April 30, 1963 E. M. STONER 3,087,270

AMMUNITION MAGAZINE WITH A COIL SPRING

Filed March 21, 1960 2 Sheets-Sheet 1

FIG. 1.

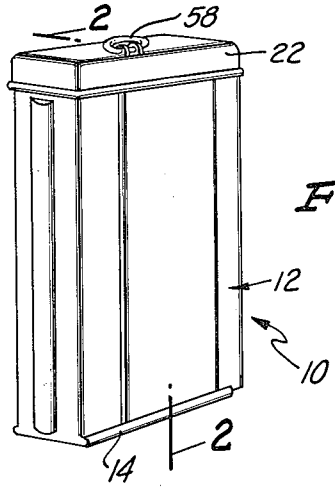


FIG. 2.

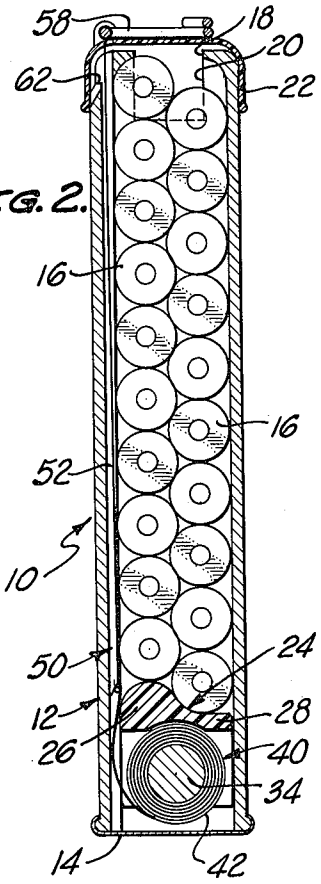


FIG. 3.

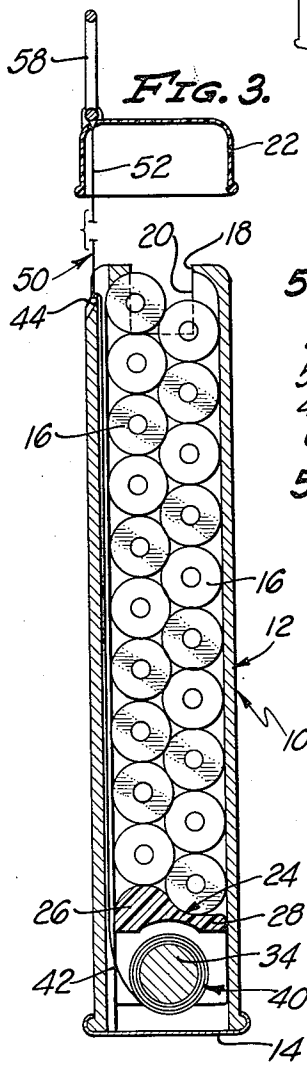


FIG. 4.

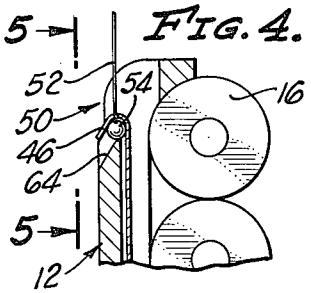
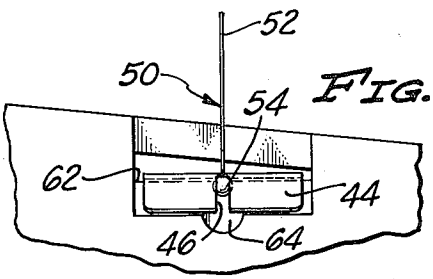


FIG. 5.



INVENTOR.
EUGENE M. STONER
BY
Thomas P. Mahoney
ATTORNEY

April 30, 1963 E. M. STONER 3,087,270

AMMUNITION MAGAZINE WITH A COIL SPRING

Filed March 21, 1960 2 Sheets-Sheet 2

FIG. 6.

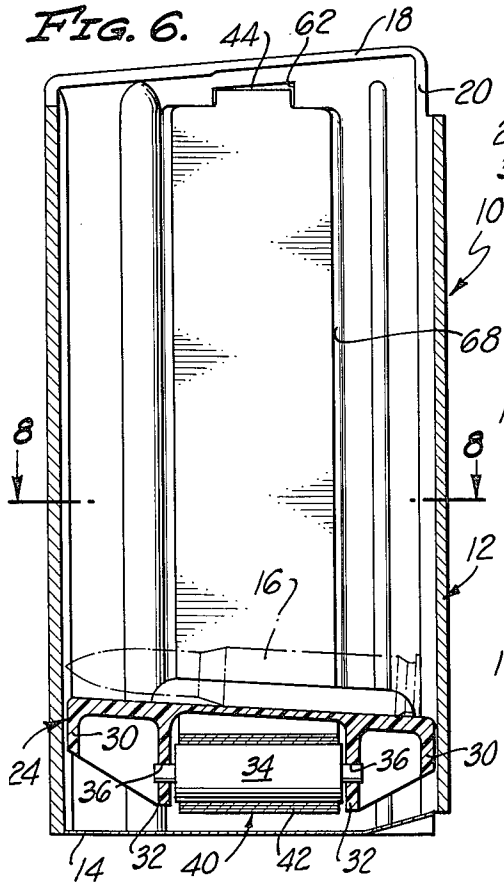


FIG. 7.

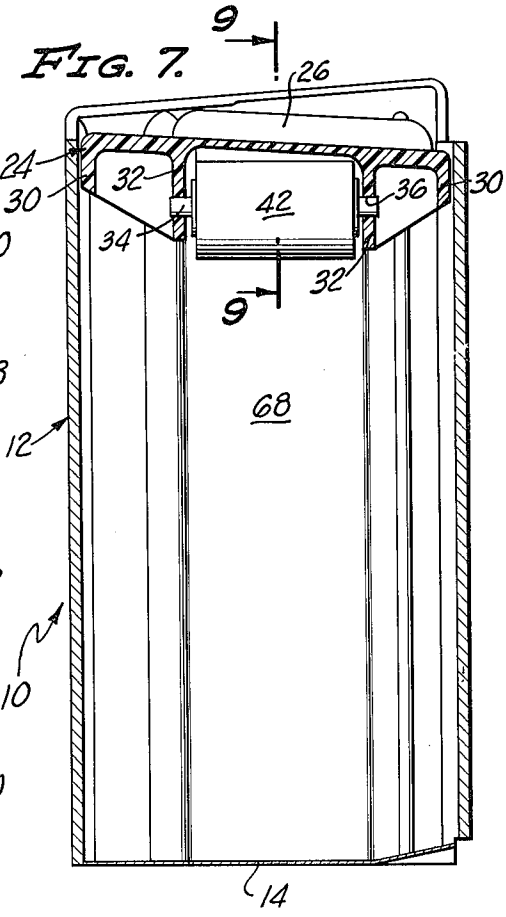


FIG. 9.

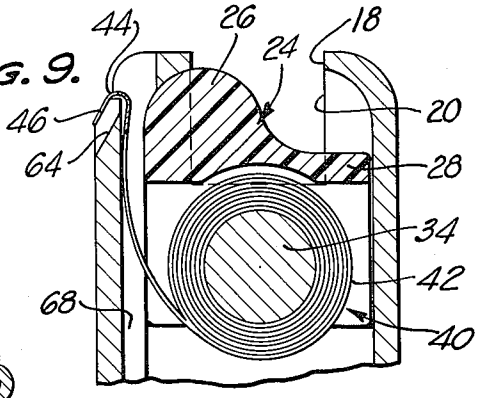
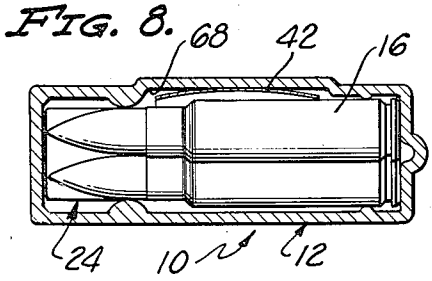


FIG. 8.



INVENTOR.
EUGENE M. STONER
BY
Thomas P. Mahoney
ATTORNEY

United States Patent Office 3,087,270 Patented Apr. 30, 1963

3,087,270

AMMUNITION MAGAZINE WITH A COIL SPRING

Eugene M. Stoner, Newport Beach, Calif., assignor to Fairchild Engine and Airplane Corporation, Hagerstown, Md., a corporation of Maryland

Filed Mar. 21, 1960, Ser. No. 16,342
6 Claims. (Cl. 42—50)

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 ejectment 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 ejectment 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 ejectment 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 ejectment openings of the magazine housing. To avoid 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 ejectment opening of the housing of the magazine.

Another object of my invention is the provision of a magazine of the aforementioned character which includes a 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 ejectment opening of the magazine.

Therefore, during the 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 ejectment 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 ejectment 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 ejectment 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 the 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 ejectment 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 ejectment 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 ejectment 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 housing **12**, 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 protuberance **26** on one side and a receptacle **28** on the other side thereof, 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 walls 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, 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**, as best shown in FIGS. 4 and 5 of the drawings. Thus, the slot **62** serves to maintain the normally relaxed spring **42** in stressed condition.

When the upper extremity of the spring **42** has been located in the detent slot **62**, the cable **52** can be removed from operative relationship with the hook portion **44** of the spring **42** by merely 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 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; operating means connected to the underside of said follower which is normally inoperative when said follower is located at the bottom of said housing and said housing is full of ammunition and which, when rendered operative, will cause upward movement of said follower within said housing; actuating means connected to said operating means for rendering said operating means operative; and a cover on said housing connected to said actuating means which, when removed, simultaneously energizes said operating means.

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.

References Cited in the file of this patent

UNITED STATES PATENTS

1,245,499	Orme	Nov. 6, 1917
1,314,013	Mulvey	Aug. 26, 1919
2,338,984	Van Horn et al.	Jan. 11, 1944
2,394,606	Gazda	Feb. 12, 1946
2,503,116	Maillard	Apr. 4, 1950
2,777,235	Hopkins	Jan. 15, 1957
2,885,811	Womble	May 12, 1959

FOREIGN PATENTS

776,859	France	Nov. 17, 1934