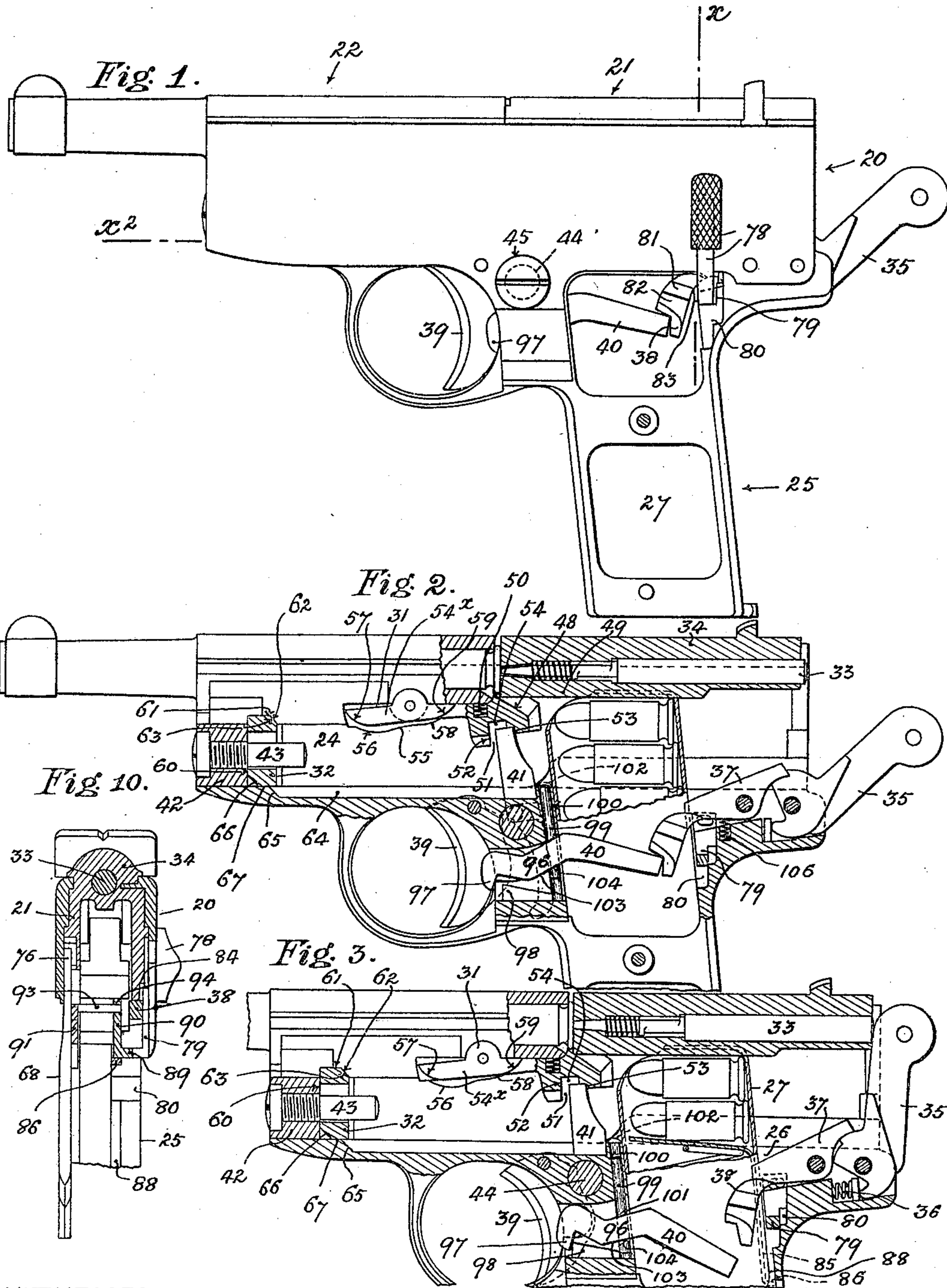


No. 804,694.

PATENTED NOV. 14, 1905.

W. J. WHITING.
AUTOMATIC FIREARM.
APPLICATION FILED NOV. 30, 1904.

3 SHEETS—SHEET 1.



WITNESSES

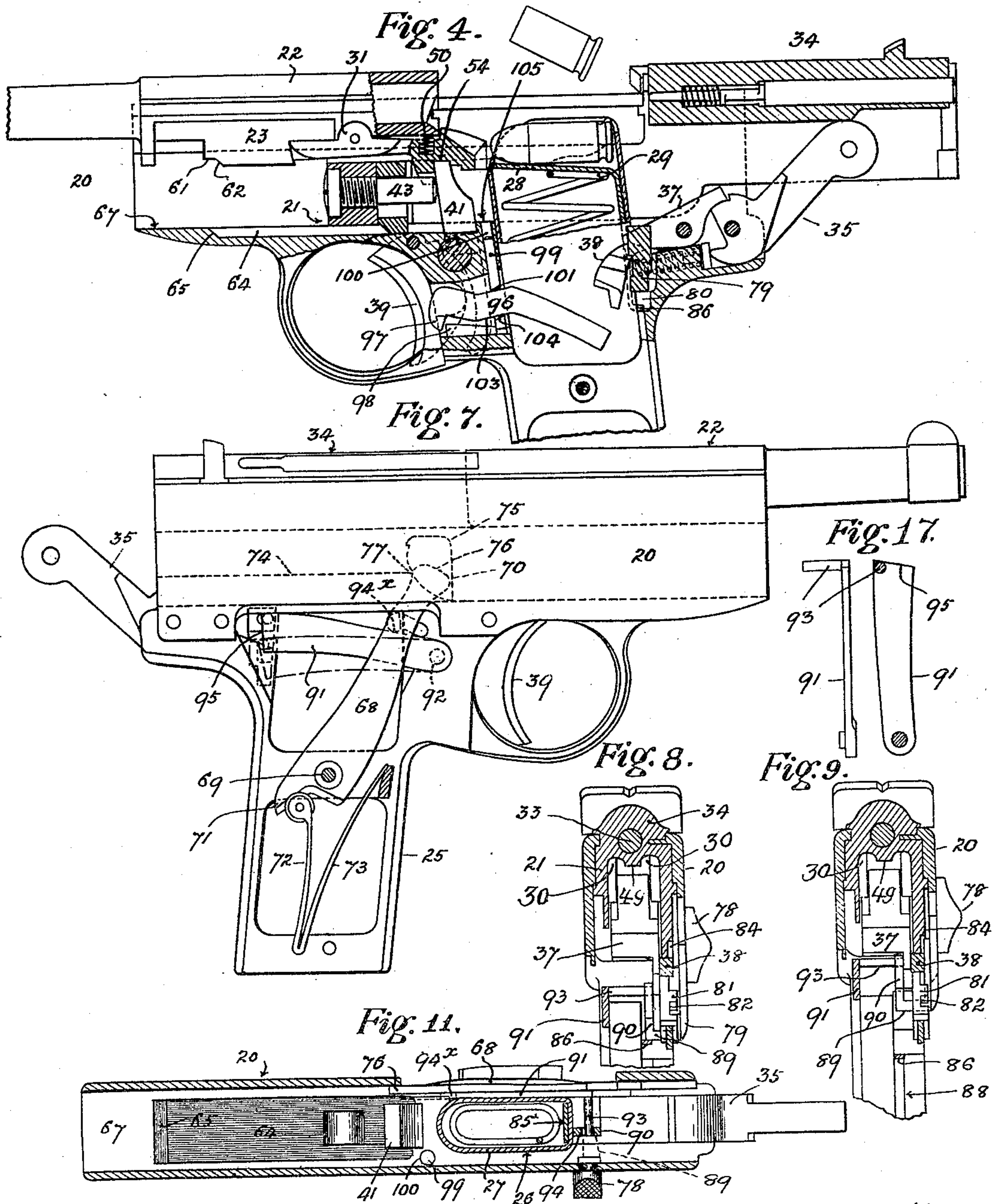
James L. Norris, Jr.
C. D. Steslen

INVENTOR

William J. Whiting
James L. Norris
J. L. Norris

W. J. WHITING.
AUTOMATIC FIREARM.
APPLICATION FILED NOV. 30, 1904.

3 SHEETS—SHEET 2.



WITNESSES

James L. Norris, Jr.
Chas. Hester

INVENTOR

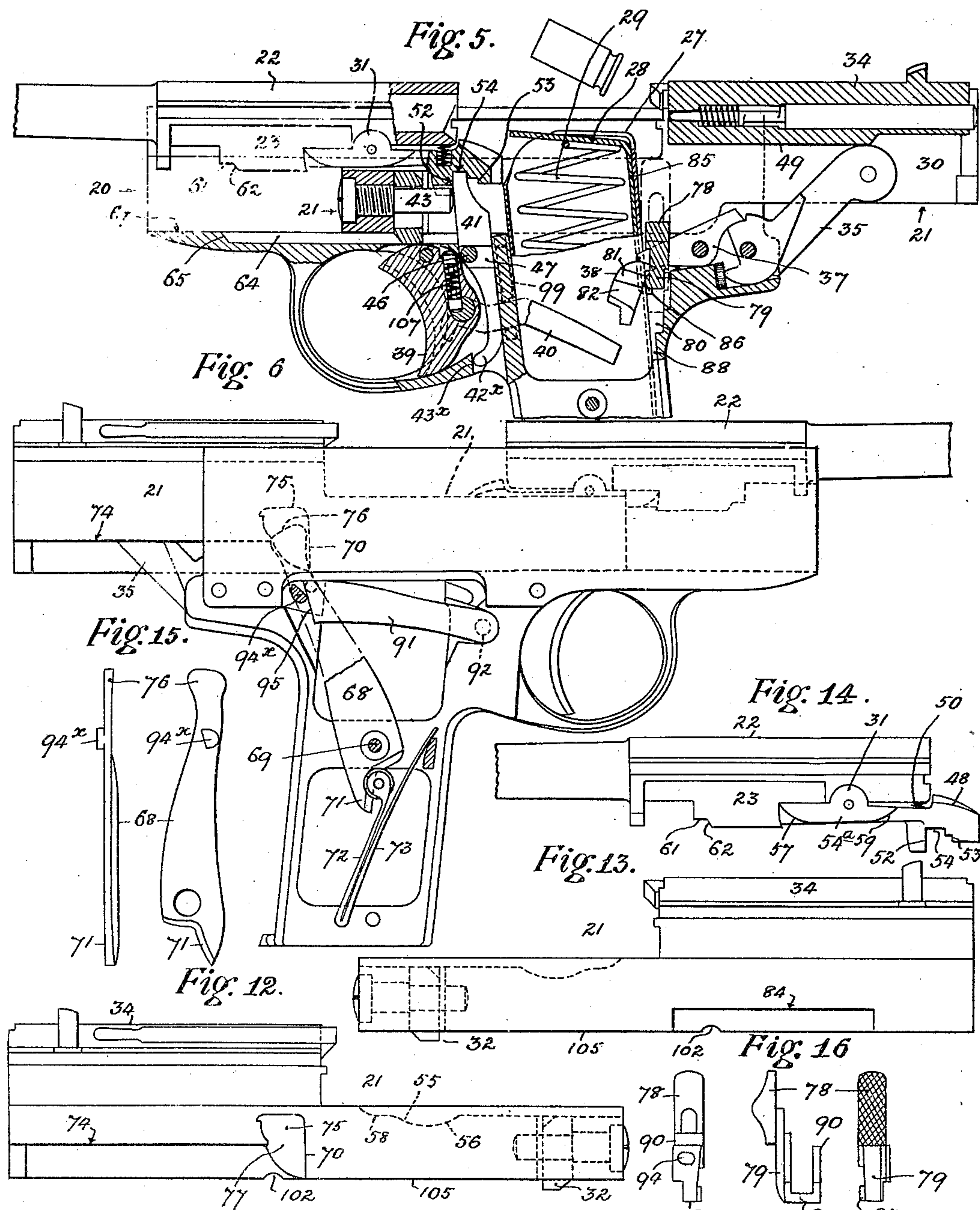
William J. Whiting
James L. Norris
Atty

W. J. WHITING.

AUTOMATIC FIREARM.

APPLICATION FILED NOV. 30, 1904.

3 SHEETS—SHEET 3.



WITNESSES

James L. Morris, Jr.
Chas Kesler

INVENTOR

INVENTOR ⁸⁹ William T. Whiting ⁸⁹
⁸³ By James L. Norris
 atty

UNITED STATES PATENT OFFICE.

WILLIAM JOHN WHITING, OF WANDSWORTH, ENGLAND.

AUTOMATIC FIREARM.

No. 804,694.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed November 30, 1904. Serial No. 234,904.

To all whom it may concern:

Be it known that I, WILLIAM JOHN WHITING, director of public company, a subject of the King of Great Britain, residing at 53 Douglas road, Wandsworth, near the city of Birmingham, England, have invented certain new and useful Improvements in Automatic Firearms, of which the following a specification.

10 This invention has relation to automatic pistols and other firearms of that type in which the sequence of operations involved in the firing of a shot and the reloading of the arm—viz., the unlocking and opening of the
15 breech after discharge, the extraction and ejection of the empty cartridge-shell, the cocking of the hammer, the insertion of a fresh cartridge from the magazine into the barrel, and the reclosing of the breach—are
20 performed automatically by the movements of a traversing-breech slide first in a backward direction under the influence of the recoil energy developed by the discharge of a
25 cartridge and then in a forward direction under the influence of a return-spring rendered active by the initial or rearward movement of the said slide.

What I term herein the "breech slide" is also known as a "balanced breech-block" and
30 as a "breech-block."

Figure 1 of the accompanying drawings represents a side elevation of an automatic magazine-pistol constructed and arranged in accordance with my invention. In this view
35 one of the side plates of the handle or grip which contains the detachable magazine is removed to show the positions assumed by certain parts of the pistol when the hammer is at full cock and the safety-slide is in engagement
40 with the hammer mechanism and the breech-slide is closed. Fig. 2 is a longitudinal vertical section of the said pistol with the parts in the same positions as shown in Fig. 1 except that the safety-bolt is disengaged from the
45 hammer mechanism. Fig. 3 is a similar section of the pistol to that represented in Fig. 2; but it shows the parts of the firing mechanism in the positions they assume after the trigger has acted upon the sear and released the hammer
50 and while the pressure of the shooter's finger upon the trigger is still being maintained, but before the recoil from the discharge has commenced to act upon the reciprocating parts. Fig. 4 is a longitudinal section of the pistol
55 showing the positions assumed by the several parts when the breech-slide is fully opened.

Fig. 5 is a similar view to Fig. 4, but shows how the magazine-spring acts on certain parts of the mechanism and locks the breech-slide in an open position when the magazine is empty. 60
Fig. 6 is another elevation of the pistol looking at the opposite side to that represented in Fig. 1 and showing the breech-slide locked in its open position. This view also shows the arrangement of the breech-slide-return 65
mechanism and the means whereby the said slide is automatically locked open when the magazine is empty. Fig. 7 is a further elevation, but shows the breech-slide-return mechanism and the locking arrangements in the 70
positions they assume when the pistol is closed and the hammer cocked ready for firing. Fig. 8 is a transverse vertical section of the pistol upon the dotted line x , Fig. 1, showing the arrangement of the safety-bolt both with re- 75
spect to the firing mechanism and the means for automatically locking open the said slide. This view shows the parts in their normal positions or when the safety-bolt and locking device are disengaged from the parts with 80
which they respectively coöperate, while Fig. 9 is a similar section, but showing the safety-bolt in engagement with the sear of the firing mechanism and the slide-locking devices in their operative position. Fig. 10 is another 85
section, similar to Figs. 8 and 9, but with all the parts of the firing mechanism removed, so as to show more clearly the arrangement of the connections between the safety-bolt and the breech-slide-locking mechanism. Fig. 11 90
is a horizontal section of the pistol upon the dotted line x^2 , Fig. 1, showing in plan the slide-locking devices and the connections between said devices and the safety-bolt. Fig. 12 is an elevation of the traversing breech- 95
slide separately, showing that side with which the swinging lever of the return mechanism engages. Fig. 13 shows the opposite side of the said slide. Fig. 14 is a separate elevation of the barrel. Fig. 15 represents an eleva- 100
tion and an edge view of the lever of the carriage-return mechanism. Fig. 16 shows three different views of the safety-bolt separately, and Fig. 17 represents the breech-slide locking-limb separately. 105

The same numerals of reference indicate corresponding parts in the several figures of the drawings, in which—

20 is the channel-sectioned and open-ended body part of the frame, wherein the breech- 110
slide 21 is fitted so as to be capable of a rectilinear traverse therein, and 22 is the barrel

whose base 23 is fitted within the front of the said body and comes above the fore part 24 of the slide, which is guided in its reciprocating movements by a system of longitudinal grooves working over corresponding ribs on the inside of the upright walls of the body. The said body is carried upon a hollow handle 25, which constitutes a magazine-chamber and communicates with the inside of the body-channel through an opening 26. This chamber is adapted to contain a detachable cartridge-magazine 27, fitted with the usual platform or follower 28 and feed-spring 29 and whose upper end (when in position within the said chamber) extends through the opening 26, so as to come behind the breech end of the barrel, and also takes through a longitudinal slot or clearance 30, formed from end to end of the breech-slide to admit of its reciprocating movement when the magazine is in position. The breech-slide and after part and base of the barrel are both mounted and laterally confined within the body; but whereas the slide is capable of considerable reciprocating movement therein the barrel is confined by means of an internal latch 31, which admits of the said barrel making only a slight movement in unison with the breech-slide when the arm is discharged for the purpose of placing the barrel and slide in such positions relative to the body as will provide for the automatic disconnection of a bolt or fastening 32, which normally secures the breech-slide to the barrel but which when disengaged admits of the independent rearward movement of the breech-slide under the influence of the recoil and of its forward movement under the influence of the return-spring.

The firing-pin 33 is located within a breech-block 34, mounted in line with the barrel upon the after part of the breech-slide, and the hammer 35 and its mainspring 36 are mounted in the body at the back of the magazine-chamber, while the rocking sear 37 of the firing mechanism is formed with an extension 38, located within the magazine-chamber and coming on the right-hand side of the magazine when the latter is in position, this sear being operated from a trigger 39, disposed forward of the said magazine, by a bar 40, which is jointed to the said trigger and directed rearwardly into the magazine-chamber, the arrangement being such that when the trigger is pulled back the said bar moves rearwardly with it and acts upon the extension of the sear and takes the latter out of bent with the hammer.

For retaining the barrel within the body, limiting the rearward and forward movements of the breech-slide, and buffering or cushioning the reciprocating parts the body of the pistol is fitted with a yielding stop 41, which is engaged by the barrel-latch and consists of an upright block rising vertically from the bottom of the channeled body and

extending through the longitudinal clearance in the breech-slide, whose forward cross-piece 42 is provided with an abutment-pin 43, adapted to strike against the front of the stop and limit the backward movement of the said slide, while to admit of the buffering or cushioning action the stop is provided with a spring extension 42^x, located within a recess in the body and having a bearing against a solid part of the frame, such as 43^x, so that the stop can yield slightly and neutralize the shock or jar due to the impact of the reciprocating parts against the same. A rotatable pin 44 is mounted in the side of the frame and is provided at one end with an external head or turn 45 and at its inner end with an eccentric stud 46, engaging a recess 47 in the side of the stop, so that by turning the said pin the said stop may be elevated to engage the barrel-latch or depressed out of such engagement to admit of the carriage and barrel being withdrawn longitudinally from the body through the open front end of the channel.

The barrel-latch consists of a rocker pivoted to the under side of the barrel-base, so as to be capable of limited angular movement in the longer direction of the pistol and having an extension beyond the breech-face formed with an incline 48 for directing the cartridges into the chamber as they are pushed out of the magazine by the loading-rib 49 on the breech-slide. A spring 50 may be interposed between the barrel-base and the rearward end of the latch, which is formed with a rectangular stepped recess 51, with which the upper end of the buffer-stop is always in engagement and whose forward and rearward sides 52 53 constitute abutment-shoulders adapted to be brought, respectively, against the front of the buffer-stop on the barrel being moved rearwardly under the initial influence of a recoil and against the back of the said stop on the barrel being restored to its normal position by the return-spring. The stepped top of the recess 51 provides a transverse locking-notch 54, adapted to be positively engaged with the top of the buffer-stop for locking the barrel to the body during the independent reciprocation of the breech-slide, this engagement being effected by the depression of the after end of the latch either by the spring 50 or by a system of cams provided for that purpose, while on the completion of the return motion of the said slide the recessed end of the latch is positively lifted to disengage the locking-notch from the stop and admit of the barrel being moved forward bodily with the slide to the extent permitted by the recess 51, the several parts being retained in their normal positions by the forward pressure exerted by the breech-slide return-spring, which keeps the abutment 53 home against the stop. Simultaneously with the arresting of the barrel at the end of its rearward movement the breech-slide is freed to admit of its independent reciprocatory mo-

tion, which is utilized to impart the positive lowering and raising motion to the latch for engaging and disengaging its locking-notch with the buffer-stop. Cam-pieces 54^a are arranged on the edges of the latch to overhang corresponding actuating-inclines 55 on the top edges of the fore part of the slide, and the depression of the latch is effected when the forward inclines 56 wipe under the forward ends 57 of the cams as the slide commences to travel rearward without the barrel, while the reverse motion is obtained by the action of the rearward inclines 58 wiping forwardly under the rearward ends 59 of the cams as the breech-slide completes its independent forward movement.

The breech-slide fastening 32 consists of a vertically-sliding bolt-block working within a slot 60 in the slide fore-end 42 and adapted to be automatically engaged with a cross-gap 61 in the barrel-base at the moment when said barrel and slide complete their collective forward movement, while the disengagement of the bolt for freeing the slide is performed automatically and is timed to synchronize with the locking of the barrel by its latch on reaching the end of its initial movement. The bolt is actuated by a system of inclines, one incline 62 being formed along the rearward edge of the cross-gap 61, and a corresponding incline 63 is formed on the bolt, while in the bed of the channeled body is a longitudinal sinking 64, terminating forwardly in an incline 65, corresponding to an incline 66 on the lower forward edge of the bolt, the inclines 63 62 being designed to impart the lowering or unlocking movement to the bolt, while the inclines 66 65 act to lift the bolt and lock the barrel to the slide. Normally when the parts are in positions ready for firing, as represented in Fig. 2, the top of the bolt engages the barrel-gap and is retained there by its lower end lying upon an unrecessed forward part 67 of the bed until the pistol is discharged, when by the initial collective movement of the barrel and slide the bolt is brought over the sinking 64, so that as soon as the barrel has been arrested and locked by its latch and the slide in which the bolt is mounted is at the point of commencing its rearward independent traverse the bolt-incline 63 wipes under the incline 62 of the now stationary barrel, and so depresses the bolt from engagement with the gap 61 and frees the slide from the barrel, and the lower end of the said bolt is taken into the sinking 64, wherein it slides, as shown in Fig. 5, during the independent reciprocation of the slide, and when the said slide on its return movement closes against the barrel-breech the cross-gap 61 again comes coincident with the bolt, and as the barrel and slide move forward together in completing the sequence of operations and restoring all the parts to their firing positions the incline 66 is made to strike

against and wipe up the incline 67, and thus the bolt is again raised into locking engagement with the gap 61 and there retained by the unrecessed part of the bed coming underneath its lower end. The collective movement which the barrel and breech-slide are capable of making in order to provide for the automatic disengagement and reengagement of the breech-slide bolt is only slight, being merely equal to the play which the recess in the latch can make upon the buffer-stop; but the various motions are so timed as to allow the bullet to leave the muzzle of the barrel before the breech-slide is unlocked, so that the latter makes no independent motion until the bullet is on its way, and thus the shooter's aim is not likely to be disturbed by the reciprocation of the parts under the recoil, while the independent movement of the slide is imparted only by the recoil energy which is unexpended after the said slide has been freed.

The breech-slide-return mechanism consists of a long lever 68, fulcrumed at 69 to the handle-frame and having its upper end extending through a clearance into the after end of the channeled body and bearing against a shoulder or abutment 70 on the side of the breech-slide. The lever is extended at 71 below its fulcrum and bears against the limb of a double-armed spring whose other arm 73 has a bearing against the frame. Normally the spring acts against the lever to tilt same forwardly, as shown in Fig. 7, and keep the breech-slide closed; but when the said slide is driven back by recoil the lever is compelled to make a rearward angular movement, which compresses and renders active the spring, so that after the recoil energy has expended itself the spring reacts upon the lever and throws same forward for returning and retaining the breech-slide and barrel in their normal positions. Part of the metal of the slide rearward of the lever-abutment 70 is cut away to leave a clearance 74, which admits of the slide being withdrawn forwardly from the body in disassembling the parts for cleaning or the like without necessitating the removal of the lever or its spring, while above the said abutment 70 a recess 75 is formed, into which the head 76 of the lever takes in passing over the center while making its angular movement, and the entrance 77 of this recess is preferably choked or made of such a width that when the lever is in its rearward position with the breech-slide fully open, as represented in Fig. 6, its head will fill up the said entrance and prevent any play or backlash should the said slide be locked in the said open position.

The safety-bolt for locking the hammer of the pistol at full-cock consists of a sliding piece 78, working in a slot in the side of the body and having an extension 79, which depends into a chamber 80, recessed out in the

rear upper part of the frame of the magazine-chamber immediately behind the sear-extension 38, whose outer face has a lump 81 and a clearance 82, while the edge of the bolt has
 5 a lump 83, which normally or when the safety is in its lowered position coincides with the clearance 82 and admits of the sear extension being pushed back by the limb 40 for firing the pistol; but when the hammer is at full-
 10 cock and the safety-bolt is raised its lump 83 engages behind the sear-lump 81 and blocks the firing mechanism in such a manner as to prevent inadvertent or accidental discharge. If necessary, the safety-bolt may be utilized for
 15 locking the breech-slide in its closed position; but in the particular arrangement represented this action is not provided for, and a longitudinal clearance 84 is machined along the right-hand side of the breech-slide to clear any
 20 part of the safety-bolt that may extend into the inside of the body, so as to admit of the said bolt being raised when the breech-slide is in any position.

To lock the breech-slide in its open position
 25 when the magazine is empty, it is proposed to utilize the feed or follower spring of the magazine to operate certain parts whereby the lever or arm of the breech-slide-return mechanism is blocked or retained in the position
 30 it assumes when the said slide is at the end of its rearward movement. For this purpose the magazine-platform is provided with a tail 85, having a stud 86, which projects through a slot in the back of the magazine and extends
 35 (when the magazine is in position) into a groove 88 in the opposed wall of the magazine-chamber, so that as the follower is elevated by its spring the stud is raised within the groove which leads into the chamber 80,
 40 containing the safety-bolt extension 79, while it carries a lateral piece 89, passing inwardly under the sear and terminating in a vertical plate 90. Located upon the right-hand side of the upper part of the magazine-chamber and
 45 immediately inward of the breech-slide-return lever is a locking-limb 91, fulcrumed at its forward end 92 to the frame and connected at its rearward end to the safety-bolt by a pin 93, which extends laterally behind the maga-
 50 zine and takes into a slot 94 in the plate 90, so that when the latter is raised with the safety-bolt the rear end of the limb is also raised. The inner side of the upper part of the return-lever carries a lug or inward projection 94^x,
 55 which normally or so long as any cartridges remain in the magazine works to and from above the top edge of the locking-limb, as shown in Fig. 7; but should the said limb be at any time actuated by the lifting of the
 60 safety-bolt (either automatically or by hand) when the said lever is in its rearmost position and the breech-slide is fully opened the end 95 of the limb by coming on front of the said lug 94 will prevent the return movement of
 65 the lever, and thus lock the breech-slide which

is connected to the said lever in its open position. This locking operation is performed automatically when the magazine is empty through the medium of the magazine-follower spring when the breech-slide is opened by the
 70 recoil of the discharge of the last cartridge. For this purpose the parts are so arranged that on the magazine-follower being permitted to rise to the top of the magazine, as shown in Fig. 5, as soon as the loading-rib
 75 has been taken clear of the said follower in the rearward movement of the slide the stud 86, which is lifted with the follower by the expansion of the feed-ring, is raised out of the groove 88 into the chamber 80 and strikes
 80 against the under side of the lateral part 89 of the safety-bolt, which is raised by the said spring and carries with it the locking-limb 91, which at the moment the return-lever is at the end of its rearward movement is thus
 85 brought in front of the lug 94 for locking the lever and slide in the open position, as above described, and affording the shooter a positive indication that the magazine is empty. By depressing the safety-bolt by means of its ex-
 90 ternal slide a corresponding movement is imparted to the locking-limb for disengaging the same from the lever and allowing the breech-slide to be returned to its normal position by the action of the spring.
 95

In the particular arrangement herein described and represented the slide of the safety-bolt provides a means for disengaging the breech-slide-locking limb from the return-lever when it is desired to close the pistol; but
 100 it is obvious that instead of connecting the locking-limb to the safety-bolt for this purpose the said limb may be actuated or withdrawn by a separate or independent slide suitably arranged, so as to be clear of the slide-
 105 return lever, but to come under the influence of the follower-spring when the magazine is empty, and it is also to be understood that this part of the invention is not limited to the particular arrangements herein described for
 110 connecting the locking-limb with the safety-bolt or for transmitting motion from the magazine-spring to the said limb on the pistol being opened when the magazine is empty, as other equivalent mechanism may be em-
 115 ployed for these purposes.

In firing automatic pistols such as herein described the shooter occasionally exerts an involuntary second pull upon the trigger as a
 120 consequence of the recoil from the previous discharge, and thus the next cartridge is liable to be prematurely fired, giving what is known as a "double shot." To obviate this and also to render it absolutely impossible for
 125 the sear to be actuated and the pistol fired unless the breech-slide is fully closed and locked to the barrel, provision is made whereby immediately after the trigger has been pulled and the bar tilted for releasing the sear to discharge the gun and before the breech-slide
 130

commences to move back under the influence of the recoil the sear-actuating bar is taken into an inoperative position clear of the sear and is positively held or retained in this position until the breech-slide has returned and become again locked in its closed position, so that the firing mechanism cannot be actuated should the trigger be pressed involuntarily or otherwise during the time that the breech-slide is in motion. Neither is it possible in the event of the trigger being released from the shooter's finger for the actuating-bar to return to its normal position until the breech-slide is closed and securely fastened.

The bar 40 is jointed at its forward end to the trigger, as already described, and is cranked upward immediately behind its joint or is formed with a part 96, having rising inclined planes, while adjacent to the joint is a small hanging cam 97, adapted after the trigger has been pulled and the sear actuated by the bar to be brought against a lump 98 on the frame, whereby the said bar is tilted downward clear of the sear, as shown in Fig. 3, and is held in this inoperative position so long as the pressure of the finger upon the trigger is maintained, while as an additional precaution against the return of the bar to its operative position should the finger-pressure upon the trigger be relieved before the breech-slide has completed its forward movement, and so render it impossible to fire the pistol except when the breech-slide is fully closed and locked, there is connected with the actuating-bar a small pin 99, capable of working within a guide-hole 100 in the frame and having a recess 101 in the one side of its lower end within which the inclined part 96 of the bar engages, while normally or when the breech-slide is closed and before the trigger has been pressed back its upper end extends above the bed of the channel in the body and engages within a gap or clearance 102, cut in the lower edge of one side of the breech-slide; but immediately the actuating-bar is tilted clear of the sear by the action of the cam 97 after the trigger has been pressed and the pistol fired the lower incline 103 on the said bar acts against the bottom 104 of the recess in the pin 99 and draws down or depresses the same, so as to disengage its upper end from the clearance 102, as shown in Fig. 3, before the breech-slide commences to travel back under the recoil from the discharge. During the backward and return motions of the said slide its solid or unrecessed edge 105 traverses above the guide-hole 100, containing the pin 99, as shown in Fig. 5, so that should the trigger and the bar be relieved of finger-pressure while the breech-slide is in motion the bar is prevented from being returned to its operative position under the influence of the spring by the top of the pin on rising striking against the said unrecessed edge 105 of the moving slide, and thus the said pin and bar

are positively held down until the breech-slide is fully closed; but immediately the said slide is locked the clearance 102 comes again over or coincident with the guide-hole 100 and allows the pin and bar to rise, the former coming again into engagement with the said clearance 102, as shown in Fig. 2, while the latter resumes its operative position with respect to the sear ready to discharge the pistol afresh on the trigger being again pulled. The provision of an inclined plane surface on the tilting-bar 40 for acting upon the auxiliary holding-down pin 99 insures a rapid movement of the latter and an instantaneous disengagement of same from the breech-slide on the pistol being fired. As soon as the actuating-bar has been taken clear of the sear the latter is free to be taken back by its spring 107 into the proper position for falling into bent with the hammer on the latter being recocked by the breech-slide in its rearward traverse.

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

1. A firearm having a breech-slide movable rearwardly by recoil, a spring-actuated lever for moving the breech-slide forward, a magazine having a movable follower, and means operable by said follower when the magazine is empty, for engaging the lever to hold the breech-slide in a retracted or open position.

2. A firearm having a breech-slide movable rearwardly by recoil, a spring-actuated lever to return the breech-slide to its forward position, a magazine having a follower, and a locking device, operable by said follower when the magazine is empty, to engage the lever when the slide is in its retracted or open position, to prevent forward movement of said slide.

3. A firearm having a breech-slide movable rearwardly by recoil, a spring-actuated lever to move the breech-slide forward, firing mechanism having a hammer, a magazine having a follower, a locking device operable by said follower when the magazine is empty to engage said lever to hold the breech-slide in a retracted or open position, and a safety-bolt, for locking the hammer of the firing mechanism at full-cock, connected with the breech-slide and with the locking device and serving to actuate the latter to release the breech-slide and permit the return of said breech-slide to its forward position.

4. A firearm having a breech-slide movable rearwardly by recoil, a spring-actuated lever to move the breech-slide forward, firing mechanism having a hammer, a magazine having a follower, a locking device operable by said follower when the magazine is empty to engage said lever to hold the breech-slide in a retracted or open position, and a safety-bolt, for locking the hammer of the firing mechanism at full-cock, connected with the breech-slide and with the locking device and serving to actuate the latter to release the breech-slide

and permit the return of said breech-slide to its forward position, said bolt and locking device being upon opposite sides of the arm.

5 A firearm having a breech-slide movable rearwardly by recoil, and a spring-actuated lever to return the breech-slide to its forward position, said breech-slide having a longitudinal clearance to receive the lever, and a clearance to permit the operative movement
10 of the lever, the first-mentioned clearance permitting the separation of the breech-slide bodily from the arm.

6. A firearm having firing mechanism including a hammer, a sear for the hammer, a
15 trigger, a bar adapted normally to engage the sear to hold the hammer cocked, said bar be-

ing operable by the trigger to release the sear and thereby the hammer, a breech-slide movable rearwardly by recoil, a spring-actuated lever for moving the breech-slide forwardly, 20 a magazine having a movable follower, and means operable by said follower when the magazine is empty for engaging the lever to hold the breech-slide in a retracted or open position. 25

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

WILLIAM JOHN WHITING.

Witnesses:

ARTHUR SADLER,
EDITH HELLABY.