

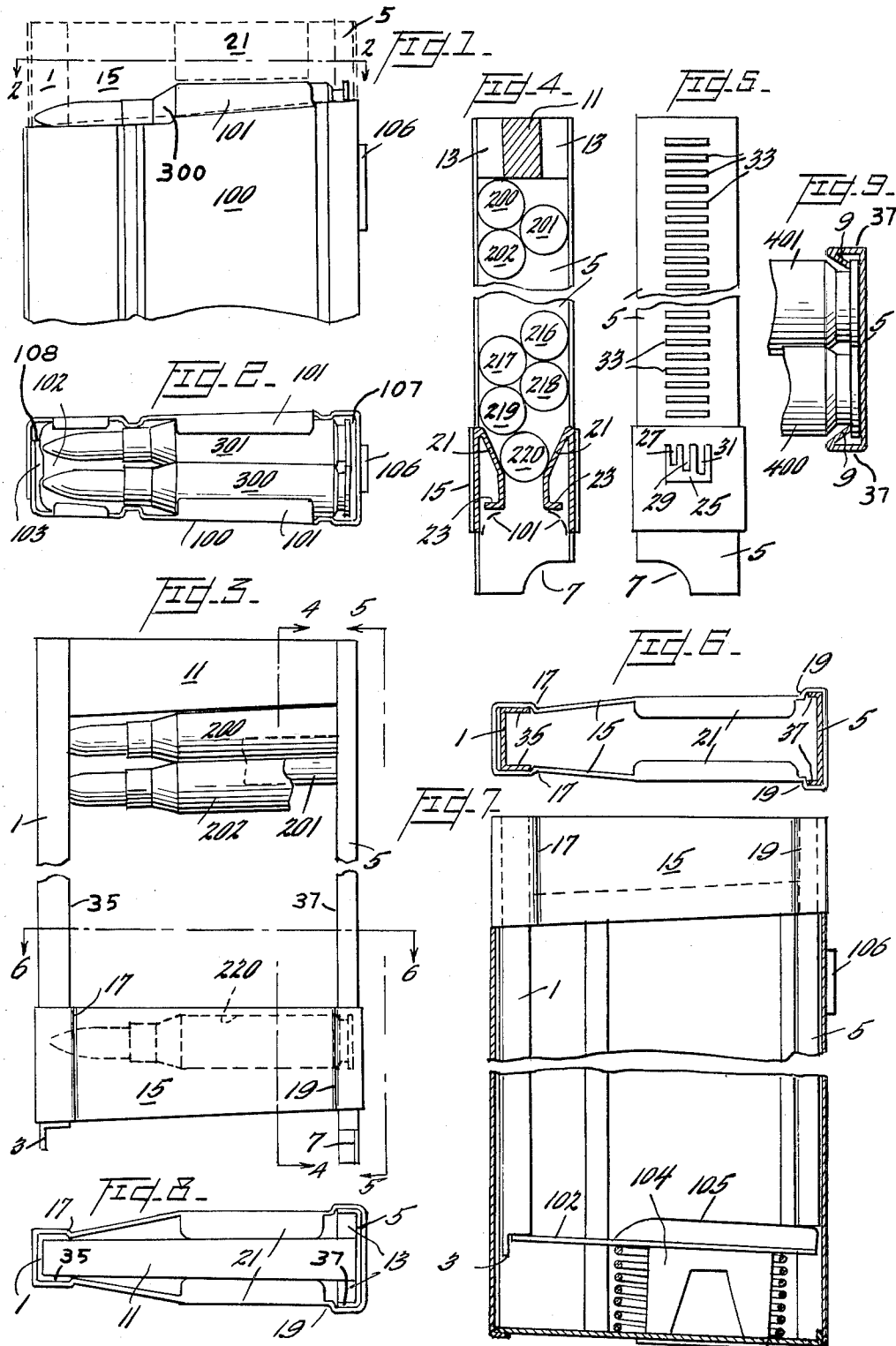
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MAGAZINE LOADING CLIP

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MAGAZINE LOADING CLIP

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2 Claims. (Cl. 42—87)

This invention relates to a clip for loading a double staggered column of cartridges into a firearm box magazine having fixed lips. Prior art devices such as those disclosed in U.S. Patents 2,887,811, granted to Johnson, and 2,894,350, granted to Janson, have contemplated the loading of magazines which have special and unusual feed lips. The present invention is applicable to standard magazines such as those used with the United States rifles, M14 series, and the United States rifles, M16 series. These magazines have feed lips formed as an upward, inward curving extension of each sidewall of the magazine. The lips are only slightly resilient, and as far as the filling of the magazine is concerned, they may be regarded as fixed.

The U.S. rifles M14 series and M16 series belong to the class of individual weapons now known as the assault rifle. The citing of particular models or weapons herein is not intended as a limitation on the invention, which may be applied to the magazines of various firearms, existing and future.

The assault rifle is characterized by light weight, simplicity, provision for either aimed semi-automatic fire or bursts of roughly aimed full-automatic fire, and large magazine capacity. The generic term "assault rifle" was apparently applied by the late German Army to the archetype of this weapon which saw actual service at the front late in World War II. The experience of the Korean conflict proved the soundness of the assault rifle concept, and today every first-class military force is equipped with such arms, although in some cases the trigger mechanism is restricted to semi-automatic fire. In all such rifles a large magazine capacity permits delivery of a large number of shots without interruption to reload.

Although the assault rifle has a very high theoretical rate of fire, in actual usage the deliverable rate is held down by several factors. Overheating is the most severe limitation restricting the deliverable rate. In an emergency, the rifleman can easily fire one hundred unaimed shots in one minute, but thereafter it will be necessary to allow the firearm to cool, for the intense heat might "cook-off" the incoming rounds before the breech has been safely locked. The weight of ammunition which can be carried by the rifleman and the severe user fatigue caused by the excessive recoil of some full-automatic weapons are among the other limiting factors.

Present practice is to provide the user with metallic magazines which will be considered expendable in war. It is widely recognized that this practice is accompanied by inherent disadvantages. If the magazine is issued to the ultimate user filled with cartridges it may remain filled for an extensive period of time, during which time the magazine spring may take a set and fail to function properly. Magazines are sturdy and therefore rather heavy. In the supply of ammunition, the weight of magazines is a significant proportion, yet this weight produces no effect at target. In the excitement of combat, the process of refilling a magazine is time-consuming and distracting, so the user frequently discards the empty magazines.

For this reason large quantities of extra magazines are fabricated, these being in addition to those carried by the first supply echelon (the individual user) and the second supply echelon (the rifle company). (To support the approximately one million rifles of the M14 series now in service, approximately twenty million extra magazines are required.)

Because of the limitation on the life of the springs, the bulk of these extra magazines is stored empty. In the event of hostilities it will be necessary to fill these magazines at numerous supply installations varying from the highly organized depots of the Zone of the Interior (the continental U.S.) to the far-flung supply dumps of the field forces.

Combat losses of magazines can be expected to be enormous and it will obviously be necessary, if the inventory of extra magazines is depleted, to issue the user ammunition for filling such empty magazines as he can pick up in the field.

The present method of filling requires six steps for the 20-round M14 magazine. First a clip guide is attached. Then four 5-round clips are stripped into the mouth of the magazine. Finally the clip guide is removed from the magazine.

This method, while merely a nuisance on the firing range in peacetime, becomes a positive menace to the survival of the combat soldier in war. It requires excessive time and attention which he cannot spare. He has no control over the environment and may be forced to load mud, sand and snow, as well as cartridges into his magazine. The numerous motions involved may pin-point his location for the enemy.

In consideration of the aforesaid circumstances, the principal object of this invention is to provide a loading clip which may be used to fill a magazine with the minimum of manual work.

Another object is to provide such a clip which will have a large capacity.

Another object is to provide such a clip which will be economical to fabricate.

These and other objects of the present invention will be apparent from the detailed description hereinafter set forth and from the drawing made a part thereof in which:

FIGURE 1 is a side view of a portion of a typical cartridge magazine with broken lines indicating the magazine loading clip positioned thereon.

FIGURE 2 is a top view of a magazine of the type shown in FIGURE 1, showing cartridges therein.

FIGURE 3 is a side view of a magazine loading clip which is an embodiment of this invention.

FIGURE 4 is a section taken through FIGURE 3 in the plane indicated by broken line 4—4.

FIGURE 5 is a rear view of the loading clip shown in FIGURE 3.

FIGURE 6 is a section taken through FIGURE 3 in the plane indicated by broken line 6—6.

FIGURE 7 is a cutaway view of a typical cartridge magazine showing how its follower can be depressed by the loading clip of this invention.

FIGURE 8 is a top view of the loading clip shown in FIGURE 3, but without cartridges therein.

FIGURE 9 is an alternate construction for the rear cartridge retaining channel of the clip shown in FIGURE 6.

In FIGURE 1 there is shown a typical cartridge magazine 100 having a feed lip 101 which is retaining a top cartridge 300 in the magazine. Within the magazine, but not shown in the figure are the usual means to press the top cartridge against the lip. The magazine has a lug 106 for cooperation with attachment means in the firearm.

The broken lines on FIGURE 1 represent the magazine loading clip at one stage of the filling process. Parts numbered 1, 5, 15, and 21 will be explained in full hereinafter.

FIGURE 2 is a top view of the same magazine shown in FIGURE 1, but the magazine loading clip is not indicated. There are two lips 101, arranged oppositely to alternately retain the top cartridges of the staggered rows in the magazine. It will be noted that 300 is the topmost

cartridge of one row while 301 is the top cartridge in the other row. The rows of cartridges are urged toward the lips, as a group, by spring loaded follower 102. The front-to-rear inside dimension of the magazine is somewhat greater than the overall length of the cartridge as shown by the gaps between cartridge and magazine wall at 107 and 108. Follower 102 has, in its front edge, a notch 103, the purpose of which will be explained later. It also has a downwardly extending stop 104, which prevents overfilling the magazine by contacting the magazine bottom in the well-known manner. Stop 104 is shown in FIGURE 7.

(It will be apparent to those skilled in the art that the drawings illustrate, as an example for filling, the well-known cartridge magazine of the M14 rifle now standard in the Marine Corps and the Army of the United States. No restriction on the invention is intended thereby, as the selection of an example was solely for convenience in making the disclosure.)

Referring to FIGURE 3 there is shown a loading clip embodying this invention and comprising mainly a front channel 1, a rear channel 5, a top member 11, and a slider 15. The front and rear channels are joined to the top member by any suitable method, such as welding. The rear channel being wider than the front channel, filler pieces 13 are interposed between channel 5 and top member 11 as may be seen in FIGURES 4 and 8. Channels 1 and 5 have walls 35 and 37, respectively. Channels 1 and 5 constitute front and rear means for retaining cartridges in a staggered column. Top member 11 constitutes a connecting means between the said front and rear retaining means.

The dimensions of front channel 1 and rear channel 5 are so chosen as to provide lateral restraint for maintaining cartridges in a double staggered row. The front channel restrains the bullet ends of the cartridges while the rear channel restrains the primer ends of the cartridges as may be seen in FIGURE 4. It will also be noted in FIGURE 4 that top member 11 is capable of retaining the topmost cartridge in position in the column.

It is also necessary to choose the dimensions of front channel 1 and rear channel 5 so that these parts may be inserted into magazine 100, as is shown clearly in FIGURE 7. The lower extremity of channel 1 is provided with a tip 3 and the lower extremity of channel 5 is cut away at 7. Tip 3 engages notch 103 on follower 102 when channel 1 is inserted into the magazine and similarly cut away 7 engages ridge 105 on the follower when rear channel 5 is inserted into the magazine. The engagement of the channels with the magazine follower permits depressing the follower by action of the loading clip rather than by action of the inserted cartridges as is common in the art.

A slider 15 is adapted to travel up and down on channels 1 and 5. To maintain the desired alignment, slider 15 is closely contoured to channel 1 at 17, and to channel 5 at 19. The slider has a pair of inwardly converging lips 21 which are shown clearly in FIGURE 4. The lips are resilient and the space between them is so selected that a typical cartridge, shown at 220, cannot pass between without spreading the lips. To distribute the spreading substantially equally between the two lips when a cartridge is diverging them, the end of each lip is turned over to form a stop 23 which limits travel by striking slider 15.

(The numbers 200, 201, 202, 216, 217, 218, 219 and 220 in FIGURES 3 and 4 represent cartridges in the loading clip.)

Slider 15 provides the necessary restraint to support the bottommost cartridge of the double staggered column. As shown in FIGURE 4, the bottommost cartridge, 220, is diverted to a position approximately midway between the two rows above it by the action of converging lips 21. The lips thus function as converging guide means for the cartridges. In this position cartridge 220 provides support

for the next cartridge, 219, which as shown, is in one of the staggered rows. The lips thereby constitute detent means for retaining the bottommost cartridge in the column.

Immediately below lips 21 in FIGURE 4, the broken, curved lines indicate the positional relationship of magazine lips 101 to slider lips 21 when a magazine is to be filled. It will be noted that cartridge 220 is positioned in line with and close to the gap between lips 101.

To prevent slider 15 from sliding away from the cartridges in the channels, a ratchet arrangement is provided. Referring to FIGURE 5, a hole 25 is formed in the back of slider 15 adjacent to a suitable surface of channel 5. A plurality of resilient tangs 27, 29, and 31, of different length have their ends bearing against the channel, in which are formed a plurality of grooves 33. Engagement of the ends of the tangs with the grooves will of course prevent movement of the slider in one direction.

FIGURE 9 shows an alternate arrangement of channel 5 wherein sidewalls 37 have an inwardly extending portion 9 which is adapted for engagement in the extractor groove of the cartridges to give an increased holding effect. The staggered rows are indicated by cartridges 400 and 401.

Operation

The filling of a magazine is accomplished by inserting a loading clip, with cartridges therein, into the feed mouth of the magazine. The loading clip will ordinarily be made to hold the same number of cartridges as the magazine it is intended to fill, but it will be apparent that the clip may be used with a lesser number. For example, nineteen rounds in a twenty-round clip may be loaded into a twenty-round magazine.

As the clip is inserted into the magazine, tip 3 engages notch 103 and cut away 7 engages ridge 105, thus depressing the magazine follower.

At this time, cartridge 220 is positioned as shown in FIGURE 4, aligned with the gap between the magazine lips 101. The slider cannot enter the magazine as its lips 21 has their folded portions 23 engaged with magazine lips 101.

As pressure is exerted on top member 11 to force the channels into the magazine, cartridge 220 will pass completely through lips 21, thence through lips 101 of the magazine. Continued movement of the top member will have a similar effect on 219, 218, 217, and so on, until 200 passes into the magazine. The magazine follower will be depressed sufficiently to permit entry of each incoming cartridge, which due to the design of the magazine will again take up the double staggered row formation. The clip is then withdrawn from the magazine.

However, the dimensions of the parts may be so chosen that the follower will be depressed ahead of each cartridge only a sufficient distance to permit the cartridge to enter the magazine, but not such a distance as to allow it to enter in misalignment.

It is desired to point out that changes may be made, particularly in the shape of parts to adapt the invention to various existing and future magazines. The front and rear channels and the top member may be fabricated of a single piece of material.

What I claim is:

1. In a clip for loading a double staggered column of cartridges into a firearm box magazine having fixed lips the combination of: front and rear channel means for retaining said cartridges in said column and adapted for entry into said magazine through the top thereof, and adapted for engagement with the follower thereof; connecting means joining the top extremities of said front and rear means and positionally adapted for retaining the topmost of said cartridges in said column; a slider surrounding said front and rear means near the bottom thereof and slideable upwardly thereon, said slider comprising detent means for retaining the bottommost of

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said cartridges in said column, converging resilient guide means slideable relative to said front and rear means and positionally adapted for directing individual cartridges of said column between the lips of said magazine, and ratchet means integral with said guide means and adapted for preventing sliding of said detent means away from said connecting means.

2. The combination set forth in claim 1 further characterized by said rear means for retaining said cartridges in said column comprising a channel having sidewalls with folded edge portions positionally adapted for engagement with the extractor grooves of said cartridges.

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