

May 7, 1946.

J. VESELY

2,399,900

FIREARM

Filed Aug. 5, 1943

2 Sheets-Sheet 1

FIG. 1.

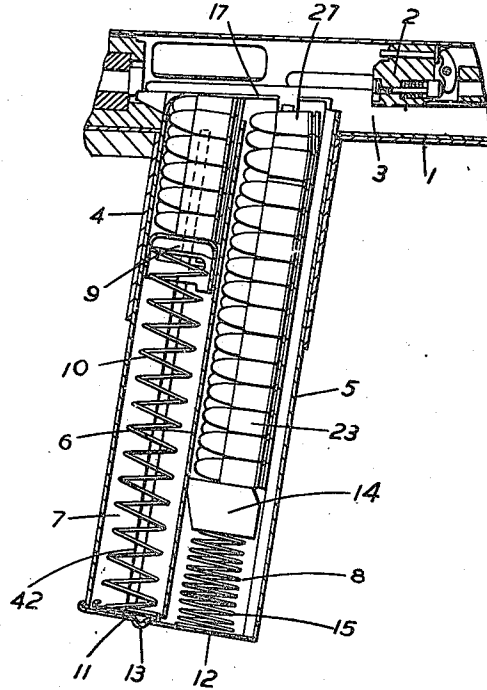
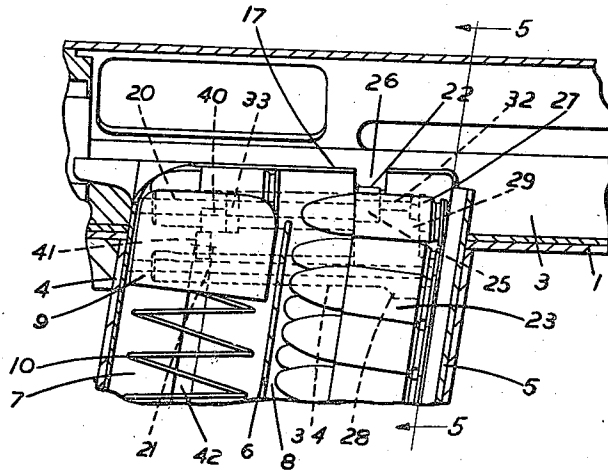


FIG. 2.



Josef Vesely
Inventor
By *Alfred Munk*
his Attorney

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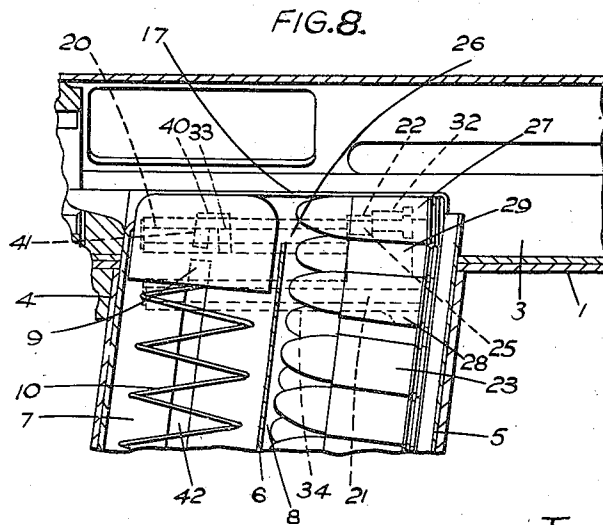
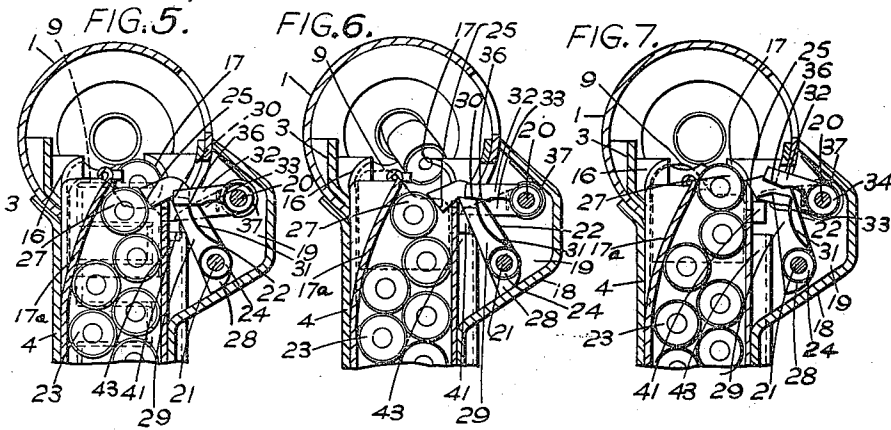
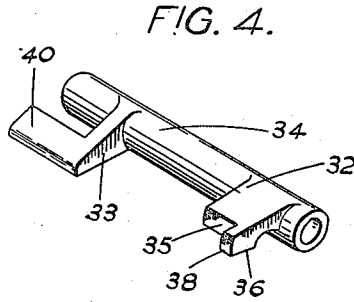
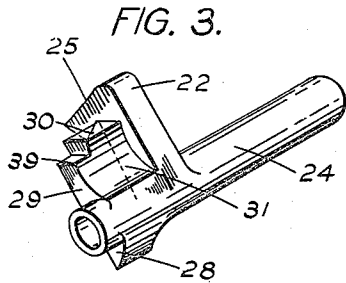
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2 Sheets-Sheet 2



Josef Vesely
Inventor
By *Alfred Munk*
his Attorney.

UNITED STATES PATENT OFFICE

2,399,900

FIREARM

Josef Vesely, London, England

Application August 5, 1943, Serial No. 497,448
In Great Britain August 14, 1942

8 Claims. (Cl. 42—18)

This invention relates to improvements in firearms of the kind automatically supplied with cartridges fed axially from a magazine, and in which the cartridges are arranged in two or more groups arranged one behind the other in the longitudinal direction of the cartridges and wherein the latter are first fed to the gun from the front group and later, on exhaustion of this front group, from the other group or groups.

The primary object of this invention is to provide a satisfactory arrangement whereby the gun is fed with cartridges from a single magazine having two or more groups of cartridges arranged one behind the other, and wherein, when the one group of cartridges has been exhausted another group of cartridges will be automatically fed to the gun, the change in the source of supply of cartridges to the gun being effected automatically without any manipulation of the magazine by hand and without any special attention being given to the matter, or any special precaution being taken, by the gunner.

An arrangement of the character with which this invention is especially concerned is described in the specification of my co-pending patent application numbered 427,957 and dated January 23, 1942, in which, briefly, and broadly speaking, the magazine comprises a rectangular elongated box-like casing containing two compartments (although there could be more than two) arranged one behind the other in the axial direction of the cartridges to be placed therein, each compartment being adapted to receive a group or pile of cartridges which may consist of a single column or of two side by side columns of cartridges, the cartridges of one column in the latter case alternating or being staggered in position with those of the other column of the same group. The front compartment of the casing is provided at its breech end and in its front wall with a cartridge discharge mouth through which cartridges are fed axially into the gun. The cartridges of each group are fed to the breech end of the magazine by a spring urged feed plate and the arrangement is such that the breech block feeds all the cartridges from the forward group in the magazine before feeding those in the rearward compartment or compartments of the magazine, means being provided on the gun to depress the upper cartridge in this or these rearward compartments to enable the breech block (which acts as a reciprocating cartridge feeding member) to slide over them and through the breech end of the magazine casing to feed the cartridges of the front group axially into the gun. The breech end

of the magazine casing is provided with in-curved longitudinal guide lips to prevent the cartridges leaving the casing in a direction transverse to their axes and to guide the cartridges to the mouth of the magazine as they are fed axially forwards by the breech block. The cartridge discharge mouth of the magazine may be offset from the longitudinal central plane of the magazine casing where each group of cartridges consists of two or more columns of cartridges and the magazine may be provided with guide surfaces to urge the cartridges of that column of cartridges in each compartment which is not in alignment with the discharge mouth of the magazine, laterally into position in alignment with the discharge mouth.

A further object of the invention is to provide improved means for controlling the cartridges of the rear group or groups.

A still further object of the invention is to ensure that the mechanism for controlling the discharge of the cartridges from the rear group or groups of cartridges will be protected as far as possible from damage, one set of controlling mechanism only being needed for each gun.

Another further object of the invention is to provide means to ensure that each cartridge of the rear group or groups will be positively controlled during its passage through its compartment of the magazine, whilst a further object of the invention is to ensure the automatic resetting of the controlling mechanism on the withdrawal of the magazine from the gun.

According to the invention there is provided a firearm having a magazine adapted to contain at least two groups of cartridges arranged one behind the other in the axial direction of the cartridges and wherein the cartridges are fed into the firing chamber by a reciprocating feeding member, and also having means for retaining the leading cartridge of a rear group of cartridges of the magazine clear of the path of the reciprocating cartridge feeding member of the firearm (e. g. the breech block) as long as there is a cartridge left in the preceding group, means for releasing on the exhaustion of the said preceding group of cartridges the said retaining means in order to permit the leading cartridge of the said rear group of cartridges to move into the path of the reciprocating feed member, and means for causing said retaining means to function again, this time to retain the next cartridge of the said rear group out of the path of the reciprocating feed member whilst the leading cartridge of the said rear group is being fed forwards to the firing

chamber of the firearm by the reciprocating feed member.

According to a further feature of the invention the said release and the further operation of the said retaining means are controlled by the means employed for feeding the cartridges of the said preceding group from the magazine body into the path of the reciprocating cartridge feeding member.

Further features of the invention will become apparent from the subsequent description of certain embodiments of the invention and the appended claims.

In order that the invention may be clearly understood and readily carried into practice, I have appended hereto two sheets of drawings illustrating by way of example one embodiment of the invention, in which:

Figure 1 is a longitudinal section through a part of the body and cartridge magazine of a sub-machine gun constructed in accordance with this invention;

Figure 2 is a sectional view similar to Figure 1 drawn to an enlarged scale and showing more detail than Figure 1;

Figures 3 and 4 are perspective views, respectively, of the cartridge retaining and locking lever and the detent and detent trip lever of the gun shown in part in Figures 1 and 2;

Figures 5, 6 and 7 are vertical transverse sections taken on line 5—5, Figure 2, and respectively show different positions assumed by the said cartridge retaining and locking levers, the detent and the detent trip lever during their operation;

Figure 8 is a view similar to Figure 2, but shows the parts in the position in which they are illustrated in Figure 7.

In the drawings, the present invention is illustrated as applied to a gun and magazine resembling in general form the gun and magazine described in my copending United States patent application No. 427,957, although the magazine shown in the accompanying drawings includes improvements described in my copending United States patent application Ser. No. 497,447, now Patent No. 2,383,998, Sept. 4, 1945, in which the magazine is provided with means for preventing the backward axial movement of the leading cartridge in the front compartment of the magazine during the recoil or return stroke of the breech block of the gun or other reciprocating cartridge feed member of the gun.

Referring to the drawings, it will be seen that the gun comprises a gun body 1 in which is reciprocably mounted a breech block 2 slidable upon a breech block guide 3 of generally semi-circular shape in cross-section.

The body of the gun has fixed thereto a magazine holder 4 of tubular form and which, in the example shown, depends from the lower part of the gun body, although it could be arranged at any other suitable position around the body of the gun.

In the holder 4 is mounted a box-type magazine 5 which is of elongated rectangular form and of rectangular shape in cross-section. The magazine is readily detachable from the holder 4 and is held in proper position therein by any suitable means.

The magazine is divided centrally by a transverse partition 6, parallel to the front and rear walls, into two compartments 7 and 8 hereinafter referred to, respectively, as the front and rear compartments of the magazine. Each compartment is adapted to hold a group of cartridges dis-

posed with their axes approximately perpendicular to the length of the magazine so that the cartridges in the front compartment are arranged behind the cartridges in the rear compartment with their axes extending in the same general direction.

The group of cartridges in each compartment may either consist of a single column of cartridges piled one upon the other or a double column with the cartridges staggered with respect to one another. This latter arrangement is the one shown in the drawings.

The cartridges in the front compartment are fed towards the breech or open end of the magazine by means of a cartridge feeder 9 pressed upwardly within the front compartment 7 by a spring 10 having fastened to its lower end a plate 11 bearing upon a removable cover plate 12 closing the lower end of the magazine and provided with a protuberance 13 engaging in a hole in the cover plate 12 to keep this in the closed position.

The cartridge feeder 9 has an upper surface of stepped form in cross-section and so shaped as to permit, when the cartridge feeder 9 is in its uppermost position and the front compartment is exhausted of cartridges, smooth travel of cartridges from the rear compartment over the feeder into the firing chamber of the gun.

The cartridges in the rear compartment 8 are fed upwardly in the magazine by a cartridge feeder marked 14 in the drawings and which is of inverted dish form, this feeder being urged upwardly by a spring 15 bearing at its lower end on the cover plate 12.

At the upper end of each of its longitudinal side walls the magazine is provided with inturned guide lip portions marked 16 and 17 respectively, which serve to prevent the cartridges being discharged from the magazine transversely to their axes and also to guide them under the action of the breech block 2 in an axial path out of the magazine through a discharge opening in the breech end of the front wall of the latter and into the firing chamber of the gun.

The magazine has the rear upper portion of one wall inwardly curved or inclined as shown at 17a, Figures 5 and 7 so that the double row of cartridges in the rear compartment are, as the cartridges reach the upper part of the magazine, caused to converge into a single row in order that only one cartridge at a time will be delivered in position for engagement by the breech block 2.

The magazine holder 4 is rigidly fixed to the gun and forms part thereof; it is provided at one side (at the righthand side looking at the gun in end elevation from the rear) with an enlargement 18 so as to constitute within the holder a detent chamber 19 substantially wholly disposed below the longitudinal centre line of the body and barrel of the gun. Within this chamber are supported a pair of spaced but parallel spindles 20 and 21 which are both parallel to the axis of the body 1 of the gun. These spindles are hereinafter referred to, respectively, as the detent spindle 20 and the retaining lever spindle 21.

A retaining lever is pivoted on the spindle 21 so as to be rotatable about this spindle and includes an arm 22 projecting more or less radially from an elongated tubular boss 24 with which it is rigidly formed. At its upper end the arm 22 is provided with a laterally projecting finger 25 which is adapted to engage the upper cartridge 27 of the pile of cartridges 23 in the rear compartment 8 of the magazine and, when the re-

taining lever is in its operative position as shown in Figure 5, to maintain the cartridge 27 in a depressed position in the magazine compartment 8 so that the cartridge is out of the path of the breech block 2 of the gun.

On the opposite side of the elongated boss 24 to the arm 22 there is provided integrally a stop nose 28 adapted to engage the wall of the detent chamber 18 of the magazine housing 4 in order to limit the movement of the retaining arm 22 in the direction towards the cartridges in the cartridge magazine, that is, in an anti-clockwise direction as the parts are seen in Figures 5, 6 and 7.

The retaining lever is provided at its rear side with a locking arm 29 which preferably is formed as an integral part of this lever and is shorter than the arm 22. The locking arm 29 has at its upper end a transversely downwardly and outwardly inclined cam surface 30 for co-operation with an inclined cam surface on a detent subsequently to be described.

The outer side of the locking arm 29 is provided with an arcuate detent engaging surface 31 of part-cylindrical form which extends substantially from end to end of the locking arm.

A detent 32 and a detent trip arm 33 are provided and are adapted to control the locking and unlocking of the retaining lever in the position of the retaining arm 22 in which it maintains the upper cartridge 27 in the compartment 8 of the magazine in a depressed condition, as shown in Figures 1, 5 and 6.

The detent 32 and the detent trip arm 33 are rigidly carried by a tubular boss 34 from which they project more or less radially, but the detent 32 and the trip arm 33 are spaced apart axially along the boss 34 and are also slightly offset angularly around the boss with respect to one another.

The boss 34 is mounted for rotation upon the detent shaft 20 carried by the magazine housing and its axis of rotation is thus parallel to the axis of rotation of the retaining lever and passes through the point which is occupied by the centre of curvature of the detent engaging arcuate surface 31 of the locking arm when the retaining lever and its arm 22 are in the position shown in Figure 4 where the retaining lever is retaining a cartridge, such as 27, depressed in the rear compartment 8 of the magazine.

The free end surface 35 of the detent 32 is curved to match the curvature of the surface 31 of the locking arm 29 and is adapted to engage and co-operate with this surface in order to secure the retaining lever releasably in its retaining position. Such engagement is shown in Figure 5.

Furthermore, the detent 32 is provided on its underside with an inclined cam surface 36 which is adapted, during certain portions of the relative movement between the detent 32 and the locking arm 29, to slide over the upper inclined cam surface 30 of the locking arm. The inclination of the surface 30 and that of the surface 36 of the detent and the relative disposal of the shafts 20 and 21 is such that when downward pressure is applied to the detent 32 by a spring 37 later to be described, the detent will (assuming that the retaining lever is unobstructed in its movement) cause the locking arm to rotate in an anti-clockwise direction (viewing the parts from the rear as seen in Figures 5, 6 and 7) thereby rocking the arm 22 of the retaining lever towards the

magazine and into its cartridge retaining position shown in Figure 5.

The spring 37 is a helically coiled one arranged around the detent boss 34 and urges the detent into engagement with the locking arm 29; this spring has one end anchored about the trip arm 33 and the other end engaging the wall of the detent chamber 18 of the magazine housing.

A stop finger 38 is provided at the free end of the detent 32 and is adapted to enter a recess 39 in the locking arm 29 and serves to limit the rotation of the detent towards the cartridge magazine.

It will be understood that in the operative position of the retaining lever, that is, the position shown in Figure 5, the curved end 35 of the detent 32 engages the arcuate surface 31 of the locking arm 29, whilst the finger 38 of the detent rests on the bottom of the recess 39 of the locking arm. With the detent 32 in this position the retaining lever with its arm 22 is locked in the position shown in Figure 5 so that the finger 25 is maintained firmly upon the upper cartridge 27 in the rear compartment 8 of the magazine so holding this cartridge out of the path of the reciprocating breech block 2. In order to free the cartridge 27 for movement up the magazine into the path of the reciprocating breech block it is necessary to release the retaining lever, and to do this it is necessary to turn the detent 32 about its shaft 20 in order to disengage it from the locking arm 29. This is done by effecting a clockwise movement (viewing the gun from the rear) of the detent.

The required angular releasing movement of the detent 32 is imparted thereto through the action of the detent trip arm 33 which is provided at its free end with a heel 40 adapted to co-operate with a lateral projection 41 provided on the longitudinal wall of the front cartridge feeder 9 in the front compartment 7 of the magazine. The projection 41 extends through a longitudinal slot 42 provided in that side wall of the magazine nearest, in use, to the retaining lever arm 22. The slot 42 is bridged by a guard channel 43 which serves to protect the lateral projection 41 on the front cartridge feeder 9 when not enclosed within the housing 4. The projection 41 is, as the last cartridge is being discharged from the front compartment 7 of the magazine, adapted to engage the detent trip arm 33 and turn it about its spindle 20 in a clockwise direction, the pressure of the detent spring 37 being overpowered by the action of the feeder spring 10. Thus the detent 32 is urged in a clockwise direction into the position shown in Figure 6 until the retaining lever is released and its arm 22 frees the uppermost cartridge 27 in the rear compartment 8 of the magazine and permits it to rise.

The operation of the mechanism is briefly as follows:

When there is no magazine in the gun the retaining lever is locked by the detent 32 in the position shown in Figure 5, which is the position in which the arm 22 would, if a charged magazine were in the gun, retain the leading cartridge of the rear compartment of that magazine clear of the path of the breech block. The retaining lever is moved into this position by the action of the cam surface 36 of the detent 32 upon the inclined cam surface 30 of the locking arm 29 as the detent 32 is rotated in an anti-clockwise direction by the detent spring 37. Thus the retaining lever is automatically set and held in the cartridge retaining position.

On inserting a magazine, such as 5, in the magazine housing 4 the leading cartridge 27 of the rear compartment 8 engages the finger 25 of the locked retaining lever and is depressed in the magazine as the latter is pushed home into its final position in the housing 4.

When the gun is in operation the cartridges in the front compartment are first fed one after the other from this compartment by the breech block, which slides backwardly and forwardly in the body of the gun. In this reciprocating movement the breech block passes over the depressed upper cartridge 27 in the rear magazine and it will, of course, be seen that the retaining lever and all its parts, such as arms 22 and 29, are so located to one side of the body of the gun as to be out of the path of movement of the breech block.

As the front cartridge feeder 9 moves to its final position during the discharge of the last cartridge from the front compartment of the magazine, the lateral projection 41 of the feeder 9 engages the heel 40 of the detent trip arm 33 which turns upon the detent spindle 20 and causes the detent 32 to make a similar movement and disengage itself from the locking arm 29. This releases the retaining lever which turns in a clockwise direction about its spindle 21 under the pressure exerted upon it by the uppermost cartridge 27 in compartment 8 actuated by the feeder spring 15. Thus this upper cartridge 27 in the rear compartment of the magazine is freed to move upwardly into the path of the breech block in order that on the next forward feeding stroke of the breech block the upper or leading cartridge in the rear compartment of the magazine will be fed forwardly over the front cartridge feeder 9 and into the firing chamber of the gun.

As the leading cartridge 27 of the rear compartment of the magazine is fed forwardly on to and over the front cartridge feeder 9, and while the cartridge 27 is still maintaining the cartridges below it in the rear magazine compartment 8 depressed, the front cartridge feeder 9 is depressed in its compartment and its lateral projection 41 moves away from the heel 40 of the detent trip arm. This arm is, therefore, free to, and does, move with the detent 32 in an anti-clockwise direction. This movement of the detent 32 causes the cam surface 36 of the detent 32 to engage the cam surface 30 of the locking arm 29 to cause an anti-clockwise rotation of this locking arm and the associated retaining lever so that eventually the engagement of the end surface 35 of the detent with the arcuate surface 31 of the locking arm is effected in order to lock the arm 22 of the retaining lever in its cartridge retaining position, whereby the second cartridge in the rear compartment 8 of the magazine is engaged by the finger 25 of the retaining lever and held in the depressed position during the remainder of the feeding of the cartridge 27 forwardly into the firing chamber of the gun.

The leading cartridge 27 of the rear compartment is thus fed forwardly on to and over the cartridge feeder 9 of the front compartment and is ultimately loaded into the gun under the action of the breech block; the latter then recoils. On being freed of the cartridge 27 the cartridge feeder 9 rises in its compartment once again and in so doing causes its lateral projection 41 again to operate the detent trip arm 33 to actuate the detent 32 in order to release the retaining lever and so permit the second, and now the leading, cartridge which the arm 22 of the retaining lever

has been holding down to move upwardly in the rear compartment 8 of the magazine into position in the path of the breech block ready for feeding into the gun in the same way as the cartridge 27 was fed into the gun as above described. The retaining lever is then automatically again reset to hold down the third (but now the leading) cartridge in the rear compartment 8 of the magazine in the same way as has been described above with respect to the second cartridge. The operations of the retaining and locking arms of the retaining lever, the detent and the detent trip arm are continued de novo as the gun continues to be fired.

When a magazine, whether empty or containing cartridges, is withdrawn from the gun after the firing of a cartridge from the rear compartment of a magazine, the retaining lever is in the released condition, but immediately on the magazine being withdrawn and the trip arm 33 being so freed from the action of the lateral projection 41 of the front cartridge feeder, the detent and the retaining lever are automatically reset in the locked position shown in Figure 5 under the action of the detent spring 37. Thus it is not necessary to provide any special devices on the magazine itself for the purpose of resetting the retaining lever on the withdrawal of a magazine ready for the insertion of a new magazine, this resetting being effected in accordance with this invention automatically. Furthermore, by this invention not only is the first cartridge in the rear compartment of a full magazine controlled by the retaining lever, but each individual cartridge is also controlled by the retaining lever one after the other as the cartridges are discharged from the rear compartment.

Thus it will be understood that by this invention a means is provided whereby cartridges can be fed from the front compartment of a magazine without any interference arising from the cartridges in the rear compartment of the magazine and that, when the front compartment is exhausted, the cartridges of the rear compartment are automatically brought into loading position. Also whilst each such cartridge is being fed to the gun the next cartridge to be fed is positively controlled by the retaining lever and held in a depressed position, the other cartridges in the rear compartment being subsequently brought automatically into position one at a time for feeding to the gun by the breech block.

Mounting the cartridge controlling mechanism, i. e. the retaining lever, the detent, and the detent trip arm on the gun itself enables these parts to be made with the required degree of precision and ensures that the parts will be protected against damage in normal use. Additionally, this arrangement avoids the provision of any mechanism other than the lateral projection 41 on the front cartridge feeder 9 in or on the magazine and, therefore, there is virtually no danger of the said lever mechanism being rendered inoperative by reason of damage of any parts associated therewith during normal use. This could not be the case if the lever arrangements were associated with the magazine, since it is well known that a magazine is usually subjected to very rough handling, being often dropped in service, trodden on and so forth. Another advantage of mounting the lever mechanism on the gun is that it is only necessary to make one lever mechanism for each gun, whilst the magazine remains simple and the gun may be used with many magazines. The fact that the lever mechanism

is fitted to the gun and so need not be made and fitted to each magazine is of the utmost importance not only from the manufacturing point of view and the point of view of expense, but also because it enables the mechanism to be made with that precision ensuring smooth working and enables that protection above referred to to be obtained.

I claim:

1. In a firearm, a magazine constructed to contain at least two groups of cartridges arranged one behind the other in the axial direction of the cartridges, a reciprocating member for feeding one cartridge at a time from said magazine into the firing chamber, a feeder for each cartridge group to bring the cartridges of said group successively into position to be fed by said reciprocating member, each such feeder tending to assume, upon the exhaustion of cartridges in its group, a predetermined end position in said magazine, means for guiding cartridges from a rearwardly disposed group, when fed by said reciprocating member, past the feeder for a forwardly disposed group in such a manner that such feeder is temporarily displaced from said end position in said magazine, cartridge retaining means to hold the cartridges in said rearwardly disposed group out of the path of said reciprocating member as long as a cartridge remains in said forwardly disposed group, means controlled by said feeder for said forwardly disposed group whenever it reaches said predetermined end position to render said retaining means inoperative, and means operative upon each temporary displacement of said feeder for said forwardly disposed group in said magazine from said end position to reset said cartridge retaining means.

2. A combination, as claimed in claim 1, having a fixed magazine housing in which said magazine is exchangeably inserted, said cartridge retaining means being mounted on said magazine housing.

3. In a firearm, a body including a breech chamber and a reciprocating cartridge feed member, a magazine arrangement comprising a magazine housing attached to said body and opening into said breech chamber, an exchangeable magazine insertable into said housing and having a front cartridge compartment and a rear cartridge compartment axially aligned with said front compartment, each compartment being adapted to hold a column of cartridges with their axes extending parallel to the movement of said reciprocating member, and a cartridge feeder in each compartment to urge the cartridges contained therein towards said breech chamber, the cartridge feeder in said front compartment tending, upon exhaustion of the cartridges in the front compartment, to assume a predetermined end position adjacent said breech chamber, means to guide each cartridge discharged from said rear compartment over the cartridge feeder in said front compartment in such a manner that said cartridge feeder is temporarily displaced from said end position, a cartridge retaining member movable at right angles to the axes of the cartridges in said rear compartment and acting, in its operative position, upon the cartridge in said rear compartment nearest to the discharge end thereof to retain such cartridge in a position out of the path of said reciprocating member, a spring pressed pawl arranged to lock said cartridge retaining mem-

ber in said operative position, pawl actuating means including an element carried by said cartridge feeder in said front compartment arranged to displace said pawl from its locking position and, thereby, to release said cartridge retaining member from its operative position whenever said cartridge feeder in said front compartment reaches said end position, said cartridge retaining member and pawl being so constructed, proportioned and arranged that said spring pressed pawl urges said retaining member into its operative position whenever said pawl is released by the displacement of said feeder in said front compartment from said end position.

4. A magazine arrangement, as claimed in claim 3, in which said cartridge retaining member and locking pawl are both mounted on said magazine housing.

5. A magazine arrangement, as claimed in claim 3, in which cooperating cam faces are provided on said spring pressed pawl and cartridge retaining member, whereby said pawl urges said retaining member into its operative position whenever the action of said pawl actuating means upon said pawl ceases.

6. A magazine arrangement, as claimed in claim 3, in which said pawl actuating means includes a trip arm mounted rockably on said magazine housing adjacent said front compartment and operatively connected with said pawl and a lateral projection of said cartridge feeder in said front compartment to engage said trip arm and rock said pawl from its locking position when said cartridge feeder assumes said end position.

7. In a firearm, a body including a breech chamber and a reciprocating cartridge feed member, a magazine arrangement comprising a magazine housing attached to said body and opening into said breech chamber, an exchangeable magazine insertable into said housing and having a front cartridge compartment and a rear cartridge compartment axially aligned with said front compartment, each compartment being adapted to hold a column of cartridges with their axes extending parallel to the movement of said reciprocating member, and a cartridge feeder in each compartment to urge the cartridges contained therein towards said breech chamber, the cartridge feeder in said front compartment tending, upon exhaustion of the cartridges in the front compartment, to assume a predetermined end position adjacent said breech chamber, means to guide each cartridge discharged from said rear compartment over the cartridge feeder in said front compartment in such a manner that said cartridge feeder is temporarily displaced from said end position, a rockable cartridge retaining arm arranged to engage and retain the leading cartridge in said rear compartment out of the path of said reciprocating member, a locking arm rigid with said retaining arm, a rockable detent for engaging said locking arm to lock the retaining arm in its cartridge retaining position, a detent trip arm rigid with said detent, a lateral projection carried by the cartridge feeder in said front compartment and extending through a slot in the wall of the magazine in a position to engage and move said trip arm and detent to release said retaining arm and the cartridge held thereby whenever said cartridge feeder in said front compartment reaches said end position, a detent re-setting spring urging the detent towards said locking arm, and cooperating cam surfaces on said locking arm and detent where-

by said detent, under the influence of said re-setting spring, acts on said locking arm to move the retaining arm into its cartridge holding position and then locks it there whenever said trip arm is relieved of the action of said lateral projection of said cartridge feeder.

8. In a firearm, a body including a breech chamber and a reciprocating cartridge feed member, a magazine arrangement comprising a magazine housing attached to said body and opening into said breech chamber, an exchangeable magazine insertable into said housing and having a front cartridge compartment and a rear cartridge compartment axially aligned with said front compartment, each compartment being adapted to hold a column of cartridges with their axes extending parallel to the movement of said reciprocating member, and a cartridge feeder in each compartment to urge the cartridges contained therein towards said breech chamber, the cartridge feeder in said front compartment tending, upon exhaustion of the cartridges in the front compartment, to assume a predetermined end position adjacent said breech chamber, means to guide each cartridge discharged from said rear compartment over the cartridge feeder in said front compartment in such a manner that said cartridge feeder is temporarily displaced from said end position, a rockable cartridge retaining arm arranged to en-

gage and retain the leading cartridge in said rear compartment out of the path of said reciprocating member, a locking arm rigid with said retaining arm and having an arcuate surface, a rockable detent having its free end constructed and arranged to engage and cooperate with said arcuate surface of the said locking arm to lock the retaining arm in its cartridge retaining position, a detent trip arm rigid with said detent, said retaining arm being rockable about an axis parallel to the axis of the body of the firearm and also to the pivot axis of said detent and detent trip arm, a lateral projection carried by the cartridge feeder for said front compartment and extending through a slot in the wall of the magazine in a position to engage and move said trip arm and detent to release said retaining arm and the cartridge held thereby whenever said cartridge feeder in said front compartment reaches said end position, and a detent re-setting spring urging the detent towards said locking arm, said detent and locking arm having cooperating inclined cam surfaces whereby the detent, under the influence of said re-setting spring, acts on said locking arm to move the retaining arm into its cartridge holding position and then locks it there whenever said trip arm is relieved of the action of said lateral projection of said cartridge feeder.

JOSEF VESELY.