

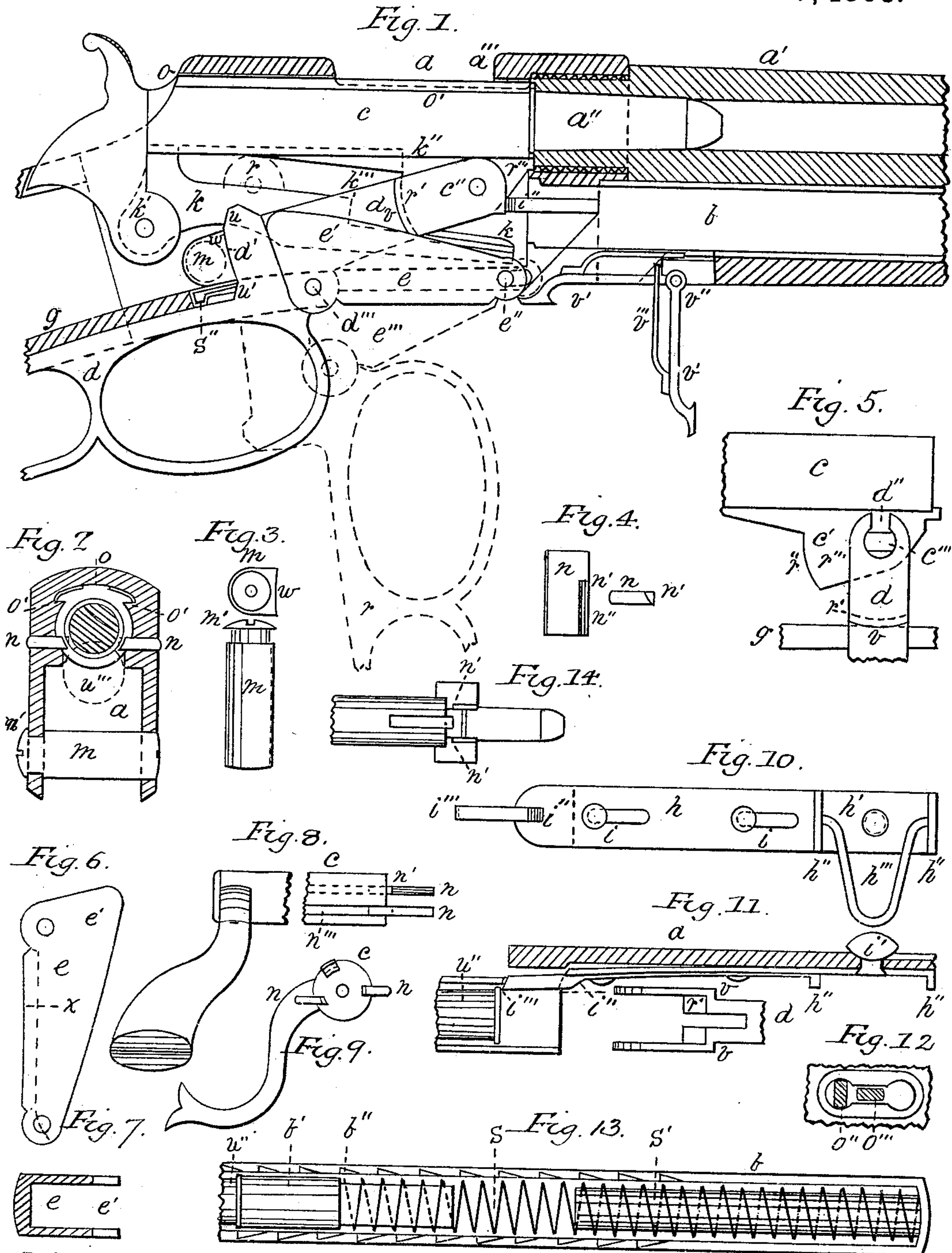
(No Model.)

2 Sheets—Sheet 1.

W. H. ELLIOT.
MAGAZINE FIRE ARM.

No. 274,578.

Patented Mar. 27, 1883.



Witnesses:
Geo. Richardson
D. Lewis

Inventor:
W. H. Elliot

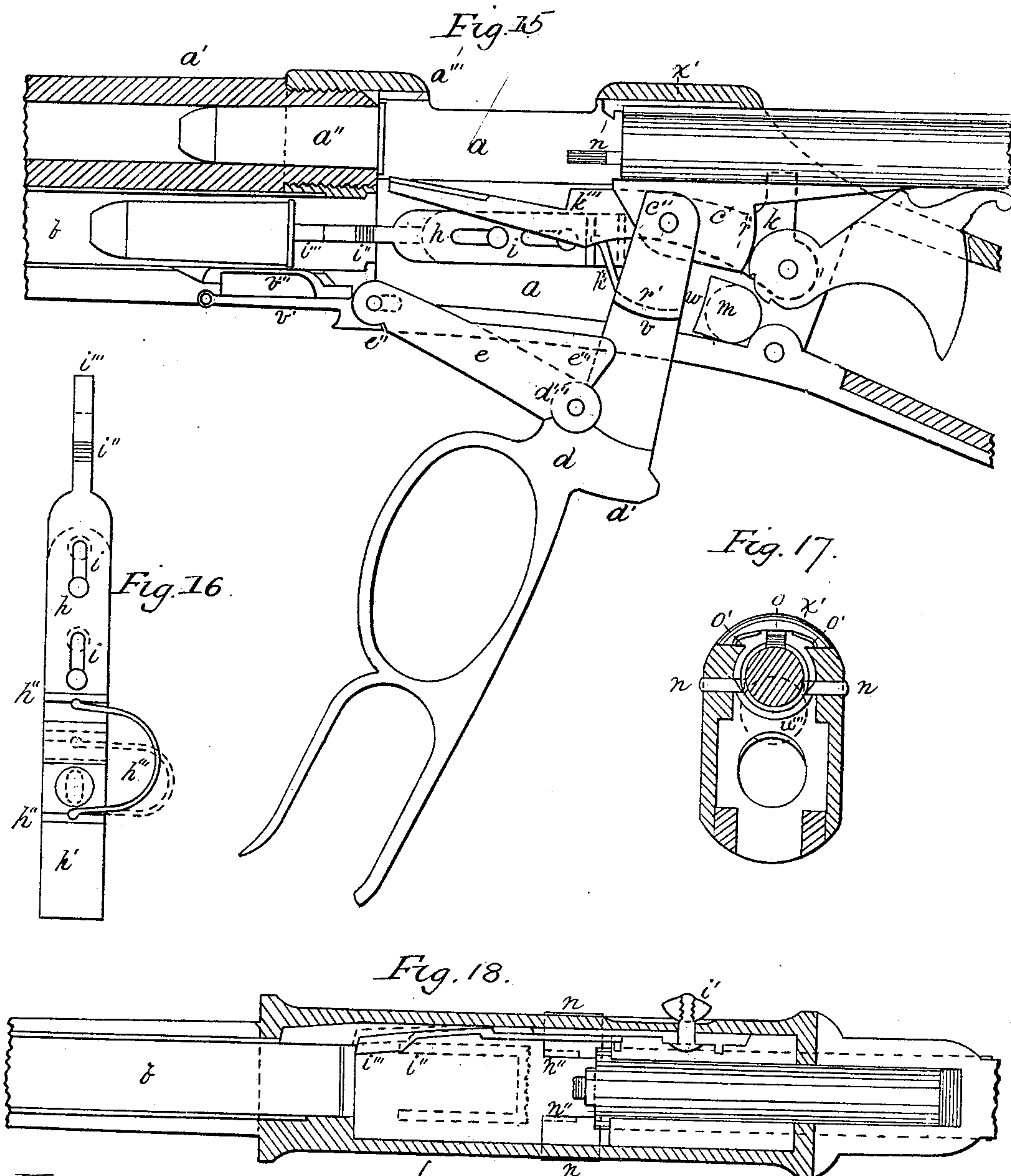
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UNITED STATES PATENT OFFICE.

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

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 274,578, dated March 27, 1883.

Application filed October 16, 1882. (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 a simpler, more convenient, and a more practical magazine fire-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 in Sheet 1 is a vertical longitudinal section of the arm, showing the moving parts in elevation. Fig. 2 is a vertical cross-section of the receiver, showing the bolt and recoil-pin in elevation. Fig. 3 is a side and end view of the recoil-pin or shoulder. Fig. 4 is a plan and end elevation of the stop and ejector. Fig. 5 is an elevation of a portion of the bolt, lever, and tang-strap, showing a method of attaching the lever to the bolt. Fig. 6 is an elevation of the lower link. Fig. 7 is a cross-section of the same at open lines *x*, Fig. 6. Figs. 8 and 9 show a modification of the stop and ejector as applied to a rotating bolt. They also show a curved pendent handle for operating the bolt. Fig. 10 is an elevation of a spring feed-pawl. Fig. 11 is a plan of the same showing a portion of the parts connected therewith. Fig. 12 is an elevation of a portion of the side of the receiver, showing the movements of the locking device of the cut-off pawl. Fig. 13 is a horizontal section of the bottom or closed end of a magazine-tube, showing, in addition to the usual cartridge-propelling devices, an auxiliary spring and obstructing-shoulders. Fig. 14 is a plan of the end of the bolt and stop-ejector. Fig. 15 in Sheet 2 is a vertical longitudinal section of the arm in its open position, showing the limb-work in elevation. Fig. 16 is an elevation of the feed-pawl, showing the cushioning-spring *h'''*. Fig. 17 is a vertical cross-section of the arm through the receiving-chamber at the rear end. Fig. 18 is a horizontal longitudinal section of the arm in the axis of the magazine, looking toward the top.

The invention herein described refers to that

kind of magazine-arm in which the breech-block or bolt has a reciprocal movement in a line with the barrel for closing the chamber, and in which said movement is given to the bolt by means of a toggle-connection which has its upper or lever link extended rearward under the wrist of the arm to form a lever, and is an improvement upon arms patented to me April 26, 1881, and December 13, 1881. The arm in its closed position is shown in Fig. 1 and in its open position is shown in Fig. 15.

The receiver *a* has the barrel screwed into its forward end in the usual way, and is also provided with a bar or recoil-shoulder, *m*, which is put through the receiver from side to side, and is held in place by screw *m'*. This bar has its face or front surface cut in the segment of a circle around the pivot *c''*. The surfaces *d'* and *r'* on the lever and the surface *r'''* on the bolt are also cut in the segment of a circle around the same pivot, so that when the lever, swinging upon said pivot moves into place, as shown in Fig. 1, it forms a perfect brace between the recoil-shoulder *m* and the dependent portion of the breech-block *c'*. This method of constructing and applying the recoil-shoulder saves a large portion of the expense of making the receiver.

The stop and ejector *n*, Fig. 4, is a rectangular piece of plate beveled off at one edge, as shown at *n''*, leaving the shoulder *n'*, which serves as an ejector. These are placed in the sides of the receiver so as to project a little way into the space occupied by the bolt, and therefore require to have grooves cut for them in the bolt, as shown in Fig. 2, and at *n'''*, Fig. 8. These devices are placed in the receiver with the beveled end forward and at such distance apart as to serve as a stop to the upward movement of the cartridge-head, while the upward movement of the ball or forward end of the cartridge is arrested by the overhanging portion of the frame *a'''*.

n''', Fig. 2, shows in broken lines the position of the cartridge-head before the bolt when arrested in its upward movement. The stop *h'''* arrests the backward movement of the cartridge as soon as it clears the magazine, said stop being arranged at a point forward of the ejecting-shoulder, and the ejector is arranged so as to stop a cartridge in its backward move-

ment from the barrel as soon as it clears the stop or overhang a''' . The stop-ejector, as shown in Fig. 17, serves the triple purpose of arresting the upward movement of the head of the cartridge, of ejecting the shell from the arm, and of holding the head of the shell up to the extractor while it is being ejected. By this construction and arrangement of parts the cartridge may be raised by the carrier as soon as it is far enough back to clear the end of the barrel. It may be ejected as soon as it is far enough back to clear the overhang, and the advancing cartridge is arrested well up before the bolt, all of which tends to shorten up the receiver and make the operation of the parts thoroughly practical.

In Figs. 1, 6, and 7, at e , is shown the link which joins the lever to the tang-strap or receiver. This link is provided with broad wings e' , which, when the arm is open, as represented by broken lines, Fig. 1, and also in Fig. 15, extend up into the bottom of the receiver as seen at e''' , and keep the same closed during the manipulation of the arm.

Fig. 5 represents an improved method of attaching the lever to the bolt. On each side of the dependent portion e' of the bolt there is a projection, e''' , which passes through the end of the lever on each side. These projections are flattened, and when the lever is brought to a horizontal position readily pass into the openings d'' in the two ends of the lever. Then when the lever is brought to a vertical position the connection is made, as shown in said figure. The position of the parts for making the connection must be one that they cannot assume during the manipulation of the arm. The shoulder v on the lever may be made to move along upon the upper side of the tang, and in that way prevent the disconnection of the joint. In that case the projections e''' may be arranged vertically. This method of joining the lever to the bolt avoids the necessity of making holes through the sides of the receiver to admit screws or pivots for joining these devices in the ordinary way. The projections e''' may be on the lever, and openings d'' on the bolt with the same result.

To accommodate the changing position of the toggle-connection while closing the lever down before the recoil-shoulder after the bolt has ceased to move forward, it is necessary that one of the joints of the link e should slide longitudinally. For this purpose I use the joint e'' , which joins the link to the tang-strap. The pin of the joint fits snugly in the link; but the hole in the strap is elongated to the extent shown by the open lines; and to avoid disfiguring the arm by showing an open joint I construct and arrange the charge-opening cover v' so that it shuts down upon the joint e'' , and at the same time permits the necessary movement of the joint without displacing the cover to any great extent or showing an open joint. In Fig. 1 the charge-opening cover is shown in two positions, one closed down upon

the joint, the other open to receive cartridges, being held both open and closed by the spring v''' , the cover serving as a flexible lip to keep the joint closed in all positions.

A toggle-connection and lever of the kind herein shown, where applied to the moving of a bolt back and forth, tends to depress the forward end of the bolt while moving in one direction, and to raise it while moving in the other direction. To avoid friction caused by this tendency I furnish the bolt with the guides or cover o' , which run upon and overlap corresponding guides or ledges in the top of the receiver, which are arranged above the receiving-chamber and under the connection x , and in connection with them the guide or bearing o , which has a corresponding bearing centrally arranged in the under side of the top of the receiver, as shown in Figs. 1, 2, and 17. The projections o' upon the bolt serve as a cover to the receiving-chamber, or to the joints between the bolt and the sides of the receiving-chamber.

The feed-pawl and cut-off represented in Figs. 10, 11, 12, 15, 17, and 18 performs these functions the same as the one represented in my patent of September 14, 1880. It also performs another function, that of cushioning the blow of the column of cartridges upon it when from any cause they move toward the receiver. This device is composed of two parts, h and h' , fastened together by a pin-and-slot connection, i . The part h has upon its forward end the point i''' , which engages the cartridges, and also the bevel i'' , which is acted upon by the forward end of the lever, as seen in Fig. 1, and in open lines, Fig. 18, to release the cartridges by pressing the point outward from the magazine. The part h' is fastened to the receiver by the button i' . This button has a flattened neck and works in the opening through the receiver, as shown in Fig. 12. When the button is turned to the position shown at o'' at either end of the slot it is locked. When in the position of o''' it may be moved forward or back. At the rear end of each part there is a lip, h'' , turned up to receive the spring h''' , which tends to hold the part h in the position seen in Figs. 15 and 16. When a column of cartridges strikes the point i''' with force the part h , sliding upon the part h' , depresses the spring h''' , which cushions the blow of the cartridges, and so avoids accidental explosion. This spring feed-pawl and cut-off may be used to advantage in combination with a tube having the obstructing-shoulders.

To avoid accidental explosion when the cartridges move with force toward the bottom or closed end of the magazine, I employ the devices represented in Fig. 13. These are a tube furnished with the usual cartridge-propelling spring and follower, s and b' , an auxiliary spring, s' , of rubber or of spiral wire, and, in connection with these, a line of obstructing-shoulders, b'' , on each side of and within the magazine-tube. These lines of shoulders are

arranged in relation to each other, so that the cartridge-heads catch upon them on each side alternately, as shown and described in my patent of August 1, 1882. In use, before the coils of the magazine-spring *s* touch each other, and thus offer a solid resistance, the follower strikes the outer end of the auxiliary springs *s'* and offers a cushioned resistance to the force of the cartridges and sends them toward the mouth of the magazine; but their movement in that direction is at once checked by the action of the obstructing-shoulders within the tubes upon the heads of all the cartridges, whereby the parallel movement at once becomes a safe zig-zag movement.

The carrier-spring, as seen at *s''*, Fig. 1, hooks over an inclined shoulder on the tang and holds the carrier down as a friction-catch when depressed to its lowest position, but holds the carrier up when disengaged from the tang by positive action of the bolt upon the carrier.

The feed-pawl need not necessarily be composed of the two parts *h* and *h'*. The spring *h'''* may be arranged between the button *v'* and the part *h* and serve the same purpose. Neither is it essential, if the pawl be not required to operate as a cut-off, that the part *h'* be more than a simple support for spring *h'''*.

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

1. In a fire-arm, the detachable recoil-shoulder *m*, which extends through the two sides of the receiver, and has upon it the concave segmental face *w*, and in combination therewith the link or brace *d*, which is joined to the bolt at its forward end, and has upon its rear end the convex segmental surface *d'*, said brace being adapted to swing in between the bolt and shoulder *m* when the arm is closed, and support the bolt against the recoil of the charge, substantially as specified.

2. In a magazine fire-arm, the stop-ejector *n*, rigidly fastened to the receiver, and provided with the ejecting-shoulder *n'* and an extension, *n''*, forward of said shoulder, and in combination therewith the carrier *k* and the stop-shoulder *k'''*, arranged forward of the ejecting-shoulder, whereby the stop-ejector serves the triple purpose of arresting the upward movement of the head of the cartridge, of holding the head of the shell up to the extractor, and of ejecting the shell from the arm, substantially as specified.

3. In a magazine fire-arm, a toggle-connection for opening and closing the arm, the upper link of said connection being pivoted at its forward end to the bolt or breech-block, and extended rearward under the wrist of the arm to form a lever and guard, said link at its rear end being pivoted to the rear end of the lower link, *e*, which at its forward end is piv-

oted to the receiver at a point under or nearly under the mouth of the magazine, and which during the manipulation of the arm swings out of the receiver upon its forward pivot, and is provided with upward-projecting wings *e'''*, whereby the opening through the lower side of the arm is kept at all times closed, substantially as specified.

4. In a magazine fire-arm having a lever for operating the breech mechanism, which is pivoted at its forward end to the bolt, and is connected with the receiver by a link, said link at its forward end being pivoted to the receiver under or nearly under the mouth of the magazine and in close proximity to the charge-opening by means of a rotating and sliding joint, *e''*, and in combination therewith the charge-opening cover *v'* and its spring *v''*, whereby said cover serves as a flexible lip to keep the joint at all times closed, substantially as specified.

5. In a fire-arm, a receiver having a connection across the top at *x'*, over the bolt and cover, ledges *o'*, running along the top of the receiver, above the receiving-chamber and under said connection, and also central bearing, *o*, on the under side of said connection, and in combination therewith a bolt provided with a cover adapted to slide on the ledges *o'*, so as to overlap and protect the joint between the bolt and the side of the receiver and upon the central bearing, *o*, substantially as and for the purpose specified.

6. In a magazine fire-arm, a tubular magazine provided with the usual cartridge-propelling devices, and in combination therewith a feed-pawl or stop which arrests the movement of the cartridges toward the open end of the magazine, said pawl being fastened to and supported by the receiver, and divided into two parts, *h* and *h'*, the part *h*, which receives the force of the cartridges, being adapted to slide back and forth, but is supported against the moving column of cartridges by spring *h'''*, whereby the impetus of the column is received upon said spring, substantially as and for the purpose specified.

7. In a magazine fire-arm, a tubular magazine provided with the usual cartridge-propelling spring and follower, and with an auxiliary spring, *s'*, at the bottom or closed end of the magazine-tube, of such length and arrangement that before the coils of the magazine-spring *s* touch each other, and thus offer a solid resistance, the follower will strike the outer end of the auxiliary spring, and thereby oppose a cushioned resistance to the follower and cartridges, substantially as specified.

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Witnesses:

GEO. D. RICHARDSON,
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