2 Sheets—Sheet 1.

W. H. ELLIOT.

Magazine Fire-Arm.

No. 218,371. Patented Aug 12, 1879.

Fig. 1.

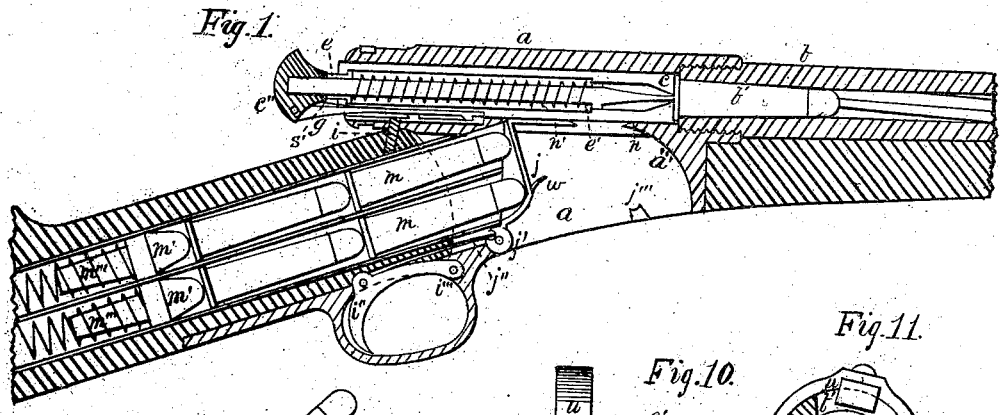


Fig. 2.

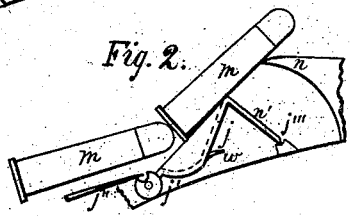


Fig. 10.

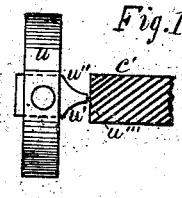


Fig. 11.

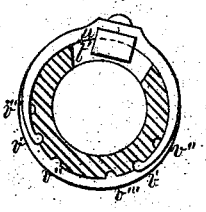


Fig. 3.

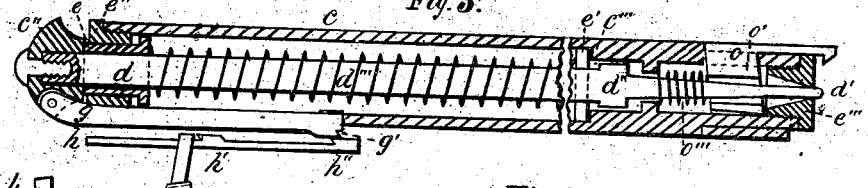


Fig. 4.

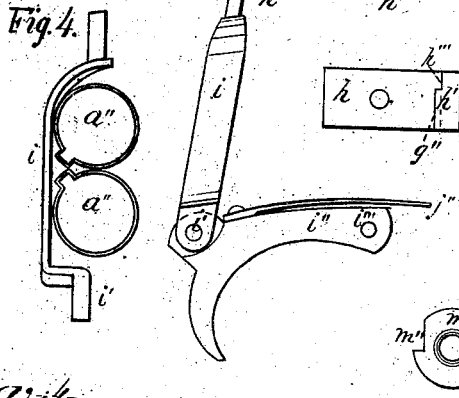


Fig. 5.

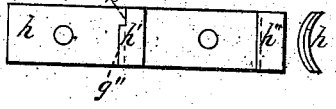


Fig. 6.

Fig. 7.

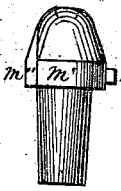
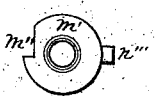


Fig. 8.

Fig. 9.



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Magazine Fire-Arm.

No. 218,371. Patented Aug 12, 1879.

Fig. 12.

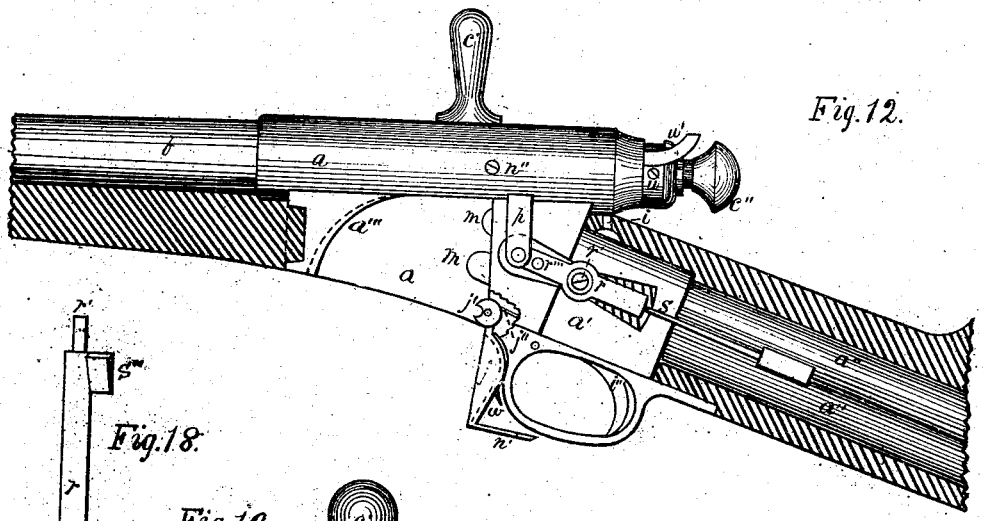

Fig. 18.

Fig. 19.

Fig. 15.

Fig. 13.

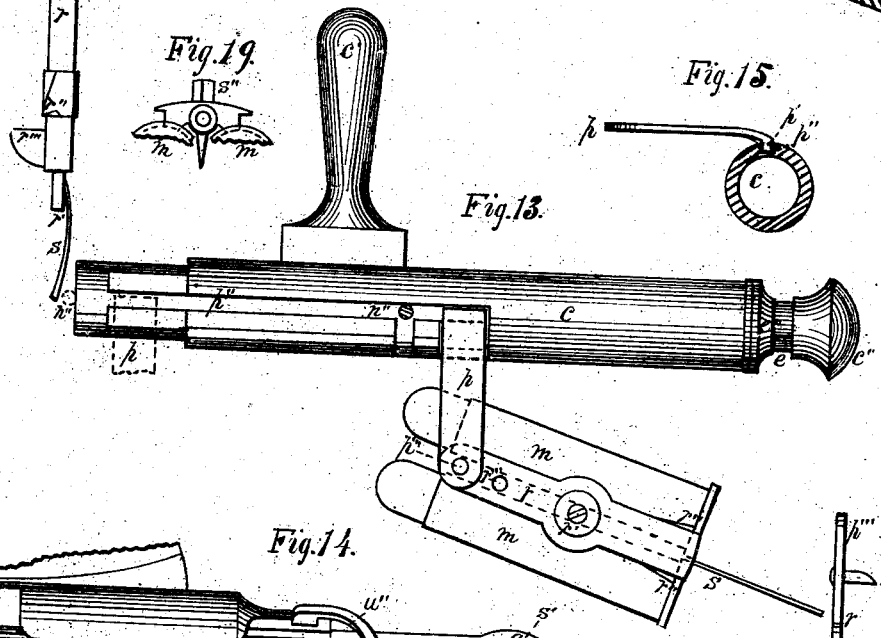

Fig. 14.

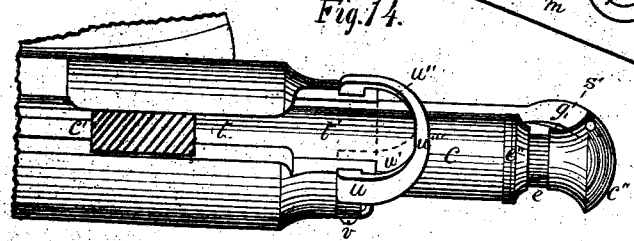

Fig. 16.

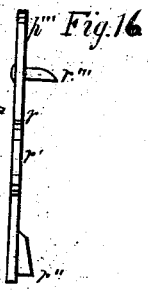

Fig. 17.

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UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. **218,371**, dated August 12, 1879; application filed February 19, 1879.

To all whom it may concern:

Be it known that I, WM. H. ELLIOT, of the city 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 are described as follows: The object of my invention is to provide a more convenient, simpler, and 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.

In Sheet 1, Figure 1 is a vertical longitudinal section of my improved arm. Fig. 2 is an elevation of a portion of the same, showing the passage of a cartridge from the magazine to the receiving-chamber. Fig. 3 is a section of the bolt and lock, showing the several devices in their relative positions, the rear portion of this figure being in vertical section and the front portion in horizontal section. Fig. 4 represents the connecting-piece between the trigger and sear. Fig. 5 represents two views of the notch or tumbler plate. Fig. 6 is a vertical cross-section of the bolt, showing the extractor in front elevation. Fig. 7 is a side elevation of a follower. Fig. 8 is a rear elevation of the extractor. Fig. 9 is a front elevation of a follower. Fig. 10 is a plan of a modification of the movable guides for the bolt. Fig. 11 is an elevation of the same, showing the rear end of the receiver in vertical cross-section. In Sheet 2, Fig. 12 is an elevation of my improved arm with the side plate removed and the stock in vertical section. Fig. 13 is an elevation of the bolt and the devices for feeding the cartridges from the magazine, showing the several parts in their relative positions. Fig. 14 is a plan of the rear end of the receiver and bolt. Fig. 15 represents the connecting-link between the bolt and the devices which control the magazine, and a section of the bolt. Fig. 16 is a side elevation of the double feed-pawl. Fig. 17 is an end elevation of the same. Fig. 18 represents a modification of the double feed-pawl. Fig. 19 is an end elevation of the same.

a is the receiver, into the forward end of which the barrel *b* is screwed. *a'* is that portion of the receiver into which the magazine-tubes *a''* are fastened. *a'''* is a curved guide for the ball end of the cartridge, to assist in passing it into the magazine. *b'* is the chamber of the barrel; *c*, the bolt or breech-block; *c'*, handle of the same; *c''*, head of the hammer-rod, fastened by a screw; *c'''*, shoulder within the bolt; *d*, hammer-rod; *d'*, firing-pin or point of the hammer-rod; *d''*, shoulder near the forward end of the rod; *d'''*, mainspring; *e*, washer, with tubular extension, resting against screw-cap *e''* when the lock is at rest; *e'*, washer resting upon shoulder *e'''*; *e'''*; screw-cap on the forward end of the bolt; *g*, sear, pivoted or otherwise fastened to the head *c''*; *g'*, point of the same; *g''*, safety part of the full-cock notch; *h*, tumbler or notch plate; *h'* and *h''*, full-cock and half-cock notches on the same; *h'''*, low part of the full-cock notch; *i*, curved connecting-piece between the sear *g* and the trigger *i''*; *i'*, joint between the two; *i'''*, pivot of the trigger; *j*, movable guide for the forward end of the cartridge, carrier for the rear end, cover for the magazine, and bottom of the rear portion of the receiving-chamber; *j'*, pivot of the same; *j''*, spring, and *j'''* stop of the same; *m*, cartridges; *m'*, follower; *m''*, a part of the follower cut away; *m'''*, magazine-springs; *n*, bottom of the forward part of the receiving-chamber; *n'*, projecting portion of guide *j*, which forms the bottom of the rear end of the same. By "receiving-chamber" I mean that portion of the receiver into which the cartridge passes from the magazine immediately behind the chamber of the band.

n'', ejecting-pin; *n'''*, pins on the sides of the followers, which run in slots or grooves in the sides of the magazine-tubes; *o*, extractor; *o'*, cylindrical portion of the same; *o''*, connection between the cylindrical part and the outer shell and hook; *o'''*, spring of the extractor; *p*, connecting device between the bolt and the double feed-pawl *r*; *p'*, nose of the same; *p''*, groove in the side of the bolt, in which the nose *p'* runs; *p'''*, joint between the device *p* and double feed-pawl *r*; *r'*, pivot or axis of the double feed-pawl; *r''*, points of the same; *r'''*, cartridge-stop upon the same; *s*, spring of the same; *s'*, spring of the sear *g*; *s''*, arm on the feed-pawl, Figs. 18 and 19; *t*, narrow portion of the slot in the

upper side of the receiver, along which the handle c' passes; t', wide portion of the same; u, support of the curved guiding-surfaces u' and u''; u''', stop for the backward movement of the bolt; v, stop for limiting the rotary movement of the support u; v', v'', and v''', notches for holding the support in several positions; w, projection on the guide j, whereby it is pulled out of the receiver for the purpose of loading the magazine.

My invention refers to that kind of magazine-arm in which the breech-block has a reciprocal movement in a line with the barrel for opening and closing the chamber, and an oscillating movement for locking the same.

For a magazine I employ two or more stationary tubes, with their cartridge-propelling devices of the ordinary construction, which are located in the breech or butt-stock of the arm. These tubes are soldered or otherwise fastened to the receiver, and, extending through the butt-stock, are screwed at their rear ends to the butt-plate in such a way as to force the butt-stock upon the receiver, and to add their strength to the breech of the arm.

I have shown a magazine composed of two tubes, one arranged over the other. They may, however, be arranged side by side; or three tubes may be used, instead of two, with equal facility.

The method and devices herein shown for operating the arm and feeding the cartridges from the magazine into the receiving-chamber will work equally well in connection with a magazine of one or more tubes arranged under the barrel.

To load the magazine, the movable guide or cover j has first to be pulled out at the bottom of the receiver, as shown in Fig. 12. In this position the spring j'', owing to its peculiar application, has no tendency to carry the cover into the receiver, but holds it from moving as a friction-spring after it passes the stop j'''.

For the purpose of displacing the guide or carrier from before the magazine, so as to enable me to charge that device through the bottom of the receiver and over the carrier, I pivot the latter to the lower part of the receiver, under, or nearly under, the mouth of the magazine, whereby it is practical to swing it entirely out of the receiver, and also to make it serve as a cover to the magazine when closed. This device may be pivoted to the receiver at almost any other point and still perform many, but not all, of the functions claimed for it in the arrangement shown. Some of its peculiar features are in its being so constructed that while it is being pushed out of the way by the advancing cartridge it at the same time serves as a guide to direct that cartridge toward the receiving-chamber, and that when the advancing cartridge ceases to act upon it, it becomes a carrier, to lift that cartridge sufficiently into line with the barrel that it may be pushed forward by the bolt.

The guide or carrier may be operated entirely or in part by means of a suitable connection between it and the bolt. In that case it would become positive in the performance of some or all of its functions.

The projection w' is spring-tempered, and is made to pass the stop by depressing it a little.

The magazine-tubes are charged in the usual way, the two points of the double feed-pawl catching the heads of the cartridges as they pass it, and so retain them in the magazine. The feed-pawl swings laterally a little upon its axis, to allow a cartridge to pass it in loading the magazine, but immediately returns to its central position again by the action of spring S. In passing the cartridge into the magazine the ball is pushed against and follows the curved guide a''', which is arranged so as to greatly facilitate the operation of charging both tubes.

The feed-pawl r is pivoted to the receiver at r', and is connected to the bolt at its forward end by means of the device p, which is jointed to the pawl at p''', and has a nose or projection, p', on its upper end, which slides along the groove p'' in the side of the bolt. The ejecting-pin, which projects into the receiving-chamber, also slides along in the same groove. This groove is widened at its rear end, so that turning the bolt to lock it does not interfere with the ejecting-pin, nor give any movement to the connection p or pawl r. When the bolt is drawn back in working the arm the ejecting-pin passes out of the groove, but the nose of the connecting device remains in it, as shown by dotted lines in Fig. 13. While in this position an oscillating movement given to the bolt communicates an oscillating movement to the feed-pawl by means of the device p—that is to say, when the handle c' is moved to the right the device p is raised, the rear end of the feed-pawl depressed, and the first cartridge in the upper tube is released from the upper point of the pawl, and immediately moves forward against the guide or cover of the magazine and throws it open against the action of spring j''. Depressing the rear end of the feed-pawl carries the stop r''' into the upper tube, and against this stop the head of the moving cartridge catches and stops until the feed-pawl is allowed to return to its central position, when the cartridge again moves forward until it reaches the position shown in Fig. 2.

At this moment the second cartridge, having been caught by the feed-pawl, ceases to act upon the first, and the device j ceases to be a guide, and, as before stated, becomes a carrier. A gas-tight cover is placed over the mouth of the magazine, and a firm support provided for the rear end of the cartridge, all by the action of spring j''.

Moving the handle c' to the left raises the rear end of feed-pawl r and releases a cartridge from the lower tube, when the same devices perform the same functions, whereby the

first cartridge in the lower tube passes into the receiving-chamber in the manner already described.

By the same movement of the feed-pawl which liberates a cartridge in one tube the cartridges in the other tube are more securely locked in, as the withdrawal of one point of the feed-pawl from a tube causes the other point of that device to press more heavily upon the first cartridge in the other tube.

To prevent the guide *j* from being thrown too far by the swiftly-passing cartridge from the lower tube, the stop *j'''* may be employed. This stops the movement of the guide at the right point, the cartridges from the upper tube being but slightly bent out of a direct course by the guide. No stop is required.

The connecting device *p* need not necessarily be a separate piece from the feed-pawl. It may be an extension of the same.

The cut or slot *t* through the top of the receiver, along which the handle *c'* passes, is widened at its extreme rear end, as seen at *t'*, Fig. 14, so as to provide room for the oscillation of the handle when the bolt is drawn back.

To use the arm as a single breech-loader and reserve the magazine, it is only necessary to draw the bolt directly back, without oscillating it in either direction, in which case no cartridge will be delivered from the magazine, but may be supplied from the cartridge-box.

To render the oscillating movement of the bolt automatic, I employ two movable curved guides, *u'* and *u''*, supported on the rear end of the receiver by device *u*, which oscillates to a certain extent, its movements being limited by stop *v*. This device or support is shown in Fig. 14 occupying the middle position for single breech-loading, in which case the handle of the bolt strikes it at *u'''*, and is not turned by it in either direction; but when the support is turned to the right, carrying the curved surface or guide *u'* to the position of the dotted lines, the handle, being drawn back, strikes the guide *u'*, and is by it crowded over to the right, which delivers a cartridge from the upper tube. When the support is turned to the left, the curved guide *u''* crowds the handle over to the left and delivers a cartridge from the lower tube.

The point of the screw-stop *v* works in a slot in the receiver of just sufficient length to allow the necessary movement of the curved guides. This support is held in position by friction. It may, however, be held, as shown in the modification, Fig. 11, by springing into notches.

Fig. 10 shows a modification, in which the handle is drawn back against the point *u'''* for single breech-loading, in which position the bolt cannot oscillate in either direction; but when the support is turned to the right against suitable stops the guide *u''* crowds the handle to the left. When turned to the left the guide *u'* crowds the handle to the right.

The extractor *o* (shown in Figs. 3, 6, and 8) is composed of three parts, *o'*—the cylinder, the outer shell, and the connection *o''* between the cylinder and shell. The cylinder has a bearing upon the inner surface of the bolt, which is cut away to provide for the movements of the connection *o''*, as seen in Fig. 6, so as to allow the oscillation of the bolt without oscillation of the extractor. This cut is covered by the outer shell of the extractor, upon the forward end of which the hook is formed. When the bolt is pushed forward, the hook enters a small recess cut in the end of the barrel, passes over the head of the cartridge, and remains stationary while the bolt oscillates. The cylinder *o'* is cut off diagonally at each end, so that its forward end touches the screw-cap *c'''* only at the bottom, while its spring *o'''* acts upon it only at the top, the effect of which is to cause the extractor to spring down upon the head of the cartridge as it passes over it, and to render its hold upon the head of the cartridge positive while retracting the same.

The hammer-rod *d* is rendered rebounding by the two washers *e* and *e'*. The washer *e* rests against the inner end of the screw-cap *c''*, and has a tubular extension, which passes through the screw-cap far enough to be driven forward by the head of the hammer-rod at the moment the point *d'* strikes the primer, as shown in Fig. 3. Washer *e'* rests against the shoulder *c'''* within the bolt.

The hammer-rod is enlarged so as to form a shoulder at *d''*. When the hammer-rod is drawn back in the act of cocking the piece, the shoulder *d''* catches the washer *e'*, carrying it back with the spring until the lock stands at full-cock. When the hammer-rod is released in firing the piece it is driven forward by the mainspring until the washer *e'* rests against the shoulder *c'''*, when the mainspring ceases its action in that direction; but the momentum the hammer-rod has acquired carries it forward against the primer and depresses the mainspring at the rear end by the head *c''* coming against the tubular portion of the washer *e*. When the force of the hammer-rod has been expended upon the primer, the mainspring immediately forces the washer *e* against the screw-cap *c''*, which drives the hammer-rod back and withdraws the point *d'* into the bolt, as shown in Fig. 1. In this position the point *g'* of the sear readily falls into the safety-notch *h''*.

The tubular extension of the rear washer, *e*, need not necessarily be attached to either the washer or the head *c''*. It only serves to form a connection between the head and washer.

The tumbler or notch plate *h*, Fig. 5, is secured to the receiver directly under the rear end of the bolt. In pushing the bolt forward to close the chamber the point of the sear *g'* catches upon the higher or safety portion of the full-cock notch *g''* and arrests the forward movement of the hammer-rod at full-cock. When the bolt is turned upon its axis for locking, the sear slides along the notch *h'* and rests upon the non-safety portion of it at *h'''*. From this position it is thrown in the act of firing

by the connecting device *i*, which is actuated by the trigger. The non-safety portion of the notch *h'* is a little lower than the safety part, which prevents the bolt from turning upon its axis, and consequently from being unlocked, while the piece is at full-cock, as the sear will not slide from the low to the high part of the notch.

By reference to Fig. 1 it may be seen that spring *j''* serves the double purpose of actuating the trigger and the cover *j*.

The two magazine-tubes may be constructed of one sheet of metal, and for this purpose, on account of strength of material, convenience in fabricating, and freedom from rust, tinned steel-plate is the most desirable.

The feed-pawl represented in Figs. 18 and 19 possesses the same features and performs the same functions as does the feed-pawl shown in Figs. 12 and 13, but differently arranged, the former oscillating upon an axis parallel with the tubes of the magazine, while the axis of the latter is at right angles to them.

To charge the magazine it is necessary first to push the bolt forward and lock it.

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 construction and arrangement of the magazine *a''*, carrier *j*, pivot *j'*, and spring *j''* in relation to each other and to the receiver *a*, substantially as shown and described, whereby the charging of the magazine is effected through the bottom of the receiver and over the carrier, as set forth.

2. The combination of the movable guide and carrier *j* and its actuating-spring *j''* with a magazine composed of two or more stationary tubes, each tube being provided with independent cartridge-propelling mechanism, whereby the cartridges from the several tubes are delivered into one receiving-chamber, substantially as specified.

3. The device *j*, with its spring *j''*, constructed and applied as set forth, in connection with the magazine and the receiving-chamber, whereby it shall serve the several purposes of movable guide, carrier, cover for the magazine, and bottom of the receiving-chamber, substantially as specified.

4. The cover *j* of the magazine, provided with the extension *n'*, and pivoted below the mouth of the magazine, whereby, while it is in the closed position to cover the magazine, it also serves as a support for the head of the cartridge in the receiving-chamber, substantially as specified.

5. The washer *e*, with its extension, and the washer *e'*, in combination with the hammer-rod *d*, spring *d'''*, and bolt *e*, constructed and operating as described, whereby the hammer-rod is caused to rebound, substantially as set forth.

6. The sear *g*, the stationary notches *h'* and *h''*, and the bent connecting-piece *i*, in combination with the bolt, hammer-rod, and trigger, operating substantially as described.

7. In a magazine-arm, the combination of a double feed-pawl, provided with the double shoulders or stop *r''* and a single stop, *r'''*, with a reciprocating and oscillating bolt, having a suitable connection therewith, and a magazine composed of two tubes, whereby the cartridges in one tube are securely locked in, while one cartridge from the other tube is permitted to escape into the receiving-chamber, substantially as specified.

8. The combination of the movable curved guides *u'* and *u''* with the receiver and with the bolt, whereby the bolt is automatically oscillated, substantially as and for the purpose specified.

WM. H. ELLIOT.

Witnesses:
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