

No. 617,614.

E. TERNSTROM.

Patented Jan. 10, 1899.

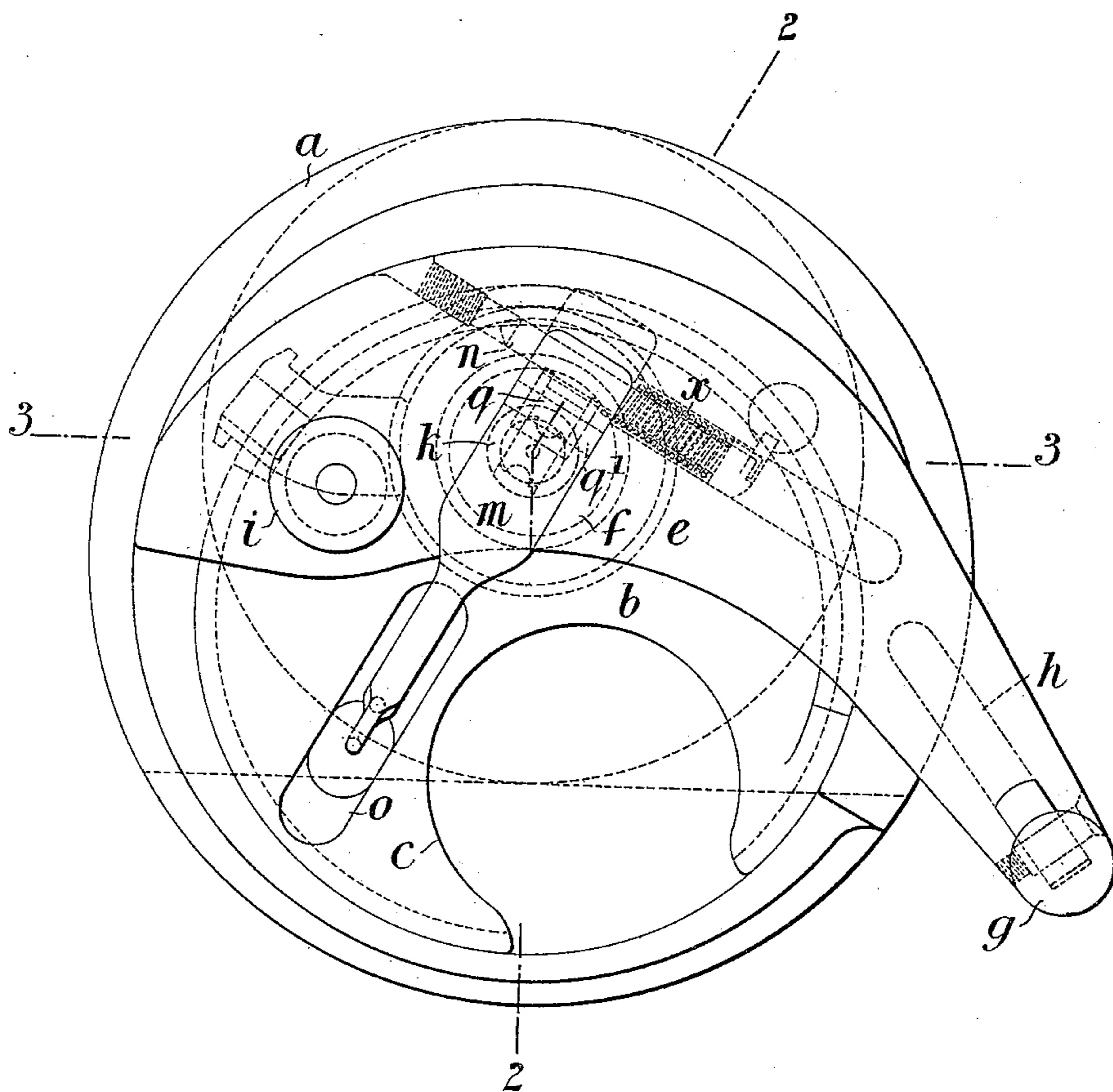
BREECH MECHANISM FOR QUICK FIRING GUNS.

(Application filed Mar. 14, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



Witnesses

B. W. Brockett

J. D. Kinghorn

Ernst Ternstrom Inventor

By Whitaker & Pursh

Attys.

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Fig. 2.

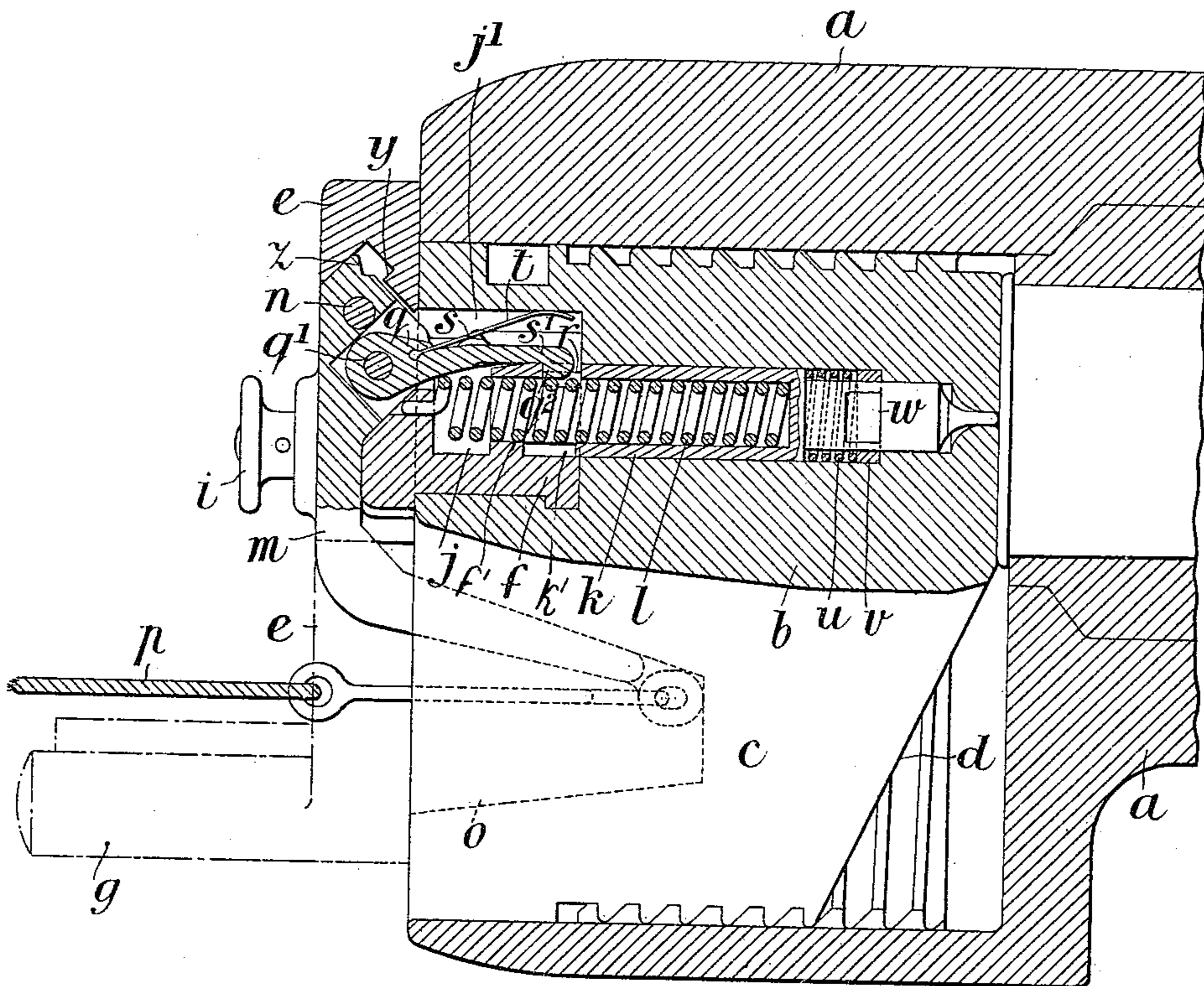
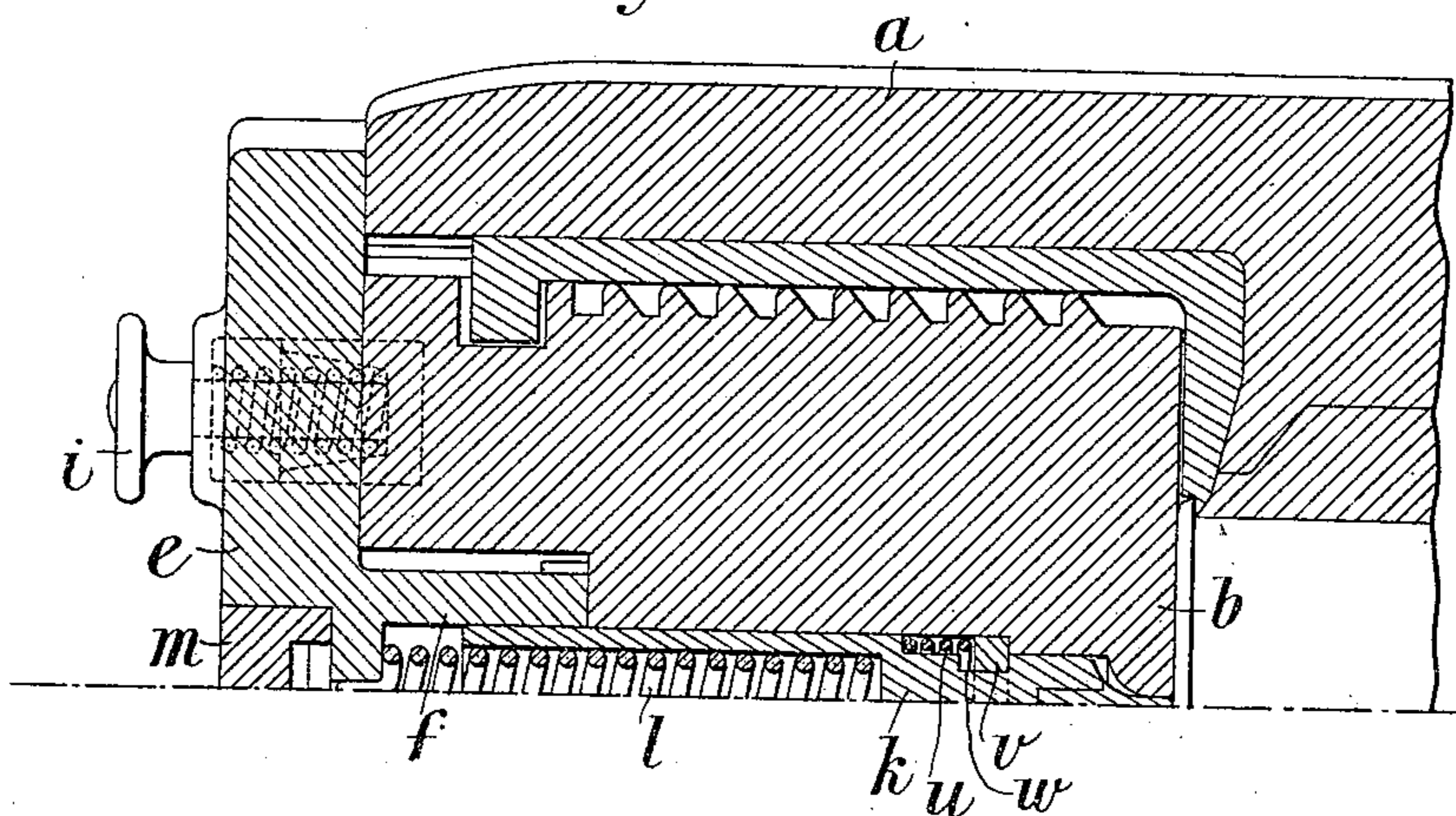


Fig. 3.



Witnesses.

Blanchard
J. D. Kingbury

Ernst Ternstrom Inventor.
By Whitaker & Pugh attys.

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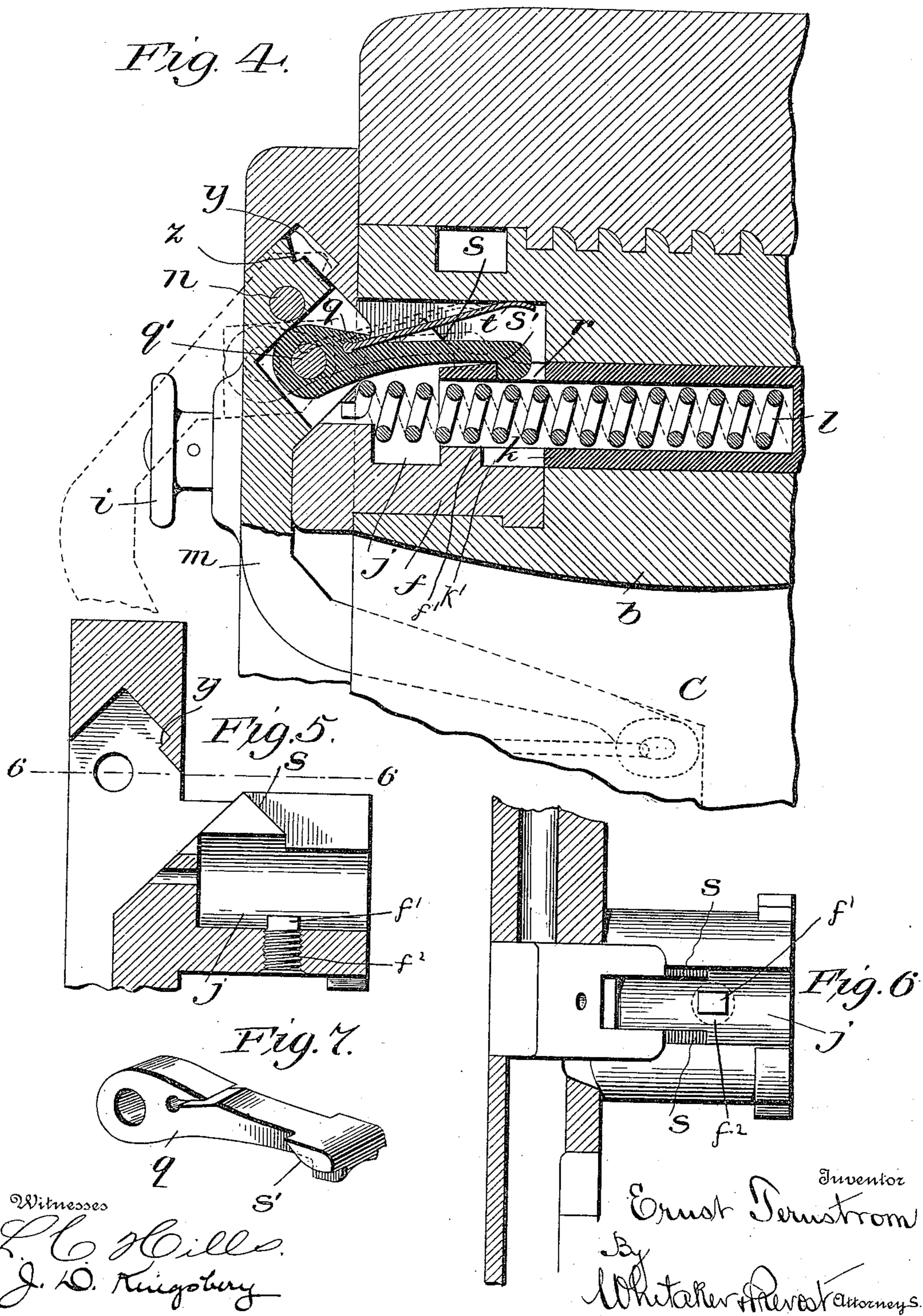
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3 Sheets—Sheet 3.



UNITED STATES PATENT OFFICE.

ERNST TERNSTRÖM, OF PARIS, FRANCE.

BREECH MECHANISM FOR QUICK-FIRING GUNS.

SPECIFICATION forming part of Letters Patent No. 617,614, dated January 10, 1899.

Application filed March 14, 1898. Serial No. 673,724. (No model.)

To all whom it may concern:

Be it known that I, ERNST TERNSTRÖM, a subject of the King of Sweden and Norway, residing at Paris, France, have invented new and useful Improvements in Breech Mechanism for Quick-Firing Guns, (for which I have applied for patents in France, dated August 14, 1897, and in Great Britain, No. 26,558, dated November 13, 1897,) of which the following is a specification.

This invention relates to breech mechanism for quick-firing guns, the improvements having especial reference to the percussion devices.

The chief object of the said invention is to obtain the two following advantages, viz: first, that the mainspring can never remain armed, whereby the possibility of accidents is avoided even if the gun be kept loaded; second, that the firing-pin can be rearmed after a misfire without opening the breech of the gun or rotating the breech-block.

According to my invention the firing-pin is pulled back and the mainspring armed or compressed by means of a trigger pivoted to a trigger-lever, which is itself pivoted to the breech-block of the gun, inclined planes upon the trigger being arranged to coöperate with other inclined planes adjacent to the trigger in such a manner that when during the backward movement of the trigger-lever and trigger a certain point is reached the firing-pin is disengaged from the trigger and allowed to fly forward to strike the percussion-cap, a single movement thus serving to compress the mainspring and fire the gun. A spring in connection with the trigger-lever serves to move back the parts after firing, so that the trigger again engages with the firing-pin.

To enable my invention to be fully understood, I will describe the same as applied to breech mechanism of the kind described in the specification of former Letters Patent No. 520,029, of May 22, 1894, wherein a cylindrical breech-block which has its axis eccentric to the axis of the barrel of the gun is provided with a longitudinal opening, which can be brought opposite to the barrel for introducing the cartridges, and with an inclined plane for forcing the cartridges home.

In the accompanying drawings, Figure 1 is an elevation of the breech end of a gun of the kind described having my improvements applied thereto. Fig. 2 is a section of the same

on the line 2 2, Fig. 1; and Fig. 3 is a half-section on the line 3 3, Fig. 1. Fig. 4 is an enlarged sectional view of a portion of the breech-block, showing the firing-pin, the trigger, and operating means therefor. Fig. 5 is a view of a portion of the breech-block with movable parts removed, showing one of the inclined cam-surfaces for tripping the trigger. Fig. 6 represents a horizontal section taken on line 6 6 of Fig. 5. Fig. 7 is a detailed perspective view of the trigger.

a is the breech end of the gun, and *b* is the breech-block, which is mounted eccentrically to the axis of the bore of the gun and provided with the longitudinal opening *c* and with the inclined plane *d*.

e is a hand-lever having upon it a cylindrical boss *f*, which is fitted into and is capable of rotating in a corresponding recess in the breech-block *b*, the said lever being provided with the handle *g*, having a safety-catch *h*, and with a spring-bolt *i* for locking the lever to the breech-bolt. These parts, however, forming no part of the present invention are not further described.

The boss *f* of the hand-lever *e* is formed with a longitudinal opening *j*, which coincides with a hole in the breech-block in which the firing-pin *k* slides, the said firing-pin being made hollow and having within it the percussion-spring *l*, which bears at one end against the bottom of the recess in the firing-pin and at the other end against the back of the recess *j* in the boss *f*.

m is the trigger-lever, which is mounted upon the pivot-pin *n* in a recess in the hand-lever *e* and the free end of which extends into a recess *o* in the breech-block and has attached to it the lanyard *p*, by means of which the gun is fired.

q is the trigger, which is pivoted to the trigger-lever *n* by the pin *q'* and which at its free end is of hook shape, as at *q''*, and adapted to engage in a slot *r* in the wall of the firing-pin *k*, as clearly shown in Fig. 2.

j' is a longitudinal recess in the boss *f*, in which the trigger *q* works, and in this recess *j'* is formed an incline *s*, against which an inclined lug *s'* on the trigger is adapted to come into contact in such a manner that when during the backward movement of the said trigger the inclined lug *s'* comes in contact with and rides up the incline *s* the hook *q''* is disengaged from the recess *r* in the firing-pin,

so that the latter is free to fly forward under the impulse of the spring l , which is compressed during the backward movement of the trigger.

5 t is a spring which is secured to the trigger and serves to normally hold it, with its hook q^2 , in engagement with the slot r .

u is a second spring in connection with the firing-pin, which spring normally serves to re-
tain the point of the firing-pin behind the face
10 of the breech-block. This spring is considerably lighter than the spring l , so that when the firing-pin is released by the trigger and the firing-pin is driven forward the momentum
15 of the said firing-pin compresses the spring u and allows the point of the firing-pin to move beyond the face of the breech-block to fire the cartridge. The reaction of the spring returns the firing-pin to its normal position, with
20 its point behind the face of the breech-block, as hereinbefore described. This spring at its front end is held in place by a divided ring v , having two vertical inner faces which engage with corresponding vertical faces w on
25 the sides of the firing-pin. The firing-pin is prevented from turning by the engagement of a slot k' , formed in its lower side at its rear end, with a stud or projection f' on the boss f , as shown, the said stud having parallel
30 sides, which engage the walls of the slot k' . In Figs. 5 and 6 I have shown this stud f' formed on the upper end of a screw f^2 , which is screwed into a threaded aperture in the boss, while in Figs. 2 and 4 the stud is represented
35 as being formed integrally with the boss.

In order that after the trigger-lever has been pulled to discharge the gun the trigger shall automatically return into engagement with
40 the slot r in the firing-pin, the pivot n of the trigger-lever is extended and has mounted upon it a spiral spring x , one end of which is suitably fixed in the recess in which the said pivot-pin n is placed, as shown in Fig. 1, while
45 the other end is fixed to the trigger-lever, the said spring being placed in torsion, so that the normal tendency of the said spring will be to retain the lever in the position shown in Fig. 2, the torsion of the spring being
50 slightly increased when the trigger-lever is pulled, as hereinafter described.

y is a stop formed upon the breech-operating lever e , against which the end z of the trigger-lever m impinges to limit the move-
55 ment of the lever when operated by the lanyard p .

The operation of the apparatus hereinbefore described is as follows—that is to say: The lanyard p being pulled rearwardly, the
60 trigger-lever m is moved so that the trigger q draws back the firing-pin k , at the same time compressing the spring l . By the time the said spring is sufficiently compressed the incline s' has impinged against and moved
65 up the incline s , whereby the trigger is withdrawn from engagement with the firing-pin, which being thus released is thrown forward

by the spring l and strikes the percussion-cap of the cartridge.

In cases of misfire the action on the trigger-lever can be repeated as often as desired
70 without opening the breech.

Although I have described my invention as applied to breech mechanism of the kind here-
inbefore referred to, it will be understood that
75 my improved firing mechanism can also be applied to other forms of breech mechanism.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed,
80 I declare that what I claim is—

1. In a breech mechanism for quick-firing guns, the combination with the breech-block, of a longitudinally-movable firing-pin in the
85 breech-block, an actuating-spring therefor, a retracting-lever pivoted to the breech-block, a trigger pivotally connected to said lever and having a hook portion adapted to engage the firing-pin, and inclined cam-surfaces on the breech-block adapted to engage said trigger
90 and positively withdraw it from engagement with the firing-pin, substantially as described.

2. In a breech mechanism for quick-firing guns, the combination with the breech-block
95 provided with a longitudinal recess, a movable firing-pin in said recess having a hollow body, a coiled spring for said firing-pin located within said hollow body, a retracting-lever for said pin, pivoted to the breech-block,
100 a trigger pivoted to said lever and having a hooked portion to engage a recess in the hollow main body of the firing-pin, means for preventing said firing-pin from turning in said recess and inclined cam-faces in the
105 breech-block for positively withdrawing the trigger from the firing-pin, substantially as described.

3. In a breech mechanism for quick-firing guns, the combination with the breech-block
110 provided with a longitudinal recess, of a firing-pin in said recess provided with flattened guiding portions and having a hollow main body, guides engaging said flattened portions of said pin to prevent it from turning in said
115 recess, a retracting-lever pivoted to the breech-block, a trigger pivotally connected to the said lever and having a hook portion to engage a recess in said firing-pin, a coiled
120 spring within the hollow body of said pin for actuating the same, a spring for holding said trigger horizontally in engagement with said pin, and inclined cam portions on said breech-block for engaging the trigger and positively withdrawing it from engagement with the fir-
125 ing-pin, substantially as described.

In witness whereof I, the said ERNST TERNSTRÖM, have hereunto set my hand this 1st day of March, 1898.

ERNST TERNSTRÖM.

Witnesses:

EDWARD P. MACLEAN,
JOHN S. ABERCROMBIE.