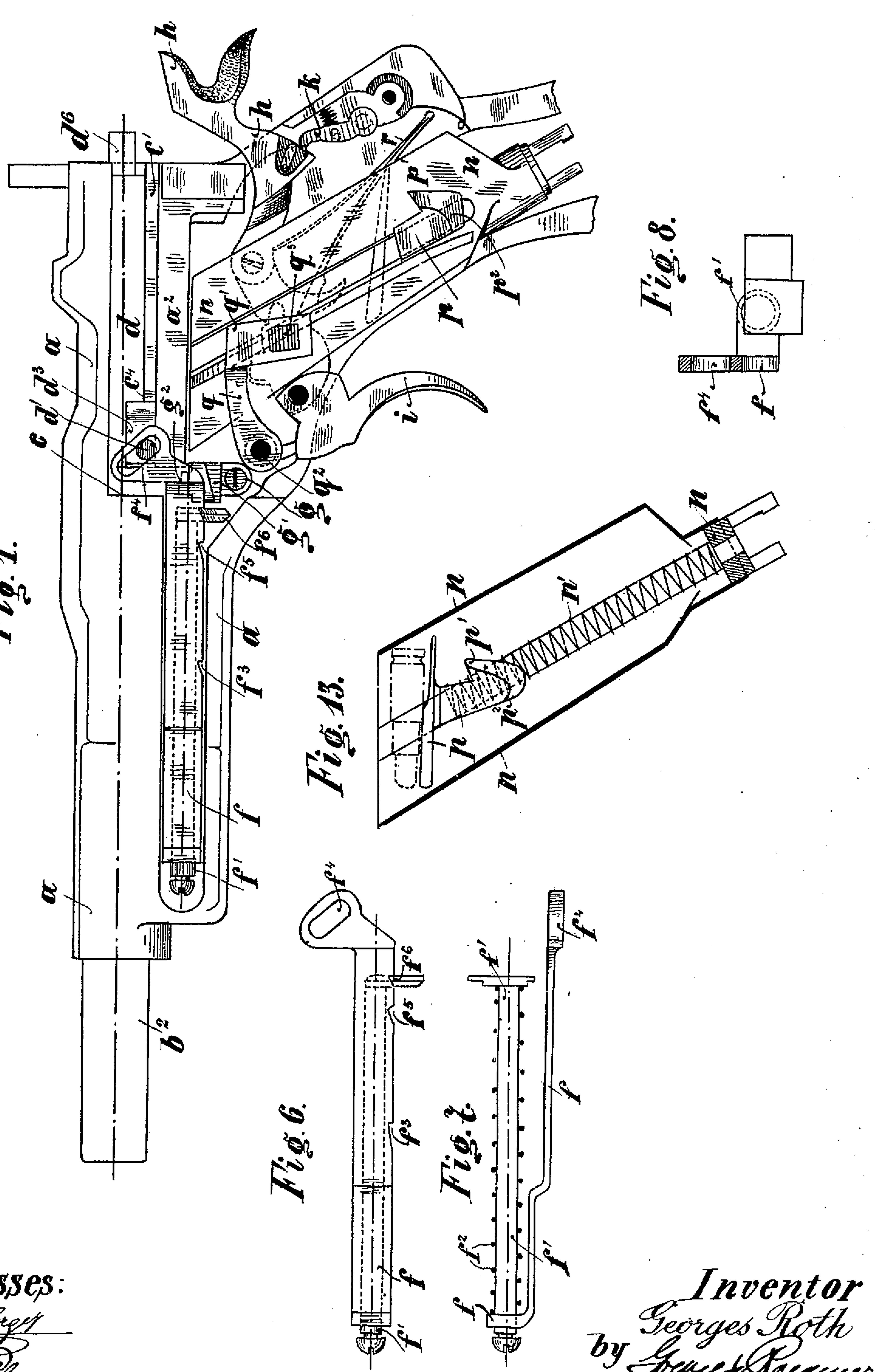
No. 616,261. Patented Dec. 20, 1898.

G. ROTH.

RECOIL OPERATED FIREARM.

(Application filed July 15, 1897.)

(No Model.) 4 Sheets—Sheet 1.



Witnesses:

Inventor
Georges Roth
by [illegible]
his Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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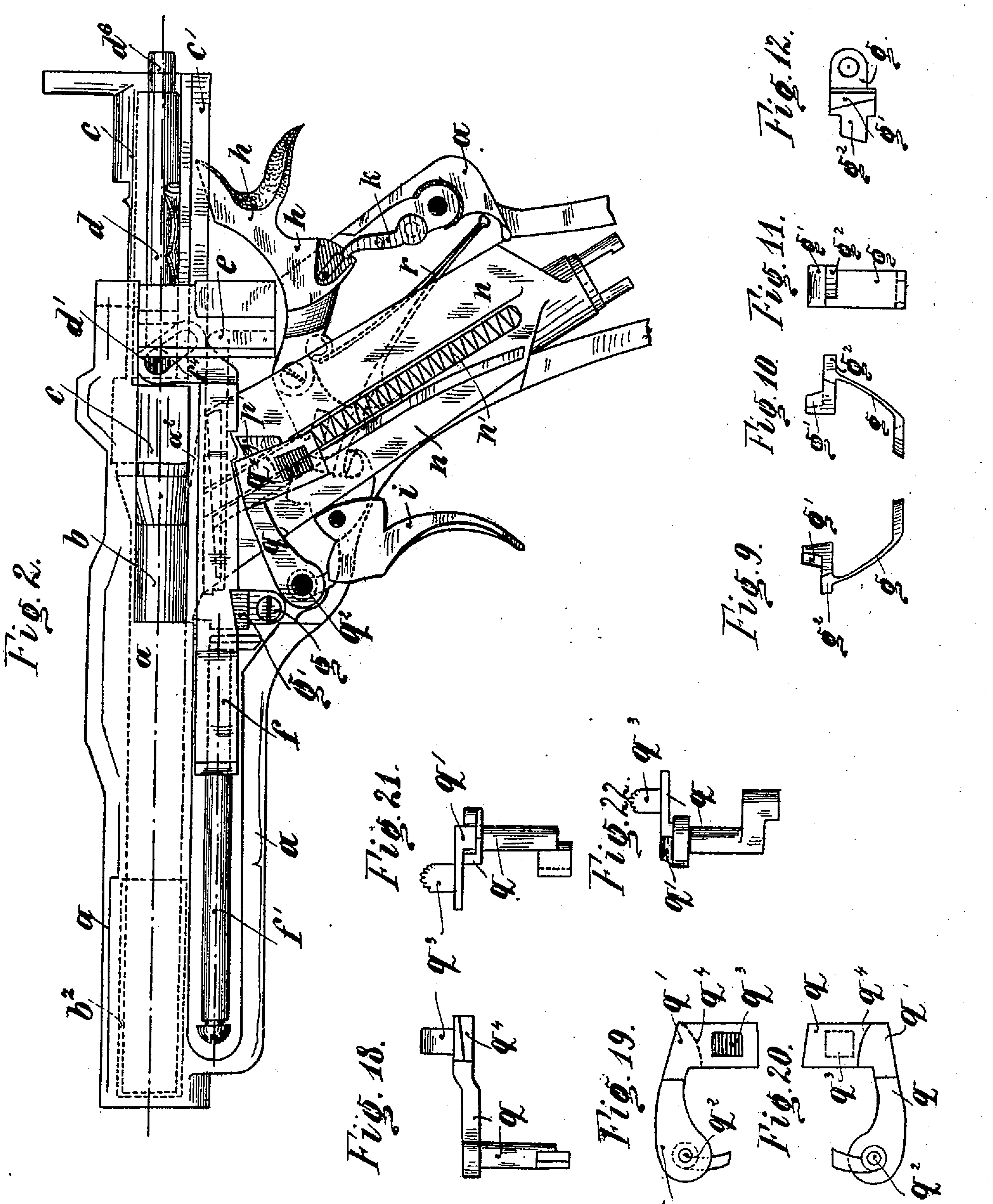
(No Model.) 4 Sheets—Sheet 2.



Witnesses.

Inventor
Georges Roth
by
Attorneys.

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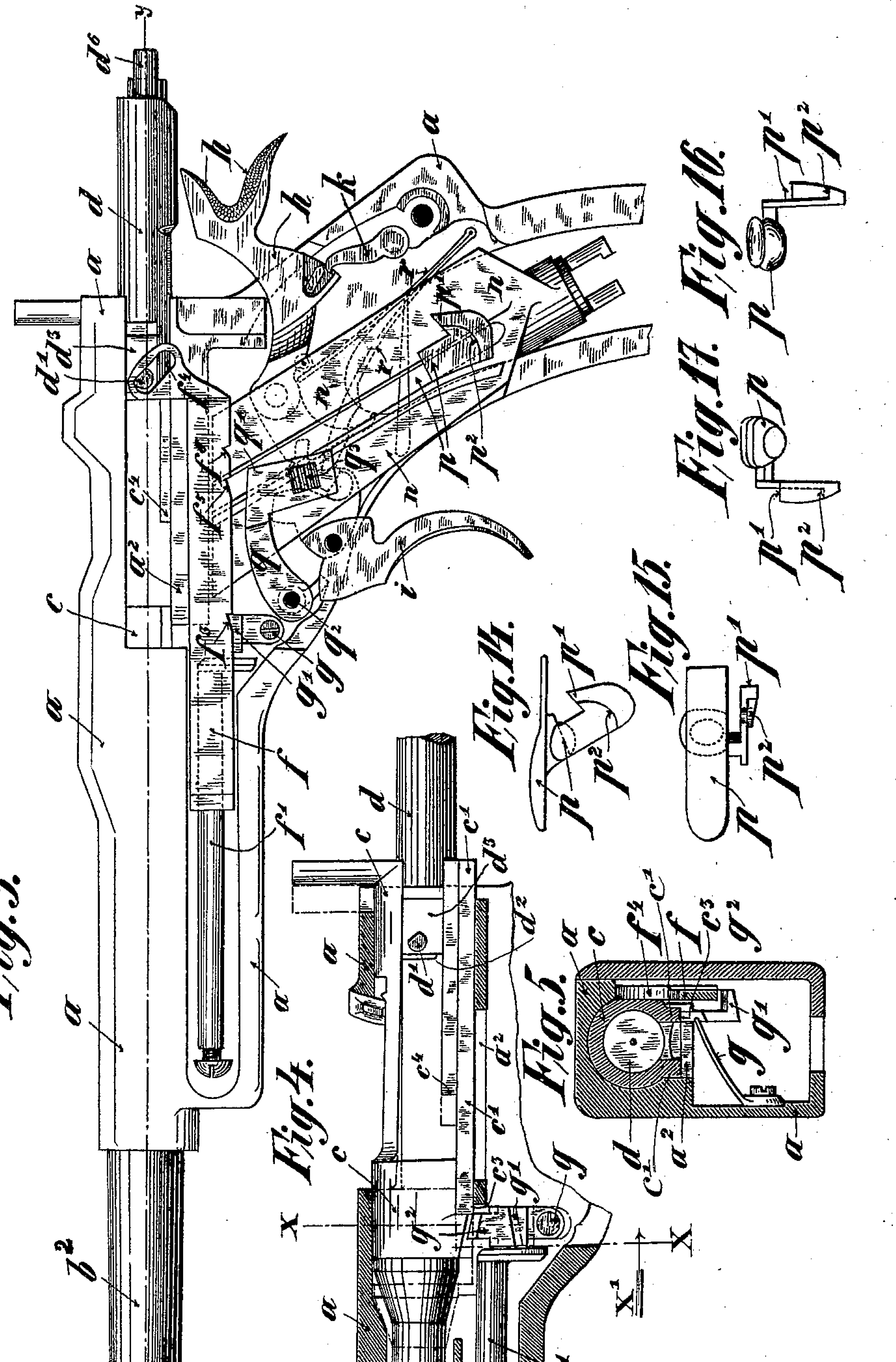
(No Model.) 4 Sheets—Sheet 3.



Witnesses:

Inventor:
Georges Roth
by
his Attorneys

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(No Model.) 4 Sheets—Sheet 4.

Fig: 22.

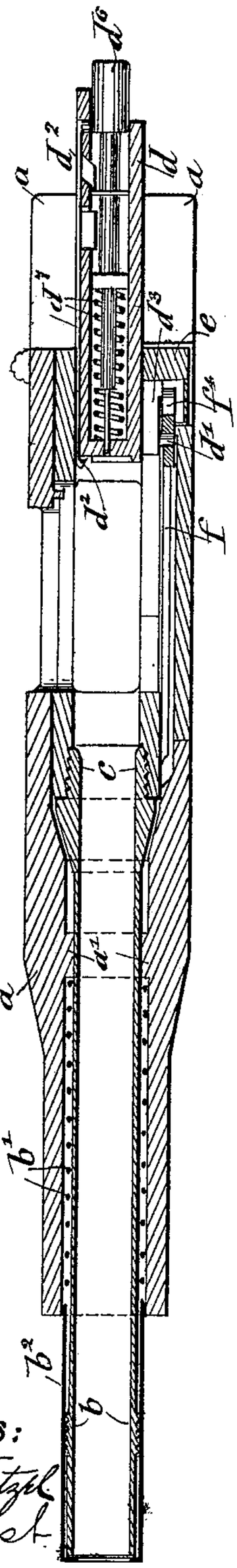


Fig: 24.

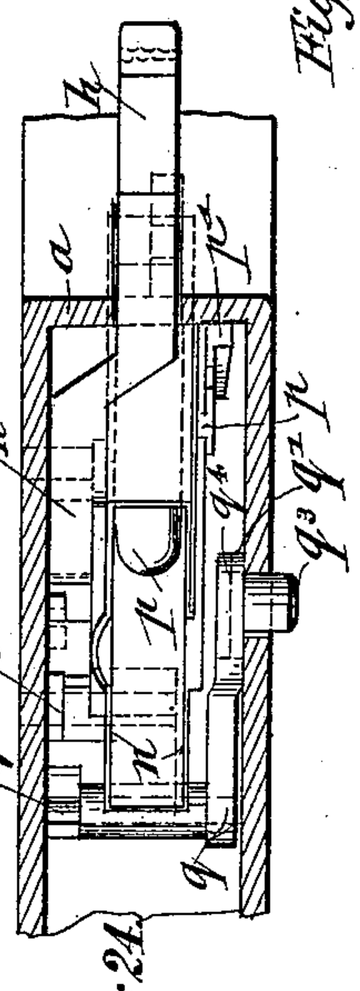


Fig: 27.

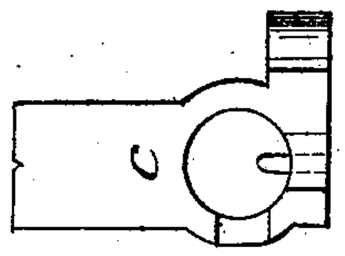


Fig: 25.

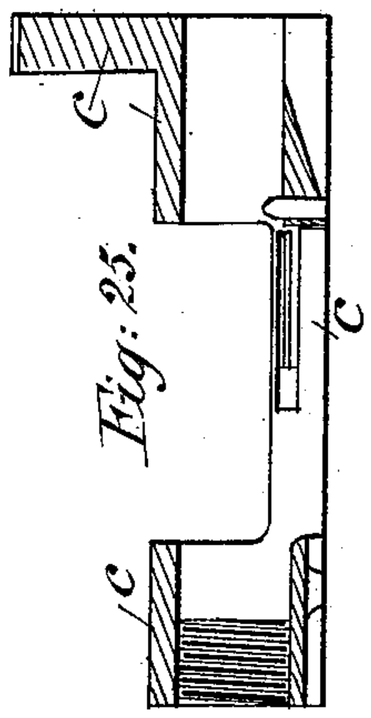


Fig: 26.

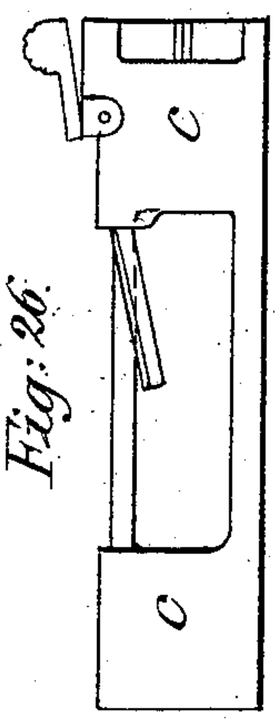
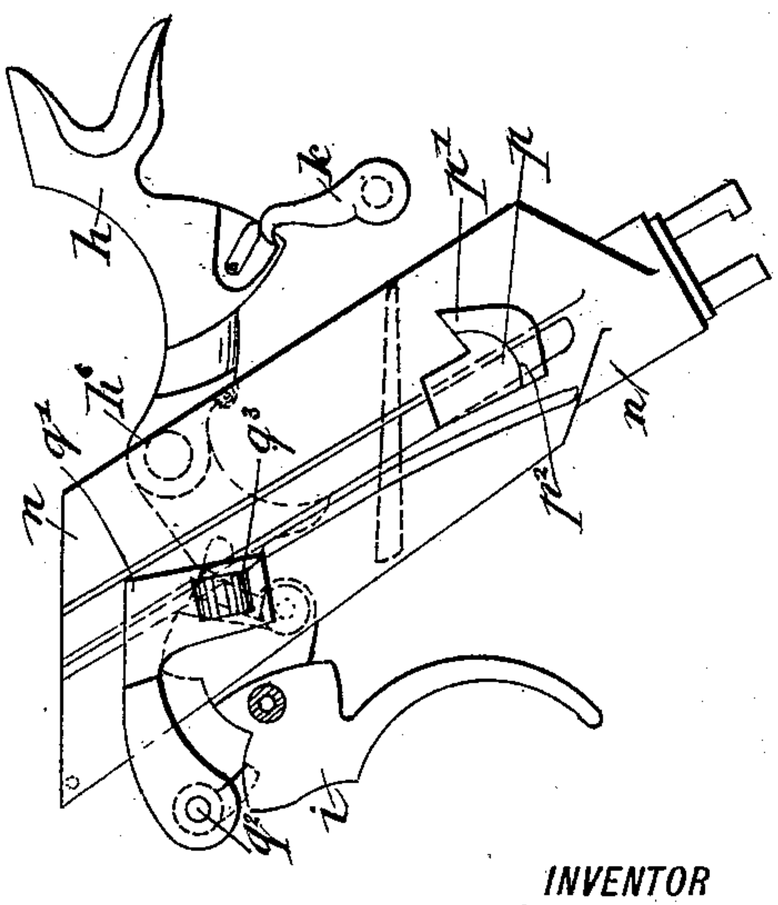


Fig: 23.



WITNESSES:

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INVENTOR

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BY

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGES ROTH, OF VIENNA, AUSTRIA-HUNGARY.

RECOIL-OPERATED FIREARM.

SPECIFICATION forming part of Letters Patent No. 616,261, dated December 20, 1898.

Application filed July 15, 1897. Serial No. 644,653. (No model.)

To all whom it may concern:

Be it known that I, GEORGES ROTH, a subject of the Emperor of Austria-Hungary, residing at Vienna, in the Province of Lower Austria, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Automatic Quick-Firing Guns, (for which I obtained a patent in Germany, No. 89,908, November 19, 1895,) of which the following is a specification.

This invention relates to improvements in automatic quick-firing magazine-guns actuated by the recoil wherein, after firing, the barrel, the receiver, and the breech-bolt move back together, but move separately forward again.

The invention consists of a firearm which contains a breech-bolt which is movable with the receiver and a spring-actuated draw-bar which is provided with three notches. By the engagement of a spring-stop with one of the notches at the end of the backward movement of the parts such notch is enabled to hold back the breech-bolt during the forward movement of the receiver, while it is disengaged from said stop-spring at the end of the forward movement of the receiver, whereby said breech-bolt is again released. The second notch serves to maintain automatically the breech-bolt in an open position after firing the last shot. This object is attained by means of a wedge-shaped lug on the stop-spring of the cartridge-feeder engaging with said notch. This notch operates to hold open the breech-bolt at any desired time by being brought into engagement with another lever or wedge.

In the accompanying drawings, Figure 1 represents the firearm in a side elevation, with the side plate removed, the barrel, receiver, and breech-bolt being in their forward position and the magazine partly filled; but for clearness the cartridges are not shown. Fig. 2 is a similar view showing the position of the parts after firing the last cartridge, the receiver and barrel being in the backward position. Fig. 3 represents a like view, the barrel and receiver being in their forward position, the breech-bolt, however, being in its backward position and the magazine partly filled. Fig. 4 is an elevation, partly in vertical section, on the axis of the barrel, showing the receiver in the position in which occurs the disengaging of the breech-bolt. Fig. 5 is a vertical transverse section on the line $x\ x$ of Fig. 4, seen in the direction of the arrow x'. Fig. 5^a is a longitudinal section on line $y\ y$, Fig. 3. Fig. 6 is a side view, Fig. 7 is a plan view, and Fig. 8 an end view, partly in section, of the draw-bar with the guiding-rod and restoring-spring. Figs. 9 to 12 represent the stop-spring in two side views, a front view and a plan view. Fig. 13 is a vertical section of the magazine with cartridge-feeder. Figs. 14 to 17 represent the cartridge-feeder in side view, plan view, and in two end views. Figs. 18 to 22 illustrate in three longitudinal views and in two end views the releasing-lever for the cartridge-feeder. Fig. 23 is a detached side view of a magazine and adjacent parts. Fig. 24 is a detail transverse section at the upper end of the magazine. Figs. 25 to 27 are a longitudinal section, a top view, and an end view, respectively, of the receiver.

Similar letters of reference indicate corresponding parts.

In the drawings the barrel b, Figs. 1, 2, 3, and 4, is screwed into the receiver c and slides with the latter in the frame a and is constantly pressed forward by a spring b', bearing at the one end against a fixed projection a' of the frame a and at the other end against the barrel-cap b^2. The receiver c has on its lower side guide-pieces $c'\ c'$, with which it slides on bars a^2 of the frame, and it is provided with a slot to render possible the introduction of cartridges into the magazine n below. In the axial bore of the receiver c is the breech-bolt d, carrying the firing-pin d^6, with spring d^7 and cartridge-extractor d^2. The said breech-bolt is continuously subject to the forward pull of a draw-bar f, acted upon by a spiral spring f^2, sleeved on the stationary bolt f'. By the recoil on firing the receiver c, together with barrel b and breech-bolt d, are thrown back as far as the breech-bolt is drawn back in present guns to eject the cartridge-case. This backward movement is stopped by the key or catch e, Fig. 2, against which a projection d^3 of the breech-bolt abuts. At the end of this backward movement a wedge-shaped lug g' of the stop-spring g (see Figs. 9 to 12) engages the notch f^3 of the draw-bar f, and thus holds the breech-bolt d in its

rearward position during the forward movement of the barrel *b* and receiver *c* (effected by spring *b'*) till near the end of the said movement. This separate movement is utilized as in former systems for extracting the exploded cartridge-shells and for inserting a new cartridge.

When the forward movement of the barrel *b* and receiver *c* is nearly completed, a projection c^3, Figs. 4 and 5, on the under side of the receiver *c* presses against a second projection g^2 on the stop-spring *g* and releases the wedge-shaped lug *g'* of the same from the notch of the draw-rod *f*, which, actuated by the restoring-spring f^2, is thrown forward and takes with it the breech-bolt, which pushes the next cartridge fed from the magazine into the barrel *b*.

In order to effect the simultaneous back movement of barrel, receiver, and breech-bolt and the separate forward movement thereof, I employ the arrangement wherein the draw-rod *f* is constructed with an oblique loop f^4 at its rear extremity, in which is engaged the stud *d'* on the front end of the breech-bolt, so that alternately the one side or the other side of the oblique loop effects the turning of the breech-bolt and effects thus the opening or closing of the breech. The projection d^3, on which the pin *d'* is arranged, bears against the projection c^4 of the receiver *c*, so that by the recoil the bolt *d* takes with it the receiver and barrel.

In order to keep the breech-bolt open automatically after firing the last cartridge, the cartridge-feeder *p*, which is acted on by a spring *n'* is provided with a projection *p'*, which is adapted to snap into the notch f^6 of the draw-bar *f*, and thus hold back the draw-bar *f*, together with the breech-bolt *d*, (see position, Fig. 2,) while the receiver *c* is free to move forward again, as at Fig. 3.

By the keeping back of the breech-bolt the operator is made aware that the magazine *n*, Fig. 13, is empty and requires to be refilled.

In order to hold the gun open at any time, either for loading or unloading or for any other purpose, the draw-bar *f* is provided with a third notch f^5, which is engaged by the key *q'* of a lever *q*, pivoted about a rod q^2.

For maintaining the breech-bolt in an open position the receiver *c* and breech-bolt *d* are moved back by hand as far as possible, and then the stop-key *q q'* is forced upward by pressing the finger on the stud q^3, which is a portion of and projects from the part *g'* to the exterior, and the receiver is then allowed to move forward. The receiver releases the spring *g* at the end of its movement; but the rod *f*, together with the breech-bolt, remains held back on account of the engagement of the catch *q'* with the notch f^5, and the necessary operation, either for unloading or loading, may be effected whether the projection *p'* is released from the second notch f^6 or not. When the manipulation is finished, the stud q^3 of the lever *q* is pressed downward, the key *q'* is disengaged from the notch f^6, and the draw-bar *f*, following the action of the spring *f'*, may move forward, taking with it the breech-bolt *d*. This lever *q* serves also for releasing the breech-bolt *d* after firing the last cartridge, as it bears with a lug or projection q^4 against a projection p^2 of the cartridge-feeder *p*, and when the lever is pressed down the cartridge-feeder is pressed back, which releases the draw-rod *f*—that is to say, the breech-bolt.

The hammer *h* is pivoted on the pin h^6, as in my copending application, filed on even date herewith, Serial No. 644,652, engaged by a hammer-regulator *k* when it is cocked, and is maintained in this position when the receiver makes its forward movement. Also, as in said application, the trigger *i* actuates the hammer *h*. The forward throw of the hammer is effected by a spring *r*, which also effects the return of the hammer and trigger.

The described construction may be employed for all kinds of guns, and the size, form, and inner surface of the barrel may be varied at will without departing from the nature of my invention.

Having now described the nature of my invention, I claim—

1. In recoil-operated magazine-guns, the combination with the receiver, of a breech-bolt, a draw-bar connected therewith and provided with notches, a restoring-spring, a spring-catch secured to the frame and adapted to engage one of said notches and retain the breech-bolt in its rearward position during the forward movement of the receiver, a lug on the end of said spring-catch adapted to be struck by said receiver whereby the spring-catch is released from the said notch, substantially as set forth.

2. In recoil-operated magazine-guns, the combination with the receiver, of a breech-bolt, a draw-bar connected therewith and provided with notches, a cartridge-feeder provided with a wedge-shaped lug adapted to engage one of the said notches whereby the breech-bolt may be retained in its open position after firing the last shot, substantially as set forth.

3. In recoil-operated magazine-guns, the combination with a receiver, of a breech-bolt, a draw-bar connected therewith and provided with notches, a spring-catch provided with a wedge-shaped lug adapted to engage one of said notches, whereby the breech-bolt may be retained at will in open position and means for releasing it by hand, substantially as set forth.

In testimony whereof I have signed this specification in presence of two subscribing witnesses.

GEORGES ROTH.

Witnesses:
WARK THEODOROVIZE,
HARRY BELMONT.