United States Patent

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[72] Inventor **Harold H. Wiese**
Davenport, Iowa

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[73] Assignee **The United States of America as represented by the Secretary of the Army**

[54] **MAGAZINE ASSEMBLY WITH EXPENDABLE CARTRIDGE CONTAINER UNIT**
7 Claims, 5 Drawing Figs.

[52] **U.S. Cl.** **42/50,** 42/88
[51] **Int. Cl.** **F41c 25/02,** F42b 39/00
[50] **Field of Search** 42/50, 87, 88

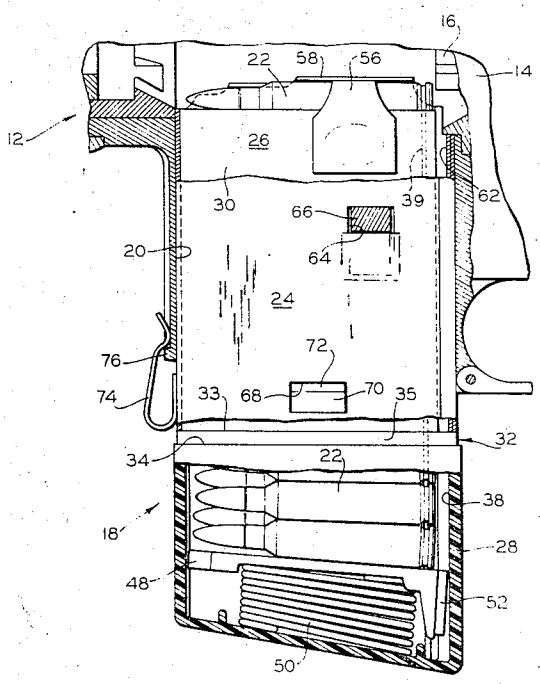
[56] **References Cited**

UNITED STATES PATENTS

2,910,795	11/1959	Agren	42/50
3,087,270	4/1963	Stoner	42/50
3,443,334	5/1969	Ardolino	42/50

Primary Examiner—Benjamin A. Borchelt
Assistant Examiner—C. T. Jordan
Attorneys—Harry M. Saragovitz, Edward J. Kelly, Herbert Berl and Albert E. Arnold, Jr.

ABSTRACT: A replacement cartridge magazine for a firearm comprises an adapter unit having a configuration similar to that of the upper portion of the standard magazine therefor, and a cartridge container with a spring-biased follower, which holds the cartridge requirements of the magazine assembly. The adapter preferably fabricated from metal, is releasably latched to the firearm so as to be normally a part thereof and the container, inexpensively manufactured from plastic so as to be expendable, is releasably latched to the adapter. A tape extends over the top of the container to secure the cartridges therein when loaded and so as to be sheared by the firearm bolt during passage over the magazine assembly. A protective cover is also provided for installation over the top, open portion of the container and is sealed by adhesive tape thereto.



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SHEET 1 OF 2

Fig. 1

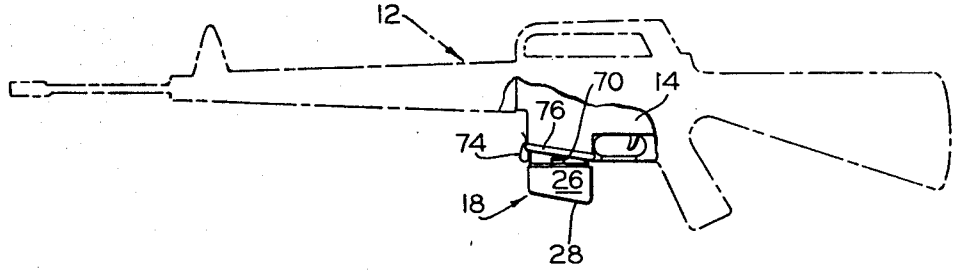
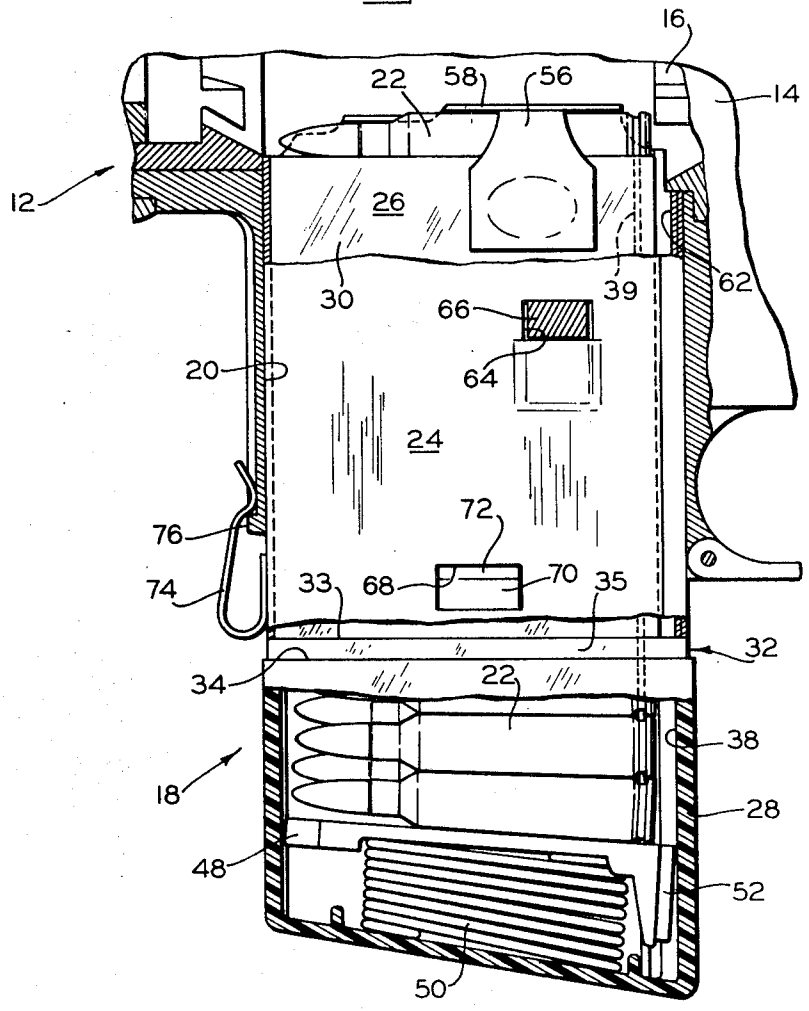


Fig. 2



INVENTOR
Harold H. Wiese

BY
Harry M. Saragovitz, Edward J. Kelly,
Herbert Berl, & Gilbert E. Arnold Jr.
ATTORNEYS

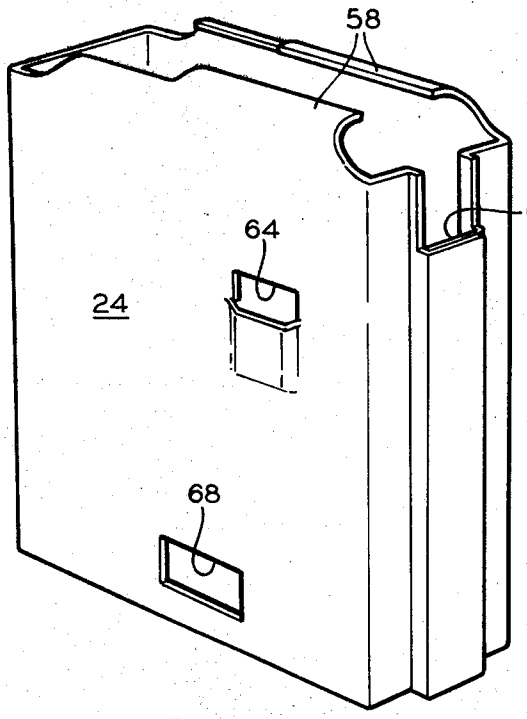


Fig. 3

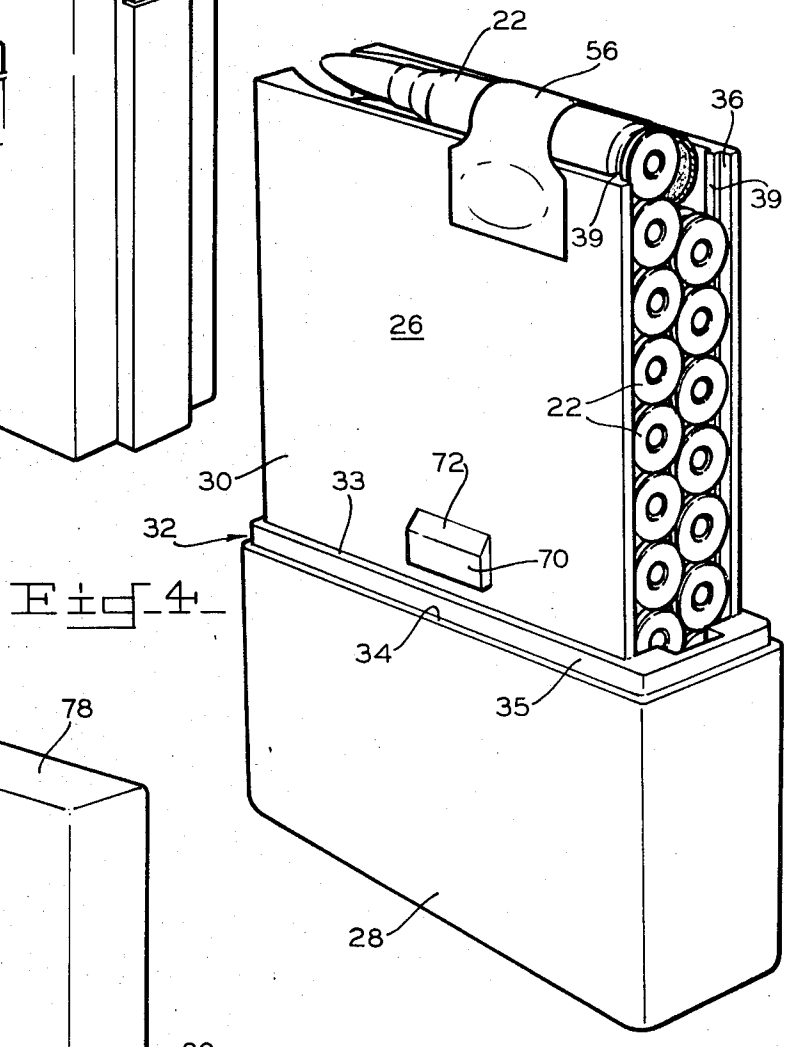


Fig. 4

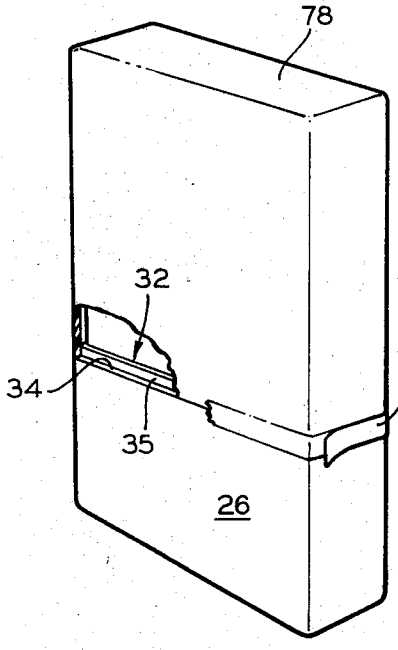


Fig. 5

INVENTOR
Harold H. Wiese
BY
Harry M. Saragovitz, Edward J. Kelly,
Herbert Berl & Albert E. Arnold Jr.
ATTORNEYS

MAGAZINE ASSEMBLY WITH EXPENDABLE CARTRIDGE CONTAINER UNIT

The invention described herein may be manufactured, used and licensed by or for the Government for governmental purposes without the payment to me of any royalty thereon.

BACKGROUND OF THE INVENTION

This invention relates to cartridge magazines for firearms and pertains more particularly to a magazine assembly comprising one unit which is attachable to the firearm and another expendable unit for holding a plurality of cartridges and through the cooperation of the adapter feeding them into the firearm.

While magazines for holding together in a single unit a supply of cartridges provide excellent means for easily and quickly supplying cartridges to a firearm they do present problems when emptied because they are, generally, relatively costly to manufacture and therefore are not expendable except in emergencies. Present magazines, too, are difficult to reload under field conditions especially in the cold regions where gloves have to be worn. Empty magazines, too, are bothersome to carry until reloading may be accomplished under favorable conditions.

SUMMARY OF THE INVENTION

The present invention successfully overcomes many of these problems as it is a principal object of the invention to provide for firearms a magazine assembly which may be used to replace the standard magazine therefor without any change in the firearm structure and which comprises an adapter having the same configuration as the upper portion of the standard magazine so as to be replaceably latched to the firearm as the standard magazine, and a cartridge container provided with a spring-pressed follower which is replaceably latched to the adapter.

It is further object of this invention to provide such a magazine assembly in which the adapter is fabricated from metal so that it can be part of the firearm structure and used with many containers and in which the container is inexpensively fabricated as by molding from plastic material so as to be expendable.

It is another object of this invention to form a container in which the top is fully open so that the follower and biasing spring may be installed in the body of the container without requiring a separate baseplate for such installation as in conventional magazines.

It is a further object of this invention to reduce the cost of the magazine assembly by providing a separate adapter for use with many container units and by including in the adapter the costly, intricately machined parts of the magazine assembly as the cartridge positioning pair of lips.

Further 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.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevational view of a firearm, shown in phantom, which is partially broken away to show the magazine assembly of this invention mounted thereto;

FIG. 2 is an enlarged fragmentary view, longitudinally cross sectioned, of the magazine assembly mounted in the port therefor in the firearm receiver;

FIG. 3 is a perspective view of the adapter;

FIG. 4 is a perspective view of the container loaded with cartridges; and

FIG. 5 is a reduced perspective view of the container with a cover installed thereon and sealed thereto.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Shown in the Figures is a firearm 12 which comprises a receiver 14 and a bolt 16 disposed therein for reciprocal travel in forward and rearward strokes. An accommodating port 20 in receiver 14 releasably mounts a magazine assembly 18 which successively positions cartridges 22 loaded therein for sliding removal by bolt 16 during the forward stroke thereof.

Magazine assembly 18 is adapted for holding a plurality of cartridges 22 in a double-column staggered arrangement and comprises an adapter 24 and a cartridge container 26 insertable thereinto. When adapter 24 and container 26 are assembled, the resulting magazine assembly 18 has an overall configuration essentially similar to that of the standard magazine for firearm 12 so that it provides a replacement therefor while also providing additional advantages obvious to those skilled in the art.

Container 26 comprises a base portion 28 of a deep concave configuration and an extension portion 30 which extends integrally upward therefrom. The walls of extension portion 30 are thinned down at the outside thereof to form a stepped shoulder 32 around the top of base portion 28. Such shoulder 32 includes a top ledge 33, a bottom ledge 34 and a band 35 therebetween. The rear end of extension portion 30 is open as shown at 36 and the rear end of base portion 28 is provided along the inside with a channel 38 which extends symmetrically downward from top ledge 33. Provided along the inside of each side of container 26, and adjacent the rear end thereof, is a vertically disposed rib 39 which engages the extractor grooves of those cartridges 22 which are in the related one of the double columns thereof to prevent longitudinal displacement of the cartridges relative to container 26 but permit vertical displacement of the cartridges to the top end thereof.

Container 26 includes a follower 48 which is fabricated from plastic and is of conventional configuration and which is biased upwardly in the container by spring 50. Follower 48 includes a tab 52 for actuating, in conventional fashion, a last round bolt stop in the firearm and which extends into channel 38 of base portion 28 when the follower is located therein and through opening 36 in extension portion 30 when the follower is located therein. Follower 48 and spring 50 are both installed in container 26 through the open top end thereof.

Cartridges 22 are loaded into container 26 from the open top end thereof and when the container is fully loaded the cartridges are held therein against the bias of spring 50 by a tape 56 which extends over the open top end and is heat sealed at both ends to the outside surfaces of the opposite sides of the container. Tape 56 is fabricated from a plastic material which has sufficient strength to withstand the pressure applied thereto by spring 50 but which is easily sheared by bolt 16 during first passage thereof over magazine assembly 18 after container 26 is installed into adapter 24 to free cartridges 22 in the container for successive removal by the bolt.

Adapter 24 gas the general configuration of the upper portion of the standard metal magazine for firearm 12 and comprises a pair of lips 58 which cooperate with follower 48 in locating the leading cartridge 22 in the double columns in position for removal by bolt 16, as well known in the art. Adapter 24 extends downwardly from port 20 far enough to permit easy grasp of the extending portion for removal of the adapter from receiver 14.

The rear end of adapter 24 forms an inner channel 62, which is the vertical extension of channel 38, for receiving tab 52 of follower 48 during upward displacement thereof in extension portion 30. Provided in one side of adapter 24 is a rectangular opening 64 which cooperates in conventional fashion with the standard latch 66 of firearm 12 to releasably secure the adapter in port 20. Also provided in at least one side of adapter 24, adjacent the bottom end thereof, is a rectangular aperture 68 which is arranged to receive a mating boss 70 protruding from the respective side of container 26 to releasably secure the container to the adapter when inserted thereinto. Boss 70 includes a top cam surface 72 which inclines downwardly and outwardly from the respective side of container 26 for a purpose to be explained hereinafter. Fixed to the front end of adapter 24 adjacent the bottom thereof is a spring-pressed clip 74 which cooperates with an outwardly

projecting rim **76** around the bottom of port **20** to assist latch **64** in releasably holding the adapter to receiver **14**.

Container **26** is preferably fabricated by a molding process from inexpensive, easily worked material, as found in the plastic field, so that it can economically be used only once and then discarded. Adapter **24**, on the other hand, should be fabricated from metal because plastic when under pressure for a period of time has a tendency to creep and this would distort lips **58** of adapter **24** due to the pressure applied thereto, resulting in faulty feeding of cartridges **22**.

Cartridges **22** loaded in container **26** are protected from the weather when in storage or transit by a cover **78** which can be fabricated from an inexpensive material such as plastic, and is of a box configuration with an open end. Cover **78** is installed downwardly over extension portion **30** so that the open end fits snugly over band **35** of shoulder **32** and contacts bottom ledge **34**. Cover **78** is held in place by an adhesive tape **80** which seals the bottom end of the cover to the adjacent outside surface of base portion **28**.

OPERATION

Adapter **24** may be installed in port **20** by itself, or with container **26** assembled thereto to complete magazine assembly **18**, by inserting the top end of the adapter upwardly into the port and then pressing upwardly thereagainst until latched in position by the engagement of latch **66** with opening **64**. If adapter **24** is installed separately, container **26** is subsequently installed, to load firearm **12**, by first removing cover **78** by peeling off tape **80** to free the cover. Container **26** is then inserted upwardly into adapter **24** until extension portion **30** is fully enclosed therein. When cam surface **72** of boss **70** on container **28** contacts the bottom edge of adapter **24**, during installation, the cam surface forces the contacted side outwardly so as to freely admit entry of the boss into the adapter. When container **26** is correctly positioned, boss **70** is in registry with aperture **68** and there snaps thereinto to releasably secure the container in adapter **24**.

When bolt **16** passes forwardly over magazine assembly **18** the first time after container **26** is installed, it ruptures tape **56** to release cartridges **22** for successive removal therefrom. If necessary, a cutting edge can be provided on bolt **16** to facilitate the rupture of tape **56**. When container **26** is emptied, it is removed to permit replacement by a loaded container by pressing inwardly on the sides of the empty container until boss **70** is clear of apertures **68**, thus freeing the container for removal. With cartridges **22** removed from the emptied container **26**, the sides thereof are easily squeezed inwardly to free boss **70** from aperture **68**. Because of the inexpensive manufacture of container **26** it is expendable and therefore can be discarded when empty and a loaded one immediately installed, saving time, and the bother of reloading, as with a conventional magazine, as well as eliminating the trouble of carrying around emptied magazines until it is convenient to reload them. However, if field reloading is necessary, magazine assembly **18** can be removed as a unit from firearm **12** and reloaded in the same manner as a conventional magazine.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

I claim:

1. In cooperation with a firearm comprising a receiver with a magazine port and a bolt disposed for reciprocal travel in the receiver, a magazine assembly comprising an adapter unit receivable by the magazine port, means for releasably latching said adapter unit in the magazine port, and a cartridge container comprising a base portion of deep concave configuration, a portion extending integrally from said base portion and adapted for insertion into said adapter unit, means for releasably securing said container to said adapter unit, a spring-biased follower for biasing cartridges in said container to a free open end thereof and means acted upon by the bolt during reciprocation thereof for releasably securing the cartridges in said container.

2. The invention as defined in claim **1** wherein said adapter is fabricated from metal and includes lip means disposed for cooperation with said spring-biased follower for successively locating the cartridges in said assembly in a position for removal by the bolt during reciprocation thereof, and wherein said container is inexpensively fabricated from plastic as by molding means so as to be expendable.

3. The invention as defined in claim **1** wherein said means for releasably securing said container to said adapter unit comprises a boss of rectangular configuration protruding from one side of said container, an aperture formed in said adapter unit and located to receive said boss when said container is correctly located therein, and a top cam surface of said boss contactable with the bottom edge of said adapter unit to facilitate insertion of said container into said adapter unit and permit entry of said boss thereinto for reception by said aperture, said boss being responsive to inward pressure applied to said one side of said container for removal therefrom.

4. The invention as defined in claim **1** and including a cover of box configuration fitting over said extension portion to protect the cartridges in said container, and sealing means applied to said container and to the bottom edge of said cover.

5. The invention as defined in claim **1** and including an integral rib formed vertically along the inner wall of each side of said container for engagement by extractor grooves of cartridges disposed therein to prevent longitudinal displacement thereof in said container while permitting vertical displacement therealong.

6. The invention as defined in claim **1** and including supplemental fastening means disposed on said adapter for cooperation with lip means around the bottom edge of said magazine port thereby to assist said first named means in releasably securing said adapter in said magazine port.

7. The invention as defined in claim **1** wherein said means acted upon by the bolt comprises a tape of easily ruptured plastic material extending over said open end and sealed at both ends to the opposite sides of said container.