

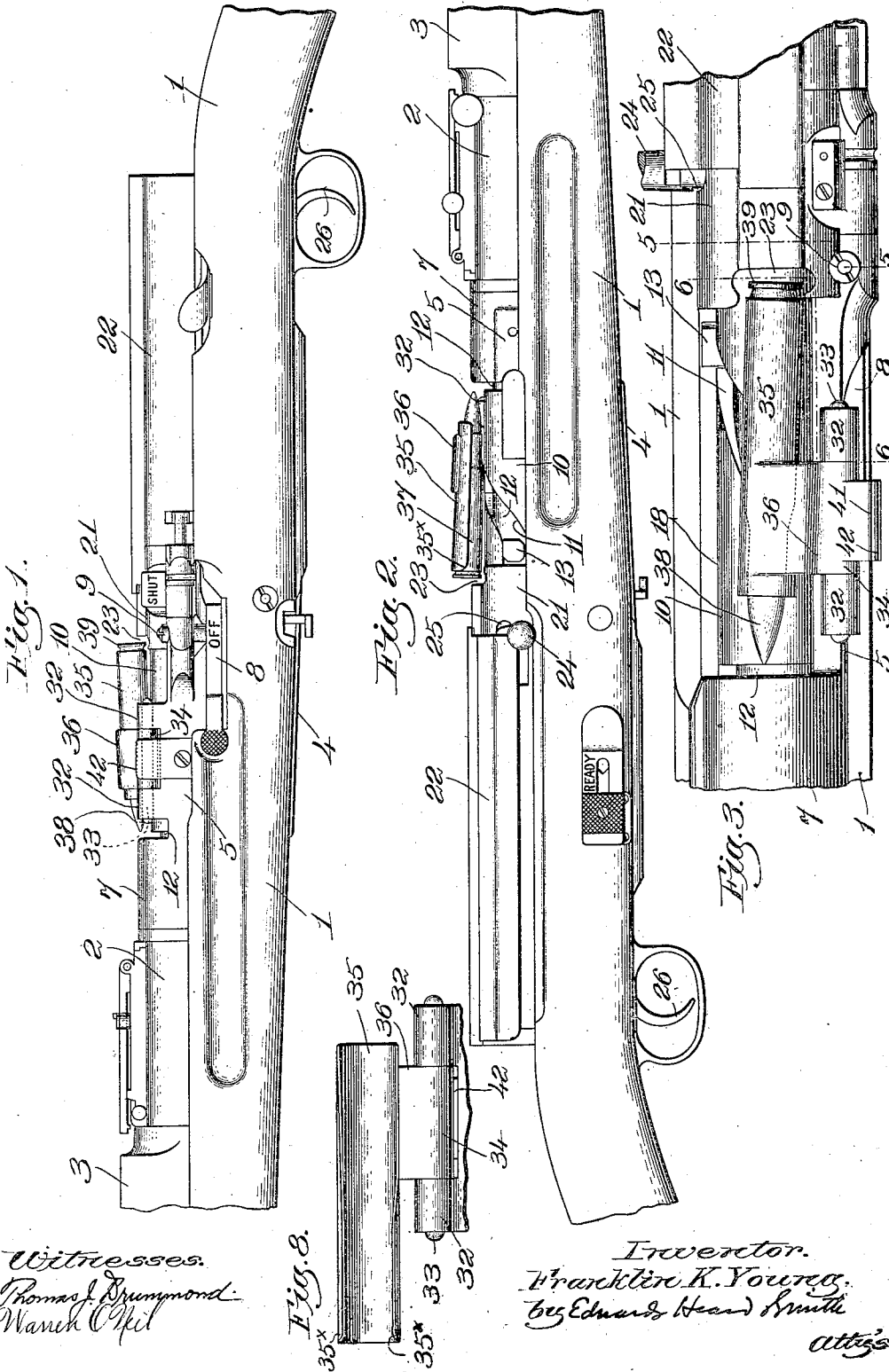
F. K. YOUNG.
FIREARM.

APPLICATION FILED MAY 4, 1912.

Patented Apr. 8, 1913.

2 SHEETS—SHEET 1.

1,058,132.



Witnesses.
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2 SHEETS-SHEET 2.

Fig. 4.

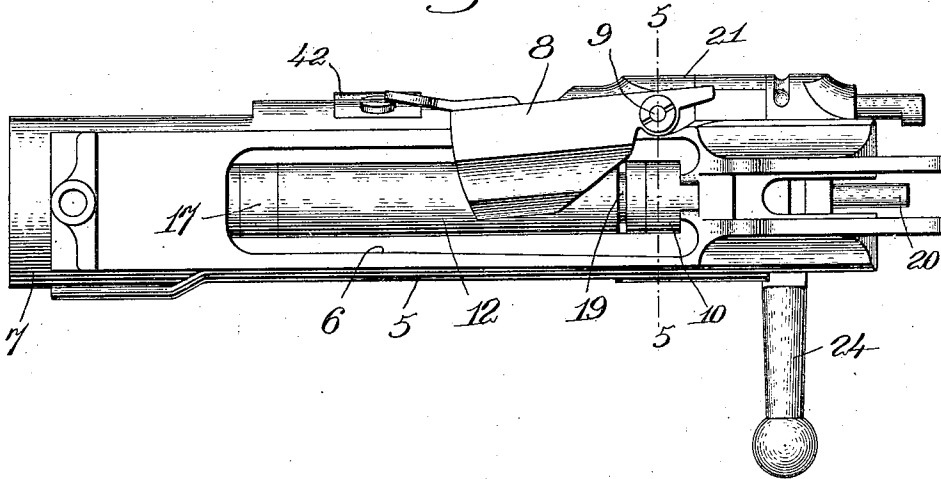


Fig. 5.

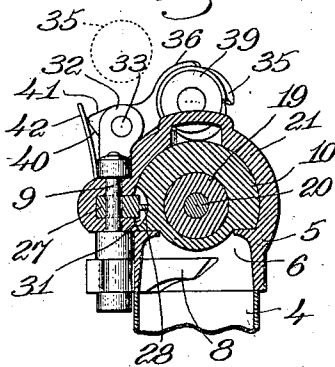


Fig. 6.

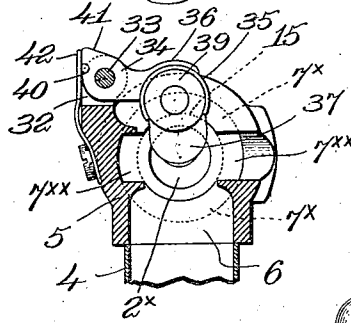
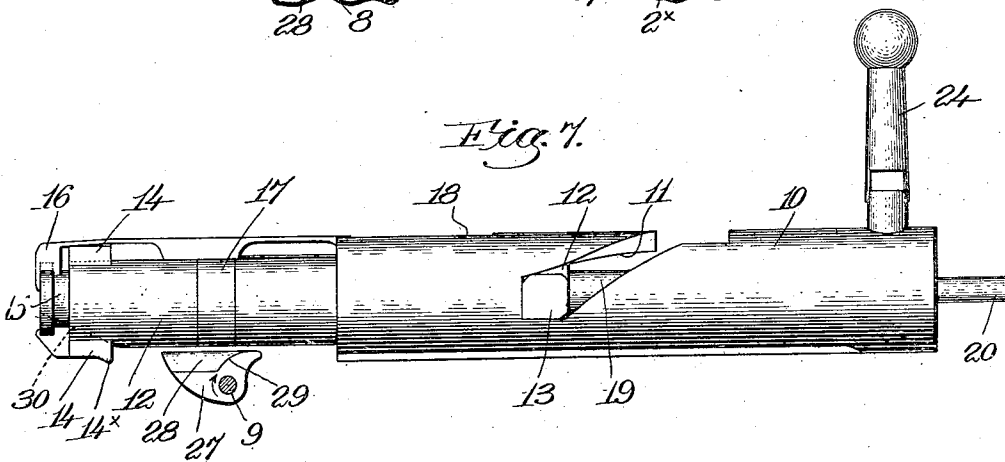


Fig. 7.



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UNITED STATES PATENT OFFICE.

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FIREARM.

1,058,132.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed May 4, 1912. Serial No. 695,060.

To all whom it may concern:

Be it known that I, FRANKLIN K. YOUNG, a citizen of the United States, and resident of Winthrop Highlands, county of Suffolk, State of Massachusetts, have invented an Improvement in Firearms, 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 improvements in firearms of the type wherein the breech mechanism is movable toward and from the fixed barrel, whether such movement is wholly automatic, as in the so-called automatic self-loading firearm, or whether the movement of the breech mechanism is effected manually, and so far as my present invention is concerned, and the operation thereof, it is not material how the breech mechanism is operated, nor is the invention restricted to any specific construction of such mechanism provided it is of the type above mentioned.

In United States Patent No. 998,367 granted to me July 25, 1911 I have shown an automatic self-loading firearm with a novel and efficient breech mechanism of the type referred to, the ammunition being contained in a magazine and fed therefrom to the cartridge-chamber of the barrel by the operation of the breech mechanism the latter being operative manually when it is desired to use the gun as a hand-arm.

Prior to my present invention, so far as I am aware, no automatic self-loading firearm has ever been devised which can be operated automatically unless the ammunition therefor is contained in a suitable magazine or container and from which the ammunition is drawn. That is, it has been impossible to operate the firearm automatically for single shot firing independently of the magazine, for the simple and conclusive reason that the automatic action of the breech mechanism is so rapid it precludes the possibility of manually loading the gun when the breech is opened for a small fraction of a second.

My present invention has for its primary object the production of simple and efficient means whereby an automatic self-loading firearm can be operated automatically for single shot firing independently of the magazine.

In accordance with my invention I have provided what may be called a single-shot automatic action or attachment for an automatic self-loading firearm, which attachment comprises essentially a cartridge holder in its construction and operation separate from and independent of the magazine of the gun. This cartridge holder is so arranged that it will position automatically a fresh cartridge when the breech mechanism is retracted, so that the forward movement of said mechanism will engage said cartridge, remove it from the holder, and insert it in the chamber of the barrel of the gun, the magazine being cut off or inoperative at such time. The forward movement of the breech mechanism not only takes the cartridge from the holder and inserts it in the chamber but it also returns the holder to position for reloading manually, and by a slight movement the user of the firearm can place the cartridge holder in either active or inactive position, the said holder remaining in either position until moved positively therefrom.

By means of my invention I am able to make available a fresh cartridge for immediate insertion in the chamber of a firearm after firing, and particularly a firearm the magazine whereof is empty, or partly or entirely filled but cut off and its contents held in reserve. I am thus enabled by my present invention to utilize the retractive movement of the breech mechanism of a firearm to place a fresh cartridge in front of the said mechanism, and to utilize the forward or return movement thereof to insert such cartridge into the cartridge-chamber of the barrel. The facility with which the single-shot action or attachment can be quickly and easily thrown into or out of operative condition is an important feature of the invention.

My present invention and the functions performed thereby are, so far as I am aware, altogether novel and heretofore have never been applied to or contained in the organization of any self-loading firearm.

The construction herein shown and described is one practical embodiment of my invention which has been thoroughly and effectively tested and operated in actual practice and has been found to perform with the greatest accuracy and precision all of the functions and carry out all of the

objects for which it was devised. Inasmuch as the single-shot action or attachment comprehends but a single moving part, in the present embodiment of my invention, and as the movement thereof is relatively slight, the possibility of disarrangement or damage is reduced to a minimum.

If an automatic self-loading firearm embodying my present invention is to be used for single-shot firing the magazine is cut off, thereby retaining any ammunition therein as a reserve, and the single-shot attachment is moved into active position. Conversely, by throwing out of action such attachment and cutting in the magazine the firearm can be used instantly as a full automatic self-loading arm until the ammunition in the magazine is exhausted. Should the necessity then arise for continuing the gun in action the single-shot attachment is thrown into operation, and as long as ammunition is obtainable the efficiency of the gun as a weapon is unimpaired.

The foregoing characteristics make my improved firearm peculiarly adapted for military armament, for in the one weapon the user has all the advantages of a full automatic self-loading firearm and of a single-shot automatic self-loader, while if necessary the arm can also be operated manually for either single-shot or magazine firing. Inasmuch as the functions of the single-shot action or attachment are governed or controlled by the movements of the breech mechanism it is, manifestly, immaterial whether such movements are effected automatically or manually.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Herein I have illustrated an automatic self-loading firearm having, for the sake of convenience, a breech mechanism constructed and operating substantially as shown and described in my patent hereinbefore referred to, except that herein the jacket is provided with a cam groove and the cooperating lug or follower is fixedly attached to the locking sleeve, a mere reversal of the patented structure, and herein I have provided means for ejecting the spent cartridge case or shell at the side of the receiver, instead of at the top, as in said patent. The change in the location of the ejecting means is to avoid interference with the operation of the single-shot automatic action.

So far as my present invention is concerned it is to be understood that it is not restricted to any particular breech mechanism provided the latter has a movement toward and away from the cartridge-chamber in the barrel, and the particular breech mechanism shown herein has been selected

for illustrative purposes and also because such mechanism is efficient, simple, and well adapted for the purpose.

Figure 1 is a left hand side elevation of a sufficient portion of an automatic self-loading firearm to be understood, with one embodiment of my present invention applied thereto, the breech mechanism being shown in closed or firing position, with the cartridge holder of the single-shot action sustaining a cartridge in readiness to present it for insertion in the chamber of the barrel when the breech mechanism is retracted; Fig. 2 is a right hand side elevation of the mechanism shown in Fig. 1, with the various parts in the same position; Fig. 3 is a top plan view, much enlarged, of a portion of the mechanism illustrated in Fig. 1, to show more clearly the cartridge holder and its position with relation to the breech mechanism. Fig. 4 is an enlarged underside view of the receiver and the breech mechanism therein, detached from the gun and with the magazine removed, the cut off for the magazine being shown clearly; Fig. 5 is a transverse sectional detail on the line 5-5, Figs. 3 and 4, looking toward the left; Fig. 6 is a partial transverse sectional detail on the line 6-6, Fig. 3, looking toward the left, showing the position assumed by the cartridge holder when the breech mechanism is retracted; Fig. 7 is a top plan view of the breech mechanism detached from the receiver and in retracted position. Fig. 8 is an enlarged right hand side elevation of the cartridge holder, empty and in inactive position, to show clearly the structure thereof.

Referring to the drawings, and more particularly to Figs. 1 and 2, my invention is illustrated as applied to a firearm similar in some respects to what is well known as the U. S. Springfield magazine rifle, model 1903, wherein the stock 1 sustains the barrel 2 and is provided with a hand guard 3 protecting the hand from contact with the barrel, the stock being recessed or cut out from top to bottom for the reception of the magazine and the receiver, the side walls of the magazine 4 being partly shown in Figs. 5 and 6, and its floor plate being seen in Figs. 1 and 2, and herein when the magazine is cut in the cartridges are elevated into loading position by a spring-actuated follower, (not shown) in well known manner. The particular construction of the magazine, however, forms no part of my present invention and requires no further illustration or explanation, and it is to be noted that the Springfield rifle above referred to is not an automatic self-loading arm, under any circumstances.

The breech mechanism is contained in and supported by the receiver 5, open at its top and at its bottom for a portion of its length, the bottom opening 6, Fig. 4, being located

above the top of the magazine 4, the forward end of the receiver having as a rigid part thereof a housing 7 into which is secured the rear end of the barrel 2 provided with the usual cartridge chamber 2*, Fig. 6, and said housing is also provided interiorly with locking-lug recesses 7*, Fig. 6, substantially as in my patent, for the locking-lugs of the locking sleeve, to be referred to.

The magazine cut-off 8 is shown in Fig. 4 in position to cut off the magazine and to prevent the passage of any ammunition therefrom into the receiver when the breech mechanism is retracted, the cut-off being mounted to swing laterally about a stud 9 carried on the left hand side of the receiver. The particular construction of the receiver and the breech mechanism is not essential, and detailed description and illustration of such parts herein is made only so far as is deemed desirable for a proper understanding thereof, for all of the salient features of construction and operation of these parts are clearly set forth in my prior patent.

The portions of the breech mechanism herein shown comprise the jacket 10 supported by and slidable longitudinally in the receiver 5, said jacket having a cam groove 11 therein the rear end of which is parallel to the axis of the jacket, while the forward portion of said groove is turned at an angle thereto, see Figs. 2 and 4. Said jacket supports the cylindrical and tubular locking sleeve 12, rotatable and longitudinally movable in the jacket by the cooperation of a lug or follower 13 (rigid with the sleeve) and the cam groove 11, the forward end of the said sleeve having locking-lugs 14 thereon adapted to enter the locking-lug recesses 7*, previously referred to, and by reference to Fig. 6 it will be seen that the entrance openings 7** for said recesses are diametrically opposite each other. At its forward end the sleeve 12 sustains the neck of the bolt head 15, Fig. 7, the enlarged end of said bolt head engaging the extractor 16, its rearwardly extended shank being connected with the locking sleeve by a collar 17 rotatably mounted thereon, the shank sliding longitudinally in a recess 18 of the jacket. The breech bolt 19 extends into the rear end of the sleeve 12 and at its forward end is adapted to engage the rear end of the neck of the bolt head, as in my patent, the firing pin 20, partly shown in Figs. 4, 5 and 7, passing through the breech bolt and bolt head, the rear end of said breech bolt being fixed to the rear end of the jacket 10. At the rear end the receiver is arched, at 21, and behind it the cover plate 22 is mounted on the stock, said arched portion 21 being recessed in its front edge at 23, for a purpose to be described. The handle 24 attached to the jacket 10 projects through the slot 25 in the receiver at the right hand side thereof,

to permit the necessary movement of the handle when the breech mechanism is operated, the handle enabling the operator to manipulate the gun as a hand-arm when desired.

When the breech mechanism is moved forward to close the breech the lugs 14 pass into the entrance openings 7** formed in the walls of the receiver 5 and housing 7, and when the locking sleeve 12 is given one-quarter of a revolution said lugs enter and engage with the recesses 7* when said sleeve is in its most forward position, and when so engaged the locking sleeve cannot be moved longitudinally. The said sleeve is rotatable, however, when the lugs 14 are in the recesses 7*, and the lugs can be disengaged from such recesses only by a partial turn of the sleeve and when so disengaged the locking sleeve may be moved rearwardly. When the breech mechanism is in closed or firing position, Figs. 1 to 4, inclusive, the locking lugs 14 are 90° from the position shown in Fig. 7, wherein the breech mechanism is shown in retracted condition.

Supposing that the breech mechanism is locked in firing position, Figs. 1 to 4, and that a cartridge is in the cartridge chamber. When the trigger 26 is pulled the hammer (not shown) is released and is driven against the rear end of the firing pin 20 and the point of the latter is projected through the bolt head 15, and the cartridge in the cartridge chamber is fired. As the face of the bolt head is in contact with the base of the cartridge-case at the time of the explosion the force from such explosion is communicated from the base of the cartridge-case to the bolt head, the latter is put in motion rearwardly, and through its neck force from the explosion is transmitted to the breech bolt 19; the rear end of the latter being fixed to the jacket the force from the explosion is transmitted to said jacket, and the jacket and breech bolt are set in motion rearwardly. As the path of the locking sleeve follower 13 is at first coincident with the straight or posterior portion of the cam groove 11 the initial movement of the jacket and breech bolt does not act upon the locking sleeve 12, which remains locked while the bullet is given time to pass out of the barrel and the pressure of the gases upon the face of the bolt head and the locking-lugs 14 is reduced, but the usual main spring is partly compressed by the initial movement of the jacket. The main spring and juxtaposed parts, the hammer, and the controlling devices therefor may all be as shown in my patent. When such initial movement is completed the continued rearward movement of the jacket 10 causes the follower 13 to engage in the diagonal portion of the cam groove 11, Fig. 7, and thereby the locking sleeve 12 is caused to partially

turn and disengage the locking lugs from the recesses 7* and position them opposite the entrances 7**, Fig. 6. The follower 13 now is engaged with the front end of such cam groove 11, as shown in Fig. 7, and from this time on all of the parts of the breech mechanism complete the rearward movement as one piece. The parts of the breech mechanism in this final rearward movement extract the case of the fired cartridge and pull it against the ejector 27, pivoted on the stud 9, which ejector throws the cartridge case outward laterally to the right through the opening at the right hand side of the receiver between the housing 7 and the part 21. The ejector has a lateral fin or rib 28 at its inner side, and a cam face 29, Fig. 7, and a diagonal slot 30 is formed in the front end of the locking sleeve 12, the bolt head 15, and the left hand locking-lug, as indicated by a dotted line in Fig. 7, and when the breech mechanism is nearly at its extreme rearward position the fin 28 enters the slot, while the corner 14* of the lug 14 strikes the cam face 29 and turns the ejector in the direction of the arrow so that its tip strikes the base of the cartridge case with a quick blow and throws it sidewise to the right out of the receiver. Meanwhile the rearward movement of the breech mechanism has thrown back the hammer and set the trigger, the continued compression of the main spring gradually bringing the parts of the breech mechanism to rest with all of its parts back of the rear wall of the magazine. If the latter is cut in the follower therein has lifted the top cartridge into position in front of the bolt head, and the compressed main spring now expands, propelling the breech mechanism forward and carrying with it the cartridge, the hook of the extractor engaging the base of the cartridge case, and the cartridge case is pushed into the cartridge chamber 2*. At this time the locking-lugs 14 have passed through the entrances 7** to the locking-recesses 7* and the bolt head and locking sleeve have come to rest, but as the jacket 10 continues its forward movement the diagonal part of the cam groove 11 and the follower 13 cooperate, rotating the sleeve and causing the lugs 14 to enter and engage the recesses 7*, thereby locking the sleeve in the position shown in Figs. 1 to 4, and the firearm is now loaded and ready to be fired. When the forward movement of the locking sleeve begins the ejector 27 is returned to the position shown in Fig. 7, and as the jacket 10 moves forward the ejector enters a longitudinal groove 31 formed in the exterior of the jacket, as shown in Fig. 5. The retractive movement of the breech mechanism after firing and its forward or return movement to load and to be locked for firing will now be understood, and the single-shot action or

attachment will be described. Upon the left hand side of the receiver 5 are formed two upright and separated lugs 32, which support a fulcrum pin 33 parallel to the path of the breech mechanism and bridging the gap between the lugs, and upon the intervening part of said pin I mount the hub or base 34 of a cartridge holder proper 35, connected with the hub by an extension 36.

Preferably the hub, extension, and holder 35 will be made as a forging and suitably machined to the requisite shape, the ends of the hub fitting smoothly between the lugs 32 and rocking on the fulcrum pin 33. The holder proper 35 is reduced in thickness to be slightly resilient, and in shape it is substantially a cylindrical segment of less length than the cartridge, and of such internal diameter at its rear end that the larger end of the cartridge case 37 will slightly expand the side walls of the holder when inserted therein. The rear end of the holder is an arc of considerably more than 180°, as shown in Figs. 5 and 6, but its front end is an arc of slightly less than 180°.

As shown in Figs. 1 and 2 the holder is downwardly inclined slightly from the rear end when in active position, to thereby depress the tip of the cartridge below the top of the housing 7, so that the transverse arc of the latter will serve as a stop, if necessary, to limit the distance a cartridge can be inserted in the holder from its rear end. Such an arrangement is important, for if there were nothing to limit the forward movement of the cartridge when inserted in the holder hastily the tip of the bullet 38 might project over the top of the housing and prevent the desired loading operation. In order to properly present the base 39 of a cartridge in the holder for engagement by the bolt head 15 when the breech mechanism is retracted it is necessary to position the holder 35 with its longitudinal axis diagonally extended above the receiver, as shown in Fig. 3, as otherwise the downward inclination of the holder from the rear to the front, shown in Figs. 1 and 2, would throw the base 39 off center at the time of loading. The resiliency of the holder causes its contracted rear end to grip the cartridge case lightly but securely, while the forward part of the cartridge is loose in the holder, so that when the cartridge is moved forward by the return or forward movement of the breech mechanism it can be readily withdrawn or discharged from the holder as the base of the cartridge case comes opposite the wide opening at the front end. The hub 34 has formed upon it between the lugs 32 a cam portion presenting two flat faces 40, 41, clearly shown in Figs. 5 and 6, either of which is adapted to be engaged by a strong leaf spring 42 secured to the exterior of the receiver, and when it is desired to

throw the single-shot attachment out of action the holder is swung up and to the left into dotted line position, Fig. 5, or as shown in Fig. 8, in which position it is retained by the pressure of the spring 42 upon the cam face 41.

When the attachment is to be used the holder is swung downward and to the right until its cam face 40 is engaged by the spring 42, if the holder is empty, or if there is a cartridge therein the parts will assume the position shown in Fig. 5, the exposed portion of the cartridge case adjacent the shoulder thereof resting upon the jacket 10, as shown best in Fig. 2. The spring 42 is always under some tension, varying according to circumstances, but as will be manifest the cartridge holder will be held by said spring in either active or inactive position until moved positively therefrom. When the single-shot attachment is to be used the magazine is cut off by moving the cut-off 8 into the position shown in Figs. 4 and 5, and the cartridge holder 35 will be moved to active position, as described.

Suppose the parts to be as shown in Figs. 1 to 5 inclusive, with a cartridge in the cartridge chamber, and another in the holder 35, the latter cartridge resting upon the jacket 10, Fig. 2. The trigger is pulled, the cartridge in the chamber is fired, and the breech mechanism is retracted as has been described, ejecting the spent cartridge case sidewise beneath the cartridge in the holder, the jacket sliding rearward from beneath the latter cartridge, and as the jacket moves rearward from under such cartridge the holder is depressed instantly by the spring 42 toward the position shown in Fig. 6, and such movement is completed when the bolt head 15 moves back behind the base 39 of the cartridge. The tip of said cartridge then drops downward out of the forward end of the holder 35 toward the cavity of the receiver, while the cartridge base is still held by the rear end of the holder, but the base 39 has been positioned in front and in the path of movement of the bolt head 15, indicated by dotted lines in Fig. 6. Now the breech mechanism is moved forward by the expanding main spring, the bolt head 15 engages the base 39 of the positioned cartridge and moves it forward through the holder 35 and out of it at its forward end, and pushes such cartridge into the cartridge chamber 2* as the breech mechanism closes and is locked, the lower left hand edge of the holder 35 first riding over the locking sleeve and then over the jacket 10 as the latter comes to rest. The gun is now loaded with the cartridge which was formerly in the holder 35 and is ready to be fired, and the empty holder is ready to receive a fresh cartridge, which the user of the gun inserts tip foremost in the rear end of the holder,

the latter lifting slightly against its spring 42 as the shoulder of the inserted cartridge traverses the top of the jacket 10.

When loading a cartridge into the holder the operation is facilitated by the recess 23 just back of and adjacent the rear end of the holder, and this recess also permits the free descent of the base of the cartridge into loading position when the breech mechanism is retracted. It will be observed that the movement of the cartridge holder to present its cartridge in position to be loaded is effected by the spring 42, and that such movement is governed or controlled solely by the retractive movement of the breech mechanism, and thus is altogether automatic, and that upon the forward or return movement of the breech mechanism the cartridge is withdrawn automatically from the holder and pushed into the cartridge chamber of the barrel while the holder is returned to position to be re-loaded. Thus the only manual operations requisite are those of pulling the trigger to fire the cartridge in the chamber and inserting a fresh cartridge in the holder, and the cycle of operations described can be repeated as often as may be desired, in absolute independence of the magazine and whether the latter has or has not any ammunition therein. I have thus provided means whereby an automatic self-loading firearm can be used independently of the magazine as an automatic single-shot arm, and by throwing the single-shot attachment out of action and cutting in the magazine I can instantly return to the full automatic self-loading operation. By engaging the fresh cartridge near its base in the holder 35 the tip or nose of the cartridge is free to drop instantly toward or into the cavity of the receiver and toward the axis of the barrel when the jacket is retracted, thus directing the tip of said cartridge toward the cartridge chamber and reducing the necessary rocking movement of the holder on its fulcrum 33 to properly position the cartridge base 39 for engagement with the forwardly moving bolt head. As shown in Fig. 8, the sides of the holder 35 are rounded at their rear ends, as at 35*, to ride easily onto the locking sleeve and the jacket when the breech mechanism is moved forward.

The construction is very simple, it is strong and durable, and is never in the way, whether or not the magazine is in use, and as there is but one moving part to the single-shot attachment, having a relatively slight movement, wear and tear is reduced to a minimum.

The rapidity of fire when using the arm for single-shot work is limited only by the skill of the operator in aiming and firing, and re-loading the holder. If the automatic action of the breech mechanism should for

any reason become inoperative the firearm is still serviceable, as the breech mechanism can be operated as a hand-arm by means of the handle 24. So, too, if the user should neglect to re-load the holder before firing the automatic cycle of action can be reestablished by retracting the breech mechanism manually and inserting a cartridge by hand in the cartridge chamber.

From the foregoing description it will now be obvious that the particular structure of the breech mechanism is not material provided it is of the type which is movable toward and from the fixed or immovable barrel.

By making the holder, its hub and the connecting extension as a unitary part I obviate the use of rivets or other fastenings which might work loose, but it is altogether within the scope of my invention to make the holder proper separate from the hub and attach it thereto in any suitable manner, if for any reason such construction should be desired.

The contraction of the rear end of the holder and the inherent resiliency thereof provide for a secure yet light grip upon the cartridge at its rear end, as will be understood, and also provides for any slight variation in the external diameter of cartridge cases of the same caliber. It is true that the cartridge case might fit loosely in the rear end of the holder, for it would then be held by the tension of spring 42 between the holder and the top of the jacket, and its forward movement relative to said holder would be limited by the transverse face of the housing 7, but I prefer to make the holder with a slight spring action at its rear end, as has been described.

An automatic self-loading firearm is one in which the ejecting and loading are performed by or through the energy of the discharge or explosion, and heretofore the wisdom of arming military forces with such an arm has been open to question because of wasteful and badly directed fire oftentimes. The advantages of the automatic arm are that the soldier is in a constant state of readiness, and that its faults are more than counterbalanced in critical moments when rapid fire action is of prime importance. With the single-shot attachment embodied therein the automatic self-loading firearm is freed from the objections of wasteful or badly directed fire and yet retains all of the valuable features which it is acknowledged to possess.

Herein I have used the term "firearm" in its broad sense, as illustrative rather than restrictive.

Various changes or modifications in details of construction, operation and arrangement may be made by those skilled in the art without departing from the spirit and

scope of my invention as set forth in the claims hereunto annexed.

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

1. In a firearm, a self-loading mechanism, a magazine adapted to present ammunition thereto, and means to cut the magazine into and out of action, and means to supply ammunition to the self-loading mechanism when the magazine is cut out of action.

2. In a firearm, a self-loading mechanism, a magazine adapted to present ammunition thereto, a cut-off to prevent the passage of ammunition from the magazine to said mechanism, and means independent of the magazine and governed as to its operation by the self-loading mechanism to present ammunition thereto when the magazine is cut off.

3. In a firearm, a self-loading mechanism, means to furnish the same with a plurality of cartridges one after another from a reserve supply, other and independent means to present automatically single cartridges to the self-loading mechanism, and a device to prevent the cooperation of the first-named means with the self-loading mechanism when the second-named means is in action.

4. In a firearm having a magazine, and a cut-off therefor, a barrel having a chamber, breech mechanism movable into and out of firing position with relation thereto, a movable cartridge holder positioned for loading when the magazine is cut off and the breech mechanism is in extreme forward position, and means acting upon retraction of the breech mechanism when the magazine is cut off to cause the holder to position a cartridge therein for insertion in the chamber by forward movement of said breech mechanism, the latter upon such forward movement effecting return movement of the holder to position for re-loading.

5. In a firearm having a magazine, and a cut-off therefor, a fixed barrel having a chamber, breech mechanism movable automatically into and out of firing position with relation thereto, a manually loaded ammunition holder wholly independent of the magazine and yielding means governed by retraction of the breech mechanism when the magazine is cut off to cause said holder to position automatically the ammunition therein for insertion in the chamber by forward movement of the breech mechanism, said mechanism on such forward movement withdrawing the ammunition from the holder and returning the latter to position for manual re-loading.

6. In a firearm, a fixed barrel having a chamber, breech mechanism movable automatically into and out of firing position with relation thereto, an ammunition holder

movable into and out of operative position, and a spring cooperating with and retaining the holder in either position, said spring acting upon the holder, when operatively positioned, to cause it to present the ammunition therein for insertion into the chamber by the breech mechanism upon forward movement thereof, the retraction of the breech mechanism permitting the spring to act and forward movement of said mechanism returning the holder to re-loading position.

7. In a firearm, a barrel having a chamber, breech mechanism movable into and out of firing position with relation thereto, a manually loaded, bodily movable ammunition holder, and means governed by retractive movement of the breech mechanism to cause bodily movement of said holder to position the ammunition therein for insertion in the chamber by the return movement of said breech mechanism, the latter upon such return movement cooperating with and returning the holder bodily to position for re-loading, combined with a magazine to contain a reserve supply of ammunition and to present single charges thereof directly and independently of said holder successively and automatically into position to be inserted in the chamber by the breech mechanism, and means to throw said magazine into and out of action at will and irrespective of said ammunition holder.

8. In a firearm, a receiver, a fixed barrel having a cartridge chamber, a breech mechanism movable automatically in said receiver into and out of firing position with relation to the barrel, a cartridge holder mounted on and outside of the receiver and movable toward and from the breech mechanism, and positioned for loading when the breech mechanism is in its extreme forward position, and means governed by retractive movement of said mechanism to cause movement of the holder to present a cartridge therein into position for insertion in the chamber by the breech mechanism on its forward movement, the breech mechanism on such forward movement engaging and moving the holder back into position for manual re-loading while the previously inserted cartridge is in the chamber.

9. In a firearm, a fixed barrel having a cartridge chamber, a breech mechanism movable toward and from said chamber, spring-actuated means to sustain a cartridge exterior to the breech mechanism and to move such cartridge into the path of the latter, the cartridge resting upon said breech mechanism when the latter is in firing position, retraction of the breech mechanism permitting said means to position the cartridge for insertion in the chamber when the breech mechanism moves forward to firing position, said mechanism also acting on

such forward movement to position the spring-actuated means for manual re-loading, and a stop to limit the position of a cartridge when loaded into said means.

10. In a firearm having automatic self-loading mechanism, a magazine, means to supply automatically a cartridge to the self-loading mechanism independently of the magazine whereby the said mechanism can be operated automatically when said magazine is empty or cut off, and a device to cut off the magazine at will.

11. In a firearm, a magazine, an automatically operative loading mechanism adapted to receive ammunition from the magazine, and manually loaded means holding a single charge of ammunition to present the same to the loading mechanism when the latter is operating automatically, thereby to effect the automatic operation of the firearm independently of the magazine, said manually loaded means being at all times independent of the magazine.

12. In a firearm, a barrel, breech mechanism capable of automatic movement relatively to the barrel into and out of firing position, and a movably mounted, manually loaded single-shot attachment to present automatically ammunition for loading by the breech mechanism, the movement of said attachment into ore-loading and ammunition-presenting positions being controlled by said breech mechanism.

13. In a firearm, a fixed barrel and a receiver, breech mechanism movable in the receiver into and out of firing position, with relation to the barrel, to load a cartridge thereinto, and to eject laterally a spent cartridge case, respectively, a support on the non-ejecting side of the receiver, a hub fulcrumed thereon having a connected cartridge holder adapted to overhang and be upheld by the breech mechanism adjacent and back of the barrel, and movable into and out of the path of said mechanism, a spring acting on the hub to move said holder into such path when the breech mechanism is retracted and present a cartridge for engagement by said mechanism on its forward movement, to thereby remove the cartridge from the holder and insert it in the barrel, and means to limit spring-induced movement of the holder, the breech mechanism on its forward movement engaging the empty cartridge holder and restoring it to position for re-loading.

14. In a firearm, a fixed barrel, breech mechanism having a bodily movement axially of and toward and away from the barrel, to firing and retracted positions, respectively, a cartridge holder having a fixed fulcrum and movable into and out of position to present a cartridge for engagement by the breech mechanism when retracted, said holder being inclined with relation to its ful-

crum to depress the tip of a cartridge therein and also positioned diagonally above the breech mechanism, to present properly the base of the cartridge in front of the retracted breech mechanism, the latter when in firing position sustaining the cartridge holder and releasing it when retracted, and a spring to move the released holder into the path of the breech mechanism, the latter on its movement to firing position engaging said holder and lifting it into position for re-loading.

15. In a firearm, a receiver an automatic self-loading mechanism movable toward and away from the barrel, said barrel having a cartridge chamber, a tubular cartridge holder having at its under side an opening increasing in width toward its front end, adapted to receive a cartridge and frictionally engage the base portion thereof, a pivotal connection between the receiver and said holder, the latter if in operation being sustained by the self-loading mechanism when in firing position, and a spring to move the holder automatically when said mechanism is retracted, to present a cartridge for engagement thereby, movement of said mechanism to firing position pushing the cartridge forward through and out of the holder at its forward end and inserting it in the cartridge chamber and also elevating the empty holder to re-loading position, the enlarged opening of said holder permitting the front end of the cartridge to descend into the receiver as the cartridge base is pushed forward in the holder toward the front end thereof.

16. In a firearm, a barrel having a cartridge chamber, breech mechanism movable toward and from the barrel, to load a cartridge into the chamber and eject an empty case therefrom, a pivotally mounted, tubular cartridge holder adapted to receive a cartridge at its rear end and discharge the cartridge at its forward end, a spring to move the holder and position a cartridge therein in the path of the retracted breech mechanism and behind the cartridge chamber, whereby said mechanism on its forward movement may engage the cartridge, move it through the holder and out of the forward end thereof into the cartridge chamber, and a depending part of the holder to be engaged by said mechanism on its forward movement to lift the holder and position it for re-loading.

17. In a firearm, a barrel having a cartridge chamber, a receiver, a breech mechanism movable therein into loading and firing position, a cartridge holder carried by the receiver and movable relatively thereto, said holder constructed to yieldingly grasp a cartridge when inserted therein, means operating when the breech mechanism is retracted to cause said holder to position a cartridge

therein for engagement by the breech mechanism and insertion into the chamber by the forward movement of said mechanism, and means whereby the latter upon such forward movement effects the return of the holder to re-loading position.

18. In a firearm, a barrel having a cartridge chamber, a receiver, a breech mechanism movable therein into loading and firing position, a cartridge holder carried by the receiver and movable relatively thereto, said holder being made as a cylindrical segment and adapted to receive a cartridge at its rear end and to deliver the cartridge from its forward position, a spring acting when the breech mechanism is retracted to move the holder downward and position a cartridge therein for engagement by said breech mechanism and to remove the cartridge from the holder and cause it to be inserted in the chamber by the forward movement of said mechanism, and means whereby the latter upon such forward movement effects the return of the holder to re-loading position.

19. In a firearm having a barrel, a breech mechanism movable relatively thereto into loading and firing position, a magazine to supply ammunition automatically to said breech mechanism when retracted, a cut-off for and to render inoperative said magazine, an ammunition holder mounted adjacent the path of said breech mechanism and movable into and out of the path thereof, and means to retain said holder in operative or inoperative position and to move it toward the breech mechanism behind and adjacent the barrel, retraction of the breech mechanism causing said means to move the holder, when operative, and present ammunition therein in position to be inserted in the barrel by forward movement of said breech mechanism, whereby the firearm may be supplied with ammunition by the holder and operated when the magazine is cut off.

20. In an automatic self-loading firearm having a fixed barrel, a magazine, a device to cut it out of operation, and an automatically operated breech mechanism, in combination, a manually loaded, movable ammunition holder to present ammunition automatically into position for loading by the breech mechanism when the magazine is out of operation, and a spring to effect movement of said holder into ammunition presenting position when the breech mechanism is retracted, said mechanism on its forward movement withdrawing the ammunition from the holder and also cooperating with the latter to move it against the action of its spring to re-loading position.

21. In an automatic self-loading firearm having a fixed barrel, a magazine, a device to cut it out of operation, and an automatically operated breech mechanism, in combination, a single-shot attachment operated

automatically by the movement of the breech mechanism to present single cartridges to said mechanism to be inserted thereby into the barrel when the magazine is inoperative.

22. A single-shot attachment for magazine firearms, comprising a fixed support, a hub fulcrumed thereon and having a rigidly connected, tubular cartridge holder adapted to receive a cartridge when inserted in its rear end, said holder having resilient walls contracted for a portion of their length to frictionally engage and hold the cartridge adjacent the base thereof, when inserted in the holder, and a spring cooperating with the hub to move the holder into operative position.

23. A single-shot attachment for magazine firearms, comprising a fixed fulcrum member, a hub mounted to rock thereon and having a connected cartridge holder to engage and retain a cartridge when inserted manually therein at one end and to discharge the cartridge at its other end when moved longitudinally through the holder, flat cam faces on the hub, and a spring to cooperate with either cam face and maintain the holder in operative or inoperative position.

24. In a firearm having a fixed barrel provided with a cartridge chamber, breech mechanism movable toward and from the

barrel and including a jacket, and a magazine to supply cartridges singly to the breech mechanism when retracted, in combination, a device to render said magazine inoperative at will, a cartridge holder adapted for manual loading, fulcrumed at one side of the path of the breech mechanism and movable into and out of the path thereof, a spring acting upon the holder to maintain it and a cartridge therein upon the jacket when the breech mechanism is in firing position, retraction of said mechanism withdrawing the jacket from beneath the holder and permitting the spring to move the holder and present a cartridge therein for engagement by the breech mechanism on its forward movement, to withdraw the cartridge from the holder and insert it in the cartridge chamber, and a cam face on a part of the holder engaged by the breech mechanism on its forward movement to lift the empty holder onto the jacket into position for re-loading.

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

FRANKLIN K. YOUNG.

Witnesses:

JOHN C. EDWARDS,
THOMAS J. DRUMMOND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

Correction in Letters Patent No. 1,058,132.

It is hereby certified that in Letters Patent No. 1,058,132, granted April 8, 1913, upon the application of Franklin K. Young, of Winthrop Highlands, Massachusetts, for an improvement in "Firearms," an error appears in the printed specification requiring correction as follows: Page 7, line 96, for the compound word "ore-loading" read *reloading*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 6th day of May, A. D., 1913.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.