AMMUNITION MAGAZINE WITH A COIL SPRING
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This invention relates to an ammunition magazine and, more particularly, to an ammunition magazine adapted to serve as a storage receptacle for a plurality of rounds of ammunition and to be utilized in conjunction with an automatic or semi-automatic weapon so that successive rounds of ammunition may be supplied to said weapon.

One of the major problems encountered with prior art magazines for a plurality of rounds of ammunition is the fact that, of course, such magazines must incorporate some means for propelling the successive rounds of ammunition toward the ejection opening in the housing of the magazine. A means conventionally utilized is a compression or other type spring which serves to bias the successive rounds of ammunition out of the ejection opening of the housing of the magazine.

Since such magazines, when loaded with ammunition, are customarily stored for prolonged periods of time, the springs customarily utilized to cause the ejection of successive rounds of ammunition from the housings of the aforementioned magazines are subject to fatigue and, thus, when applied in actual use, the springs frequently fail, and the rounds of ammunition are not projected or propelled through the ejection openings of the magazine because of this contingency. It has been customary to store ammunition in bulk and to load the ammunition in relatively new magazines at or near the time when the magazines will be utilized.

It is obviously desirable to be able to store the rounds of ammunition in the magazines from which they will ultimately be dispensed for prolonged periods of time while still being assured of complete operability of such magazines, since it would materially reduce both the cost of storing the ammunition and the cost and labor entailed in loading the magazines at or near the time when the ammunition is to be utilized.

It is, therefore, an object of my invention to provide a magazine for a plurality of rounds of ammunition which is characterized by the fact that the magazine can be used to store the rounds of ammunition over a prolonged period of time. Furthermore, the magazine of the invention is characterized by the fact that it can be, at the point of use, rendered operative to cause successive rounds of ammunition to be propelled toward the ejection opening of the housing of the magazine.

Another object of my invention is the provision of a magazine for a plurality of rounds of ammunition which includes a housing and normally inoperative operating means adapted to be located in the housing of the magazine and adapted, also, to be rendered operative at the point of use of the magazine to cause the successive rounds of ammunition to be propelled from the ejection opening of the magazine.

Therefore, during a storage period the operating means is normally inoperative and is not subject to fatigue and wear characteristic of prior art operating devices, such as coil or compression springs, or the like. Furthermore, the magazines of the invention can be stored for prolonged periods of time while loaded with ammunition and, by a simple operation, can be rendered operative at the point of use, thus insuring that failure of the magazines will not prevent adequate utilization of the rounds of ammunition stored and shipped therein.

Another object of my invention is the provision of a magazine for a plurality of rounds of ammunition which includes a housing and normally inoperative operating means in said housing including a normally relaxed spring which, when stressed, is adapted to propel a plurality of rounds of ammunition successively through the ejection opening of the housing of the magazine. Because the spring of the normally inoperative operating means is normally relaxed, it cannot be subject to fatigue or other factors which will prevent the operation thereof at the point of use. By the simple operation of stressing the spring at the point of use, the spring is rendered operative to propel a plurality of rounds of ammunition successively through the ejection opening of the housing of the magazine with which the normally relaxed spring is associated.

A further object of my invention is the provision, in a magazine of the aforementioned character, of an ammunition follower which has the normally relaxed spring associated therewith and of actuating means connected to the normally relaxed spring adapted to stress the same at the point of use in order that the spring, when stressed, will urge the follower against an adjacent round or rounds of ammunition to cause the same to be propelled successively through the ejection opening of the housing of the magazine with which the normally relaxed spring is associated.

An additional object of my invention is the provision, in a magazine of the aforementioned character, of actuating means for the normally relaxed spring constituted by an elongated cable attached to the cover of the magazine whereby, when the cover of the magazine is removed, corresponding movement of the cable will cause the normally relaxed spring to be stressed thus placing the magazine in operating condition.

Other objects and advantages of the invention will be apparent from the following specification and accompanying drawings, which are for the purpose of illustration only, and in which:

FIG. 1 is a perspective view showing a magazine constructed in accordance with the teachings of my invention;
FIG. 2 is a vertical sectional view taken on the broken line 2—2 of FIG. 1;
FIG. 3 is a vertical sectional view similar to FIG. 2 showing the manner in which the normally relaxed spring incorporated in the magazine is stressed;
FIG. 4 is an enlarged, fragmentary sectional view of a portion of the magazine shown in FIG. 3;
FIG. 5 is an enlarged, fragmentary elevational view taken from the broken line 5—5 of FIG. 4;
FIG. 6 is a vertical sectional view of the magazine constructed in accordance with the teachings of my invention;
FIG. 7 is a view similar to FIG. 6 showing the magazine of FIG. 6 in fully discharged condition;
FIG. 8 is a transverse sectional view taken on the broken line 8—8 of FIG. 6; and
FIG. 9 is a vertical sectional view taken on the broken line 9—9 of FIG. 7.

Referring to the drawings and particularly to FIGS. 1—3 thereof, I show a magazine 10 constructed in accordance with the teachings of my invention and including a housing 12 which may be formed from plastic, sheet metal, or the like. The housing 12 is of substantially rectangular configuration and includes a bottom closure 14 adapted to be placed on the bottom of the housing 12 after the housing 12 has been loaded with a plurality of rounds of ammunition 16.

The housing 12 has an opening 18 in its top and an ejection opening 20 in a side wall thereof which constitutes, in essence, a continuation of the opening 18. Therefore, successive rounds of ammunition 16 may be ejected upwardly through the opening 18 or ejected...
through the ejection opening 20 in the side wall of the housing 12. In any event, a cover 22 formed from plastic, sheet metal, or the like, is adapted to be placed in overlying relationship with the openings 18 and 20 and to prevent the ejection of rounds of ammunition 16 through said openings.

Disposed within the housing 12 is a follower 24 which, in a manner to be described in greater detail below, is adapted to be urged from one extremity to the other of the slot 22, whereby successive rounds of ammunition 16 may be successively propelled through either of the openings 18 or 20. The follower 24, as best shown in FIGS. 2–3 and 9 of the drawings, includes a protruberance 26 on one side and a receptacle 28 on the other side therefor, whereby the adjacent rounds of ammunition 16 are disposed slightly out of register with each other so that only one round of ammunition 16 will be located at the openings 18 or 20 at one time.

The follower 24 may be formed from a synthetic plastic, such as a phenolic resin, and includes a depending peripheral flange 30 which, as best shown in FIG. 6 of the drawings, is adapted to engage the adjacent wall of the housing 12 to guide the follower 24 during its movement in said housing. The follower 24 also includes a pair of spaced lugs 32 adapted to receive the opposite ends of a spindle 34 in openings 36, as best shown in FIG. 6 of the drawings.

Operatively supported on the spindle 34 intermediate its extremities is a normally inoperative operating means 40 constituted by a normally relaxed coil spring 42 which is wound about the spindle 34, as best shown in FIG. 2 of the drawings, in relaxed condition and thus is not subjected to stress and fatigue which might cause it to fail and render it inoperative after a prolonged period of storage in stressed condition. The spring 42 is, as best shown in FIGS. 4–5 and 9 of the drawings, provided with an integral bent-over hook portion 44 upon the free extremity thereof, whereby said hook portion being bifurcated by an opening 46, for a purpose to be described in greater detail below.

When the spring 42 is in the relaxed position of FIG. 2 of the drawings, the bifurcated hook portion 44 is located in the lowermost position shown in FIG. 2 and is engaged by an actuating means 50 constituted by an elongated steel wire or cable 52 having a ball 54 upon the lower extremity thereof adapted to be disposed below the hook portion 44, as best shown in FIG. 4 of the drawings. It will be noted from FIG. 4 and FIG. 5 of the drawings, that the wire 52 extends upwardly through the opening 46 in the hook portion 44 and that the upper extremity thereof is secured in the dust cover 22 of the housing 12.

The dust cover 22 has a finger ring 58 provided upon the upper surface thereof, which, when grasped, will permit the cover 22 to be pulled from operative engagement with the housing 12 of the magazine 10. Removal of the dust cover 22 from operative engagement with the upper extremity of the housing 12 of the magazine 10 will cause the cable 52 to be pulled upwardly and thus the free extremity of the normally relaxed spring 42 will be pulled upwardly into the position shown in FIGS. 3 and 9 of the drawings. When the spring 42 has its free extremity pulled upwardly in the above described manner, the spring 42 will, of course, be stressed and, thus, the follower 24 will be immediately biased against the adjacent rounds of ammunition 16.

In order to maintain the spring 42 in stressed condition a detent slot 62 is formed in the upper extremity of the housing 12, said slot, as best shown in FIGS. 4–5 and 6, 9 of the drawings, being engageable by the hook portion 44 of the free extremity of the spring 42. The slot 62 includes a depression 64 intermediate its extremities, as best shown in FIGS. 5 and 9 of the drawings, which is adapted to receive the ball 54 which serves as a means of securement of the wire 52 to the hook portion 44 of the free extremity of the spring 42.

Therefore, when the removal of the dust cover 22 from the housing 12 of the magazine 10 causes the wire 52 to be pulled upwardly, the hook portion 44 of the spring 42 and the ball 54 on the wire 52 will be engaged, respectively, in the slot 62 and the depression 64 intermediate the extremities of the spring 42 by mere pulling the ball 54 from operative engagement with the hook portion 44 and out of the depression 64 in the wall of the slot 62. It will be noted that, as best shown in FIG. 8 of the drawings, the spring 42 is slightly concave in cross section and that it is guided in a recess 68 provided in the wall of the housing 12 of the magazine 10. Therefore, as the free extremity of the spring 42 is pulled upwardly by the wire 52, it is guided in the recess 68. Once the spring 42 has been stressed in the above described manner the follower 24 is urged upwardly against the adjacent rounds of ammunition 16 and, when in the magazine has been installed in operative relationship with an automatic or semi-automatic weapon, the follower 24 will feed successive rounds of ammunition into the position adjacent the openings 18 and 20 in the upper extremity of the magazine housing 12.

It will be obvious to those skilled in the art that permitting the spring 42 to remain in relaxed condition, until such time as the magazine is to be utilized in the field, will prevent the fatigue which is frequently encountered in stressed springs normally utilized in conventional magazines. Therefore, the magazine of the invention may be utilized to store ammunition for unlimited periods of time with the secure knowledge that, when the magazine is to be utilized in the field, the stressing of the spring in the above described manner will immediately cause the magazine to become fully operative. It is, of course, to be understood that while I have shown a particular type of relaxed spring and a particular mechanism for causing said spring to be stressed, many other types of springs may be used in substitution for the one disclosed and for the mechanism which causes the stressing of said spring.

I claim:

1. In an ammunition magazine, the combination of: a housing; a follower normally disposed at the lower extremity of said housing and adapted to engage the lowermost of a plurality of rounds of ammunition in said housing in the dust cover portion 22 of the housing 12. The dust cover 22 has a finger ring 58 provided upon the upper surface thereof, which, when grasped, will permit the cover 22 to be pulled from operative engagement with the housing 12 of the magazine 10. Removal of the dust cover 22 from operative engagement with the upper extremity of the housing 12 of the magazine 10 will cause the cable 52 to be pulled upwardly and thus the free extremity of the normally relaxed spring 42 will be pulled upwardly into the position shown in FIGS. 3 and 9 of the drawings. When the spring 42 has its free extremity pulled upwardly in the above described manner, the spring 42 will, of course, be stressed and, thus, the follower 24 will be immediately biased against the adjacent rounds of ammunition 16.

2. In a magazine for a plurality of rounds of ammunition, the combination of: a housing having an opening therein adapted to permit said rounds to be successively ejected therethrough; and means for ejecting said rounds through said opening including a follower and a spring having a coiled portion under said follower which is normally relaxed when said follower is at the bottom of said housing and said housing is full of ammunition, actuating means connected thereto to stress said coiled portion which, when so stressed, will cause said means to successively eject said rounds through said opening, said spring having a free upper end adjacent the top of said housing and said actuating means including a cover on said housing secured to said free upper end, whereby removal of said cover from said housing pulls said end upwardly and stresses said coiled portion.
3. In an ammunition magazine, the combination of: an elongated housing having an ammunition ejectment opening adjacent the upper extremity thereof; follower means disposed in said housing, movable longitudinally thereof, and adapted to engage the lowermost round of a plurality of rounds of ammunition is said housing; coiled spring means having an uncoiled length at least as great as the distance between the lowermost position of said follower means and said ejectment opening, said spring means having one extremity connected to said follower means; and actuating means connected to the other extremity of said spring means and upwardly movable to uncoil said spring means and place said spring means in a stressed state in which said spring means seeks to regain its coiled, unstressed state, thereby upwardly urging said follower means toward said ejectment opening.

4. In an ammunition magazine, the combination of: an elongated housing having an ammunition ejectment opening adjacent the upper extremity thereof; a follower disposed in said housing, movable longitudinally thereof, and adapted to engage the lowermost round of a plurality of rounds of ammunition in said housing; coiled spring means rotately mounted upon said follower and having an uncoiled length at least as great as the distance between the lowermost position of said follower and said ejectment opening, said spring means having one extremity connected to said follower; and actuating means connected to the other extremity of said spring means and upwardly movable to uncoil said spring means and place said spring means in a stressed state in which said spring means seeks to regain its coiled, unstressed state, thereby upwardly urging said follower toward said ejectment opening.

5. In an ammunition magazine, the combination of: an elongated housing having a slot and an ammunition ejectment opening adjacent the upper extremity thereof; a follower disposed in said housing, movable longitudinally thereof, and adapted in a lowermost position to engage the lowermost round of a plurality of rounds of ammunition filling said housing; coiled spring means having an uncoiled length at least as great as the distance between said lowermost position of said follower and said ejectment opening, said spring means having one extremity connected to said follower and the other extremity provided with a hook portion; and actuating means connected to said other extremity of said spring means and upwardly movable to uncoil said spring means and place said spring means in a stressed state in which said spring means seeks to regain its coiled, unstressed state, thereby upwardly urging said follower toward said ejectment opening, said hook portion being receivable in said slot to maintain said other extremity of said spring means in the upper portion of said housing.

6. In an ammunition magazine, the combination of: an elongated housing having an ammunition ejectment opening adjacent the upper extremity thereof; a follower disposed in said housing, movable longitudinally thereof, and adapted to engage the lowermost round of a plurality of rounds of ammunition in said housing; a member rotatable upon said follower; coiled spring means having an uncoiled length at least as great as the distance between the lowermost position of said follower and said ejectment opening, said spring means being coiled about said member in its unstressed state; and actuating means connected to the outer extremity of said spring means and upwardly movable to uncoil said spring means and place said spring means in a stressed state in which said spring means seeks to regain its coiled, unstressed state and thereby upwardly urges said member and said follower.

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