(No Model.) 4 Sheets—Sheet 1.

H. LEINEWEBER.

MAGAZINE FIRE ARM.

No. 379,794. Patented Mar. 20, 1888.

Fig. 1.

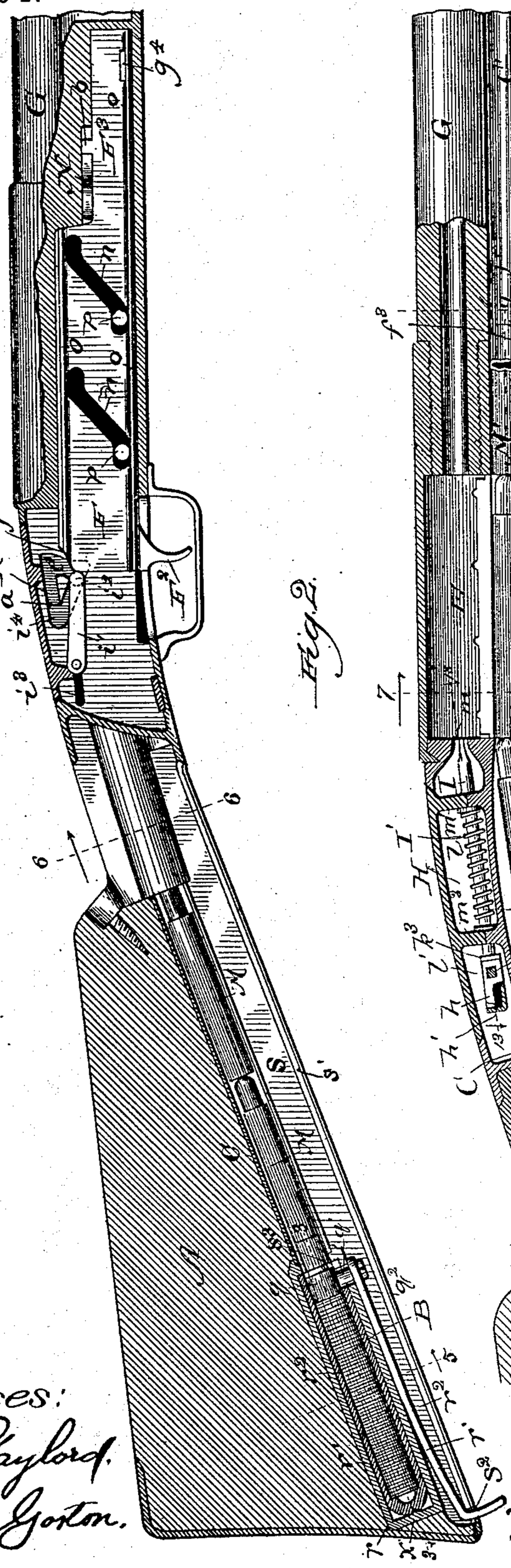
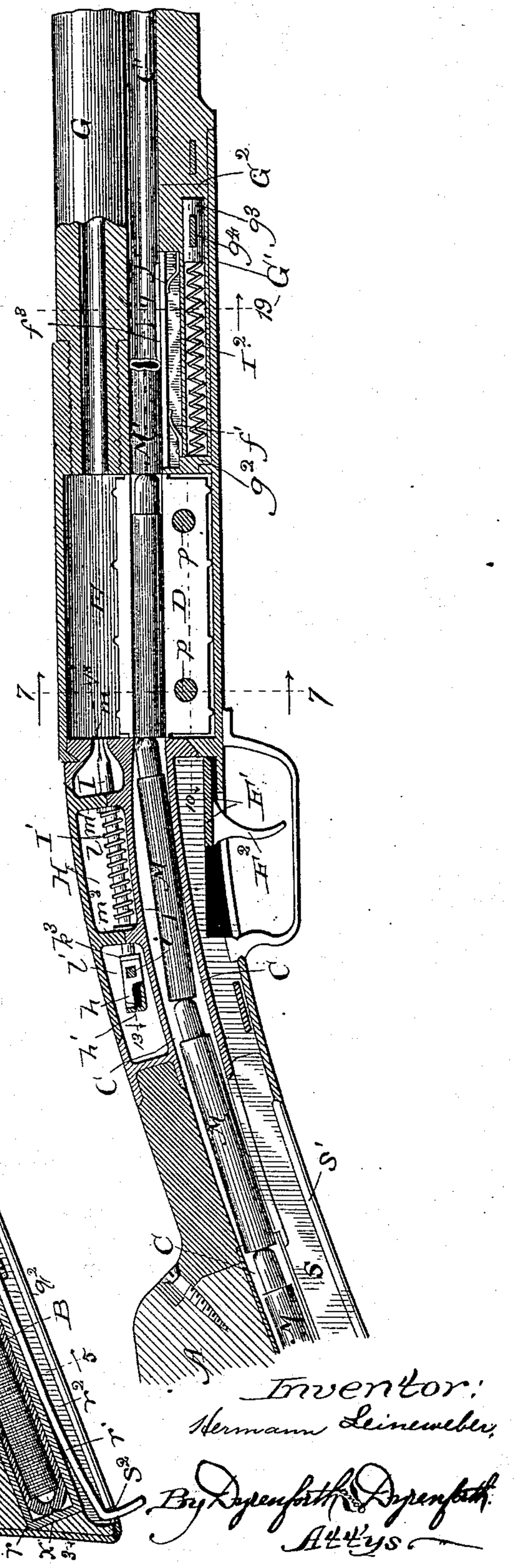


Fig. 2.



Witnesses:
Chas E. Gaylord.
Chas E. Gorton.

Inventor:
Hermann Leineweber,
By Dyrenforth & Dyrenforth.
Att'ys

(No Model.) 4 Sheets—Sheet 2.

H. LEINEWEBER.

MAGAZINE FIRE ARM.

No. 379,794. Patented Mar. 20, 1888.

Fig. 3.

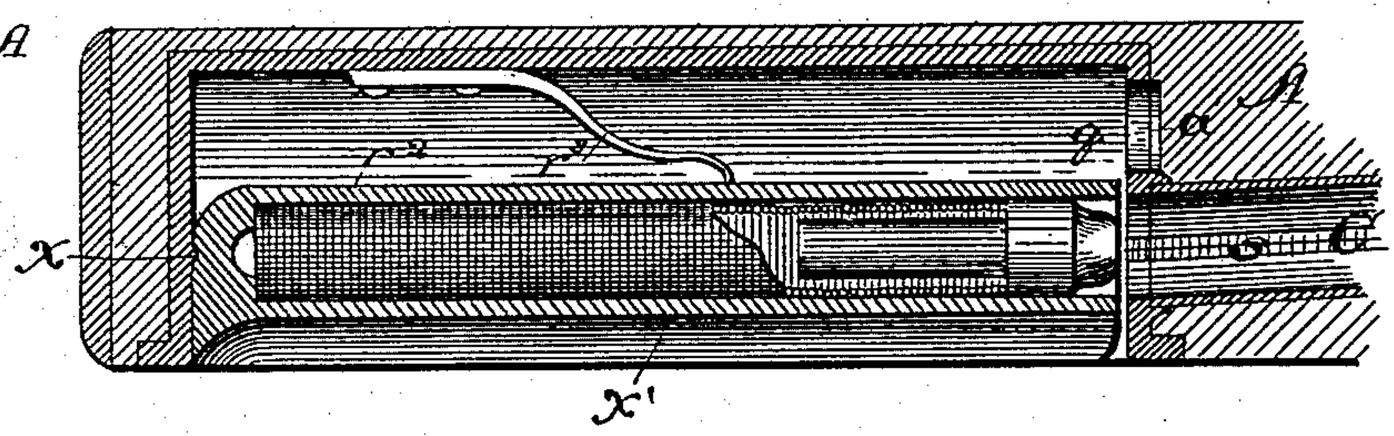


Fig. 4.

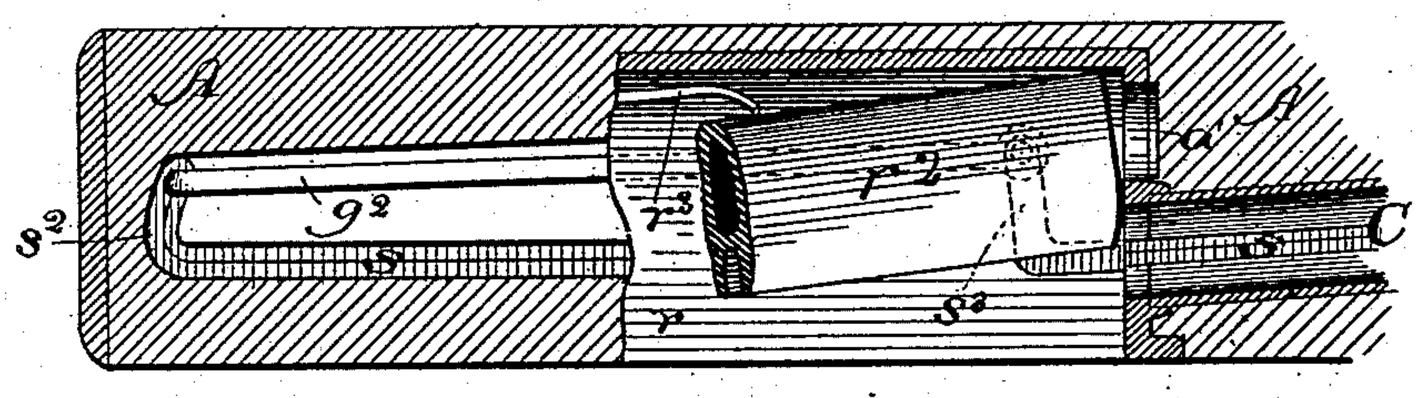


Fig. 5.

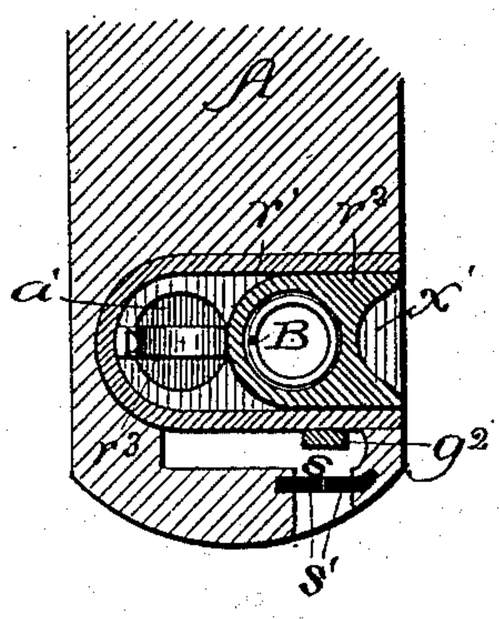


Fig. 6.

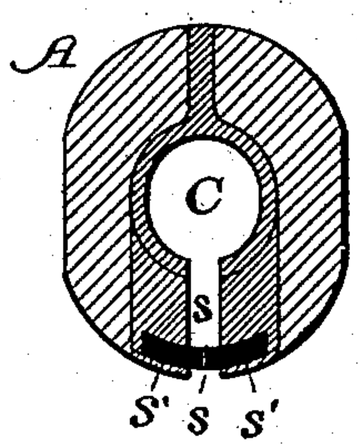
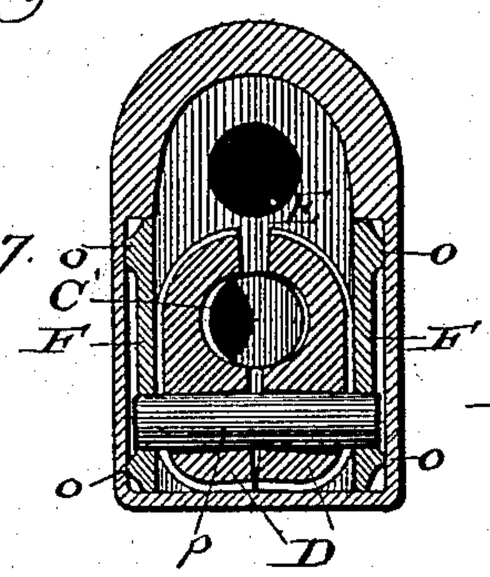


Fig. 8.

Fig. 7.



Witnesses:
Chas. E. Gaylord.
Chas E. Gorton.

Inventor:
Hermann Leineweber.
By Dyrenforth & Dyrenforth
Attys.

(No Model.) 4 Sheets—Sheet 3.

H. LEINEWEBER.

MAGAZINE FIRE ARM.

No. 379,794. Patented Mar. 20, 1888.

Fig. 9.

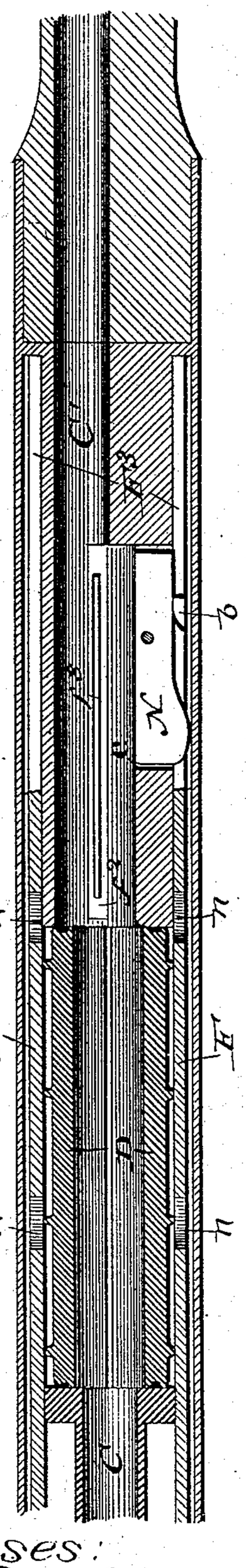


Fig. 10.

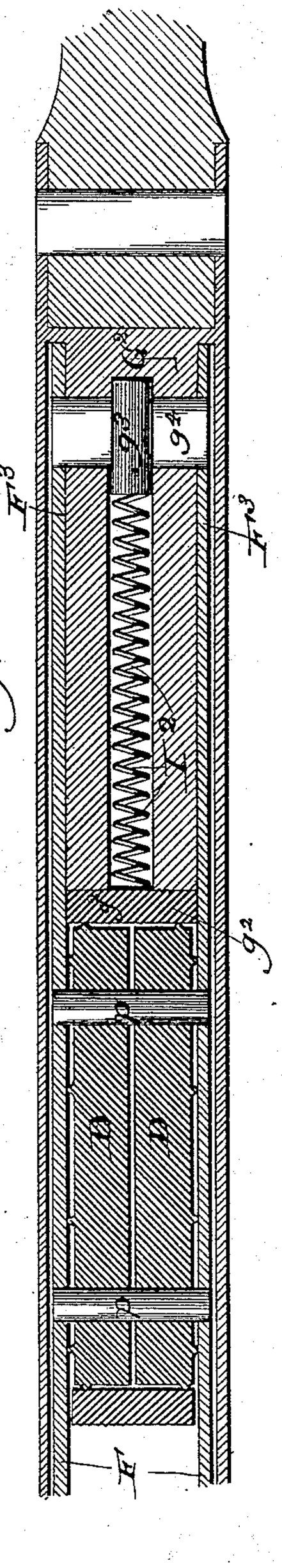


Fig. 11.

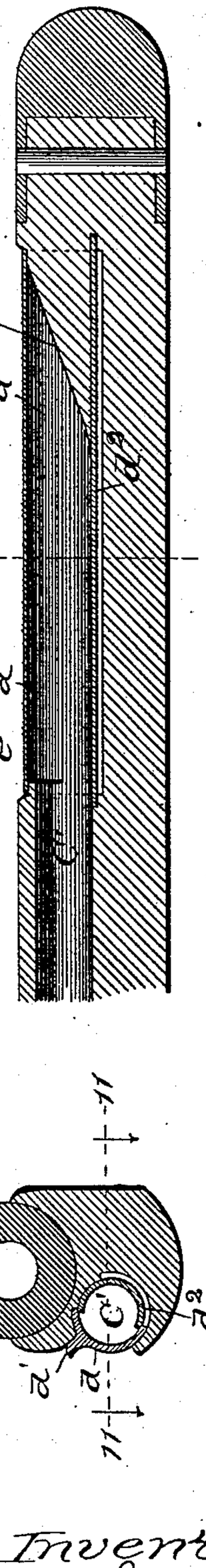


Fig. 12.

Witnesses:
Chas. E. Gaylord.
Chas. E. Gorton.

Inventor:
Hermann Leineweber,
By Dyrenforth & Dyrenforth.
Attys

(No Model.) 4 Sheets—Sheet 4.

H. LEINEWEBER.

MAGAZINE FIRE ARM.

No. 379,794. Patented Mar. 20, 1888.

Fig. 13.

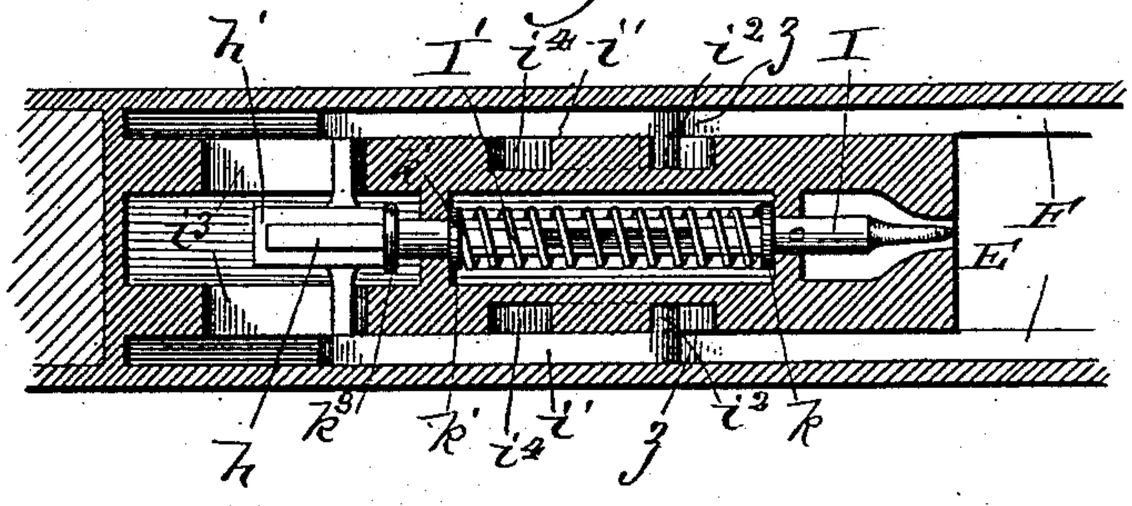


Fig. 14.

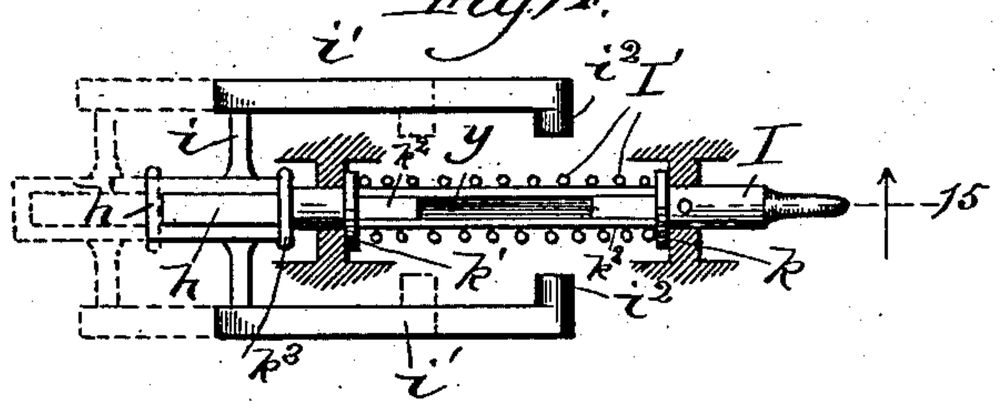


Fig. 15.

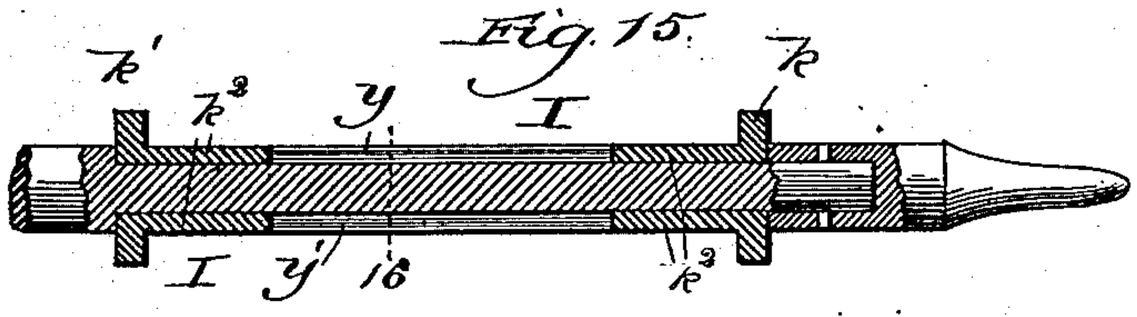


Fig. 16.

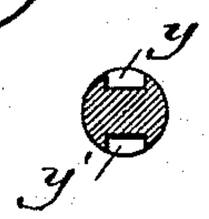


Fig. 17.

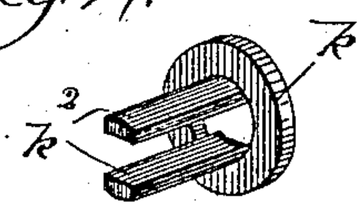


Fig. 18.

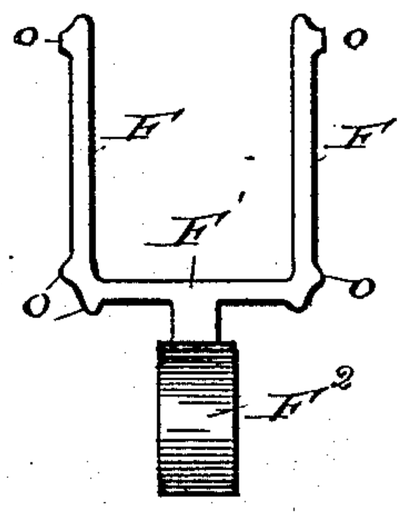
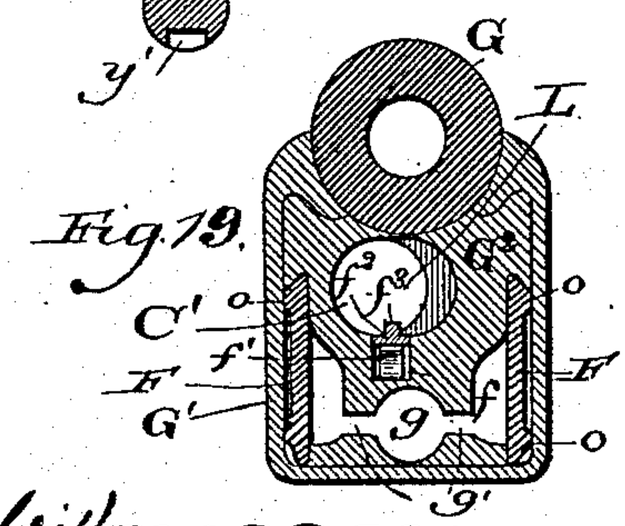


Fig. 19.



Witnesses:
Chas. E. Gaylord.
Chas. E. Gorton.

Inventor:
Hermann Leineweber
By Dyrenforth & Dyrenforth.
Att'ys.

UNITED STATES PATENT OFFICE.

HERMANN LEINEWEBER, OF SOUTH CHICAGO, ILLINOIS.

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 379,794, dated March 20, 1888.

Application filed September 16, 1887. Serial No. 249,836. (No model.)

To all whom it may concern:

Be it known that I, HERMANN LEINEWEBER, a subject of the Emperor of Germany, residing at South Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Magazine Fire-Arms, of which the following is a specification.

My invention relates to the class of breech-loading fire-arms in which a magazine is provided to contain a number of cartridges which are fed successively to the barrel and firing mechanism.

It is my object to provide a breech-loading magazine-gun which, when supplied with its ammunition, shall be entirely self-acting with each discharge to feed another cartridge to the barrel and firing mechanism, and simultaneously introduce the empty shell of the previously-discharged cartridge into a magazine provided to receive it. The attainment of my aforesaid object presents as advantages a gun in which there is no liability of premature or unintentional discharge, which may be discharged repeatedly and in succession as rapidly as desired without requiring it to be removed from the shoulder, whereby the aim need not be lost, as in other guns of the same class, in which the feeding of the cartridges to be fired and the expulsion of the empty shells are produced by mechanism requiring manipulation independently of the trigger. It also enables me to provide a mechanism involving, as compared with other guns of the same class, a simple, durable, and compact construction, involving parts none of which are liable to become broken or impaired by even severe usage, and it affords means for storing the shells of discharged cartridges, thus enabling them to be saved and used over and over again. This feature of economy, as an incident of my improvement, I regard as one of great importance, considering the cost of the shells, and it may be practiced, as will be understood from the description hereinafter contained, without inconvenience; or the mechanism may be readily arranged to expel the cartridges after firing them, when it is not desired to save the empty shells, as in case of war, or of the employment of inexpensive shells, as of paper.

My invention consists in combining, with the mechanism for moving the cartridge into position for firing and with the firing mechanism, a trigger actuating, through the medium of a single pressure, both said mechanisms consecutively in the order given—namely, first, the cartridge-adjusting mechanism, and, secondly, the firing mechanism.

My invention further consists in a magazine fire-arm having a magazine, an elevator to receive the cartridges successively from the magazine, and a trigger connected with the elevator and operated by a single pressure to actuate the elevator to carry a cartridge supported by it to the barrel and firing mechanism and subsequently actuate the firing mechanism to explode the cartridge.

My invention further consists in a magazine fire-arm having a magazine provided with an automatic feed for the cartridges, a magazine for the shells of the exploded cartridges, an elevator to receive the cartridges successively from the feeding-magazine, and a trigger connected with the elevator and operated by pressure to actuate the elevator to carry a cartridge supported by it to the barrel and firing mechanism and to actuate the firing mechanism to explode the cartridge, and by its release to return the elevator to its normal position, with the empty shell in position to enter the magazine provided to receive it.

My invention still further consists in the general construction of my improvement, and it also consists in details of construction and combinations of parts, as hereinafter more fully set forth.

In the drawings, Figure 1 is a broken longitudinal section of a magazine-gun of my improved construction, showing parts of my improvement, mainly in elevation; Fig. 2, a central longitudinal section of the same; Fig. 3, an enlarged section taken on the line 3 3 of Fig. 1, and viewed in the direction of the arrows; Fig. 4, a similar view on the same line, but showing the lining of the chamber in the stock broken away and the pivotal housing in elevation, partly broken away and moved to one side; Fig. 5, a section taken on the line 5 of Fig. 1, and viewed in the direction of the arrow; Fig. 6, a similar view taken on the line 6 6 of Fig. 1, and viewed in the direction of the arrows; Fig. 7, a similar view taken on the line 7 7 of Fig. 2, and viewed in the direction of the arrows; Fig. 8, a view like Fig. 7, but showing the elevator raised to its highest

position; Fig. 9, an enlarged section taken on the line 9 of Fig. 2, and viewed in the direction of the arrow; Fig. 10, a similar view taken on the line 10 of Fig. 2, and viewed in the direction of the arrow; Fig. 11, a section taken on the line 11 11 of Fig. 12, and viewed in the direction of the arrows, and showing the construction of the exploded cartridge-magazine toward its forward extremity; Fig. 12, a section taken on the line 12 of Fig. 11, and viewed in the direction of the arrow; Fig. 13, a section taken on the line 13 13 of Fig. 2, and viewed in the direction of the arrows; Fig. 14, a view resembling that presented in Fig. 13, but illustrating by dotted lines the operation of the firing mechanism; Fig. 15, a section taken on the line 15 of Fig. 14, viewed in the direction of the arrow and enlarged; Fig. 16, a section taken on the line 16 of Fig. 15; Fig. 17, a perspective view of a detail; Fig. 18, an end elevation of the trigger; and Fig. 19, a section taken on the line 19 of Fig. 2, and viewed in the direction of the arrow.

A is the gun-stock, having in its lower edge a slot, *s*, Fig. 6, extending from near the rear end of the stock to near the opposite end of the same, and provided on opposite sides throughout, near its entrance, with rubber strips *s'*, which close it against the entrance of moisture and dirt. The stock has a longitudinal opening forming a chamber, *r*, in its right side, containing a lining, *r'*, which incloses a housing, r^2, confined at opposite ends against longitudinal movement in the chamber and movable laterally toward its forward end on a pivot, *x*, at the rear end of the chamber *r*. A spiral spring, B, fits, when compressed as shown, into the housing r^2, and is provided at its forward end with a head, *q*, to which is secured a pin, *q'*, having connected to it one end of a finger or handle, q^2, the opposite end of which is bent, as shown, to extend through the slot *s* in position to be grasped.

At the rear end of the slot *s* is a transversely-curved slot, s^2, and at the forward end of the chamber *r* is a transverse slot, s^3, which forms a lateral branch of the slot *s*. On the inner side of the chamber *r*, which is wider than the housing r^2, is a spring, r^3, Figs. 3 and 4, tending to maintain the spring B and its carriage r^2 normally in the position shown in Fig. 5, and on its outer or right side the housing r^2 is hollowed out, as shown at *x'*, to conform to the longitudinal section of a cartridge.

C is a cylindrical passage forming a cartridge-magazine, which leads from the forward open end of the chamber *r* through the stock and to the elevator D, hereinafter described.

The elevator D comprises a block (see Figs. 2, 7, and 8) having projections, as shown in Fig. 2, to lessen friction, bored longitudinally to coincide with the bore of the magazine C, and supported in a chamber, E, of the form shown in Figs. 7 and 8—that is, in the form of an oblong square below and arched and contracted above. The block constituting the elevator, and which corresponds in shape with that of the chamber E, is split vertically along its center, and the two parts are loosely held together by pins *p*, passed transversely through them near opposite ends toward their bases. At opposite sides of the chamber E are plates F, having longitudinal lateral projections *o* near their upper and lower edges, which bear against the inner sides of the chamber E instead of having the entire outer surfaces of the plates bear against the sides of the chamber, whereby the plates may be moved with the least possible attendant friction, and at their rear lower ends the plates are connected by a cross-bar, F', from which a finger-piece, F^2, extends in a downward direction through a slot below the forward part of the magazine C, as shown. As will hereinafter more plainly appear, the parts F, F', and F^2 form the trigger.

The pins *p*, which project at their ends from opposite sides of the block D, extend through ⌒-shaped or inclined slots *n*, formed in the sides of the plates F, so that when the latter are drawn backward by pulling upon the finger-piece F^2, the block D or elevator is caused to rise upon the inclined planes *n* within the chamber E and cause the bore in the elevator D to coincide with the gun-barrel G and firing apparatus, hereinafter described.

Immediately behind the upper part of the chamber E is a chamber, H, ending at its forward extremity in a narrow aperture, *m*, forming its communication with the elevator-chamber, and provided with upright partitions *m'* and m^2, which produce sub-chambers *l* and *l'*.

I is a needle supported to be reciprocated in the partitions *m'* and m^2, which form its bearings, and provided on opposite sides with longitudinal recesses *y* and *y'*, (see Figs. 14 and 15,) and the point of the needle extends normally through, but not beyond, the aperture *m*. Between adjacent sides of the partitions *m'* and m^2, and surrounding the needle, are collars *k* and *k'* having parallel horizontal guides k^2, which fit into the recesses *y* and *y'*, and a spiral spring, I', surrounds the needle and is confined between the collars *k* and *k'*. The rear end of the needle, which extends into the sub-chamber *l'*, is recessed on its upper side, and contains in the recess a piece of rubber, *h'*, and near the rear end of the needle is a collar, k^3. A flat cross-bar, *i*, extends transversely through the end of the needle and through a tongue-piece, *h*, inserted into the recess to press against the rubber *h'*, and carries on its cylindrical ends, which extend through slots i^3, forward-extending fingers *i'*, having lateral lugs i^2 on adjacent sides of their forward ends, which enter grooves or guides i^4 in opposite sides of a stationary cam, K; and the rear ends of the plates F, which are beveled, as shown at *z*, on their upper edges, engage with or abut against the forward ends of the fingers *i'*.

The forward ends of the plates F terminate in tongues F^3, which extend along opposite sides of a metal casing or chamber, G', below

the barrel G, containing a metal core, G^2, (see Fig. 19,) provided with a central cylindrical bore, *g*, extending nearly through it, having lateral opposite recesses *g'* and containing a spiral spring, I^2, and the spring abuts at its rear end against a wall, g^2, and at its opposite end against a plug, g^3, on a cross head or key, g^4, which extends at its opposite ends through the tongues F^3. If desired, the casing G' and core G^2 may be integral.

Above the bore *g* in the metal core G^2 and slightly to one side, Fig. 19, is a recess, *f*, containing at opposite ends springs *f'*, upon which rests a flat strip, f^2, confined in the recess *f*, and having a tongue, f^3, which extends vertically just beyond the base of a laterally-elongated bore, L, formed through the metal core G^2. The bore L in cross-section is in the form of two semicircles joined above and below by straight lines. The right side of the bore L coincides with the bore in the elevator when the latter is in its normal or lowered position, while the left side thereof coincides with a magazine, C', provided in the wood portion below the barrel to the left side of the center of the latter and closed at its forward extremity. The right side of the bore L is also provided with a longitudinal slot, *c*, covered by the inner edge of a pivoted cam-block, N, with the outer edge of which engages a lug, *b*, on the inner side of an adjacent tongue, F^3, when the trigger is drawn back, as hereinafter described.

As shown in Fig. 11, the magazine C' has an elongated opening, *e*, in its side near its forward end, toward the forward extremity of which opening the inner wall of the magazine inclines, as shown at *e'*, and the opening is provided with a cover, *d*, Fig. 12, in the form of a split tube, having a thumb-piece, *d'*, and adapted to be turned behind the chamber C' in a groove, d^2, to uncover the opening *e*.

The operation of my improved gun is as follows: First, the magazine C is supplied through the opening in the side of the stock A with cartridges M, which are preferably formed without circular heads at their rear ends, as shown, though the presence of such heads does not interfere with the operation of my device. To enable the magazine to receive the cartridges, the spring B, which, when released and unobstructed, extends to the elevator, must be compressed, which is effected by pulling backward on the finger q^2 and forcing the housing r^2 against the spring r^3 sufficiently to tilt the block until the plug *q* coincides with a socket, *a'*, Figs. 4 and 5, to one side of the entrance to the magazine C, when the spring B forces the plug into the socket, thus permanently holding the automatic feed inoperative and freeing the entrance to the magazine, whereby the cartridges may be readily inserted one after the other, the succeeding ones being always used to force forward into the magazine the preceding ones. The cartridges are thus introduced one after the other until the magazine has been filled to its capacity, with an additional cartridge in the bore of the elevator D, and an empty shell, M', (or, if desired, another cartridge,) in the right-hand portion of the laterally-elongated bore L, which, as hereinbefore described, coincides with the bore in the elevator when the latter is in its normal or lowered position. When the magazine is filled, the spring B is released by pulling the head *q* out of the socket *a'*, when the spring r^3 forces it into its normal position, wherein the spring B exerts its resilient force against the cartridges to feed them automatically as they are fired, in the manner hereinafter described. To fire the gun, the finger F^2 is pulled back, carrying with it the plates F, (or, in other words, the trigger, comprising the parts F, F', and F^2, is pulled,) causing the pins *p* to rise in the slots *n* and raise the elevator D in the chamber E till the cartridge in the elevator is brought in line with the aperture *m* and bore of the barrel G. It will be noticed that the two parts of the block forming the elevator D separate toward their upper sides when resting on the base of the chamber E, thereby enlarging the bore and permitting the cartridge received by it, which, as quite commonly formed, is tapering toward its forward end, and therefore enlarged toward its rear end, to enter the bore easily up to its enlarged extremity, or to the flange, if provided, around its rear extremity; and when the elevator is raised the two parts of the block forming it are compressed together, owing to the narrowing of the chamber E toward its upper side, whereby the cartridge is firmly grasped and held against any possibility of movement during its explosion. The cartridge is thus not fed to the barrel in the sense that it enters the same, as is, I believe, generally the case in magazine-guns, but is raised to and held at its opening until and during the discharge. When the trigger is thus pulled back, the upper rear ends of the parallel slotted plates F abut against the forward ends of the fingers *i'*, thereby forcing the latter back along the lower grooves or guides i^4 of the cams K, and through them the needle I, thus compressing the spring I', and also compressing the rubber bearing *h'* by the pressure against it of the tongue *h* on the rear end of the needle. The needle is thus forced back and the spring I' compressed until the lugs or projections i^2 attain positions behind the points *a* of the cams K, separating the lower from the upper grooves, (the beveled edges *z* of the plates F having meanwhile maintained contact of the latter with the fingers *i'* and permitted some lost motion with reference to the fingers,) when the resilience of the spring I' suddenly forces the fingers forward in the upper grooves of the cams through the forward pressure exerted by it upon the needle, causing the point of the latter to strike the rear end of the cartridge and explode it. When the lugs i^2 on the fingers *i'* reach the forward extremities of the upper grooves in the cams K, the resilience of the rubber bearing *h'* against the tongue *h* on the rear end of the needle forces the for-

ward ends of the fingers *i'* down the forward grooves in the cams to the forward extremities of the lower grooves to prepare the mechanism for subsequent action. The mere recoil of the spring I' does not alone project the point of the needle sufficiently far forward to cause it to penetrate the cartridge; but the momentum the needle receives by the sudden expansion of the spring is imparted to the sliding collar *k'*, which, when the spring I' has reached the full limit of its expansion, compresses it from its rear end sufficiently to permit the needle to advance till the collar k^3 strikes the wall m^2, (which is sufficiently far to cause penetration of the cartridge,) when the backward recoil of the spring returns the sliding collar *k'* to its place against the forward face of the wall m^2 and frees from the cartridge and carries the needle back to its normal position for subsequent action. The pull on the trigger is exerted against the resistance of the spring I^2, which, owing to the connection of the tongues F^3 with the key g^4, is thereby compressed in a backward direction, so that when, after firing, the trigger is released the spring I^2, by its resilience, forces it back into its normal position, and, since the pins *p* follow the guide-slots *n*, lowers the elevator in the chamber E.

It will be remembered that a cartridge or an empty cartridge-shell, M', is confined in the right side of the elongated bore L, which, when the elevator is in its normal or lowered position, is in line with the bore in the elevator, whereby the shell of the exploded cartridge would abut against that in the bore L, as aforesaid, were not means provided for shifting the last-named shell into the magazine C' for the empty shells. As the trigger is pulled, the lug *b*, Fig. 9, follows the outline of the pivotal cam N, thereby turning it inward on its pivot and causing it to press the shell adjacent to it in the right side of the bore L over the tongue f^3, which is thereby compressed into the left-hand portion of the elongated bore L, which coincides with the entrance to the magazine C', thereby substantially emptying the right-hand portion of such elongated bore and preparing it to receive the shell of the cartridge last exploded from the elevator, and which is forced forward by the automatic feed or spiral spring B in the stock A in supplanting it by a succeeding cartridge. The shell thus forced from the elevator has not, however, an unobstructed passage to the right side of the elongated bore L, since the shell previously forced from the latter, in the manner hereinbefore described, into the left side of the same presents a portion of its end to the path of the advancing shell in the elevator, which thus forces the empty shell in advance of it from the left side of the bore L into the magazine C'. The recoil of the spring I^2, which returns the tongues F^3 of the plates F to their normal positions, slides the lug *b* against the cam N in a backward direction, thereby returning it also to its normal or straight position. It will thus be seen that the action of my improved gun consists, generally stated, in automatically feeding the cartridges successively to the elevator, raising the elevator to carry the cartridge it contains to the bore of the barrel and into position to be exploded by the firing mechanism, actuating the firing mechanism, and shifting the shell of a previously-exploded cartridge to the empty-shell magazine, all of which is done by pulling the trigger, and by releasing the latter lowering the elevator to permit the automatic feed to introduce a fresh cartridge into it, whereby the shell of that previously exploded is forced into a reserve chamber, at the same time advancing an empty shell in its path into the empty-cartridge magazine to make room for its subsequent admission into the same. The gun is not "cocked" or in a condition to be fired until toward the end of the pressure upon the trigger, and thus cannot be prematurely or accidentally discharged.

When the magazine C' becomes filled, the cover *d* may be turned to uncover the opening *e*, and by tipping the gun the contents will fall out, and may thus be saved; or, if it is not desired to save the empty cartridge-shells, the cover may be kept open, whereby the shells may be permitted to fall out as they reach the opening *e*, the bevel *e'* in which guides them thereto.

If it shall be desired to supplant each cartridge exploded immediately by a fresh one, instead of firing the entire contents of the magazine C and then replenishing it, this may be done by maintaining the finger q^2 in the slot s^2, thus locking the spring B permanently in its compressed condition, whereby a cartridge may be readily inserted for each one exploded by pressing the housing r^2 to one side on its pivot *x* in forcing the cartridge against the concave surface *x'*, Fig. 5, of the housing, and the insertion or forward shoving of the fresh cartridge maintains the magazine filled and performs the function otherwise performed by the automatic feed, as hereinbefore described. Thus, as will be seen, my device may be adapted for single loading.

I have shown and described a needle as forming the active member of my improved firing mechanism. I do not, however, wish to be understood as limiting myself to such form of device for the purpose, as any of the forms of striking devices in common use may be adapted to my improved mechanism; nor do I desire to limit myself to details of my mechanism, as these may be variously modified without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a magazine fire-arm, in combination, the carrier for moving the cartridge into position for firing, the trigger which actuates the carrier through intermediate cam mechanism, and a firing mechanism engaged and then released by the carrier in its upward movement,

whereby a single pressure on the trigger causes first the moving of the cartridge into position, then fires the same.

2. In a magazine fire-arm, the combination, with the carrier for moving the cartridge into position for firing and the trigger and its connected slide which actuates the carrier, of a firing mechanism successively engaged and then released by the rising of such carrier, whereby a single movement of the trigger loads and fires the fire-arm.

3. In a magazine fire-arm, the combination, with the barrel and stock, of a magazine, an elevator normally in position to receive the cartridges successively from the said magazine, and a trigger connected with the elevator and operated by a single pressure to actuate the elevator to carry a cartridge supported by it to the barrel and firing mechanism and subsequently actuate the said firing mechanism, substantially as described.

4. In a magazine fire-arm, the combination, with the barrel and stock, of a magazine for the cartridges, a magazine for the shells of exploded cartridges, an elevator between the said magazines in normal position to receive the cartridges successively from their magazine, and a trigger connected with the elevator and operated by a single pressure to actuate the elevator to carry a cartridge supported by it to the barrel and firing mechanism, and subsequently to actuate the said firing mechanism to explode the cartridge, and by its release to return the elevator to its normal position, with the shell in position to enter the magazine provided to receive it, substantially as described.

5. In a magazine fire-arm, the combination, with the barrel and stock, of a magazine provided with an automatic feed for the cartridges, an elevator normally in position to receive the cartridges successively from the said magazine, and a trigger connected with the elevator and operated by a single pressure to actuate the elevator to carry a cartridge supported by it to the barrel and firing mechanism, and subsequently actuate the said firing mechanism to explode the said cartridge, substantially as described.

6. In a magazine fire-arm, the combination, with the barrel and stock, of a magazine provided with an automatic feed for the cartridges, a magazine for the shells of the exploded cartridges, an elevator between the said magazines in normal position to receive the cartridges successively from the feeding-magazine, and a trigger connected with the elevator and operated by a single pressure to actuate the elevator to carry a cartridge supported by it to the barrel and firing mechanism, and subsequently to actuate the said firing mechanism to explode the cartridge, and by its release to return the elevator to its normal position, with the shell in position to enter the magazine provided to receive it, substantially as described.

7. In a magazine fire-arm, the combination, with the stock-magazine, firing mechanism, and barrel, of a chamber, E, an elevator in the chamber, and a trigger connected with the elevator and operating by a single pressure to raise the said elevator and carry a cartridge supported by it to the barrel and firing mechanism, and subsequently to actuate the said firing mechanism to explode the said cartridge, substantially as described.

8. In a magazine fire arm, the combination, with the stock-magazine, firing mechanism, and barrel, of a chamber, E, an elevator in the chamber engaging and operating the firing mechanism, and a trigger and its connected slide, which actuates the elevator to carry a cartridge to the barrel and firing mechanism, and subsequently to actuate the firing mechanism, as described.

9. In a magazine fire-arm, the combination of a magazine, C, provided with an automatic feed for the cartridges, a magazine, C′, for the shells of the exploded cartridges, a chamber, E, between the said magazines, an elevator, D, in the said chamber and adapted normally to support a cartridge in position in line with the magazine C and to enter the magazine C′, a trigger connected with the elevator and operated by pressure to raise the elevator to carry the cartridge supported by it to the barrel and firing mechanism and to actuate the said firing mechanism to explode the cartridge, and a spring, I^2, connected with the trigger and operating, when the trigger is released, to return it and the elevator to their normal positions, substantially as described.

10. In a magazine fire-arm, the combination of a magazine, C, provided with an automatic feed for the cartridges, a chamber, E, into which the magazine C leads, a chamber, G′, containing a laterally-elongated bore, L, partly closed at its forward end and communicating at its rear end with the chamber E, a magazine, C′, communicating at its rear end with the open forward end of the bore L, an elevator, D, in the chamber E, provided with a bore normally communicating at opposite ends with the magazine C′ and bore L, a trigger connected with the elevator and operated by pressure to raise the elevator in the chamber E, to carry the cartridge contained in its bore to the barrel and firing mechanism, and to actuate the said firing mechanism to explode the cartridge, and a spring, I^2, connected with the trigger and operating, when the trigger is released, to return it and the elevator to their normal positions, substantially as described.

11. In a magazine fire-arm, the combination of a magazine, C, provided with an automatic feed for the cartridges, a chamber, E, into which the magazine C leads, a chamber, G′, containing a laterally-elongated bore, L, partly closed at its forward end and communicating at its rear end with the chamber E, a yielding tongue, f^3, in the base of the bore L, a pivotal cam, N, in the side of the said bore, a magazine, C′, communicating at its rear end with the open forward end of the bore L, an elevator, D, in the chamber E, provided with a bore normally communicating at opposite ends with the magazine C′ and bore L, a trig-

ger connected with the elevator and operated by pressure to raise the elevator in the chamber E, to carry the cartridge contained in its bore to the barrel and firing mechanism, and to actuate the said firing mechanism to explode the cartridge, a spring, I^2, connected with the trigger and operating, when the trigger is released, to return it and the elevator to their normal positions, and a lug, *b*, on the trigger to engage with the cam N, substantially as described.

12. In a magazine fire-arm, the combination of a magazine, C, provided with an automatic feed for the cartridges, a chamber, E, into which the magazine C leads, a chamber, G′, containing a laterally-elongated bore, L, partly closed at its forward end and communicating at its rear end with the chamber E, a magazine, C′, communicating at its rear end with the open forward end of the bore L, an elevator, D, provided with pins *p* in the chamber E and having a bore normally communicating at opposite ends with the magazine C′ and bore L, a trigger comprising connected sliding plates F, extending through the chamber E on opposite sides of the elevator and provided with inclined slots *n*, through which the pins *p* extend, and a finger-piece, F^2, a spring, I^2, in the chamber G′, connected with the trigger, and firing mechanism actuated by pressure upon the trigger, the whole being constructed and arranged to operate substantially as described.

13. In a magazine fire-arm having an elevator, D, in a chamber, E, and a trigger operating by pressure to raise the elevator in its chamber, and adapted, when released, to lower the elevator to its normal position, the combination, with the barrel G and chamber E, of a needle, I, supported to be reciprocated in suitable bearings, a confined spring, I′, engaging with the needle, a cam, K, having guides in its opposite sides, and fingers *i′* upon opposite sides of the needle and extending into the guides in the said cam and into the path of the trigger, whereby when the trigger is pressed it engages with the said fingers to force back the needle and compress the spring I′ until released to drive the needle forward, substantially as and for the purpose set forth.

14. In a magazine fire-arm having an elevator, D, in a chamber, E, and a trigger operating by pressure to raise the elevator in its chamber, and adapted, when released, to lower the elevator to its normal position, the combination, with the barrel G and chamber E, of a needle, I, supported to be reciprocated in suitable bearings, a spiral spring, I′, surrounding the needle, sliding collars *k* and *k′*, confined upon the needle and confining the spring I′ between them, a cam, K, having guides in its opposite sides, and fingers *i′* upon opposite sides of the needle and extending into the guides in the said cam and into the path of the trigger, whereby when the trigger is pressed it engages with the said fingers to force back the needle and compress the spring I′ until released to drive the needle forward, substantially as and for the purpose set forth.

15. In a magazine fire-arm having an elevator, D, in a chamber, E, and a trigger operating by pressure to raise the elevator in its chamber, and adapted, when released, to lower the elevator to its normal position, the combination, with the barrel G and chamber E, of a needle, I, supported to be reciprocated in suitable bearings and provided with grooves *y* and *y′*, a spiral spring, I′, surrounding the needle, sliding collars *k* and *k′*, having guides k^2 to enter the grooves *y y′* and confined upon the needle and confining the spring I′ between them, a cam, K, having guides in its opposite sides, and fingers *i′* upon opposite sides of the needle and extending into the guides in the said cam and into the path of the trigger, whereby when the trigger is pressed it engages with the said fingers to force back the needle and compress the spring I′ until released to drive the needle forward, substantially as and for the purpose set forth.

16. In a magazine fire-arm having an elevator, D, in a chamber, E, and a trigger operating by pressure to raise the elevator in its chamber, and adapted, when released, to lower the elevator to its normal position, the combination, with the barrel G and chamber E, of a reciprocating needle, I, having a recess near its rear end containing rubber, *h′*, surmounted by a tongue, *h*, a cross-bar, *i*, extending transversely through the said recess and tongue, a spiral spring, I′, surrounding the needle, sliding collars *k* and *k′*, having guides k^2 to enter grooves *y* and *y′* in the sides of the needle, and confined upon the needle and confining the spring I′ between them, a cam, K, having guides in its opposite sides, and fingers *i′* upon the projecting ends of the cross-bar *i*, extending into the guides in the said cam and into the path of the trigger, substantially as and for the purpose set forth.

17. In a magazine fire-arm, the combination, with the stock having a magazine, C, of an automatic feed for the cartridges, comprising a laterally-confined spiral spring, B, extending into a chamber formed in one side of the stock and communicating with the magazine C, and provided with a finger, q^2, extending through a slot, *s*, in the stock, substantially as described.

18. In a magazine fire-arm, the combination, with the stock having a magazine, C, of an automatic feed for the cartridges, comprising a spiral spring, B, extending into a pivotal housing, r^2, in a chamber, *r*, formed in one side of the stock and communicating with the said magazine, a spring, r^3, behind the housing r^2, a head, *q*, at the forward end of the spring B, and a finger, q^2, connected with the head *q* and extending through a slot, *s*, in the stock, substantially as described.

19. In a magazine fire-arm, the combination of a stock, A, containing a magazine, C, and provided with slots *s* and s^2, and a chamber, *r*, in one side communicating with the said

magazine and provided with a recess, a', a spiral spring, B, extending into a pivotal housing, r^2, in the chamber r and hollowed out on its outer side, a spring, r^3, behind the housing r^2, a head, q, at the forward end of the spring B, and a finger, q^3, connected with the head q and extending normally through the slot s in the stock, substantially as described.

20. In a magazine fire-arm, the combination of a stock, A, containing a magazine, C, and provided with a slot, s, closed with rubber strips s', a slot, s^2, and a chamber, r, in one side communicating with the said magazine and provided with a recess, a', a spiral spring, B, extending into a pivotal housing, r^2, in the chamber r, a spring, r^3, behind the housing r^2, a head, q, at the forward end of the spring B, and a finger, q^3, connected with the head q and extending normally through the slot s in the stock, substantially as described.

21. In a magazine fire-arm having a chamber, E, the combination, with the barrel G, of a magazine, C', communicating from its rear end with the forward end of the chamber E to receive the shells of cartridges after their explosion in the gun, and provided toward its forward end with an opening, e, and a beveled side, e', at the said opening, substantially as and for the purpose set forth.

22. In a magazine fire-arm having a chamber, E, the combination, with the barrel G, of a magazine, C', communicating from its rear end with the forward end of the chamber E to receive the shells of cartridges after their explosion in the gun, and provided toward its forward end with an opening, e, having an adjustable cover, d, and a beveled side, e', at the said opening, substantially as and for the purpose set forth.

HERMANN LEINEWEBER.

In presence of—

J. W. DYRENFORTH,

CHAS. E. GAYLORD.