(No Model.)

2 Sheets—Sheet 1.

# W. H. ELLIOT.

## MAGAZINE FIRE ARM.

No. 307,531. Patented Nov. 4, 1884.

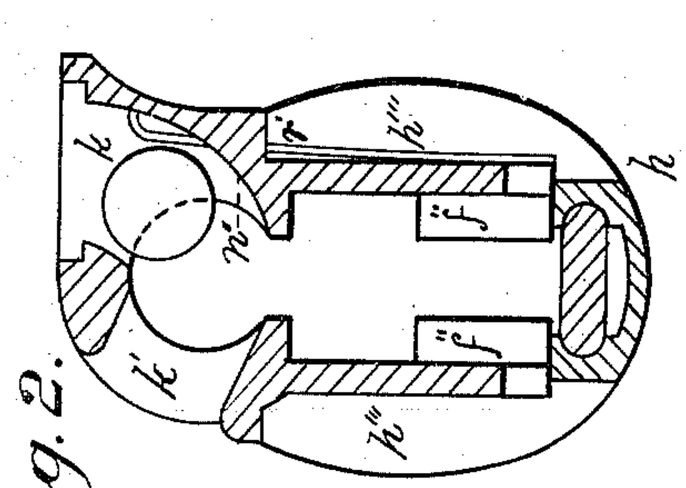

Fig. 2.

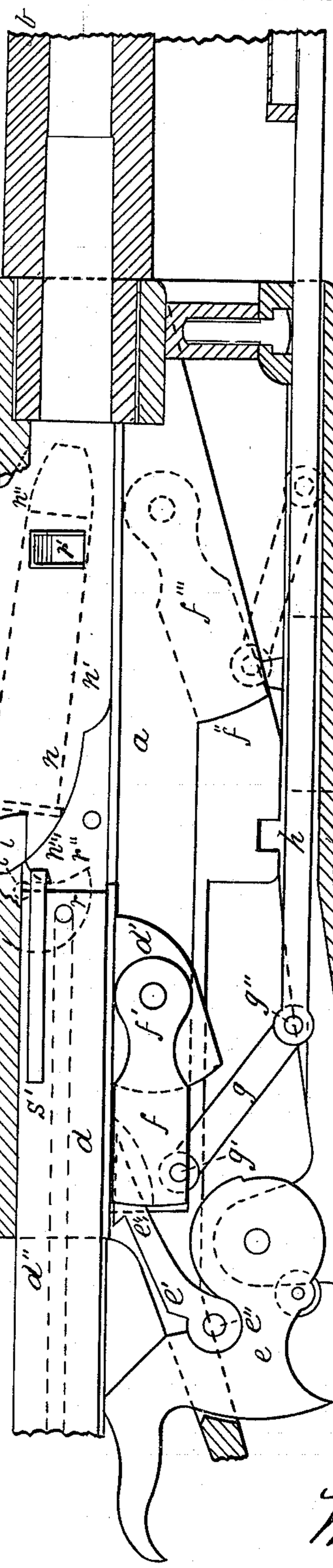

Fig. 1.

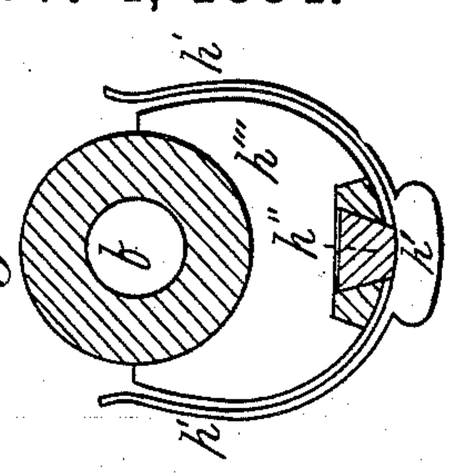

Fig. 6.

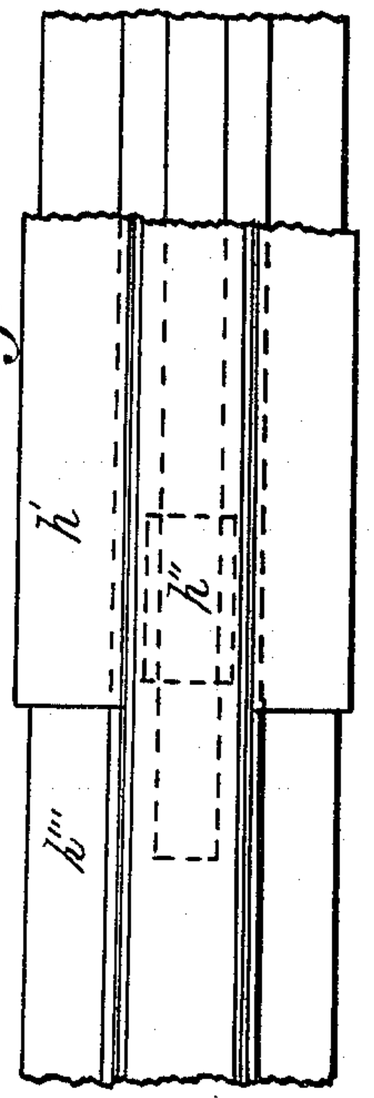

Fig. 5.

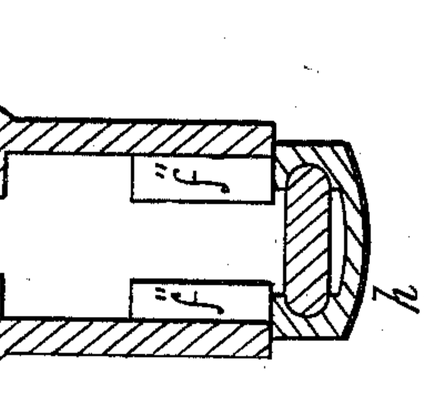

Fig. 3.

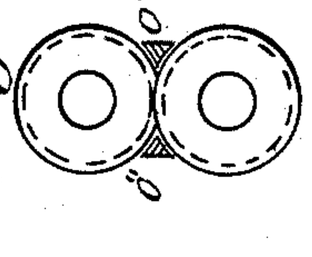

Fig. 4.

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(No Model.)

2 Sheets—Sheet 2.

# W. H. ELLIOT.

## MAGAZINE FIRE ARM.

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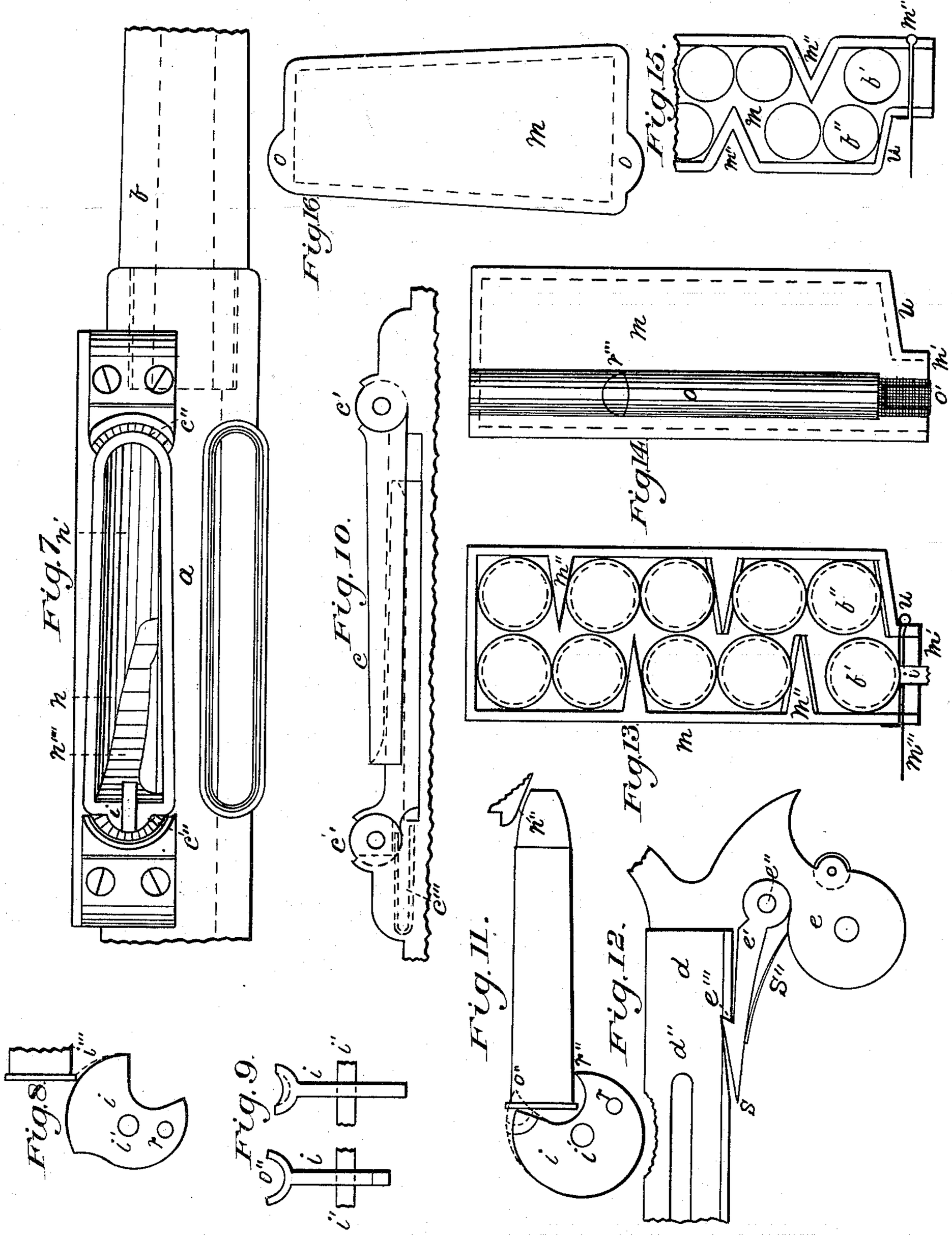


WITNESSES:

Geo. D. Richardson

D. Lewis

INVENTOR

Wm. H. Elliot

# UNITED STATES PATENT OFFICE.

WILLIAM H. ELLIOT, OF NEW YORK, N. Y.

## MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 307,531, dated November 4, 1884.

Application filed May 29, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WM. H. ELLIOT, of New York, county of New York, and State of New York, have invented a new and Improved Magazine Fire-Arm, of which the following is a specification.

The object and nature of my invention may be described as follows:

The object of my invention is to provide an arm with a cartridge case or magazine adapted thereto, which shall be more rapid and more practical, especially as a military arm, than any now in use; and the nature of my invention consists in the use of certain appliances and methods, which are fully set forth in the following specification and claims.

Figure 1 is a vertical longitudinal section, showing the small parts in elevation. Fig. 2 is a vertical cross-section of the receiver and guard-strap at open lines *x*, Fig. 1. Fig. 3 is a vertical cross-section of the arm at open lines *x'*, Fig. 1. Fig. 4 is an elevation of two cartridge-heads, showing the points of lever *i* in section. Fig. 5 is a view of a portion of the lower side of the tip-stock and handle. Fig. 6 is a vertical cross-section of the arm through the handle. Fig. 7 in Sheet 2 is a plan of a portion of the arm. Fig. 8 is an elevation of a feed-lever and head of a cartridge. Fig. 9 is two views of the feed-lever, showing bifurcated points. Fig. 10 is an elevation of the case-supports in the closed position. Fig. 11 is an elevation of the feed-lever and cartridge. Fig. 12 is an elevation of a hammer-pawl and rear end of the bolt. Fig. 13 is a vertical cross-section of a cartridge-case and cartridges near the rear end. Fig. 14 is an elevation of the rear end of a cartridge-case. Fig. 15 is a vertical cross-section of a cartridge case and cartridges near the forward end. Fig. 16 is a plan of a cartridge-case.

My invention refers to that class of arms which have detachable magazines or cartridge-cases arranged when in use upon the upper side of the arm over the receiver.

My improved arm has a bolt for closing the chamber, which moves in a line with the barrel, and is operated by means of a sliding handle arranged under the rear end of the barrel forward of the receiver, as shown in my patents of May 29 and September 18, 1883. The bolt, however, may be operated by any lever movement or by an ordinary handle.

The bolt *d* has a pendent portion, *d'*, at its forward end. To this pendent portion the brace *f* is pivoted at *f'*. The recoil-shoulders *f''* for supporting the brace are formed in one piece with and project from the inner surface of the sides of the receiver and, extending to the rearward, form a recess into which the brace slides, as shown in Fig. 1.

The connecting-strap *h* slides in grooves, or has other guides within the receiver, and, extending forward under the barrel, has a handle, *h'*, at its forward end, which is guided by the dovetailed projection *h''*, running in a corresponding groove or equivalent devices in the under side of the tip-stock, as shown in Figs. 4 and 5. The rear end of the connecting-strap is joined or connected to the brace *f* by the link *g*, which is pivoted to the brace at *g'* and to the connecting-strap at *g''*.

In operation, a backward movement of the handle first pushes the rear end of the brace upward and off from the shoulders *f''*, and then pushes the brace and bolt backward to the position shown in Fig. 1. A reverse movement of the handle drags the brace and bolt forward and brings the brace down in front of the recoil-shoulders, as shown at *f'''* in open lines.

The employment of the link *g* between the reciprocating slide *h* and the rear end of the brace *f* enables me to furnish both the bolt and slide with immovable or fixed guides, while at the same time all the joints between the bolt and the slide are simple pivot-joints. The link acting longitudinally gives the necessary movement to the bolt, while by swinging on its forward pivot it allows the necessary vertical movement of the brace without the use of any slip or lock joints.

The receiver has a recess, *k*, on its upper side, which opens at the bottom into the receiving-chamber. The rear half of this opening in the bottom of the recess is too narrow to allow the head of a cartridge to move laterally into the receiving-chamber, as shown in Fig. 3, though it is sufficiently wide to let the head of a cartridge project into the receiving-chamber far enough to be engaged and driven forward by the bolt; but where the car-

tridge has been moved forward till nearly half of it is in the chamber of the barrel the opening in the bottom of the recess becomes wide enough to permit the head of the cartridge to move laterally into the receiving-chamber in front of the bolt, as seen at Fig. 2. By this construction of the recess the cartridge cannot at any time fall out of the receiver from the time it leaves the cartridge-case until it has been fired, when its shell is extracted and ejected in the usual way through the opening *k'*.

The feed-lever or feeding device *i* is pivoted to the receiver at *i'* centrally, and in the rear of recess *k*, and it extends upward into the magazine to engage and act upon the head of the first cartridge therein, swinging through the opening *o'* in the rear wall of the magazine. This lever also has a pin, *r*, on its side, which projects into groove *d''* in the side of the bolt. As the bolt is moved forward in manipulating the arm, the pin *r*, coming in contact with the rear end of groove *d''*, brings the lever *i* to the position shown in Fig. 11, when the head of the first cartridge in the case falls into it. As the bolt is moved backward the pin *r* strikes the forward end of groove *d''*, which suddenly brings the lever and cartridge to the position shown in Fig. 1, and sometimes sends the cartridge its whole length into the barrel.

The feed-lever or feeding device need not necessarily be arranged as shown. It may swing upon an axis parallel with the barrel; or any other convenient arrangement of lever or character of device may serve the same purpose. The mouth of the magazine, including the opening *o'*, is covered by a strip of cloth or other material pasted or otherwise lightly attached thereto. By leaving the cover on the mouth of the cartridge-case after it has been placed between the supports, it serves as a cut-off until such time as it becomes necessary to use the magazine. The recess *k* has four curved or guiding-surfaces, which act upon the cartridge when it is driven downward and forward out of the cartridge-case into the receiver to safely and surely guide it into the chamber of the barrel.

It may be seen by reference to Fig. 11 that the rear end of the cartridge rests upon the point *r''* of the feed-lever, being raised a little above the surface *n'''* thereby. While the cartridge is in this position its forward end rests upon the end of the spring *r'*, and against the inner wall of the recess. When the bolt is near the rearward limit of its movement the lever *i* is rotated from the position shown in Fig. 10 to that shown in Fig. 1, which causes the head of the first cartridge in the case to glide downward and forward upon the inclined or guiding surface *n'''*. This causes the forward end of the cartridge to pass under the guiding-surface *n''*, cut in the under side of an overhanging portion of the receiver. By this movement the spring *r'*, yielding to the pressure of the cartridge, permits it to pass forward and downward on its way into the chamber of the barrel, the head of the cartridge being crowded by the curved surface *n* partly into the receiving-chamber, so that when the bolt moves forward it engages the head of the cartridge and drives it into the chamber of the barrel. As the cartridge passes on to the portion of the recess opposite the laterally-curved surface *n'*, Figs. 1 and 7, it is so far forward that the chamber of the barrel causes it to swing laterally out of recess *k* into the receiving-chamber in line with the bolt and barrel, and under the hook of the extractor. It is then forced forward by the bolt directly into the barrel. The feed-lever extends far enough upward into the case, when that device is on the arm to strike the first cartridge near the top of its head; or, as shown in open lines, Fig. 11, and in section, Fig. 4, the two points of the lever may strike between the heads of the first and second cartridges. In the latter case the operation of this device is as follows: At the moment the two points strike between the two heads, the point *r''* is withdrawn, and the lever continuing its movement, while it holds the head of the second cartridge up out of the way of the first, it drives the head of the latter at first directly down and then downward and forward upon the guiding surface *n'''*. Fig. 4 shows the head of the first cartridge in rear of the head of the second, in which case the movement of the first cartridge would be interfered with were it not for the peculiar operation of the feed-lever above described.

The bifurcation of the point of the lever has two objects. It avoids touching the primer and it enables the double point to enter between the heads of two cartridges that lie one upon the other. The plan view, Fig. 9, shows at *o''* the bifurcation best adapted to strike between the heads.

Fig. 13 and the three following figures are different views of my improved cartridge-case and magazine combined. The shelves *m''*, Figs. 13 and 15, are so placed that no more than two cartridges can rest one upon another in any position. These shelves are inclined upon both sides, so as to facilitate both the filling and the emptying of the case. They are also arranged so that only the weight of one cartridge can be brought upon the cover or device for holding the cartridge in the case, as shown at *m'''*, Figs. 13 and 15. As the last or lower portion of the serpentine-chamber, which contains the first and second cartridges, is arranged horizontally, and as the second cartridge must rest upon the plate *u*, one only of the cartridges in the case can rest upon the cover of the mouth of the magazine.

Figs. 14 and 16 show a rib or projection on each end of the case, which fit into corresponding grooves in the faces of the supports *c*. These supports are hinged to the top of the receiver at *c'*, as seen in Figs. 1 and 10. In Fig. 1 they are seen in the vertical position, with a cartridge-case being inserted be-

between them. In Fig. 10 they are shown in the horizontal position, as when not in use, the arm being used as a single breech-loader, in which case the cartridges are inserted and the shells ejected through the recess *k'*. While the supports are in a horizontal position they form a tight cover for the recess under them. These supports are held both in the closed and open positions by springs, as at *c'''*, Fig. 10, in the same way that the spring of a pocket-knife holds the blade in two positions. They may also be provided with spring or positive catches to hold the case down upon the receiver while in use, as at *r'''*, Fig. 1. The supports are considerably flared at the top, as seen at *c''*, Fig. 7, to facilitate the introduction of the case between them. It is obvious that the grooves may be formed upon the cartridge-cases, and the ribs upon the supports with the same result, which would be a fair equivalent of the arrangement shown.

Fig. 12 illustrates my improved method of starting the cartridge-shell in case it sticks in the chamber after firing. The pawl *e'* is pivoted to the hammer *e* at *e''*, and takes in the notch *e'''* on the under side of the bolt. To start a sticking shell, the brace *f* is first raised by moving the handle backward; then, by pulling back on the thumb-piece of the hammer, that device acts as a lever to start the shell. The pawl is of such relative length that its point will not catch the point *e'''* when the trigger is in the safety-notch of the hammer; but when the hammer is down upon the firing-pin the point of the pawl readily engages the notch. As the pawl is drawn back, the rear end moving downward upon the axis of the hammer causes the point *s* to strike the under side of the bolt and so disengage the pawl from the notch *e'''* after the bolt has been drawn out a short distance. The pawl is actuated by spring *s''*.

As a material to be used in the manufacture of these cases I prefer papier-maché formed in molds under pressure and heat, and having in its composition resinous gums, such as are generally used for rendering paper strong, non-flexible, and impervious to water. These cases are light, comparatively noiseless, and too cheap to make it an object to save them on the field of battle for reloading. The partitions or shelves being so arranged that only two cartridges can rest one upon another, they are equally adapted to be used as packing-cases for the transportation of cartridges and for magazines when applied to the gun, so that the cartridges in them do not require to be disturbed from the time they are put in by the manufacturer until they are taken out by the gun. Cheap tin cases may be struck up in dies; but I consider such cases inferior to papier-maché.

The lever *i*, as shown in Fig. 8, is cam-shaped or eccentric on its top. The amount of eccentricity is shown by the open lines, which are concentric to the axis of the lever. The object of giving this form to the lever is to prevent it from being turned backward by accident, while the bolt is midway in its movement. By this construction of the lever it cannot be turned backward without lifting the cartridge that rests upon it, which is sufficient to retain it in place.

The cover of the mouth of the magazine should be so constructed and applied that it may be stripped off either before or after the magazine is adjusted to the arm. When stripped off after, the cartridges immediately move down a little toward the receiver, so that the first cartridge partly passes out of the magazine.

My improved arm may be used as a repeating breech-loader without a cartridge-receptacle by bringing the supports *c* a little nearer together, and by making the grooves *c''* wide and deep enough to take in and support the two ends of the cartridge. In use, a handful of cartridges is taken from the pocket and dropped into the supports. The lower cartridge, being partly in the receiver, is caught by the feeding device and sent forward as surely as if it were dropped from the mouth of a cartridge-magazine.

I disclaim the invention of a guide secured to the barrel independently of the magazine with which the handle *h'* engages and by which it is guided.

Having described my invention, what I desire to have secured to me by Letters Patent of the United States, is—

1. In a magazine fire-arm, the combination of devices, substantially as follows: a bolt for closing the arm, a brace for receiving the recoil pivoted to said bolt at its forward end, and at its rear end resting upon recoil-shoulders within the receiver, and a reciprocating slide connected at its rear end with the rear end of said brace by means of link *g*, and at its forward end provided with a handle for operating the same, said link being pivotally connected with both said brace and said reciprocating slide, substantially as specified.

2. In a magazine fire-arm, a receiver having recess *k* opening at the bottom into the receiving-chamber and provided with a detachable cartridge-magazine arranged upon the top of the receiver over said recess, and provided with opening *o'* in its rear wall, and in combination therewith feed-lever *i*, supported by the receiver and operated by the movement of the mechanism which closes the arm, said lever extending upward above the top of the receiver into the magazine to engage and act upon the first cartridge therein through the opening *o'*, substantially as specified.

3. In a magazine fire-arm, the combination of devices, substantially as follows: a receiver provided with the recess *k*, opening into the receiving-chamber at the bottom, said opening being of such width at its rear portion that the head of the cartridge projects only enough into the receiving-chamber to be engaged by the bolt, a feed-lever, *i*, which is pivoted to

the receiver at $i'$, and is operated by pin-and-groove connection $r$ and $d''$ with the bolt, and a bolt for engaging and forcing the cartridge into the barrel, whereby the cartridge is carried from the top of the receiver into the barrel by positive movement, without at any time being released from the devices that control it, as set forth.

4. In a magazine fire-arm, a receiver having a recess, $k$, opening at the bottom into the receiving-chamber, and provided with a detachable cartridge-magazine arranged upon the top of the same over said recess, and in combination therewith a feed-lever, $i$, pivoted to the receiver and operated by connection with the moving breech mechanism, said lever, extending up into the magazine, acting upon the first cartridge therein to force it out of the same into the receiver, and suitable guiding-surfaces to direct the cartridge into the receiving-chamber, substantially as shown and described.

5. In a magazine fire-arm, a receiver having a recess, $k$, opening at the bottom into the receiving-chamber, a detachable cartridge-magazine arranged upon the top of the receiver, said recess being covered by the mouth of the magazine and provided with the downward and forward curved surface $n'''$, and in combination therewith the feed-lever $i$, supported by the receiver and operated by the movement of the mechanism for closing the arm, whereby the said surface supports and guides the cartridge-head under the action of the feed-lever, substantially as shown and described.

6. In a magazine fire-arm, a receiver having recess $k$, opening at the bottom into the receiving-chamber and provided with the downward and forward inclined or curved surface $n'''$, and also the downward and laterally curved or inclined surface $n$, a cartridge-magazine arranged upon the upper side of the receiver over said recess, and in combination therewith a feed-lever pivoted to the receiver and operated by connection with the mechanism for closing the arm, whereby the cartridge-head is driven down by the lever guided forward toward the chamber of the barrel, and guided laterally toward the receiving-chamber, substantially as specified.

7. In a magazine fire-arm, a receiver having a recess, $k$, opening at the bottom into the receiving-chamber, and provided with the downward and forward guiding surface $n'''$, also the downward guiding-surface $n''$, a cartridge-magazine arranged upon the upper side of the receiver over said recess, and in combination therewith a feed-lever supported by the receiver and operated by connection with the mechanism for closing the arm whereby both ends of the cartridge are forced downward and forward in the direction of the barrel by positive movements, substantially as specified.

8. A magazine fire-arm having a recess, $k$, opening at the bottom into the receiving-chamber, and provided with the downward and forward guiding-surface $n'''$, the downward guiding-surface $n''$, and the laterally guiding-surface $n$, a cartridge-magazine arranged upon the upper side of the receiver over said recess, and in combination therewith a feed-lever supported by the receiver and operated by connection with the mechanism for closing the arm, whereby both ends of the cartridge are forced downward and forward in the direction of the barrel and the cartridge crowded toward the receiving-chamber to bring it under the action of the bolt, all by positive movement, substantially as described.

9. In a magazine fire-arm, a receiver having a recess, $k$, opening at the bottom into the receiving-chamber, and provided with the spring $r'$ and the downwardly-inclined guiding-surface $n''$, and in combination therewith a feed-lever supported by the receiver and operated by connection with the mechanism for closing the arm, whereby the ingoing cartridge is held up out of the way of the outgoing shell until operated upon by the feed-lever, substantially as set forth.

10. In a magazine fire-arm, a receiver having a recess, $k$, opening at the bottom into the receiving-chamber, a cartridge-magazine arranged on the upper side of said receiver over said recess, and in combination therewith a feed-lever supported by the receiver, arranged centrally in the rear of said recess, and operated by connection with the mechanism for closing the arm, and provided with bifurcated point $s'$, which is arranged at such a height as to pass between the heads of the first two cartridges, whereby the head of the second cartridge is held up out of the way while the first is driven forward toward the barrel, substantially as described.

11. In a magazine fire-arm, a receiver having a recess, $k$, opening at the bottom into the receiving-chamber, a cartridge-magazine arranged upon the top of said receiver over the recess, and in combination therewith a feed-lever supported by the receiver, operated by the mechanism for closing the arm, and provided with point $o''$ and supporting-point $r''$, whereby the head of the cartridge is allowed to drop down upon the surface $n'''$ simultaneously with the commencement of its movement forward, substantially as specified.

12. In a magazine fire-arm, a receiver having a recess, $k$, opening at the bottom into the receiving-chamber, a cartridge-magazine arranged upon the top of the receiver, and provided with vertical ribs $o$ on the front and rear ends of the magazine, and in combination therewith hinged supports provided with grooves $c''$ in the inner faces of the same, which are adapted to be turned down upon the arm when not in use, substantially as specified.

13. In a magazine fire-arm, a receiver having a recess, $k$, opening at the bottom into the receiving-chamber, and provided with hinged supports which, when standing vertically, support the magazine against the recoil of the arm, but when turned down upon the receiv-

er, as when using the arm as a single breech-loader, form a close cover to the recess *k*, substantially as specified.

14. In a magazine fire-arm, a receiver having a recess, *k*, opening at the bottom into the receiving-chamber, and provided with a detachable magazine arranged upon the top of the receiver over said recess, and in combination therewith a feed-lever supported by the receiver and operated by connection with the mechanism for closing the arm, and having its upper surface cut in the form of a cam or eccentric, whereby said lever is held from turning back by accident by the weight of one of the cartridges in the magazine which rests upon it, substantially as specified.

15. In a magazine fire-arm, a receiver having a recess, *k*, opening at the bottom into the receiving-chamber, a cartridge-magazine arranged upon the top of said receiver and over said recess, and provided with an opening in the bottom through which the cartridges pass into the receiver, and in combination therewith hinged or otherwise movable supports arranged one at each end of said recess, and which when in use extend up from the receiver in front and rear of said magazine, to support the same over said recess, substantially as specified.

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Witnesses:
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GEO. D. RICHARDSON.