W. J. WHITING.

AUTOMATIC PISTOL AND OTHER MAGAZINE SMALL ARM.

APPLICATION FILED JULY 20, 1914.

1,143,470.

Patented June 15, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

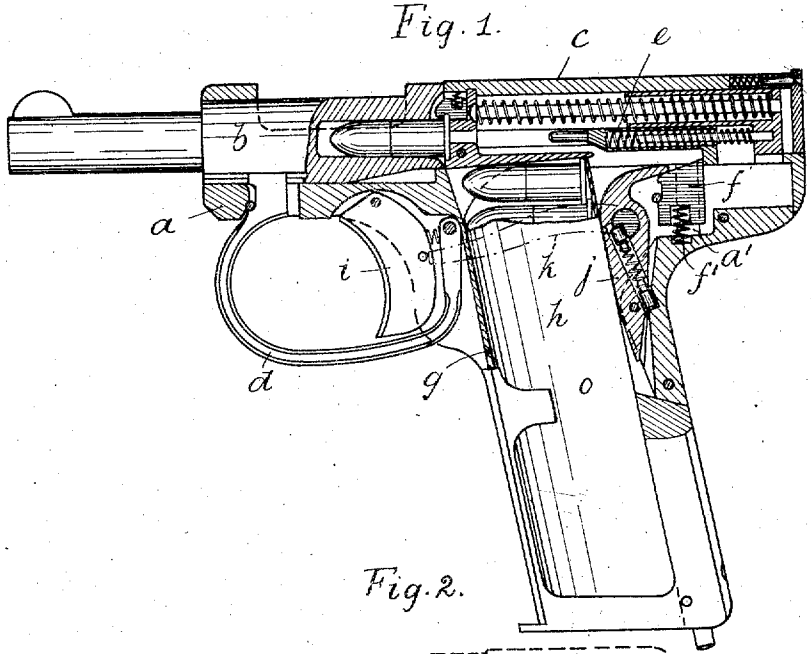
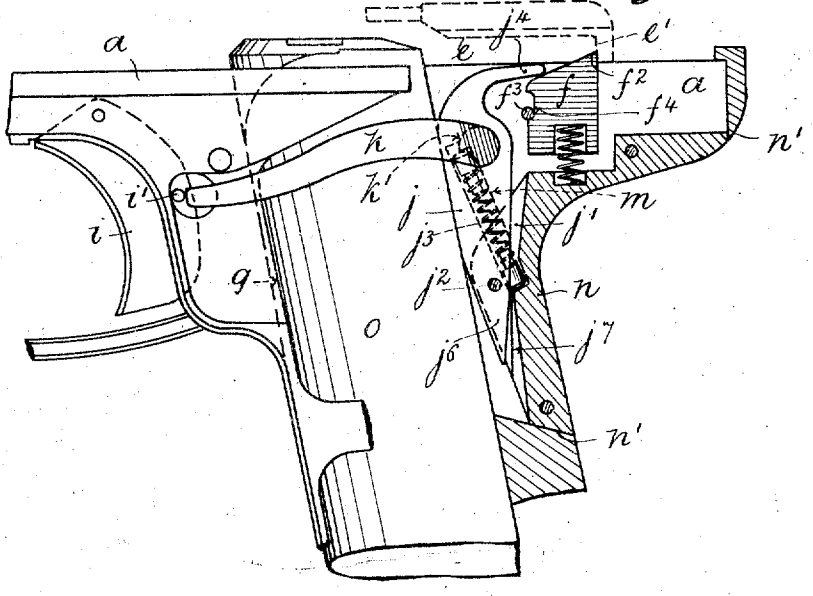


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

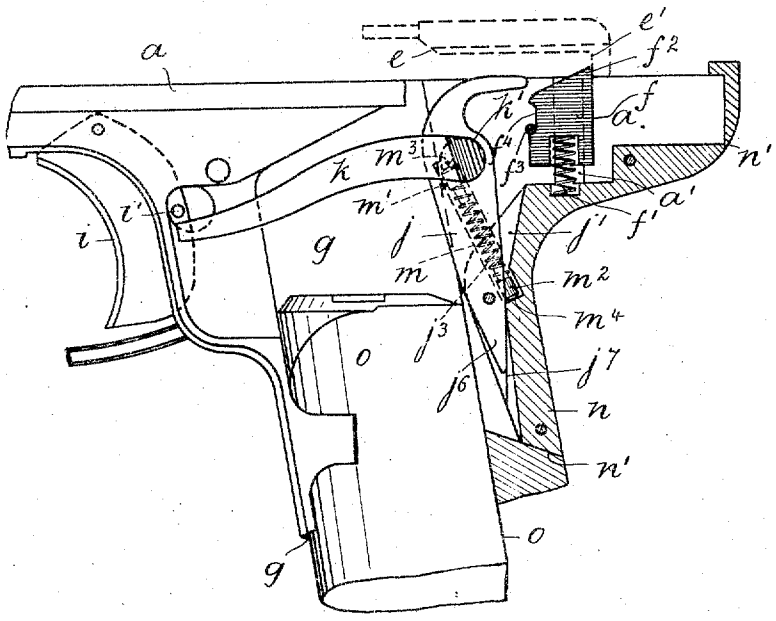
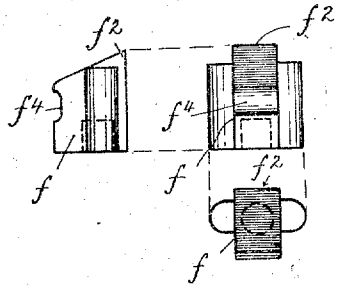


Fig. 4.



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AUTOMATIC PISTOL AND OTHER MAGAZINE SMALL-ARM.

1,143,470. Specification of Letters Patent. Patented June 15, 1915.

Application filed July 20, 1914. Serial No. 851,995.

To all whom it may concern:

Be it known that I, WILLIAM JOHN WHITING, subject of the King of Great Britain, residing at 111 Antrobus road, Handsworth, Birmingham, England, director of Public Company, have invented certain new and useful Improvements in Automatic Pistols and other Magazine Small-Arms, of which the following is a specification.

This invention has reference to automatic pistols and other small-arms of the detachable magazine type, and consists in a magazine-controlled lock or firing mechanism which is also adapted to serve as an automatic safety arrangement, since the said mechanism is only operative for effecting the discharge of a cartridge when the magazine is in its normal position in the arm and serves to maintain certain members or parts of the lock in effective relationship with one another, whereas on the said magazine being entirely or partially withdrawn, the said lock is immediately and automatically so disorganized that it is impossible for the arm to be fired by pulling the trigger. The invention thus affords a safeguard against accidental discharges due to the trigger being pulled after a live cartridge has been left in the barrel chamber when the magazine is removed and the hammer or striker of the lock is cocked.

The said invention is particularly applicable to automatic pistols of the Webley and similar types, in which the trigger is arranged in front of the magazine chamber in the handle or grip of the arm while the sear is mounted in the rear part of the frame and is actuated from the said trigger through a bar or limb that extends across the side of the said magazine chamber.

The accompanying drawings show one method of applying my invention to a hammerless pistol of the above-mentioned kind.

Figure 1 of the said drawings is a general sectional view of a pistol embodying a magazine-controlled lock or firing and safety system in accordance with this invention. This view shows the parts of the said lock in their normal or ready-to-fire positions in which they are held by the detachable magazine when the latter is secured in the magazine-chamber of the arm and the striker is held in cock by the sear. Fig. 2 is a view on an enlarged scale, showing only the lock mechanism, the striker of which is indicated by dotted lines. In this view, the several parts are represented in the same positions as in Fig. 1. Fig. 3 is another view similar to Fig. 2, but showing the parts of the safety lock in the inoperative positions which they automatically assume on the magazine being withdrawn. Fig. 4 shows separate detail views of the sear which is embodied in the particular form of magazine-controlled lock illustrated in Figs. 1 to 3.

The same letters of reference indicate corresponding parts in the several figures of the drawings.

In the pistol shown in the said figures, the frame a carries a detachable barrel b and a detachable and recoiling breech sleeve c, both of which are normally secured to the said frame by a trigger-guard fastening d as described in the specifications of my application for Letters Patent, Serial No. 851,998, while the breech-sleeve is fitted with a sliding striker e which is removable bodily with the said sleeve as described in the specification of my application for Letters Patent Serial No. 851,997, and is associated with a sear f contained in the part of the frame above which the breech-sleeve is mounted. This sear f, which is capable of a vertical rising and falling movement, is mounted between a pair of guide-grooves a^1 formed inside the upper part of the frame at the back of the magazine chamber g and is influenced by a spring f^1, whereby, during the recoiling movement of the breech sleeve and striker c, e (or when the said sleeve and striker are drawn back by hand for manually cocking the pistol) the nose f^2 is made to engage the bent shoulder e^1 of the said striker for retaining the latter in its cocked position. The vertical movement of the spring-lifted sear, is, however, limited by a stop f^3 which is carried by or formed on the frame and engages a recess f^4 in the front of the said sear; this stop being so disposed that when

the breech sleeve and striker are withdrawn in disassembling the pistol, it serves to keep the sear in its place in the frame and to hold it in the position shown in Figs. 2 and 3 where the sear-nose f^2 is in the path of the shoulder e^1, so that, after the replacement of the said sleeve, its first cocking movement will cause the striker to travel rearwardly over the sear which first yields downwardly to allow the said shoulder e^1 to pass beyond the sear-nose a^2 and then springs upward into its cocking engagement with the said bent.

The trigger-operated mechanism for effecting the disengagement of the sear from the sleeve-contained striker is also mounted in the frame and is, in accordance with the present invention, so entirely controlled by the detachable magazine h that it is only when the latter is in its normal position in the chamber g that operative connection between the trigger i and the sear f is established, whereas if the magazine is withdrawn when the striker is cocked, the said mechanism is automatically disorganized or so put out of action that no movement can be transmitted to the sear on the trigger being pulled. Or even if the striker is cocked by hand after the withdrawal of the magazine, the sear-actuating parts of the lock still remain disorganized and inoperative, but, on the other hand, they are positively restored to the positions in which they establish a firing connection between the trigger and the sear by the act of replacing the magazine within the chamber, while as the whole of the said sear-actuating parts are entirely inclosed inside the frame of the pistol, it is impossible for them to be placed in or restored to their firing positions except through the medium of the magazine as aforesaid.

The sear-actuating parts of the lock shown in the drawings consist of a lever j which is designed to act upon, and impart a downward movement to, the sear, and an operating bar k which is pivotally attached to the said lever j and serves to transmit movement thereto from the trigger i.

The lever j is arranged within an upright recess or clearance j^1 formed inside the frame, immediately behind the magazine chamber g, and is pivoted at j^2 in the lower part of the said recess so as to be capable of a limited angular movement therein. This lever is influenced by a spring j^3 which tends to rock its upper portion forwardly, or to cause the same to extend into or lie within the magazine-chamber (as shown in Fig. 3) when the magazine is not in position, while its upper end is formed with a cam-like rearward extension j^4 which is adapted to bear upon the inclined upper surface of the slidable sear and to impart a downward or striker-releasing movement thereto when the said lever is rocked or tilted in the rearward direction in opposition to the spring j^3.

As regards the operating bar k, this extends from the upper part of the lever j across the side of the magazine chamber to near the back of the trigger i which is furnished with a stud or contact piece i^1 wherewith the front end of the said bar engages, as shown in Figs. 1 and 2, when the parts of the lock are in their normal or ready-to-fire positions, while the said bar is also influenced by the spring j^3 and is thereby normally held in its proper relationship to the lever j although it is also capable of a limited angular movement relative to the said lever. To provide for this action, the pivot-pin k^1 of the bar k works in a bearing in the upper part of the lever j and the spring j^3 which influences both members j, k, is located in an inclined hole or recess m cut in the member j and is provided, at its opposite extremities, with plungers m^1, m^2, the upper plunger m^1 being adapted to bear in an angular-sectioned seating m^3 arranged below and in front of the center of the bar-pivot k^1, while the lower plunger m^2 has a stationary bearing at m^4, behind and below the center of the lever pivot j^2, at the back of the frame recess j^1 wherein the lever j is mounted. Thus the spring j^3, in addition to tending to tip or rock the lever j forwardly into the magazine-chamber, also tends to rock the bar k in the upward direction, but this latter movement is limited by the upper plunger m^1 engaging the seating m^3 in the bar-pivot k^1 and serving as a stop which determines the normal relationship of the members j, k, but leaves the latter free to make a limited movement in the downward direction relative to the said lever for a purpose hereafter mentioned.

In the lock-mechanism above described, both of the spring-influenced members that transmit the trigger movement to the sear are positively and directly controlled by the magazine h, as when the said magazine is in its prescribed place within the magazine-chamber (see Figs. 1 and 2) its rear side bears against the upper part of the lever j and holds the said lever and the bar k in the positions shown in the said figures wherein the forward extremity of the said bar is behind and in direct engagement with the trigger-contact i^1 and the cam-extension j^4 bears upon the top of the sear, so that on the trigger being pulled (when the pistol is cocked) it acts through the bar k on the lever j and causes the latter to make a rearward angular movement, in the course of which its cam wipes over the top of the sear and depresses the same out of engagement with the striker. If, however, the magazine is withdrawn,

then, as soon as its rear side has moved clear of the upper part of the lever j (see Fig. 3) the latter is, (by the thrust exerted by the spring j^3 from a point rearward of its pivot) constrained to tip or fall forward into the empty magazine chamber until its lower end j^6 comes against the stop j^7 in the lower part of the frame-recess j^1. This movement of the limb carries the cam j^4 away from the sear and also displaces the bar k whose forward end is dropped a distance below the contact stud on the trigger, as shown in Fig. 3. The lock or firing mechanism of the pistol is thus automatically and completely disorganized and is kept in such condition by the spring j^3 so long as the upper part of the magazine chamber is vacant. But on a magazine being pushed back into the said chamber, it contacts with, and travels up the front of, the lever j and thereby positively restores the members j, k, into the positions shown in Figs. 1 and 2 and keeps the lock operative or effective for firing purposes so long as it (the magazine) remains in its normal place in the pistol.

The arrangement which admits of the bar k, making a limited downward movement relative to the lever j when the magazine-controlled lock is in its operative condition, is adopted in order to admit of a slight play between the two members j, k, when the bar k is actuated from the trigger, and also the purpose of enabling the said bar to be tilted below the contact-stud of the trigger by means of the breech sleeve for rendering the lock mechanism inoperative during the recoiling movement of the said sleeve and for insuring that, after the trigger has been pulled for effecting a discharge, the same cannot be reëngaged by the bar k until the breech-sleeve has been restored to its closed position and finger-pressure on the trigger has been relieved. To attain this result, the bar k is formed with a curved upper edge which (when the arm is ready for firing) lies in a cam-ended recess in one side of the breech-sleeve as shown in Figs. 4 and 8 of my co-pending application Serial No. 851,996, so that when the said sleeve starts to recoil along the frame, the cam end of the said recess travels over the curved edge of the bar and rocks the latter, in opposition to the spring j^3, in the downward direction in order to temporarily but positively disengage the front end of the said bar from the trigger contact. The straight or unrecessed edge of the sleeve then comes over and rides along the bar and keeps the latter in its depressed position until the said sleeve has completed its recoiling and return movements, whereupon the sleeve-recess comes again over the bar, so that when the finger-pressure on the trigger is relieved and after the said trigger has been returned to its normal position by its spring, the bar k may be lifted by the spring j^3 and reëngaged behind the trigger-contact, whereupon the lock is again effective for firing the next shot.

In the particular construction shown in the drawings, the magazine-controlled members of the lock, together with their spring j^3, are mounted on a piece n which, for convenience in manufacture, is made separate from the frame and is rigidly or permanently secured within an opening n^1 in the rear of the said frame when the parts are assembled. The said members may, however, be mounted in a recess or clearance which is machined at the back of the magazine chamber inside the frame itself; or they may be fitted or applied in any other convenient manner.

The application of the magazine-controlled lock principle to automatic pistols of the hammer type, and also to pistols and small-arms generally where a detachable magazine is employed, differs in no essential respect from its application to a hammerless automatic pistol as herein described.

Having described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a magazine small arm, in combination, a frame, a magazine removably fitted therein, a sear in the rear of said magazine, a sear-actuating member also located in the rear of said magazine, a spring pressing said member against the rear face of the magazine and adapted to move said member partly into the space normally occupied by the magazine when the latter is withdrawn, and an operative connection between said member and the trigger arranged to assume an inoperative position when said member is moved by its spring consequent to the withdrawal of the magazine.

2. In an automatic pistol, in combination, a frame having a magazine chamber and a recess in the rear of said chamber, a sear arranged in the rear of said chamber, a trigger arranged in front of said chamber, a sear operating lever pivotally mounted in said recess, a bar pivoted to said lever and forming an operative connection between the same and said trigger, and spring means acting upon said lever and bar and holding said lever against the magazine, the latter normally holding said lever in operative position, the spring means acting when the magazine is withdrawn to move the lever to a position wherein said bar is inoperative as a connection between the same and said trigger.

3. In a magazine small arm, in combination, a frame, a magazine removably fitted therein, a slidably mounted sear, a spring acting on said sear, a stop to limit the movement of said sear in either direction, a

spring-influenced member arranged to operate the sear, the latter being movable independently of said member, a trigger, and an operative connection between said member and the trigger, the said member being held by its spring against the magazine and being movable when the magazine is withdrawn to a position wherein the said connection is inoperative, the magazine normally holding said member in operative position.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM JOHN WHITING.

Witnesses:
ARTHUR SADLER,
E. J. REESE.