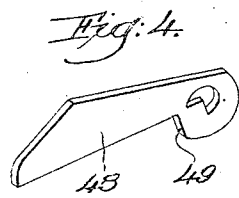
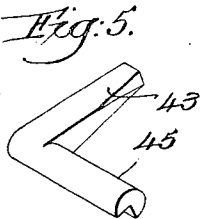
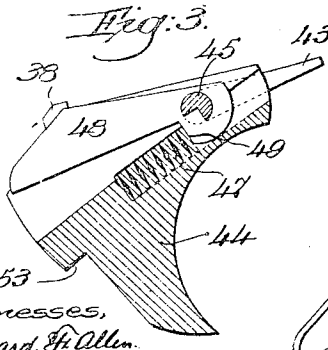
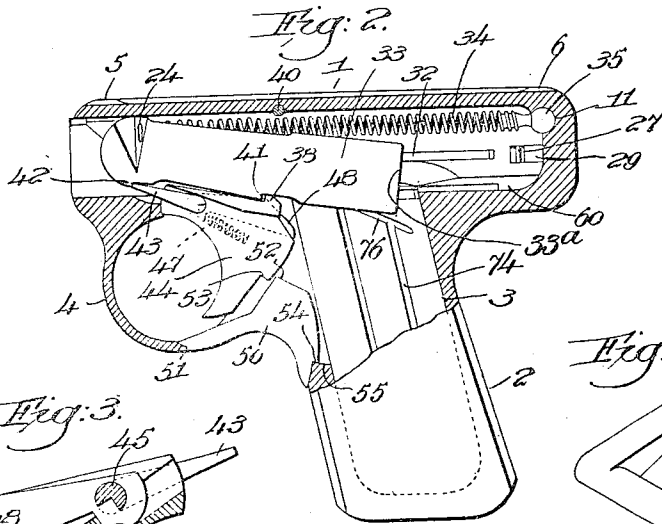
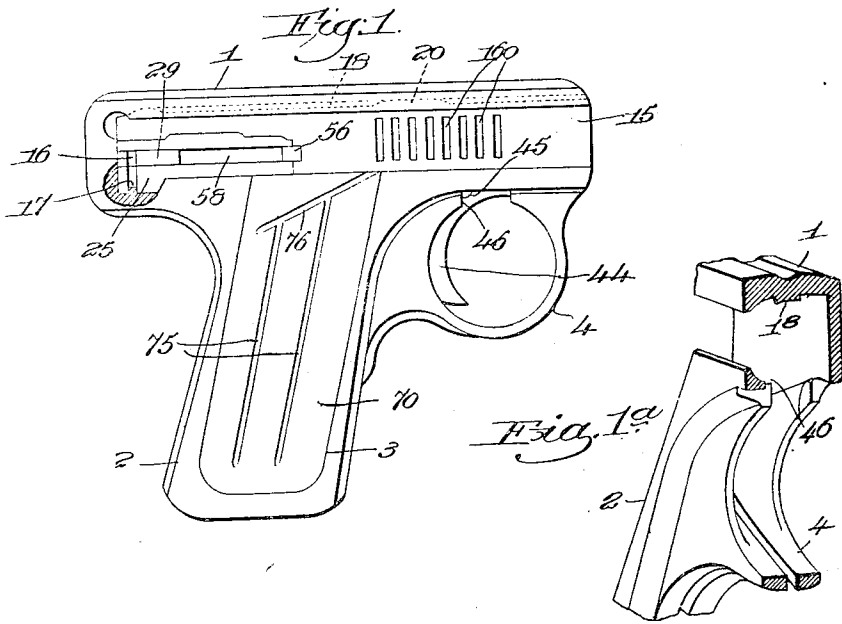


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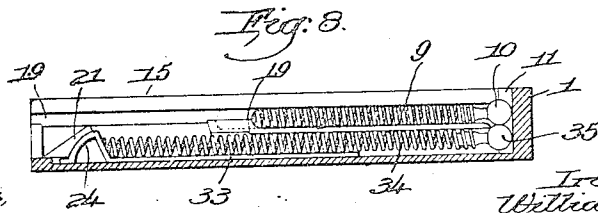
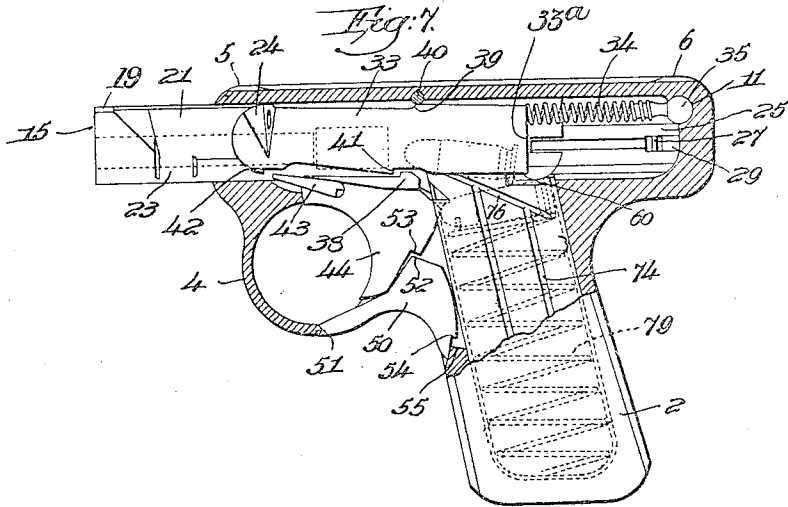
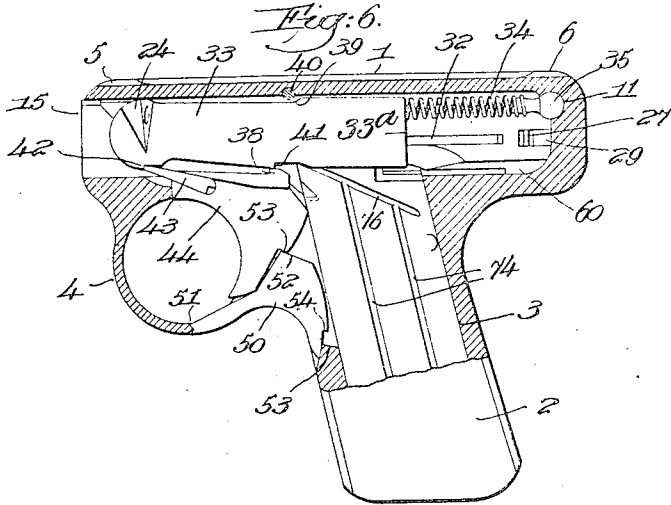
Witnesses,
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 AUTOMATIC PISTOL.
 APPLICATION FILED FEB. 2, 1912.

Patented Feb. 29, 1916.
 4 SHEETS—SHEET 2.

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Witnesses,
 Edward F. Allen.
 Warren O. Neil.

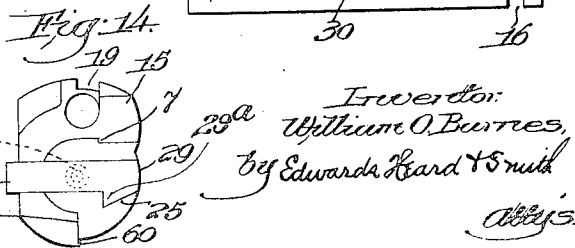
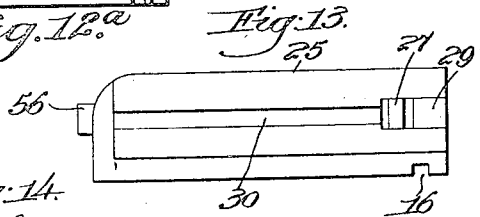
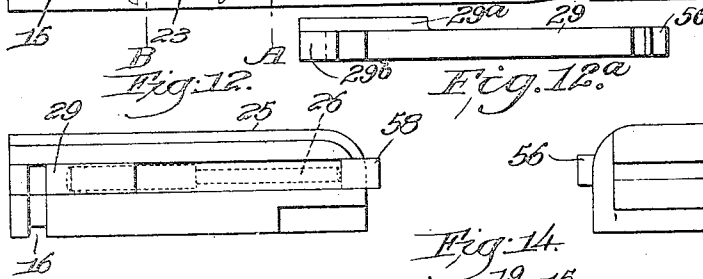
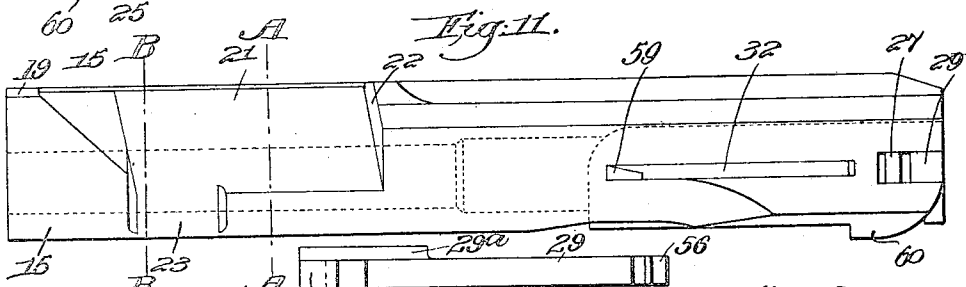
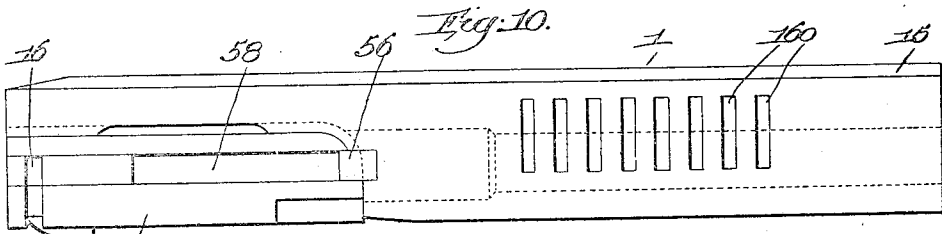
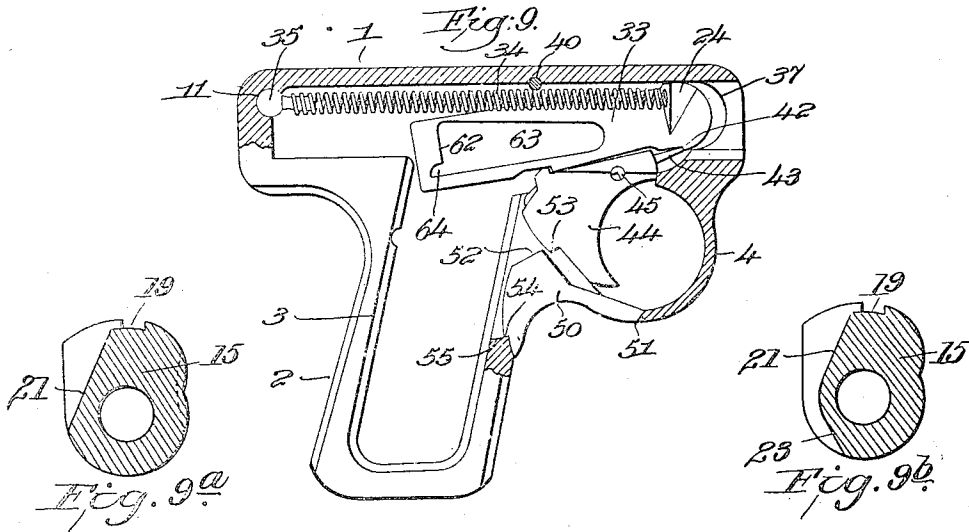
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1,173,161.

Patented Feb. 29, 1916.

4 SHEETS—SHEET 3.



Witnesses,
 Edward H. Allen,
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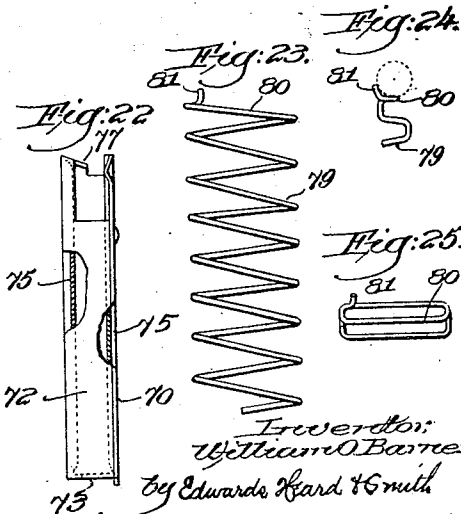
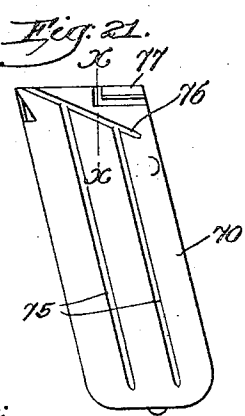
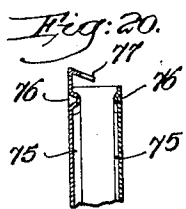
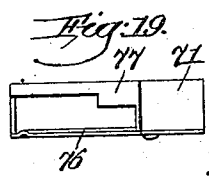
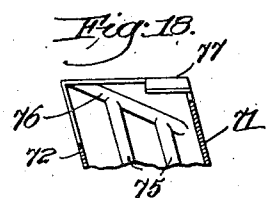
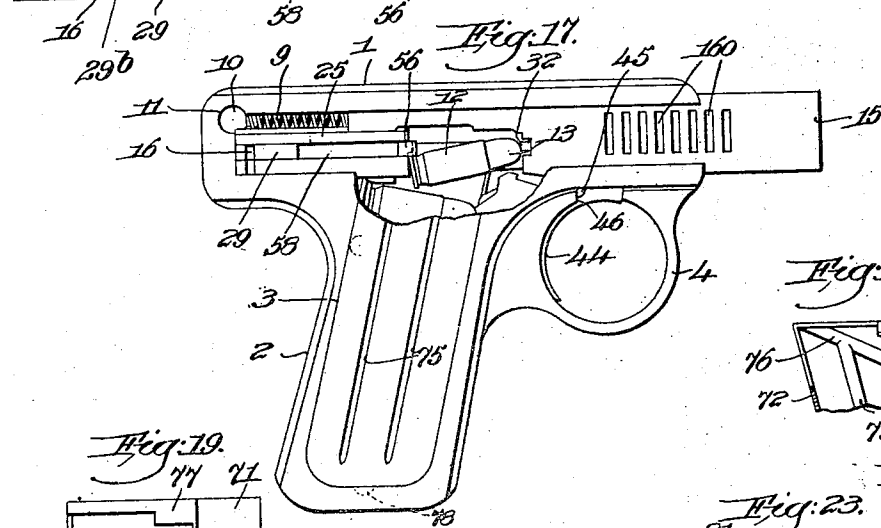
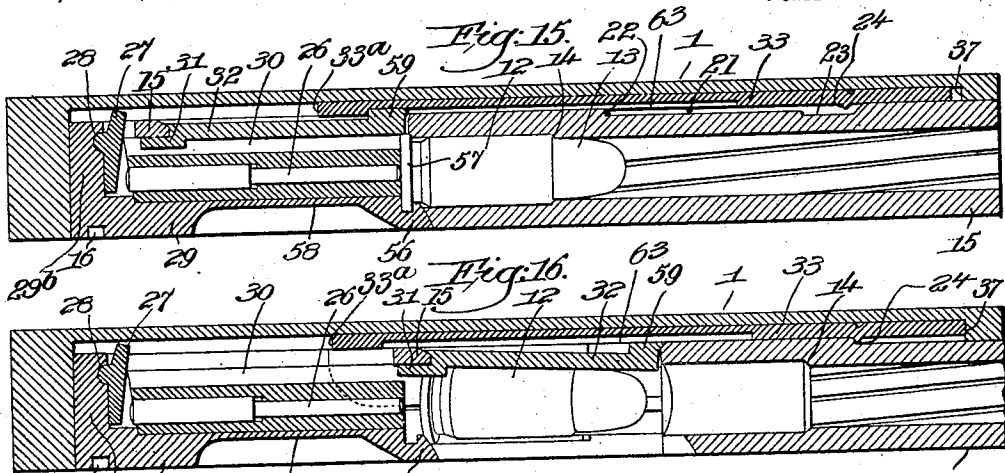
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W. O. BARNES.
 AUTOMATIC PISTOL.
 APPLICATION FILED FEB. 2, 1912.

Patented Feb. 29, 1916.

4 SHEETS—SHEET 4.

1,173,161.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC PISTOL.

1,173,161.

Specification of Letters Patent.

Patented Feb. 29, 1916.

Application filed February 2, 1912. Serial No. 675,041.

To all whom it may concern:

Be it known that I, WILLIAM O. BARNES, a citizen of the United States, residing at Fitchburg, in the county of Worcester and State of Massachusetts, have invented an Improvement in Automatic Pistols, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to automatic firearms, and in particular to automatic pistols wherein a magazine of cartridges is employed and wherein the operation of the hammer releasing mechanism is all that is required to discharge the entire contents of the magazine. The invention, however, involves various features that are not to be restricted to the particular firearm in which they are employed whether it be of an automatic character or not.

A preferred form of the invention as applied to a small and compact automatic pistol is illustrated herein as embodying the invention and illustrating the features thereof, but the invention is not to be restricted to the particular construction and arrangement herein shown.

The nature of the invention will appear more fully from the accompanying description and drawings and will be more particularly pointed out and defined in the appended claims.

The drawings illustrate a preferred form of the invention in which the pistol is illustrated as handling a 25-caliber cartridge and a magazine containing eight cartridges.

In the drawings: Figure 1 is a right-hand elevation of the pistol with a small section broken away at the breech; Fig. 1^a is a perspective view of a fragmentary portion of the pistol frame to show the pivotal shoulder 46; Fig. 2 is a left-hand side elevation, chiefly in vertical longitudinal section, taken close to the left-hand side, showing the parts in safe position; Fig. 3 is a detail side elevation, partially in section, of a portion of the trigger mechanism; Fig. 4 is a perspective view of a part of the hammer releasing mechanism; Fig. 5 is a perspective view of the sear detached; Fig. 6 is a view similar to Fig. 2, showing the parts in ready to fire position; Fig. 7 is a view similar to Fig. 2, showing the parts in position after firing; Fig. 8 is a hori-

zontal cross section of the pistol taken above the helical springs; Fig. 9 is a view similar to Fig. 1, with the barrel, magazine and breech removed and with the frame in the vicinity of the trigger shown in vertical section; Fig. 9^a is a cross-sectional view on the line A—A of Fig. 11 looking toward the muzzle. Fig. 9^b is a cross-sectional view on the line B—B of Fig. 11 looking toward the muzzle; Fig. 10 is a right-hand side elevation of the barrel and breech block removed; Fig. 11 is a left-hand side elevation of the barrel and breech block removed; Fig. 12 is a right-hand side elevation of the breech block and extractor; Fig. 12^a is an edge view looking from the interior of the barrel of the extractor; Fig. 13 is a left-hand side elevation of the parts shown in Fig. 12; Fig. 14 is a rear end elevation of the parts shown in Figs. 10 and 11; Fig. 15 is a horizontal section of the pistol taken centrally of the barrel and showing the parts in ready to fire position; Fig. 16 is a view similar to Fig. 15, showing the parts in position after firing; Fig. 17 is a right-hand side elevation of the pistol, showing the parts in position after firing; Fig. 18 is a detail of the upper end of the magazine; Fig. 19 is a top plan view of the magazine; Fig. 20 is a view in cross section taken on the line *x—x* of Fig. 21, showing the upper end of the magazine; Fig. 21 is a side elevation of the magazine; Fig. 22 is a front elevation, partially broken away, of the magazine; Fig. 23 is a side elevation of the magazine spring; Fig. 24 is a front elevation of the upper end of the magazine spring to show the position of the cartridge thereon; Fig. 25 is a top plan view of the magazine spring.

The pistol in the form shown comprises a frame preferably made of a single steel forging and having a horizontal upper barrel portion and a depending handle portion in which is located the magazine. The general structure of the frame appears from the drawings, and the barrel portion is shown at 1 having flat side faces and the depending handle portion is shown at 2. The handle portion is recessed from the right-hand side at 3 to provide for the magazine and the barrel portion is recessed from the right-hand side to provide for the barrel and breech block. The hammer is carried in the barrel portion between the bar-

l and the left-hand side wall. The hammer releasing mechanism is located in the forward end of the frame and the usual guard extends between the forward end of the barrel portion and the forward edge of the handle portion. Suitable sights are provided as indicated by the rib 5 for the front sight and the groove 6 for the rear sight.

In this invention the breech block is anchored in the barrel portion of the frame, but the barrel is movable longitudinally, being normally retracted by a spring and being moved forward by the discharge of the cartridge. This forward movement of the barrel is utilized to eject the empty cartridge from the pistol and to permit the magazine to feed a fresh cartridge into the barrel.

The barrel is mounted to slide on the breech block and is keyed thereto as shown in Fig. 14, where vertical longitudinal surfaces 7 and 8 of the barrel fit and slide against corresponding surfaces of the breech block. The rearward movement of the barrel is given by a helical spring 9 attached at its forward end to the barrel and having at its rearward end an enlargement, such as the ball 10, fitting in a horizontal groove 11 in the end of the frame. The forward movement of the barrel is secured by the discharge of the cartridge, and this movement is assured in the present invention by forming the bore of the barrel from the end of the lead to the muzzle slightly conical or tapering toward the muzzle and maintaining the rifling of uniform depth throughout so that the cross section of the barrel gradually decreases toward the muzzle. This construction may best be understood by reference to the enlarged views in Figs. 15 and 16. In Fig. 15 the cartridge is shown in position ready for firing, with the cartridge shell occupying the chamber of the barrel and with the tapering portion of the bullet 13 occupying that portion of the bore known as the "lead." When the cartridge is fired the gases reacting on the interior of the cartridge shell tend to expand it and produce friction between it and the barrel, resulting in a tendency to hold the barrel back. To overcome this force and insure with every discharge the forward movement of the barrel this invention provides the tapering or conical bore already referred to with the rifling of uniform depth throughout. The taper is difficult to show in the drawings, but for a pistol of the 25-caliber size and with a barrel of the length indicated in the drawings the desired results are successfully secured when the internal diameter of the bore at the end of the lead is .242 of an inch and at the muzzle .226 of an inch and the depth of the rifling .006 of an inch, but these dimensions are not to be regarded as definitive, but simply as illustrative of this feature of

the invention. When the cartridge is fired, the gases acting against the shoulder 14 and against the rear of the bullet, the tendency of the bullet to resist distortion, and the friction of the bullet in the rifled lead and bore all combine to cause the barrel to move forwardly against the tension of the spring 9 and against the reaction of the gases in the cartridge shell. By making the bore tapered as described predominance of these forces over the reaction of the gases in the cartridge shell is assured at every discharge, and this is a most important feature, because if the barrel is not moved forward to the required extent the automatic action of the piston is prevented.

The barrel is indicated at 15 and is provided on the right hand exposed side with a series of vertical grooves 16, by means of which it may be moved forward by hand, as when the first cartridge is supplied. The breech block and the barrel being keyed together, the parts are so constructed that the barrel and breech block may be readily removed from the frame. The breech block is provided at its rear end and underside with a slot 16 fitting over a corresponding rib 17 projecting upwardly from the lower interior surface of the frame. This rib prevents the breech block from moving forwardly with the barrel, but upon the turning of the barrel and breech block upon their longitudinal axes this rib 17 will ride out of the groove 16. The barrel and breech block are held from rotation with respect to the frame by the interlocking of cooperating recesses and projections, but these are so arranged that when the barrel is thrown forward to a predetermined extent, in the present case about three-sixteenths of an inch, these projections and recesses permit the rotation of the barrel and breech block to an extent to enable them to be removed sidewise from the barrel portion of the frame. As shown, the barrel portion of the frame is provided longitudinally of its interior upper surface with a rib 18, while the barrel is provided on its upper surface with a groove 19 cooperating therewith. The rib 18 is provided with a cut-away portion 20. The barrel is provided on the forward left hand side with a slabbed-off surface 21 to leave a space between it and the frame for the operation of the hammer to be described. There is thus formed at 22 a shoulder to act against the hammer in the cocking movement. This slabbed-off portion removes one wall of the groove 19 so that the groove 19 is complete only at each end of this slabbed-off portion 21. Hence upon moving forward the barrel slightly the complete portion of the groove at the muzzle end of the barrel will pass out beyond the frame and the complete portion of the groove 19 at the rear of the slabbed-off portion (see Fig. 8) will come

into alinement with the cut-away portion of the rib 18, and thereupon the barrel and breech block may be rotated by hand, freeing the groove 16 from the rib 17 and enabling the parts to be slipped out at the right hand side of the frame, the ball 10 being thrown out from the groove 11. The barrel is provided at its lower forward side with a recess 23, enabling it in its rotation to turn past the projection 24 of the hammer to be described.

The breech block indicated at 25 is provided with the usual centrally mounted longitudinally movable firing pin 26. The firing pin is moved to discharge the cartridge by what may be termed a firing pin lever 27 mounted transversely in the breech block and fulcrumed by means of a projection 28 therefrom fitting in a recess in the breech block. This recess is preferably formed in the L-shaped end 29^b of the extractor 29 which fits in and forms a removable part of the breech block. Hence by removing the extractor the firing pin and the firing pin lever may be removed. The extractor fits in the breech block, its shank fitting in a longitudinal recess on the side, and its L-shaped end 29^b fitting in a transverse recess on the end, and it is guided by a rib 29^a formed at one end on its side and fitting in a corresponding groove in the breech block. The breech block on its left hand surface is provided with a longitudinal groove 30, in which slides the effective end 31 of the ejector 32 carried by the barrel.

The hammer 33 is mounted against the left hand inner surface of the barrel portion of the frame and is constituted as a thin flat member presenting on its left hand face a flat surface fitting against the flat surface of the frame. This hammer has a pivotal movement about its forward end and a bodily movement the length of the barrel portion of the frame. Its movement rearwardly is given by means of a helical spring 34 fastened at one end in the projection 24 already referred to, and carrying in its rear end an enlargement or ball 35 fitting in the groove 11. The forward movement of the hammer is obtained from the forward movement of the barrel by the engagement of the shoulder 24 of the hammer with the shoulder 22 of the barrel. The spring 34 being connected above the vertical center of the hammer tends to swing the rear end of the hammer downwardly and the hammer is swung upwardly by the hammer releasing mechanism to be described.

The hammer, carried forward by the barrel upon being fired, is stopped by engagement of the forward end thereof with the shoulder 37 on the barrel frame thus also stopping the barrel and as the hammer starts upon its return movement it must be caught and held first by the hook 38 of the

hammer releasing mechanism to be described, engaging the bent 41 on the bottom edge of the hammer. The rearward movement of the hammer from its extreme forward position to the point at which it is caught and held is extremely slight and the time within which this action must be performed is infinitesimal. To insure the proper action of the parts the upper surface of the hammer is provided with a cam shape shown at 39 and the frame with a projection such as a pin 40, and these parts are arranged so that the hammer in its longitudinal movement is swung down slightly to insure its cooperation with the hook 38 of the hammer releasing mechanism. At its forward end the hammer is provided with a second bent 42 on its lower edge cooperating with the sear.

In the hammer releasing mechanism the sear 43 is pivotally connected with the trigger 44. The sear has a notched shaft 45 extending transversely through the trigger and the sear is pivoted on the frame by the notch in the shaft resting upon the shoulder 46 on the frame, while the trigger pivots about the shaft 45 of the sear. A spring 47 seated in the trigger is arranged to swing the free end of the sear upwardly. In the present case this is secured through the intervention of a cartridge guide shown at 48, which is keyed to the sear shaft 45 and provided with a shoulder 49 against which the spring 47 abuts. The hook 38 already referred to is formed as an integral part of the trigger 44.

Means are provided to limit the forward movement of the trigger so that it cannot pass from the ready to fire position to the safe position. In the construction illustrated this means is designated as a trigger latch 50. This latch is pivoted at its forward end by engagement of a notch 51 with a projection on the frame and is provided at its upper edge with a shoulder 52 engaging a shoulder 53 on the trigger, and is also provided at its lower edge with a shoulder 54 cooperating with a shoulder 55 on the frame.

The cartridges are supplied to the cartridge chamber from a magazine, and means are provided for extracting the cartridge automatically from the chamber and ejecting it from the piston. The extractor has already been referred to in connection with the breech block and is indicated at 29. Its forward portion is formed in the shape of a hook 56 adapted to catch over the rim 57 of the cartridge, and the shank of the extractor is thinned down as shown at 58 until it becomes a spring, thus enabling the hook 56 to snap over the rim 57 when the barrel comes back after the feeding in of the cartridge.

The ejector 32 already referred to rests in

the groove 30 of the breech block and with its forward end 59 over the rim 57 of a cartridge in the chamber and has a movement radially of the breech block for the purpose of controlling the hammer, as will be described. The effective end of the ejector is located at such a distance rearwardly from the cartridge chamber that upon the forward movement of the barrel sufficiently to permit the ejection of the cartridge shell this end 31 will contact with the left hand side of the rim and, the right hand side being held by the hook 56 of the extractor, eject the cartridge shell at the right hand side of the pistol.

The magazine is located in the recess in the handle portion 3 and is removable and insertible from the side of the handle portion. It is held in place in the recess by the barrel, and the construction is such that upon the forward movement of the barrel to a predetermined position the magazine is released and may be swung out from the recess. The magazine is of general rectangular shape and is preferably formed or struck-up from sheet metal. It is illustrated somewhat in detail in Figs. 18 to 25 of the drawings. As there shown, it is a metallic box of the size of the recess in the handle portion 3, the left hand side wall 70, the rear wall 71, the front wall 72 and the bottom wall 73 being struck up from a single sheet of metal, while the right hand side wall 74 is formed separately and brazed or otherwise secured thereto. The right and left hand side walls are provided with longitudinal interior ribs 75 struck in from the metal of the walls, serving to strengthen them and serving as guides for the cartridges. Near the upper end the side walls are provided with diagonal similarly formed ribs 76 terminating short of the rear wall so that as the cartridges rise in the magazine the rims will pass between the ends of these ribs and the rear wall of the magazine and then will slide along the diagonal ribs 76, guiding the cartridge into the cartridge chamber. A shelf or stop 77 at the top and rear of the magazine prevents the rim end of the cartridge from rising too high, while the bullet end of the cartridge is guided or directed by the cartridge guide 48 already referred to. The magazine is held in place by a projection formed on its bottom fitting into a corresponding recess in the bottom of the handle portion, and by the engagement of the upper end of the magazine with the barrel. The curved bottom portion of the barrel when the barrel is in its normal position rests in and fits between the side walls of the magazine, thus preventing the movement of the magazine in its recess. When, however, the barrel is moved forwardly to clear the magazine the latter may then be swung out from its recess, the projection

slipping out from the recess 78, and then may be refilled and replaced or another substituted therefor.

The cartridges are fed up in the magazine by a suitable spring 79 of helical form and shown in detail in Figs. 23, 24 and 25. As its upper end the final turn or spire 80 of the spring passes midway between the other turns or spires and midway between the side walls of the magazine, so that the medial line of the cartridge surface will rest directly thereupon and the cartridge will be supported firmly and squarely and without danger of tipping or catching. The extreme upper end 81 of the spring is bent upwardly to rest against and position the bullet end of the cartridge. This construction, in which the spring itself directly supports cartridges, increases the capacity of the magazine and eliminates the use of any movable platform or similar device between the spring and the cartridge and prevents any binding or clogging in the action of the elevating mechanism for the cartridge. The spring itself directly supporting the cartridges in the magazine, it might be possible for the spring to feed the bullet end of the cartridge a little too rapidly and thus cause the cartridge next to the top to interfere with the loading operation. In a pistol employing a movable barrel as in the present instance this cartridge might catch the rear edge of the barrel as the barrel comes back to take the topmost cartridge. To eliminate any chance of this happening, the rear end of the trigger 44 is arranged, when the pistol is fired, to enter the wall of the magazine and catch over the bullet end of the second cartridge from the top thus constricting the passage-way and preventing it from rising and being caught by the barrel on its return movement. The topmost cartridge, moved forward by the hook 60 on the barrel, is guided by the rear upper inclined edge of the cartridge guide 48, and thus it is accurately and positively forced into the cartridge chamber upon the backward movement of the barrel.

The foregoing specific embodiment of the invention has been set forth, it is believed, sufficiently so that with the assistance of the drawings it will be clear, but a description of the operation of the parts of the pistol will disclose more fully reasons for the construction adopted and will aid in understanding the present invention.

The pistol in its normal condition is represented in Fig. 2. The barrel is there retracted, the magazine in place containing its supply of cartridges. The hammer is in its forward position and swung down so that the bent 42 is engaged and the hammer held by the sear 43 with the bent 41 close to and in front of the hook 38. In the construction illustrated the actual space

between the bent 41 and the hook 38 is very slight, but in this Fig. 2 and in the similar Fig. 9 it is shown on the drawing considerably exaggerated so as to illustrate the principle of operation. In this position the trigger latch is in its idle or lowermost position out of engagement with the trigger, the trigger being swung to its extreme forward position. In this position of the parts the hammer is in its cocked position, but it is to be noted that this cocked position is the normal or safety position of the hammer and it may be said that the hammer is always cocked excepting immediately after firing. To insert the cartridge the barrel must be moved forwardly. This may be done by hand by means of the notches 160, or, the pistol being firmly grasped in the hand, it may be accomplished by sharply jerking the pistol forwardly, allowing the momentum to move the barrel. Upon the movement of the barrel forward the magazine will feed a cartridge into the space between the breech block and the end of the cartridge chamber. The hook 60 on the rear end of the barrel catches behind the rim of the cartridge as it rises in the magazine, and during the forward movement of the barrel moves the cartridge clear of the breech block and the magazine so that the magazine spring may force the cartridge up into alinement with the cartridge chamber. The spring 9 retracts the barrel and as the cartridge is seated in the cartridge chamber the rim 57 snaps under the extractor hook 56, and the firing pin, if forward, is pushed back. In the position of the parts shown in Fig. 2 the pistol is safe against accidental discharge, because in pulling the trigger, although the sear will be forced out of engagement with the bent 42 the hook 38 will engage with the bent 41 of the hammer, retaining it in cocked position. The pistol is now loaded, but the parts otherwise as shown in Fig. 2, and while the pistol is loaded it is safe against accidental discharge as above noted.

A cartridge being present in the chamber of the barrel the rim 57 forces the head 59 of the ejector outward so that it lies within the path of the hammer as it is raised by the trigger. On pulling the trigger the face 62 of a projection formed by cutting a recess 63 in the body of the hammer will strike against the rear of the head 59, camming the barrel forward until the hammer has arrived at such a height that the head 59 may enter the recess 64, the barrel springing back as the head 59 rides off the face 62. This camming action is due to the fact that the face 62 is not concentric with the pivotal center of the swinging movement of the hammer and also to a slight forward movement of the hammer itself given by the hook 38 of the trigger swing-

ing about the pivotal axis of the shaft 45 because it will be seen that the horizontal distance between the hook 38 and the shaft 45 diminishes slightly as the hammer is raised by the trigger. If now, after pulling the trigger to its rearward position, the trigger be allowed to swing slightly forward, influenced by the pressure of the bent 41 exerted against the hook 38, a disengagement will be effected between the bent 41 and the hook 38, because the rear end of the hammer is prevented from falling by the head 59. As soon as disengagement of the bent 41 and the hook 38 is effected the hammer moves to engagement between the bent 42 and the sear 43. In this position the face 62 is behind the rear end of the head 59 and consequently the rear end of the hammer is free to descend until it rests on top of the hook 38. If now the trigger be again pulled from this intermediate position to its rear position the sear 43 disengages from the bent 42, releasing the hammer, which, influenced by the spring 34 moves rearwardly and its rear end 33^a strikes against the firing pin lever 27, causing it to oscillate on the fulcrum 28 and forcing the firing pin against the percussion cap of the cartridge.

It will be noted that the hammer releasing mechanism is inoperative for the release of the hammer in the absence of a cartridge in the barrel, because unless the cartridge be present in the barrel the head 59 of the ejector will not be thrown outward to effect the action as above described. The pistol can, therefore, be carried if desired without any cartridge in the cartridge chamber of the barrel with the hammer cocked, and it is impossible by operating the hammer releasing mechanism to uncock the hammer. To bring the cartridge from the magazine into the chamber it is only necessary to give a quick, swinging jerk to the pistol when held in the firing hand, when the barrel will be snapped forward and the cartridge will enter the chamber. It will also be noted that the same spring that acts to give the firing movement to the hammer acts also to move the hammer into position of safety or out of its path of action. This renders unnecessary any means for restraining or locking out of action the force for giving the firing movement to the hammer, because in this invention that force is itself utilized for bringing the hammer to safe position. This result is secured in this specific embodiment of the invention by having the spring give both a longitudinal movement to the hammer for firing and a pivotal movement for bringing it into safe position. It is also to be noted that while in firing the first cartridge it is necessary to give two rearward movements to the trigger, the first to bring it into ready to fire position and the second to fire, that thereafter but a

single pull or rearward movement of the trigger is necessary to fire the succeeding cartridges in the magazine if the trigger latch 50 be held elevated, as is easily done by the second finger of the hand grasping the pistol.

Accidental discharge of the pistol is rendered well-nigh impossible by this invention. In order to discharge the pistol in the first instance a cartridge must be present in the cartridge chamber, the trigger must be pressed rearwardly, the trigger latch raised, the trigger allowed to swing forwardly, the trigger latch being retained raised, and a second rearward movement given to the trigger with the trigger latch still raised. No matter in what position the pistol is held, the trigger latch will not hold the trigger in ready to fire position unless the said latch be positively held in position. In order to fire the pistol the hammer releasing mechanism must be allowed to swing forward from its rear position to an intermediate position, *i. e.*, the position where it is held by the trigger latch when elevated. If now a rearward movement be given the trigger the pistol is fired. If, however, instead of being moved rearwardly from its intermediate position, the trigger is allowed to have a movement forward of said intermediate position liability of accidental discharge is decreased, because the hammer releasing mechanism must then be moved rearwardly past the intermediate position to its extreme rear position. The invention in its broader aspect provides means for decreasing liability of accidental discharge of the pistol upon or by a movement of the trigger forward of an intermediate position, whereby the movement of the trigger rearwardly in order to effect the initial discharge of the pistol must be greater than the rearward movement from the ready to fire position, or that intermediate position of the trigger to which it must be moved forward before a rearward movement can effect the discharge of the cartridge. There are thus three positions of the trigger which are essential to a definition of the invention. The intermediate position is that position of the trigger illustrated in the specific form of the invention disclosed in Fig. 6. It is the position, forward movement from which is prevented by the latch when the latch is raised. If the trigger passes forward from this position the pistol cannot be fired unless the trigger be moved rearward past this position, released to this position, and given a second rearward movement. If when the trigger is in this intermediate position having moved forward thereto from its rear position, a rearward movement of the trigger will fire the pistol. The forward position of the trigger is that shown in Fig. 2 in connection with the specific embodiment

of the invention illustrated. In this forward position the trigger latch is in its idle position and the trigger is not in such a position as to be caught and held by the trigger latch. This forward position of the trigger is any position forward of the intermediate position. In the construction illustrated it will be noted that the distance between the end of the sear 43 and the hook 38 has increased with respect to the distance between the bents 41 and 42 of the hammer so that when the sear 43 is in engagement with the bent 42 the hook 38 has passed behind the bent 41. It will be seen, therefore, that the pistol must move forward at least to this extent in order to be in its "forward" position or in the position from which if it is moved rearwardly it will pass to the intermediate position. The rearward position is a position rearward of the intermediate position. Such a position of the trigger is shown in the specific embodiment of the invention illustrated in Fig. 7 wherein the trigger is moved sufficiently to the rear to release the sear 43 from the bent 42. The normal safety position of the trigger is shown in Fig. 2 as already stated and the trigger is here in its forward position. Unless the latch 50 be held elevated or unless the trigger be restrained by the finger the trigger will always pass to this position after a firing movement, or after any movement rearward of this forward position.

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

1. A fire arm comprising a hammer, means for giving a firing movement to the hammer, hammer releasing mechanism including a trigger adapted to assume rearward, forward and intermediate positions and including means operative to release the hammer by movement of the trigger forward from its rearward position directly to the intermediate position followed by a rearward movement.

2. A fire arm comprising a hammer, means for giving a firing movement to the hammer, hammer releasing mechanism including a trigger adapted to assume rearward, forward and intermediate positions and including means operative to release the hammer by movement of the trigger forward from its rearward position to an intermediate position followed by a rearward movement, and rendered inoperative by a movement forward of said intermediate position.

3. A firearm comprising a hammer, means for giving a firing movement to the hammer, hammer releasing mechanism including a trigger adapted to assume rearward, forward and intermediate positions and including means operative to release the hammer by movement of the trigger forward

from its rearward position to an intermediate position followed by a rearward movement, and rendered inoperative by a movement forward of said intermediate position, and means for holding the trigger in the

5 said intermediate position.
 4. A firearm comprising a hammer, means for giving a firing movement to the hammer, hammer releasing mechanism including a
 0 trigger adapted to assume rearward, forward and intermediate positions and including means operative to release the hammer by movement of the trigger forward from its rearward position to an intermediate
 5 position followed by a rearward movement, and rendered inoperative by a movement forward of said intermediate position, and means for preventing movement of the
 0 trigger forward of said intermediate position.

5. A firearm comprising a normally cocked hammer, a movable barrel receiving its forward movement upon or through the explosion of the cartridge and engaging the
 5 hammer to cock it upon said forward movement, hammer releasing mechanism including a trigger adapted to assume rearward, forward and intermediate positions and including means operative to release the hammer
 0 by movement of the trigger forward from its rearward position directly to the intermediate position followed by a rearward movement.

6. A firearm comprising a normally cocked
 5 hammer, a movable barrel receiving its forward movement upon or through the explosion of the cartridge and engaging the hammer to cock it upon said forward movement, hammer releasing mechanism including
 0 a trigger adapted to assume rearward, forward and intermediate positions and including means operative to release the hammer by movement of the trigger forward from its rearward position to an intermediate
 15 position followed by a rearward movement, and rendered inoperative by a movement forward of said intermediate position.

7. A firearm comprising a normally cocked
 5 hammer, a movable barrel receiving its forward movement upon or through the explosion of the cartridge and engaging the hammer to cock it upon said forward movement, hammer releasing mechanism including a
 0 trigger adapted to assume rearward, forward and intermediate positions and including means operative to release the hammer by movement of the trigger forward from its rearward position to an intermediate
 15 position followed by a rearward movement, and rendered inoperative by a movement forward of said intermediate position, and means for holding the trigger in the
 30 said intermediate position.

8. A firearm comprising a frame having
 35 a barrel portion, a hammer bodily movable

longitudinally in said barrel portion, a spring to give a rearward firing movement to the hammer, means actuated upon or through the explosion of the cartridge to
 70 move the hammer forwardly against said spring, hammer releasing mechanism including a trigger adapted to assume rearward, forward and intermediate positions and including means operative to hold and
 75 release the hammer, the said means releasing the hammer upon a movement of the trigger forward from its rearward position to an intermediate position followed by another rearward movement.

9. A firearm comprising a frame having a
 80 barrel portion, a hammer bodily movable longitudinally in said barrel portion, a spring to give a rearward firing movement to the hammer, means actuated upon or through the explosion of the cartridge to
 85 move the hammer forwardly against said spring, hammer releasing mechanism including a trigger adapted to assume rearward, forward and intermediate positions and including means operative to hold and
 90 release the hammer, the said means releasing the hammer upon a movement of the trigger forward from its rearward position to an intermediate position followed by another rearward movement, and rendered in-
 95 operative by a movement forward of said intermediate position.

10. A firearm comprising a frame having a barrel portion, a hammer bodily movable
 100 longitudinally in said barrel portion, and having a pivotal movement about its forward end, a spring acting to move the hammer rearwardly and its rear end downwardly, a trigger pivotally mounted in said
 105 frame and provided with a trigger hook, a sear pivotally mounted in said trigger, the said hammer provided with bents separated a greater distance than the sear and trigger hook when in firing position, but cooperating respectively therewith, means acting
 110 upon or through the explosion of the cartridge to move the hammer forwardly and cause the engagement of the trigger hook with its cooperating bent, means controlled by the presence of a cartridge in the
 115 chamber to effect the release of the hammer bent from the trigger hook and to cause the other hammer bent to engage the sear upon the rearward movement of the trigger followed by a forward movement of the trigger
 120 to an intermediate position.

11. A firearm comprising a discharging mechanism including a trigger having rearward and forward movements and including means rendered operative by a forward
 125 movement of said trigger while still permitting the rearward movement thereof for preventing accidental operation of the discharging mechanism.

12. A firearm comprising a hammer, a 130

hammer releasing device and means for automatically rendering said releasing device inoperative during the absence of a cartridge from the cartridge chamber.

5 13. A firearm comprising a hammer, a hammer releasing device normally inoperative during the absence of a cartridge from the cartridge chamber, and means for automatically rendering said releasing device
0 operative during the presence of a cartridge in the cartridge chamber.

14. A firearm comprising a frame having a barrel portion and a depending handle portion, both recessed from the side, a cartridge magazine fitting said handle recess and removable and insertible from the side thereof, and a barrel fitting the barrel recess and when in normal position locking the magazine in place.

0 15. A firearm comprising a frame having a barrel portion and a depending handle portion, both recessed from the side, a cartridge magazine fitting said handle recess and removable and insertible from the side
5 thereof, a barrel fitting said barrel recess and movable longitudinally therein, the said barrel when in rearward position locking the magazine in place, and when at a predetermined forward position releasing the
0 magazine.

16. A firearm comprising a frame having a barrel portion and a depending handle portion, the said barrel portion being recessed from the side, a barrel and a breech block connected to permit relative longitudinal, and prevent relative rotary, movement, the frame and the barrel provided with cooperating recesses and projections whereby the barrel is prevented from rotation except at a predetermined position, and when moved to said predetermined position it may be partially rotated to remove it from the side of the frame, a cooperating transverse rib and groove on the breech block and
5 frame to lock the breech block against longitudinal movement, but permit rotary movement thereof to enable it to be removed with the barrel from the side of the frame.

0 17. A firearm comprising a barrel provided with a bore of gradually decreasing cross sectional area from breech to muzzle and rifled with grooves of uniform depth and uniform width throughout.

5 18. A firearm comprising a hammer, means for giving a firing movement to the hammer, hammer releasing mechanism including a trigger adapted to assume rearward, forward and intermediate positions and including means operative to release the
0 hammer by a movement of the trigger forward from its rear position to an intermediate position followed by a rearward movement, and means for decreasing liability of accidental discharge of the firing

arm upon or by a movement of said trigger
65 forward of said intermediate position.

19. A firearm comprising a hammer, means for giving a firing movement to the hammer, hammer releasing mechanism including a trigger adapted to assume rearward, forward and intermediate positions
70 and including means operative to release the hammer by a movement of the trigger forward from its rear position to an intermediate position followed by a rearward
75 movement, and means for holding the trigger in the said intermediate position.

20. A firearm comprising a barrel, a cartridge magazine, means actuated upon or through the explosion of the cartridge to present a passageway for the feed of a cartridge from the magazine to the cartridge chamber of the barrel, and means independent of the barrel movable into engagement with the bullet end of the succeeding cartridge to prevent said succeeding cartridge
80 from interfering with the loading operation.

21. A firearm comprising a barrel, a cartridge magazine, means actuated upon or through the explosion of the cartridge to present a passageway for the feed of a cartridge from the magazine to the cartridge chamber of the barrel, and means independent of the barrel and exterior of the magazine and movable thereinto over the bullet
85 end of the succeeding cartridge to prevent said succeeding cartridge from interfering with the loading operation.

22. A firearm comprising a barrel, a cartridge magazine, means actuated upon or through the explosion of the cartridge to present a passageway for the feed of a cartridge from the magazine to the cartridge chamber of the barrel, and means independent of the barrel movable into engagement
100 with the bullet end of the succeeding cartridge to prevent said end rising and interfering with the loading operation.

23. A firearm comprising a frame, a barrel movable longitudinally therein, means
110 for giving a forward movement to the barrel upon or through the explosion of the cartridge, a cartridge magazine, means actuated by or through the forward movement of the barrel to present a passageway for the feed
115 of the cartridge from the magazine to the cartridge chamber, and means movable into engagement with the bullet end of the succeeding cartridge to prevent said end rising into the path of and interfering with the
120 rearward movement of the barrel.

24. A firearm comprising a frame having a barrel portion, a hammer bodily movable longitudinally in said barrel portion and having a pivotal movement about its forward end, and a spring connected to the hammer and acting to move the hammer
125 rearwardly to give it its firing movement

and also acting to swing the hammer about the forward end thereof to bring it when unrestrained to a position of safety.

25. A firearm comprising a hammer, means for giving the hammer a firing movement, the said means normally acting to move the hammer out of the path of its firing movement.

26. A firearm comprising a frame having a barrel portion and a depending handle portion, a cartridge magazine located in said handle portion, means for yieldingly feeding the cartridges upwardly in said magazine, trigger mechanism and means actuated thereby for engaging the bullet end of the next to the top cartridge upon the feeding of the topmost cartridge into the cartridge chamber.

27. A firearm comprising a hammer, a movable barrel receiving its forward movement upon and through the explosion of the cartridge, means for cocking the hammer by the movement of the barrel, the said barrel being provided with a rifle bore of gradually decreasing cross-sectional area from breech to muzzle and rifled with grooves of uniform depth and uniform width throughout, whereby the forward movement of the barrel is insured.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM O. BARNES.

Witnesses:

ALDRICH H. MEYER,
WERNER A. LOSQUIST.