L. CUDIA.

FIREARM.

APPLICATION FILED AUG. 28, 1911.

1,015,226.

Patented Jan. 16, 1912.

5 SHEETS—SHEET 1.

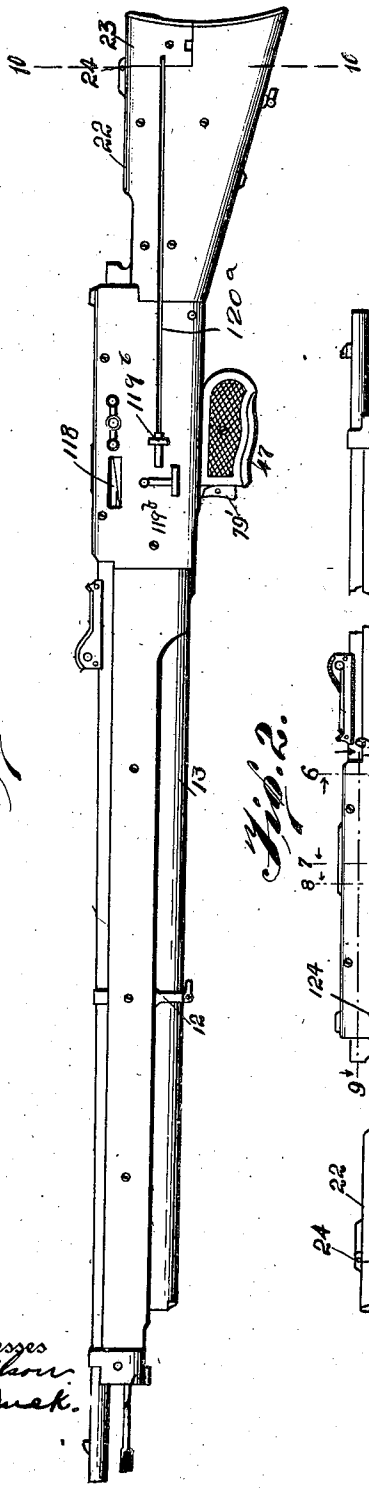


Fig. 1.

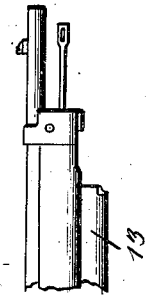


Fig. 11.

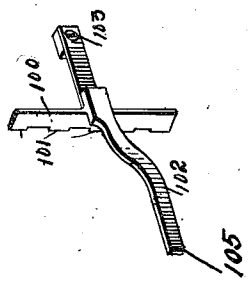
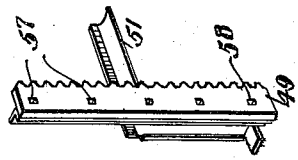


Fig. 12.



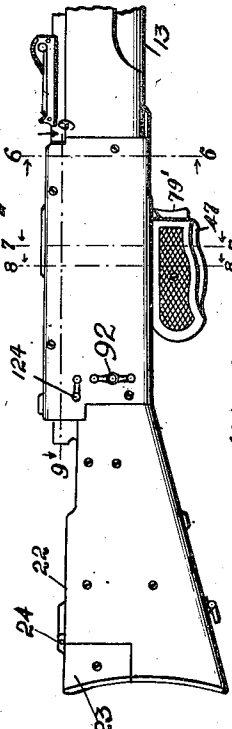


Fig. 2.

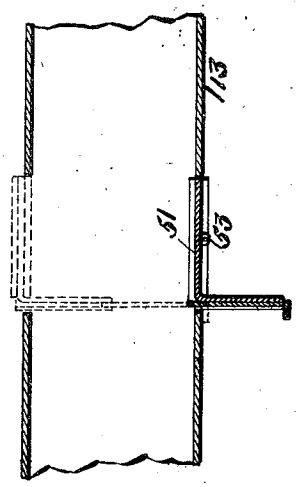


Fig. 10.

Witnesses
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5 SHEETS—SHEET 2.

Fig. 1.

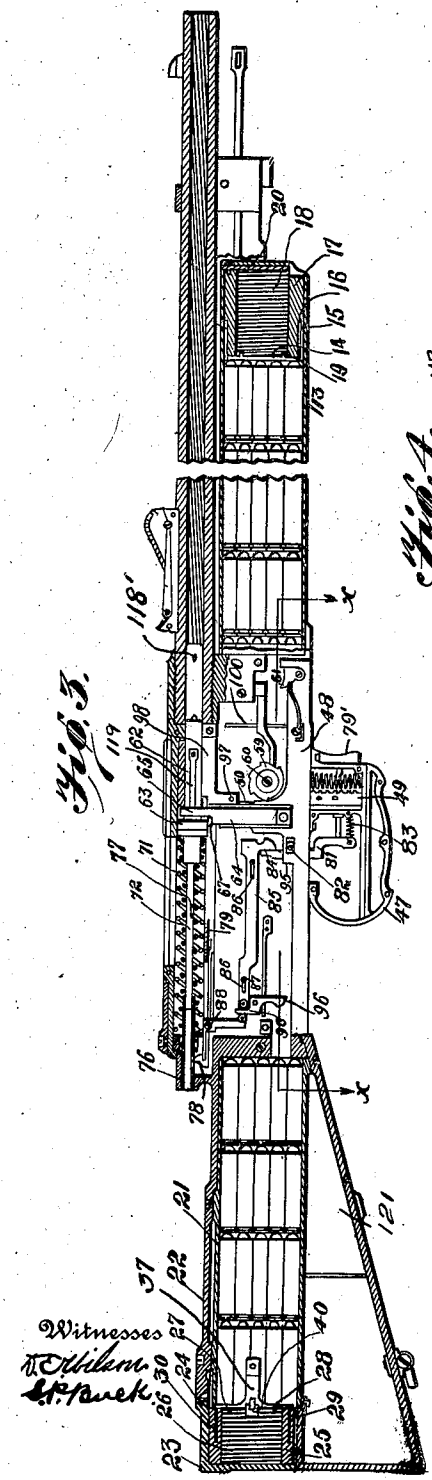
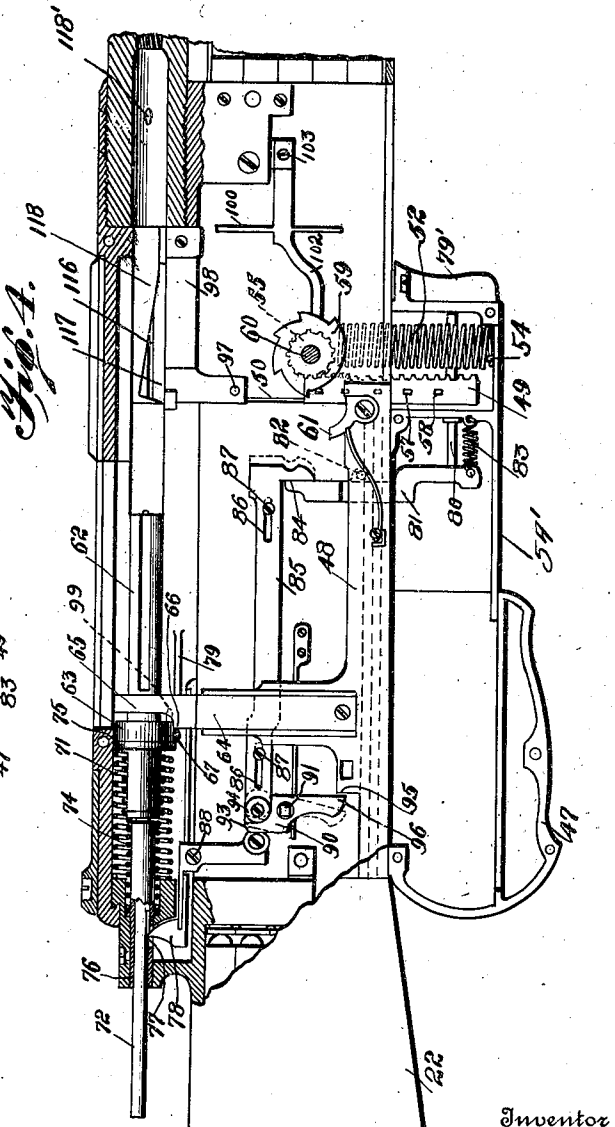


Fig. 4.



Witnesses

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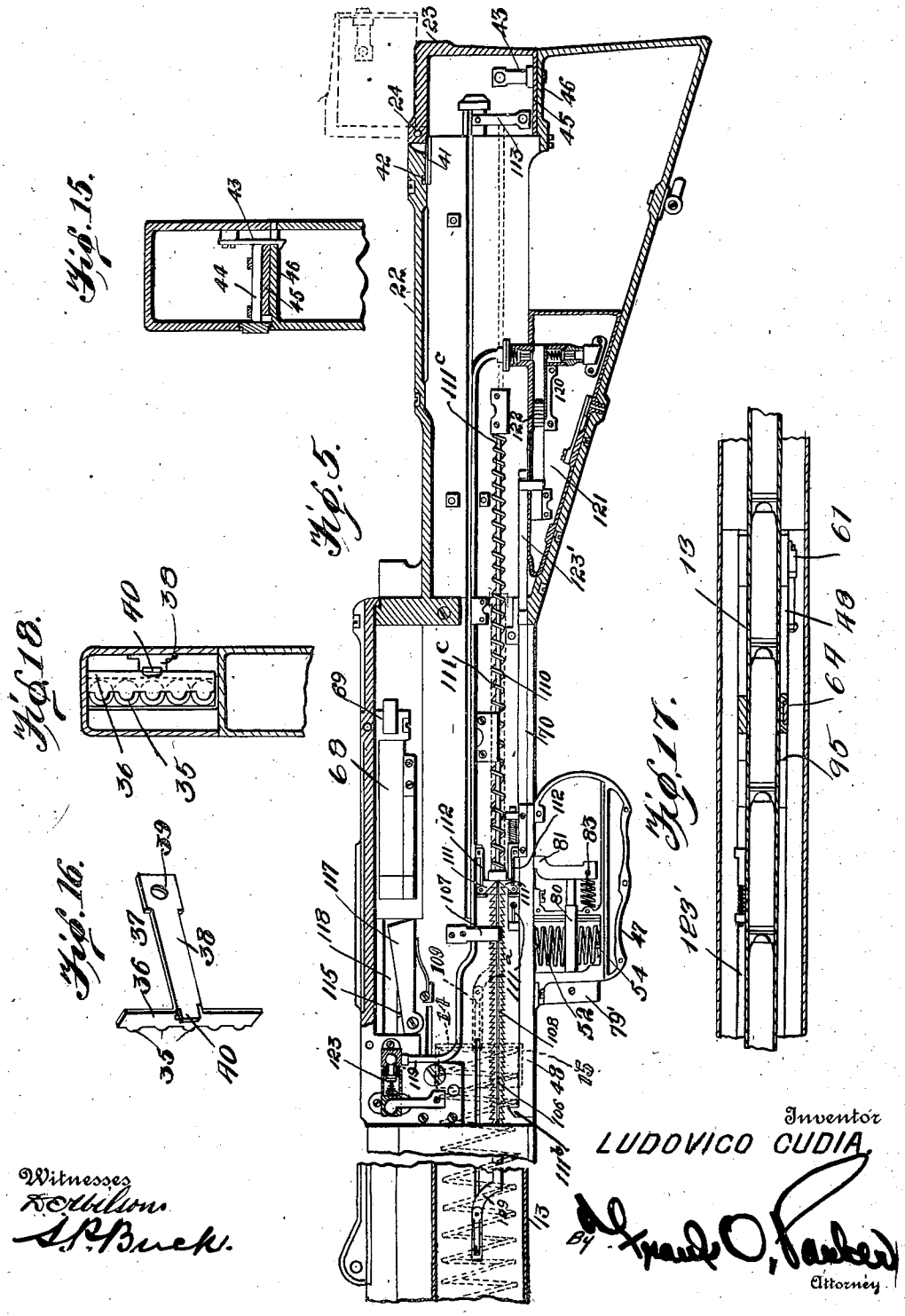
5 SHEETS—SHEET 3.



Witnesses
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APPLICATION FILED AUG. 28, 1911.

1,015,226.

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5 SHEETS—SHEET 4.

Fig. 8.

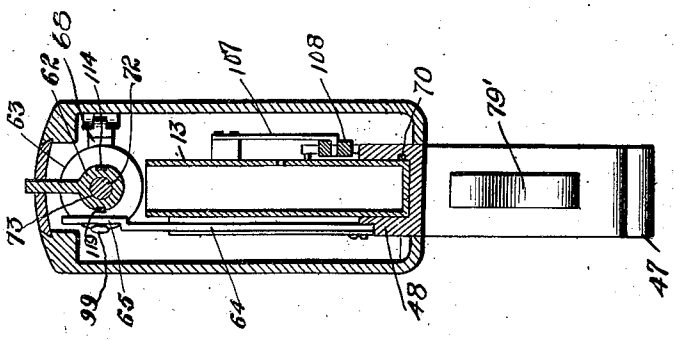


Fig. 7.

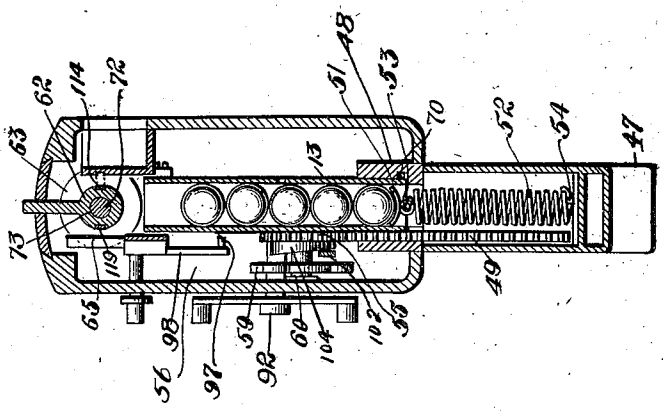
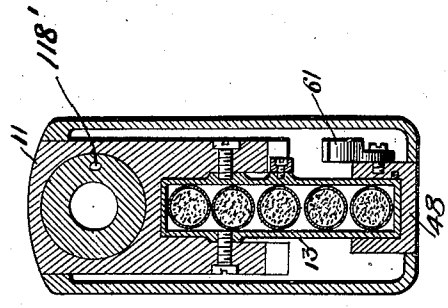


Fig. 6.



Witnesses

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APPLICATION FILED AUG. 28, 1911.

1,015,226.

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5 SHEETS—SHEET 5.

Fig. 9.

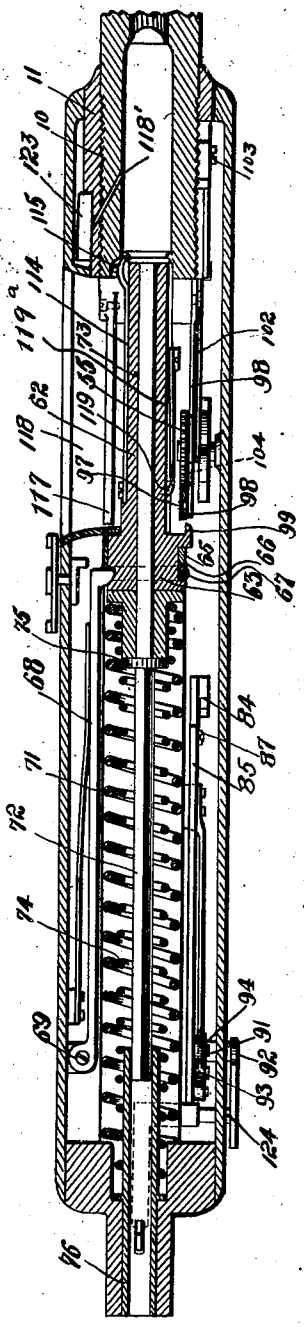
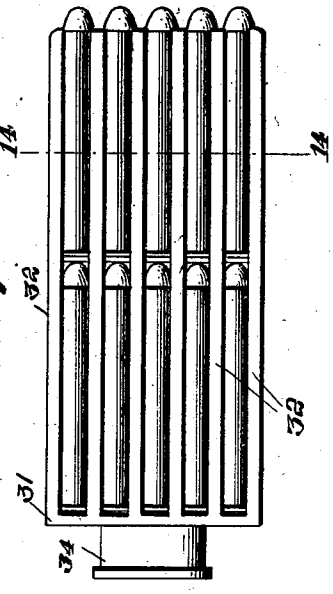


Fig. 14.

Fig. 15.



Witnesses

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UNITED STATES PATENT OFFICE.

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FIREARM.

1,015,226. Specification of Letters Patent. Patented Jan. 16, 1912.

Application filed August 28, 1911. Serial No. 646,361.

To all whom it may concern:

Be it known that I, LUDOVICO CUDIA, a subject of the King of Italy, residing at Greensburg, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

The invention relates to firearms and has particular application to certain novel and useful improvements in small arms of the magazine type, such as rifles, carbines and the like.

In the present instance I have shown my invention as embodied in a rifle adapted especially for military service, although I wish it to be understood that such invention is not limited in its construction to this particular type of firearm, nor in its useful application to the purpose mentioned.

In carrying out my invention, it is my purpose to provide a firearm, wherein a magazine is employed which extends substantially the entire length of the gun, that is, from the butt of the stock to a point adjacent to the muzzle of the barrel, such magazine being designed to receive a relatively large number of cartridges in the form of packets or clips, there being in the present instance twenty of such packets, each containing five cartridges, so that the magazine herein shown will contain at least one hundred cartridges or charges of ammunition.

It is also my intention to provide my improved gun with firing mechanism, so constructed and arranged that it may be adjusted to fire rapidly or slowly, as desired.

A still further object of my invention is to provide mechanism of novel construction, whereby the cartridges may be conveyed along the magazine and automatically fed into the firing chamber in position to be discharged.

It is also my purpose to provide my improved firearm with ejector mechanism, whereby the emptied shells may be ejected from the gun simultaneously with the feeding therein of a new cartridge or charge.

Furthermore, I aim to provide a gun which will embody in its construction the desired features of simplicity, accuracy, and efficiency.

With the above recited objects and others of a similar nature in view, my invention consists in the construction, combination, and arrangement of parts set forth and falling within the scope of the appended claims.

In connection with my improved firearm, I also provide a novel means for automatically lubricating the gun and the operating mechanism thereof.

In the drawings:—Figure 1 is a side elevation of a firearm constructed in accordance with the invention; Fig. 2 is a fragmentary elevation of the firearm, looking toward the other side thereof at the stock end; Fig. 3 is a fragmentary vertical longitudinal sectional view through the firearm; Fig. 4 is a fragmentary side view with the side of the firearm broken away; Fig. 5 is a similar view looking toward the opposite side thereof; Fig. 6 is a vertical transverse sectional view on the line 6—6 of Fig. 2; Fig. 7 is a similar view on the line 7—7 of Fig. 2; Fig. 8 is a transverse sectional view only partly through the firearm taken on the line 8—8 of Fig. 2, thus showing the trigger in front elevation; Fig. 9 is a longitudinal sectional view taken transversely through the firearm on the line 9—9 of Fig. 2; Fig. 10 is a fragmentary vertical sectional view through the magazine chamber, showing the elevator mechanism in full lines in lowered position and in dotted lines in raised position; Fig. 11 is a perspective view of the elevator and its rack; Fig. 12 is a perspective view of the cartridge retainer removed from the gun; Fig. 13 is a side elevation of the filling device; Fig. 14 is a vertical transverse sectional view through the same; Fig. 15 is a fragmentary horizontal sectional view through the hinged cap at the butt end of the gun; Fig. 16 is a perspective view of the other cartridge retainer removed from the gun; Fig. 17 is a fragmentary horizontal sectional view taken longitudinally through the magazine of the gun on the line *x*—*x* of Fig. 3; Fig. 18 is a fragmentary sectional view on the line 10—10 of Fig. 1.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

In the present instance, I have shown one embodiment of my invention which embraces a firearm of the rifle type, having a magazine designed to contain a large number of cartridges which are adapted to be fed into the firing chamber by the follower

mechanism located at the muzzle end of the gun, and also at the stock or butt end thereof. As the cartridges enter the lock frame of the gun, they are conveyed one at a time, by a suitable elevating mechanism to the entrance of the firing chamber, and into which they are fed by a reciprocating plunger or slide breech block, and are then fired by means of a reciprocating firing pin, controlled by the slidable trigger mechanism. After the cartridge has been discharged, it is ejected from the firing chamber by means hereinafter described, and the new charge inserted.

Referring now to the accompanying drawings in detail, there is extended beneath the rifle barrel and supported therefrom by means of metallic straps or bands 12 arranged at suitable intervals, the front or forward section 13 of the magazine, which is in the form of a chamber sufficiently wide and deep to accommodate a number of cartridges, in the present instance, piled one upon the other, five deep, so as to provide a plurality of series of the same. As will be seen by reference to the drawings, the packets or cartridges in this section of the magazine are arranged end to end and are designed as hereinafter described, to be fed backward toward the firing chamber. In order to feed the packets or cartidges toward the firing chamber, I provide a device, comprising a follower plate 14 having a flange 15 which is designed to slidably fit in a slot 16 in the casing 17, while 18 indicates a coiled expansion spring adapted, when fully compressed or contracted, to lie within the casing, said spring being secured, as at 19, to the follower plate, and at 20 to the rear end of the casing, said spring tending to push the plate rearwardly toward the butt of the gun, or the firing chamber, to feed the cartridges therealong, as will be readily understood.

The numeral 21 indicates the portion of the magazine which lies within the stock or butt 22 of the gun, said magazine extending entirely through the lock frame, or that portion of the gun which contains the feeding, firing and ejecting mechanism, the entrance for the loading of the magazine being at the butt stock.

The numeral 23 designates a cap, pivoted as at 24, and covering the opening of the magazine at the butt end of the stock, while 25 indicates a follower casing, containing an expansion spring 26 connected, as at 27, to the follower plate 28, the latter having a flange 29 adapted to seat in the slot 30 in the adjacent wall of the casing.

The cartridges are fed into the magazine at the time of loading in two series of five superposed cartridges each, which are carried by a clip 31 formed of a series of horizontally extending fingers 32, each of approximately triangular shape in cross section, the faces of said fingers at the inner sides thereof being concaved, as shown at 33, to conform to the circular faces of the cartridge shells. The numeral 34 indicates a hand knob for the convenient handling of the clip of cartridges. As the clip, containing the ten cartridges, is inserted or shoved into the magazine through the butt end of the gun, the rims of the inner series of cartridges in the clip will be engaged by the tongues 35 of the head 36 of the spring T-shaped retainer 37, so as to withdraw the double series of cartridges from the clip and hold the same within the magazine on the clip being withdrawn therefrom. The arm 38 of the retainer 37 is fastened, as at 39, to the wall of the gun stock.

The numeral 40 designates a finger nib for pushing or springing the retainer 37 outwardly for preventing the same from interfering with the initial insertion of the clip in the magazine when loading the same. The closing cap 23, at the butt end of the stock, is normally held in its closed position by means of a leaf spring 41 riveted as at 42, to the interior wall of the stock, while 43 indicates a spring latch actuated by the push pin 44 extending through the stock, said latch engaging with the flanges 45 and 46 to lock the cap in its closed position at the end of the stock.

The cartridge feeding mechanism.—In operation, the packets or cartridges in the section 13 of the magazine or that portion suspended beneath the barrel, are first fed into firing position, the cartridges stored in the magazine section at the stock end of the gun being fed in subsequently. It is, therefore, to be understood that while the spring actuated follower plate in the forward section 13 of the magazine is feeding the packets or cartridges backward, the spring connected with the follower plate in the section 21 of the magazine at the butt end is held in compressed or in non-feeding position.

In order to feed the cartridges, the follower mechanism is employed: The numeral 47 indicates a slide block adapted to be actuated by the operator by reciprocating the same back and forth, said slide block 47 being mounted beneath the lock casing and connected to the sliding frame 48.

The numeral 49 designates a vertical rack bar located outside of the magazine and formed with an inturned portion engaged in a vertical slot 50, the inturned portion being connected with a longitudinally extending cartridge tray 51 disposed within the magazine, which tray is normally drawn down through the medium of a retractile spring 52, fastened at 53 to the bottom of the tray, and at 54, to the trigger frame 54′ which is held stationary on the lock frame.

The numeral 55 designates a pinion mounted in the chamber 56 in the side of the stock, said pinion being designed to engage with the teeth of the rack bar 49 to move the latter vertically. This rack bar 49 is provided, in the present instance, with four spaced vertically alining slots or apertures 57 extending entirely through the rack bar and a recess 58 adjacent to the lower end of the said bar, which recess does not extend entirely through the rack bar. Contiguous to the pinion 55 is a ratchet wheel 59, the same being mounted fast upon the shaft 60 supporting said pinion and is adapted, as the sliding frame 48 is moved rearwardly toward the butt end of the stock to be struck by the spring pressed dog 61 and rotated one tooth, said rotation imparting a corresponding movement to the pinion to elevate the rack bar 49 and tray 51 carrying the cartridges.

The numeral 62 indicates the feed plunger or breech block for forcing the alining cartridge into the firing chamber of the barrel, said block reciprocating in the lock casing and being provided at one end with a head 63. Carried by the sliding frame 48 and rising therefrom at one side of the plunger or breech block 62 is a spring arm 64 having a reduced upper end 65 adapted to bear against the head 63 of the breech block, the shoulder 66 of said arm 64 being designed to contact with the arm 67 on a latch arm 68, which normally locks the breech block, to force the same outwardly for unlocking the plunger or breech block prior to the arm 64 engaging the head of the breech block for moving it backward in its chamber, the arm 68 being spring held and pivoted, as at 69. As the sliding frame 48 is moved toward the butt end of the gun in the slide way 70 the breech block will also be moved rearwardly against the tension spring 71 carrying with it the firing pin 72. This firing pin extends through the longitudinal bore 73 in the breech block and is tensioned by means of a coil spring 74 bearing against a collar 75 on the pin, the opposite end of the pin sliding in a sleeve 76 at the end of the lock frame. As the breech block moves rearwardly, it carries with it the firing pin until the notch 77 of the latter engages with the locking dog 78 and locks the firing pin, holding the same in position to be discharged. As the sliding frame moves rearwardly carrying the breech block and firing pin, the arm 64 strikes against the cam surface 79, which draws said arm outwardly, thus releasing the breech block 62 and permitting the latter to be pressed forward by its spring to feed the cartridge into the firing chamber. The sliding frame 48 is now returned to its normal position and the arm is ready to fire. If it is desired to fire the charges slowly, this is accomplished by pulling upon the trigger 79′ to which is connected a sliding bar 80 which is in turn connected to the arm 81 pivoted at 82 and normally held in non-tripping position by the contraction spring 83, the upper end of this trip arm 81 abutting against the shoulder 84 of the sliding frame 85 having slots 86—86, through which project guide pins 87. As the trigger is pulled, the trip arm bearing against the frame pulls the same forward toward the muzzle of the gun, thereby springing the dog 78 out of the notch 77 in the firing pin, the lever moving on the pivot 88, so that the firing pin is driven forward by the tension spring 74, striking the cartridge and exploding the same. If it is desired to convert the gun into a quick firing weapon, the lever arm 90 carried by the pivot 91 and actuated from the thumb knob 92 on the outside of the lock casing is moved to swing the shoulder 93 of the arm 90 upward, adjacent to the roller 94 on the frame 85, so that when the slide block and its frame are actuated, the shoulder 95 will strike the end 96 of the lever arm 90 and force the latter forward, thereby tripping the dog 78 rapidly with every backward movement of the sliding block.

As heretofore stated, the sliding rack bar 49 is provided with four apertures or slots 57 and a socket or recess 58, the latter being at the lower end of said bar. As the rack bar feeds upwardly step-by-step, which is accomplished on the rotation of the pinion, the same being intermittently actuated, the pin 97 carried at the free end of the angular spring arm 98 engages in each slot and holds the rack bar from being pulled downward by the spring 52 connected to the tray. When the socket 58, however, is in alinement with the pin 97, the arm 98 is pushed slightly outwardly by the pin bearing in the socket and as the breech block or plunger moves forward to feed the last cartridge in from the tray, the shoulder 99 carried by the breech block will project into the path of the arm 98 and bear against the same pushing it outwardly, thus disengaging the pin from the rack bar and permitting the latter, with its tray, to be drawn downwardly into its original position. It is understood that when the pin 97 on the arm 98 is engaged in the slots 57, the arm will lie close to the rack bar and out of the path of movement of the shoulder 99, so as not to be disturbed, thereby for disengaging the pin from the slot in the rack bar, the pin being beveled, so as to permit it to ride out of the slots 57 when the rack bar is forced upwardly in a step-by-step manner.

To prevent one series of cartridges from following another into position in the casing, and thereby interfering with the feeding of the cartridges already in the casing to the firing chamber, I provide a finger plate 100 having fingers 101, which plate is

carried by and arranged at right angles to the spring arm 102 fastened, as at 103, in the casing, the plate being adapted to project across the path of the cartridges in the magazine. The numeral 104 designates a cam roller turning with the ratchet 59 and against the cam surface of which roller bears the end 105 of the spring arm 102. As the cam rotates, the arm is gradually pushed outwardly, carrying with it the finger plate 100, so that at the deep portion of the heel of the cam the plate will be moved out of the path of travel of the cartridges in the magazine, or in other words, retracted therefrom to permit a series of such cartridges to enter into position to be elevated to the firing chamber, it being understood, of course, that the finger plate 100 gradually moves outwardly of the magazine and is completely retracted from the path of travel of the cartridges therein on the elevating of the last cartridge in the series to the firing chamber, so that a new series will be instantly brought into position to be elevated to the firing chamber.

As the cartridges from the muzzle end of the magazine are brought into position to be fired by movement of the sliding frame 48, the latter will actuate in a step-by-step manner a trip mechanism which is adapted on the firing of all the cartridges in the muzzle end of said magazine to release the series of cartridges in the stock or butt end of the magazine, the trip mechanism being described as follows: The numeral 106 designates a track rod carried by the hanger 107 and upon which slides a double toothed rack bar 108 connected with an arm 109, and said bar being tensioned by the spring 110, one end of which bears against a suitable stationary part mounted in the gun stock and the other end bears against the said rack bar 108. Oppositely disposed pivotal dogs 111 and 111′ engage with the double toothed rack bar 108, the pivotal dog 111 being carried by the stock, while the pivotal dog 111′ is mounted upon a spring held movable bar 111^a which is slidably mounted in the stock, the latter bar being moved rearwardly when engaged by the upturned nib 111^a on the forward end of the sliding frame 48, and each time a cartridge is discharged and the sliding frame actuated, the dog 111′ will feed the bar 108 tooth-by-tooth in a rearward direction until all the cartridges in the muzzle section of the magazine have been fired. At this instant, the rack bar 108 will have moved to its fullest extent rearwardly, whereupon its rearmost end extension 111^c will be brought into engagement with the latch 113 which locks the follower plate 28, so as to release the same to cause it to advance the charges in the stock end of the magazine, whereby the series of charges may be successively fired in a manner similar to the firing of the cartridges previously discharged from the muzzle end of the gun.

In order to extract the shells of the discharged cartridges I provide on the breech block a spring finger 114 designed to engage with the rim of the shell and withdraw the latter from the firing chamber on the rearward movement of the breech block. This spring finger 114 is formed with an outward bulge, serving as a projection 115 designed, when the block is being retracted, to ride on the upper edge of the pivoted shutter 117 to depress the latter and expose the discharge opening 118 through which the shell is discharged by the spring member 119 which projects from the casing into a groove 119^a in the side of the breech block and strikes against the end portion of the shell, forcing the latter outward laterally through the discharge opening. Now on the reverse movement of the block, the projection 115 will pass through the groove 116 in the shutter which has moved to normal position. The dogs 111 and 111′ are normally held in engagement with the double toothed rack bar 108 by means of the leaf springs 112 and the dog 111 is to prevent forward movement of the bar 108 when the same is being moved rearwardly of the gun. To release the dogs 111 and 111′ from engagement with the double toothed rack bar 108, there is provided a rotatable finger knob 119^b which is adapted to be turned, so that the same will engage the locking dogs 111 and 111′ for spreading the same apart against the resistance of the springs 112, thereby freeing the rack bar 108, after it has released the latch 113, so that the bar may move forwardly of the gun by the spring 110 to its normal position. To retract the spring 26 with its follower plate into the cap 23 at the butt end of the stock, after said spring has been expanded, there is provided a slidable finger knob 119^c which is designed to travel in a slot 120^a formed in the butt end of the gun, at one side thereof. The knob 119^c is adapted to engage the spring, and on moving it rearwardly the spring will be retracted into the said cap 23, where it will be locked by the latch 113, and thereafter the knob 119^c is moved to its normal position, as shown in Fig. 1 of the drawings. When the rack bar 108 is retracted to its fullest extent, the spring arm 109 will lock with the follower plate 14 when the spring 18 is distended so that the series of charges in the butt end of the gun, when moved forwardly, cannot advance into the muzzle end of the magazine, as the forward cartridges of the series moved from the butt end of the magazine will abut the said follower plate 14 when held in the named position to prevent further advancement of the said cartridges.

In order to lubricate the gun, I form the firing chamber with an oil duct 118′ leading at an angle thereinto and communicating with the oil tube 119′ controlled at its discharge end by the valve 123, said oil tube 119′ leading to the oil pump 120 located in the stock of the gun at the oil reservoir 121 therein. On each movement of the sliding frame, the piston 122 is reciprocated through the connection 123′ to force the oil through the oil tube. It will be noted that the pump is a double action one, the oil being driven into the pump cylinder on the suction stroke and discharged on the pressure stroke.

While I have herein shown and described one particular embodiment of my invention, I wish it to be understood that I do not confine myself to all the precise details of construction herein set forth, as modifications and variations may be made, without departing from the spirit of the invention, or exceeding the scope of the appended claims.

When it is desired to lock the firing pin 72 in its retracted position, the dog 78 is held engaged with the said pin by means of a locking device 124 located on the outside of the stock, the said device 124 being designed to prevent the dog 78 from turning, so as to disengage the firing pin.

What is claimed is:—

1. In a firearm, a rifled barrel, a stock connected with the barrel, a cartridge magazine below the barrel and extending into the stock, a plurality of series of superposed cartridges therein, elevator means communicating with the magazine and adapted to successively feed, singly, cartridges into the firing chamber end of the barrel, means for insertion into the magazine, and controlled by the elevator means for timing the admission, of cartridges in series from the forward end of the magazine to the said elevator means, a slidable breech block arranged rearwardly of the barrel for inserting the cartridges into the firing chamber end of the said barrel, a firing pin carried by the breech block, means for retaining the firing pin when the breech block advances and independently operable quick and slow trigger mechanisms for releasing the firing pin.

2. In a firearm, a rifled barrel, a stock connected with the barrel, a cartridge magazine below the barrel and extending into the stock, a plurality of series of superposed cartridges therein, elevator means communicating with the magazine and adapted to successively feed, singly, cartridges into the firing chamber end of the barrel, means for insertion into the magazine, and controlled by the elevator means for timing the admission, of cartridges in series from the forward end of the magazine to the said elevator means, a slidable breech block arranged rearwardly of the barrel for inserting the cartridges into the firing chamber end of the said barrel, a firing pin carried by the breech block, means for retaining the firing pin when the breech block advances, independently operable quick and slow trigger mechanisms for releasing the firing pin, means arranged in opposite ends of the barrel for advancing the cartridges therein to the elevator means, and means for holding one of said advancing means inactive.

3. In a firearm, a rifled barrel, a stock connected with the barrel, a cartridge magazine below the barrel and extending into the stock, a plurality of series of superposed cartridges therein, elevator means communicating with the magazine and adapted to successively feed, singly, cartridges into the firing chamber end of the barrel, means for insertion into the magazine, and controlled by the elevator means for timing the admission, of cartridges in series from the forward end of the magazine to the said elevator means, a slidable breech block arranged rearwardly of the barrel for inserting the cartridges into the firing chamber end of the said barrel, a firing pin carried by the breech block, means for retaining the firing pin when the breech block advances, independently operable quick and slow trigger mechanisms for releasing the firing pin, means arranged in opposite ends of the barrel for advancing the cartridges therein to the elevator means, means for holding one of said advancing means inactive, means movable step-by-step on the removal of each of the cartridges from the forward end of the magazine and operated by one of said trigger mechanisms, and means on said last-named means for freeing the cartridge advancing means at the opposite end of the magazine.

4. In a firearm, a rifled barrel, a stock connected with the barrel, a cartridge magazine below the barrel and extending into the stock, a plurality of series of superposed cartridges therein, elevator means communicating with the magazine and adapted to sucessively feed, singly, cartridges into the firing chamber end of the barrel, means for insertion into the magazine, and controlled by the elevator means for timing the admission, of cartridges in series from the forward end of the magazine to the said elevator means, a slidable breech block arranged rearwardly of the barrel for inserting the cartridges into the firing chamber end of the said barrel, a firing pin carried by the breech block, means for retaining the firing pin when the breech block advances, independently operable quick and slow trigger mechanisms for releasing the firing pin, means arranged in opposite ends of the barrel for advancing the cartridges therein to the elevator means, means for holding one of said advancing means inactive, means movable step-by-step on the removal of each of the

cartridges from the forward end of the magazine and operated by one of said trigger mechanisms, means on said last-named means for freeing the cartridge advancing means at the opposite end of the magazine, manually operable means for freeing the step-by-step movable means and means on the step-by-step movable means for engagement with the cartridge advancing means in the forward end of the magazine to hold the same locked when distended.

5. In a firearm, a rifled barrel, a stock connected with the barrel, a cartridge magazine below the barrel and extending into the stock, a plurality of series of superposed cartridges therein, elevator means communicating with the magazine and adapted to successively feed, singly, cartridges into the firing chamber end of the barrel, means for insertion into the magazine, and controlled by the elevator means for timing the admission, of cartridges in series from the forward end of the magazine to the said elevator means, a slidable breech block arranged rearwardly of the barrel for inserting the cartridges into the firing chamber end of the said barrel, a firing pin carried by the breech block, means for retaining the firing pin when the breech block advances, independently operable quick and slow trigger mechanisms for releasing the firing pin, means arranged in opposite ends of the barrel for advancing the cartridges therein to the elevator means, means for holding one of said advancing means inactive, means movable step-by-step on the removal of each of the cartridges from the forward end of the magazine and operated by one of said trigger mechanisms, means on said last-named means for freeing the cartridge advancing means at the opposite end of the magazine, manually operable means for freeing the step-by-step movable means, means on the step-by-step movable means for engagement with the cartridge advancing means in the forward end of the magazine to hold the same locked when distended, and automatically operated means controlled by one of the trigger mechanisms for oiling the firing chamber end of the barrel.

6. In a firearm, a rifled barrel, a stock connected with the barrel, a cartridge magazine below the barrel and extending into the stock, a plurality of series of superposed cartridges therein, elevator means communicating with the magazine and adapted to successively feed, singly, cartridges into the firing chamber end of the barrel, means for insertion into the magazine, and controlled by the elevator means for timing the admission, of cartridges in series from the forward end of the magazine to the said elevator means, a slidable breech block arranged rearwardly of the barrel for inserting the cartridges into the firing chamber end of the said barrel, a firing pin carried by the breech block, means for retaining the firing pin when the breech block advances, independently operable quick and slow trigger mechanisms for releasing the firing pin, means arranged in opposite ends of the barrel for advancing the cartridges therein to the elevator means, means for holding one of said advancing means inactive, means movable step-by-step on the removal of each of the cartridges from the forward end of the magazine and operated by one of said trigger mechanisms, means on said last-named means for freeing the cartridge advancing means at the opposite end of the magazine, manually operable means for freeing the step-by-step movable means, means on the step-by-step movable means for engagement with the cartridge advancing means in the forward end of the magazine to hold the same locked when distended, automatically operated means controlled by one of the trigger mechanisms for oiling the firing chamber end of the barrel, and closing caps carried at opposite ends of the magazine.

7. In a firearm, a rifled barrel, a stock connected with the barrel, a cartridge magazine below the barrel and extending into the stock, a plurality of series of superposed cartridges therein, elevator means communicating with the magazine and adapted to successively feed, singly, cartridges into the firing chamber end of the barrel, means for insertion into the magazine, and controlled by the elevator means for timing the admission, of cartridges in series from the forward end of the magazine to the said elevator means, a slidable breech block arranged rearwardly of the barrel for inserting the cartridges into the firing chamber end of the said barrel, a firing pin carried by the breech block, means for retaining the firing pin when the breech block advances, independently operable quick and slow trigger mechanisms for releasing the firing pin, means arranged in opposite ends of the barrel for advancing the cartridges therein to the elevator means, means for holding one of said advancing means inactive, means movable step-by-step on the removal of each of the cartridges from the forward end of the magazine and operated by one of said trigger mechanisms, means on said last-named means for freeing the cartridge advancing means at the opposite end of the magazine, manually operable means for freeing the step-by-step movable means, means on the step-by-step movable means for engagement with the cartridge advancing means in the forward end of the magazine to hold the same locked when distended, automatically operated means controlled by one of the trigger mechanisms for oiling the firing chamber end of the barrel, closing caps car-

ried at opposite ends of the magazine, and means detachably locking said caps in closed position.

8. In a firearm, a rifled barrel, a stock connected with the barrel, a cartridge magazine below the barrel and extending into the stock, a plurality of series of superposed cartridges therein, elevator means communicating with the magazine and adapted to successively feed, singly, cartridges into the firing chamber end of the barrel, means for insertion into the magazine, and controlled by the elevator means for timing the admission, of cartridges in series from the forward end of the magazine to the said elevator means, a slidable breech block arranged rearwardly of the barrel for inserting the cartridges into the firing chamber end of the said barrel, a firing pin carried by the breech block, means for retaining the firing pin when the breech block advances, independently operable quick and slow trigger mechanisms for releasing the firing pin, means arranged in opposite ends of the barrel for advancing the cartridges therein to the elevator means, means for holding one of said advancing means inactive, means movable step-by-step on the removal of each of the cartridges from the forward end of the magazine and operated by one of said trigger mechanisms, means on said last-named means for freeing the cartridge advancing means at the opposite end of the magazine, manually operable means for freeing the step-by-step movable means, means on the step-by-step movable means for engagement with the cartridge advancing means in the forward end of the magazine to hold the same locked when distended, automatically operated means controlled by one of the trigger mechanisms for oiling the firing chamber end of the barrel, closing caps carried at opposite ends of the magazine, means detachably locking said caps in closed position, and means for lowering the elevator means upon the removal of the cartridges.

9. In a firearm, a rifled barrel, a stock connected with the barrel, a cartridge magazine below the barrel and extending into the stock, a plurality of series of superposed cartridges therein, elevator means communicating with the magazine and adapted to successively feed, singly, cartridges into the firing chamber end of the barrel, means for insertion into the magazine, and controlled by the elevator means for timing the admission, of cartridges in series from the forward end of the magazine to the said elevator means, a slidable breech block arranged rearwardly of the barrel, for inserting the cartridges into the firing chamber end of the said barrel, a firing pin carried by the breech block, means for retaining the firing pin when the breech block advances, independently operable quick and slow trigger mechanisms for releasing the firing pin, means arranged in opposite ends of the barrel for advancing the cartridges therein to the elevator means, means for holding one of said advancing means inactive, means movable step-by-step on the removal of all the cartridges from the forward end of the magazine and operated by one of said trigger mechanisms, means on said last-named means for freeing the cartridge advancing means at the opposite end of the magazine, manually operable means for freeing the step-by-step movable means, means on the step-by-step movable means for engagement with the cartridge advancing means in the forward end of the magazine to hold the same locked when distended, automatically operated means controlled by one of the trigger mechanisms for oiling the firing chamber end of the barrel, closing caps carried at opposite ends of the magazine, means detachably locking said caps in closed position, means for lowering the elevator means upon the removal of the cartridges, and means at the stock end of the magazine for holding the cartridges inserted therein.

10. In a firearm, a rifled barrel, a stock connected with the barrel, a cartridge magazine below the barrel and extending into the stock, a plurality of series of superposed cartridges therein, elevator means communicating with the magazine and adapted to successively feed, singly, cartridges into the firing chamber end of the barrel, means for insertion into the magazine, and controlled by the elevator means for timing the admission, of cartridges in series from the forward end of the magazine to the said elevator means, a slidable breech block arranged rearwardly of the barrel for inserting the cartridges into the firing chamber end of the said barrel, a firing pin carried by the breech block, means for retaining the firing pin when the breech block advances, independently operable quick and slow trigger mechanisms for releasing the firing pin, means arranged in opposite ends of the barrel for advancing the cartridges therein to the elevator means, means for holding one of said advancing means inactive, means movable step-by-step on the removal of each of the cartridges from the forward end of the magazine and operated by one of said trigger mechanisms, means on said last-named means for freeing the cartridge advancing means at the opposite end of the magazine, manually operable means for freeing the step-by-step movable means, means on the step-by-step movable means for engagement with the cartridge advancing means in the forward end of the magazine to hold the same locked when distended, automatically operated means controlled by

one of the trigger mechanisms for oiling the firing chamber end of the magazine, closing caps carried at opposite ends of the magazine, means detachably locking said caps in closed position, means for lowering the elevator means upon the removal of the cartridges, means at the stock end of the magazine for holding the cartridges inserted therein and an oil reservoir carried in the stock for delivering oil to the oiling means.

11. In a firearm, a rifled barrel, a stock connected with the barrel, a cartridge magazine below the barrel and extending into the stock, a plurality of series of superposed cartridges therein, elevator means communicating with the magazine and adapted to successively feed, singly, cartridges into the firing chamber end of the barrel, means for insertion into the magazine, and controlled by the elevator means for timing the admission, of cartridges in series from the forward end of the magazine to the said elevator means, a slidable breech block arranged rearwardly of the barrel for inserting the cartridges into the firing chamber end of the said barrel, a firing pin carried by the breech block, means for retaining the firing pin when the breech block advances, independently operable quick and slow trigger mechanisms for releasing the firing pin, means arranged in opposite ends of the magazine for advancing the cartridges therein to the elevator means, means for holding one of said advancing means inactive, means movable step-by-step on the removal of each of the cartridges from the forward end of the magazine and operated by one of said trigger mechanisms, means on said last-named means for freeing the cartridge advancing means at the opposite end of the magazine, manually operable means for freeing the step-by-step movable means, means on the step-by-step movable means for engagement with the cartridge advancing means in the forward end of the magazine to hold the same locked when distended, automatically operated means controlled by one of the trigger mechanisms for oiling the firing chamber end of the magazine, closing caps carried at opposite ends of the magazine, means detachably locking said caps in closed position, means for lowering the elevator means upon the removal of the cartridges, means at the stock end of the magazine for holding the cartridges inserted therein, an oil reservoir carried in the stock for delivering oil to the oiling means, and the said stock being provided with a valve port leading from the firing chamber end of the barrel to the outside of the stock for emitting excessive explosions occurring in the said chamber.

In testimony whereof I affix my signature in presence of two witnesses.

LUDOVICO CUDIA.

Witnesses:
GEO. B. PITTS,
FRANK O. PARKER.