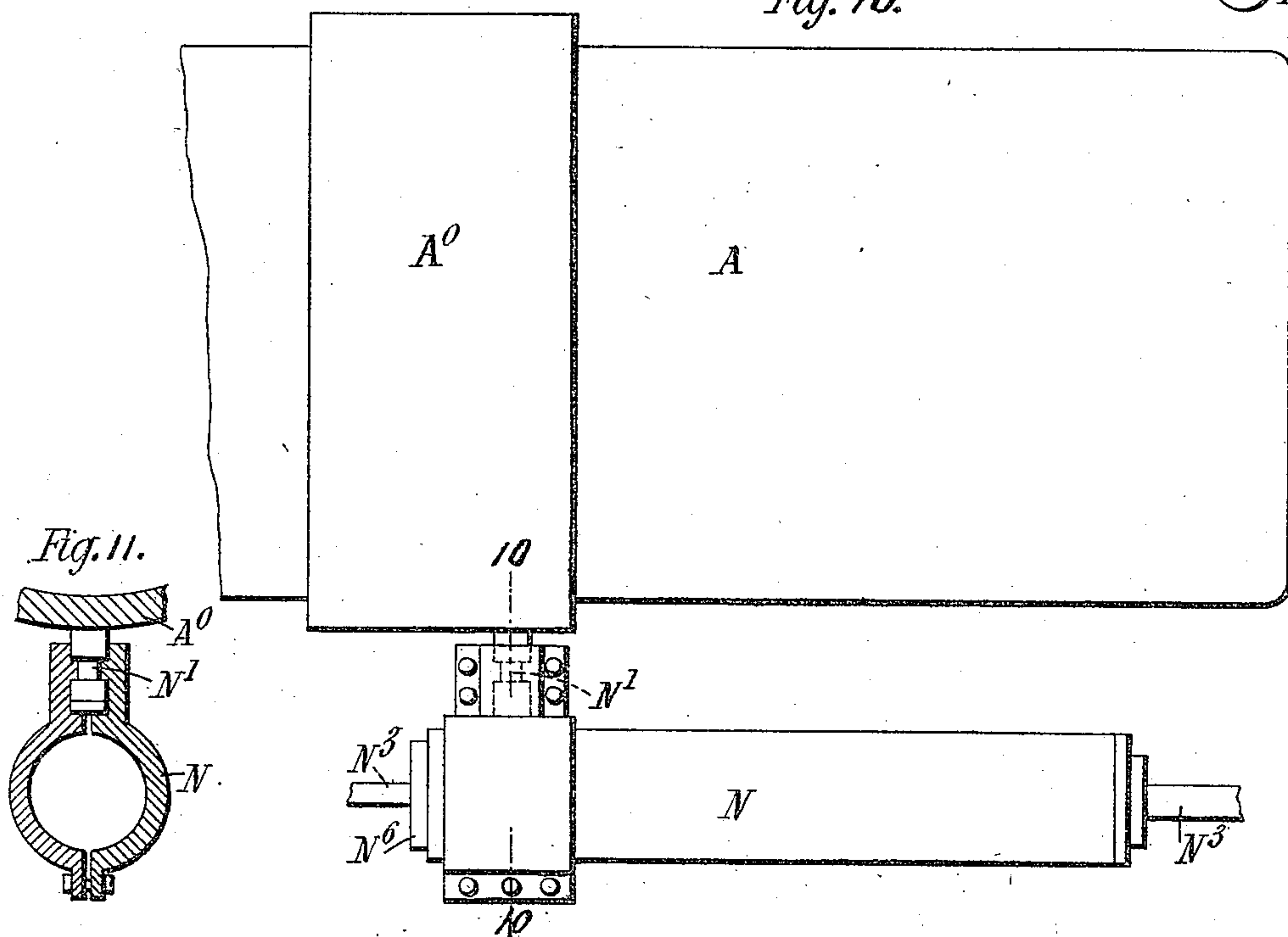
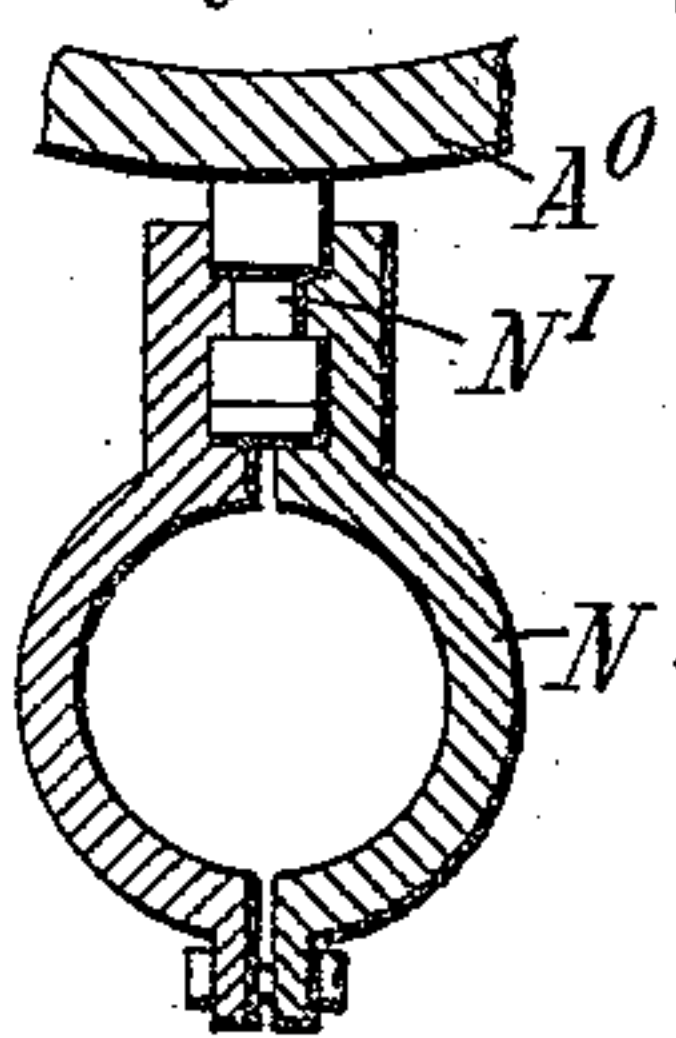


Fig. 11.



Witnesses
J. A. Saul.
J. H. Daly.

Inventor
Jean Baptiste Gustave Adolphe Canet
by James L. Norris, Atty.

UNITED STATES PATENT OFFICE.

JEAN BAPTISTE GUSTAVE ADOLPHE CANET, OF PARIS, FRANCE, ASSIGNOR OF ONE-HALF TO THE SIR JOSEPH WHITWORTH & COMPANY, LIMITED, OF OPENSHAW, ENGLAND.

AUTOMATICALLY-OPERATED BREECH MECHANISM FOR GUNS.

SPECIFICATION forming part of Letters Patent No. 521,400, dated June 12, 1894.

Application filed May 17, 1893. Serial No. 474,530. (No model.) Patented in France December 31, 1887, No. 187,908, and in England February 11, 1888, No. 2,075.

To all whom it may concern:

Be it known that I, JEAN BAPTISTE GUSTAVE ADOLPHE CANET, a citizen of France, residing at Paris, France, have invented certain new and useful Improvements in Breech Mechanism for Guns, (for which I have obtained patents in Great Britain, No. 2,075, dated February 11, 1888, and in France, No. 187,908, dated December 31, 1887,) of which the following is a specification.

This invention relates to that type of breech-loading guns wherein the breech is automatically opened by the movements of the gun when fired, and the object of the present invention is to provide new and improved means for automatically opening the breech of a quick firing gun by the recoil and running out movements of the gun.

To accomplish this object my invention consists in the features of construction and the combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a broken side elevation of a gun embodying my invention, the parts being in normal position. Fig. 1^a is a broken detail view, showing the breech-block closed as in Fig. 1. Fig. 2 is a broken side elevation, showing the gun after firing and recoiling. Fig. 3 is a similar view, showing the gun in counter-recoil position, or after it has moved forward nearly to its normal position. Fig. 3^a is a detail broken top plan view, showing the breech-block open, as in Fig. 3. Fig. 4 is a detail longitudinal sectional view of the breech-block actuating mechanism, the parts being in normal position. Fig. 5 is a similar view, showing the parts in the position they occupy when the gun has recoiled. Fig. 6 is a detail top plan view, showing the parts in the position exhibited in Fig. 4. Fig. 7 is a rear end elevation of the breech of the gun, the breech-block being closed. Fig. 8 is a top plan view of the same. Fig. 9 is a sectional plan view, showing a modification of my invention wherein I employ a hydraulic cylinder. Fig. 10 is a side elevation of the hy-

draulic cylinder, indicating the pivot-pin about which said cylinder can turn; and Fig. 11 is a transverse sectional view, taken on the line 10—10, Fig. 10.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The letter A indicates a gun adapted to recoil and move forward in a non-recoiling mount A' arranged upon and supported by a carriage A².

The letter B indicates a breech-block, and C a part of an ordinary recuperator, to which is fixed a bracket or arm D having a curved slot D', Figs. 4 to 6 inclusive, formed in its rear extremity. The arm D is provided with a sleeve secured thereto by a pin D³ which passes through and works in the slot D'. A tube E is pivoted at its forward end to a bracket E' secured to the non-recoiling mount of the gun, and this tube passes through and is guided by the sleeve D². A secondary tube E² is arranged within the tube E to slide longitudinally therein. The secondary tube E² is secured at its forward end to a rod F which extends the whole length of the outer tube and passes out through the rear end thereof and is pivoted or coupled at its rear extremity at F' to a horizontal lever G, which I term a secondary lever and which is pivoted with a capability of turning on the axle H' of the bracket H which carries the breech-block and constitutes a hinge therefor. A stop-pin G' is fixed to the lever G, and is adapted to bear against the end of the gun for the purpose of limiting the forward turning movement of the lever G.

I is the main breech-operating lever, and I' the axis thereof.

The breech-block B, the main lever I, and other essential parts of the breech mechanism, not illustrated in detail herein, are substantially the same as described and shown in Letters Patent No. 447,228, issued February 24, 1891.

The secondary lever G carries a roller G² adapted to bear against the lever I for a pur-

pose hereinafter specified. Between the forward end of the tube E^2 and the rear end of the tube E is compressed a spring F^2 , Figs. 4 and 5.

5 K is a ring secured to the tube E and to which are pivoted two, three or more hooked catches K' , each of which is acted upon by a spring K^2 to depress the hooked forward end thereof and force the same through an opening K^3 in the side of the tube E , one such opening being provided for each catch. Corresponding openings K^4 are also provided in the inner tube E^2 for a purpose hereinafter specified.

15 L is a sleeve mounted and capable of sliding for a limited distance on the tube E .

L', Fig. 6, is a spring that is compressed between said sleeve and the fixed ring K and that operates to force the sleeve rearwardly against a fixed stop formed by a ring L^2 secured to the tube E .

25 L^3 , Figs. 4 and 5, is a conical recess formed in the forward face of the sleeve L , the sloping side of which recess is adapted to engage with the tail ends of the catches K' .

M, Figs. 1, 2, and 3, is a stud fixed to the gun and adapted to engage with the sleeve L for a purpose hereinafter described.

When the gun recoils in the non-recoil mount A' , as in Fig. 2, the lever G is carried backward by the gun, and the rod F is drawn out from the tube L , thereby compressing the spring F^2 between the forward and rear ends respectively of the tubes E^2 , 35 E . Upon the counter recoil or forward movement of the gun, the rod F is free to slide back into the tube E until it is arrested by the catches K' , the hooked ends of which fall into the openings K^4 in the tube 40 E^2 and lock the said rod. The gun, however, still continues to move forward, and as the rod F is locked by the catches K' , the lever G is thereby turned about its pivot and its roller G^2 is pressed against and turns the 45 main lever I and opens the breech. Just prior to the completion of the running out of the gun, as in Fig. 3, the stud M presses against and pushes forward the sleeve L and thus operates to close in the tail ends of the 50 catches K' and raise the hooked ends thereof out of the holes in the tube E^2 , whereupon the said tube and rod F are immediately driven forward by the spring F^2 , and the lever G is thereby restored to its initial position. The breech can then be closed by hand. The hooked ends of the catches are kept raised so long as the gun is run out, but immediately the recoil takes place the stud M recedes from the sleeve L and the latter is 55 then forced back by the spring L' to release the catches and allow them to operate as above described.

In the modification of my invention, shown in Figs. 9, 10 and 11, I provide a hydraulic 60 device for opening the breech during the running out of the gun.

N is a hydraulic cylinder which is pivoted

at its forward end at N' to the stationary sleeve A^0 through which the gun slides. N^2 is a piston working therein. 70

N^3 is the piston-rod which is coupled to the lever G that actuates the breech-block operating lever, as hereinbefore explained. Passages N^4 are formed through the piston to admit of the free flow of the liquid therethrough 75 during recoil.

O is a valve mounted to slide on the piston-rod N^3 between the piston N^2 and a stop N^5 fixed on the rod. One or more small holes O' are provided in the valve O , which holes 80 admit of a reduced flow of liquid through the valve when the gun is running out. The piston-rod passes out through a packed gland N^6 in the forward end of the cylinder, and on it is mounted a spring F^2 which tends to 85 force the rod forward. When the gun recoils, the liquid passes freely through the passages N^4 and raises the valve O from its seat, but on the commencement of the running out, the valve O is immediately forced 90 to its seat against the piston N^2 and would close the passages N^4 but for the small orifices O' in the valve. These orifices allow of a return flow of liquid, but being very small the flow is retarded, consequently the piston 95 N^2 cannot travel forward as fast as the gun and it therefore affords a support or abutment for the lever G and causes the said lever to turn about its axis H' and open the breech as above described. As soon as the 100 running out is completed, the spring F^2 operates to return the lever G to its initial position, leaving the breech free to be closed by the gunner.

Having thus described my invention, what 105 I claim is—

1. The combination with a recoiling gun, a non-recoiling mount, and a breech-block, of a main lever for operating the breech-block, a secondary lever connected to the breech and 110 acting upon the said main lever, a lengthwise movable rod connected with the secondary lever, and means for holding the rod during the running out of the gun for causing the secondary lever to act on said main lever and open 115 the breech-block, substantially as described.

2. The combination with a recoiling gun, a non-recoiling mount, and a hinged breech-block, of a lever for operating the breech-block, a secondary lever connected at one end 120 to the hinge of the breech-block and acting at the opposite end against the said main lever, a lengthwise moving rod pivoted to the secondary lever, and means for holding the rod during the running out of the gun for 125 causing the secondary lever to act on said main lever and open the breech-block, substantially as described.

3. The combination with a recoiling gun, a non-recoiling mount, and a hinged breech-block, of a main lever for operating the breech-block, a secondary lever pivoted to the hinge 130 of the breech-block and bearing against the said main lever, a stop G' for limiting the for-

ward movement of the secondary lever, a rod F connected to the secondary lever, and means for locking the rod during the running out of the gun, for causing the secondary lever to
5 act on said main lever and open the breech-block, substantially as described.

4. The combination with a recoiling gun, a non-recoiling mount, and a hinged breech-block, of a main lever for operating the breech-
10 block, a secondary lever connected with the hinge of the breech-block and bearing against the said main lever, a stop G' for limiting the forward movement of the secondary lever, a tube E hinged to a part of the non-recoiling
15 mount, a rod F pivoted to the secondary lever and adapted to slide in said tube, spring-catches K' for locking the rod to the tube during the running out of the gun, and means for releasing the spring catches from the rod,
20 substantially as described.

5. The combination with a recoiling gun, a non-recoiling mount, and a hinged breech-block, of a main lever for operating the breech-block, a secondary lever connected to the

hinge of the breech-block and acting upon the
25 said main lever, a stop G' for limiting the forward movement of the secondary lever, a tube E hinged to a part of the non-recoiling mount, a rod F pivoted to the secondary lever and adapted to slide in the tube, spring catches
30 K' pivoted to the tube and adapted to lock the rod thereto during the running out of the gun, a spring controlled sleeve L having a recess for receiving and engaging the spring
35 catches, a stud M fixed to the gun and adapted to engage with and push forward the sleeve just before the completion of the running out of the gun for raising the spring-catches and releasing the rod, and a spring F² for return-
40 ing the rod and the secondary lever to their normal position, substantially as described.

In witness whereof I have hereunto set my hand this 29th day of April, 1893.

JEAN BAPTISTE GUSTAVE ADOLPHE CANET.

Witnesses:

ROBT. M. HOOPER,
A. DROCROLF.