

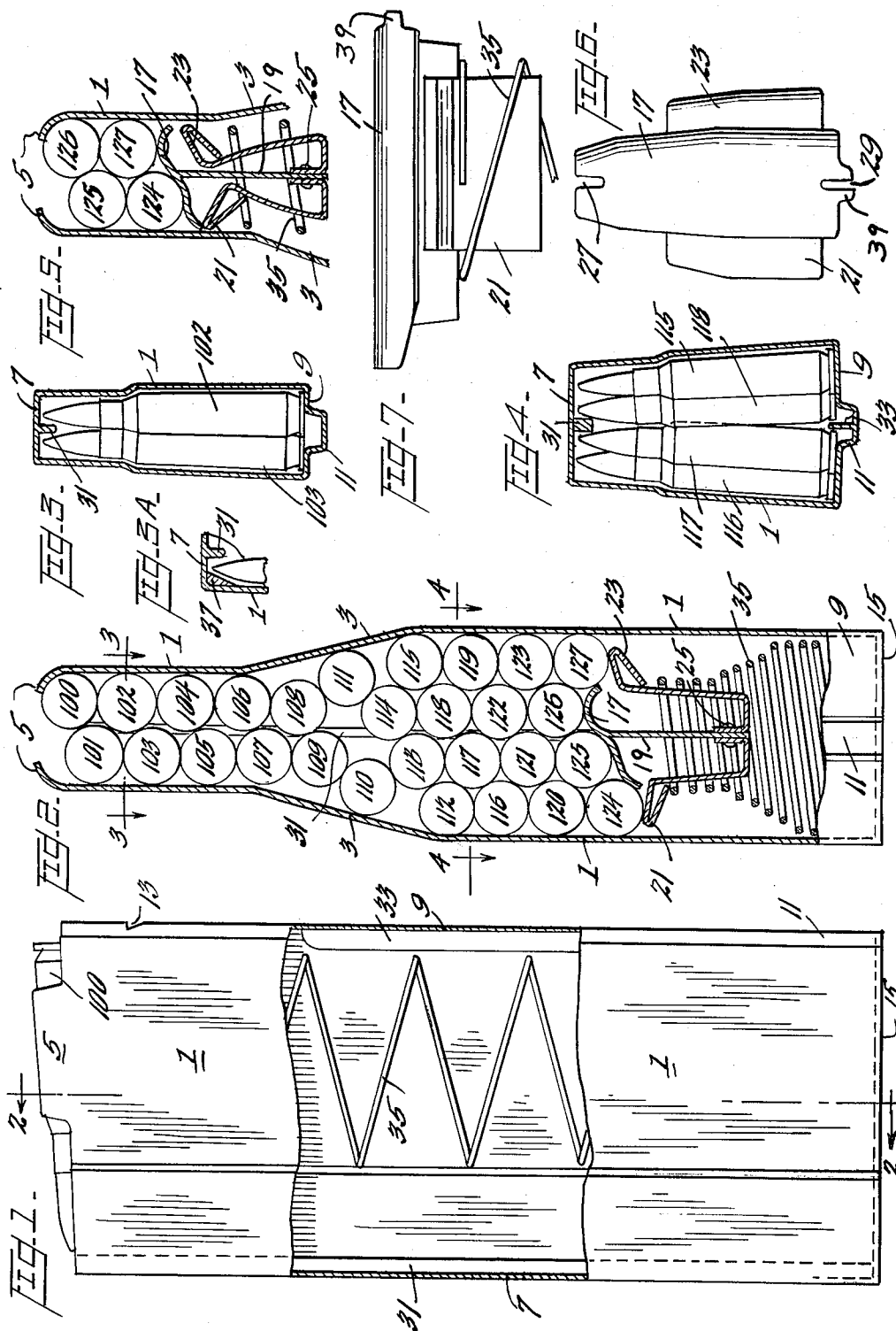
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MULTIPLE ROW CARTRIDGE MAGAZINE

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This invention relates to a cartridge magazine for a firearm and more particularly to such a magazine wherein several staggered rows of cartridges are moved to feed stations by a spring-loaded follower. One prior art reference, U.S. Patent Number 2,217,848 granted to Schillstrom, discloses a magazine having a central wall forming two compartments, and a follower in each compartment forcing a double staggered row of cartridges toward a constricted mouth. The four rows of cartridges merge into a single row before reaching the feeding position. Large quantities of the Schillstrom magazine were fabricated for service in the Scandinavian armies and in Switzerland during the Second World War.

The experience of the users showed that this magazine, though of large capacity, was difficult and slow to fill. Some malfunctioning was experienced and this was apparently aggravated by the somewhat casual merging of cartridges from the two compartments. Mathematical and geometric analysis of the problem indicated that jamming at the merging point would be frequent but for the fortunate fact that firing shocks on discharge of the firearm tend to undo jams of cartridges in the constricted neck.

The aforementioned magazines were made for cartridges having a substantially cylindrical shape. At present, there exist military requirements for large-capacity magazines to feed cartridges of bottle-necked shape. Such cartridges are made with a body tapering from the base to the neck. Because of the bottle-neck shape and the tapered body, the said cartridges are even more susceptible to jamming in a constricted feed mouth than the generally cylindrical types.

In consideration of the aforementioned situation, the principal object of this invention is to provide a magazine which will feed a plurality of staggered rows of bottle-necked cartridges to a firearm.

Another object is to provide such a magazine which will be easy to fill with cartridges.

Another object is to provide such a magazine in which the plurality of staggered rows of cartridges are advanced toward a converging point as a unit.

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 elevation, partly sectioned, of a cartridge magazine embodying the present invention.

FIGURE 2 is a section taken in the plane indicated by line 2—2 on FIGURE 1.

FIGURE 3 is a section taken generally on the line 3—3 on FIGURE 2.

FIGURE 3a shows an alternate construction for a portion of FIGURE 3.

FIGURE 4 is a section taken generally on the line 4—4 on FIGURE 2.

FIGURE 5 is a partial section, on the same plane as FIGURE 2, but with some elements displaced.

FIGURE 6 is a plan view of the magazine follower.

FIGURE 7 is side elevation of the magazine follower.

Referring to the drawings, there is shown a magazine having side walls 1 of sheet metal or other suitable material. Side walls 1 are generally parallel but have converging portions 3, the purpose of which will be explained later. At the upper extremity of each side wall 1 is formed an inward curving lip 5, either of which is adapted for retaining the topmost cartridge in the magazine in the

well-known manner. The front wall 7 is of the usual type. The rear wall 9 is provided with a channel 11 to accommodate the tang of the magazine follower if there be one. (In the disclosed embodiment the follower is shown with a tang at its rear but the invention can be as well applied to magazines without such a tang. The follower will be described in detail hereinafter.) A notch 13 is formed in the exterior of channel 11 to cooperate with retaining means (not shown) on the firearm in the well-known manner. The magazine is provided with the typical floor plate indicated by numeral 15.

Inside the magazine is disposed a cartridge follower assembly comprising a platform 17, a stop 19, which may be fixed to the platform in any convenient manner, and a pair of auxiliary platforms 21 and 23. The auxiliary platforms may be fabricated of some resilient material such as spring steel and are affixed to stop 19 by any convenient method, such as by rivets 25. Formed in the ends of platform 17 are notches 27 and 29, the purpose of which will be explained hereinafter.

On the interior of front wall 7 is mounted a guide 31 which is located on the longitudinal axis of the magazine. The dimensions of guide 31 are so chosen that it may provide a surface against which the bullet ends of cartridges on either side of the longitudinal axis of the magazine may bear. Guide 31 may extend substantially from top to bottom of front wall 7.

On the interior of rear wall 9, and also situated on the longitudinal axis of the magazine, is guide 33. The dimensions of guide 33 are so chosen that it may provide a surface against which the heads of cartridges on either side of the longitudinal axis of the firearm may bear. Guide 33 extends from the bottom of wall 9 substantially to a point on wall 9 which is juxtaposed converging portions 3 of the side walls where said portions are closest to one another.

Disposed within the magazine is a spring 35, one end of which rests on the bottom of the magazine. The other end engages stop 19 on the follower as may be seen clearly in FIGURE 7. The top loops of the spring may be of such dimensions as will fit in the narrower, upper portion of the magazine. Floor plate 15 serves as means to retain spring 35 in the magazine, in the well-known manner.

In the event that it is desired to give additional guidance to the outer rows of cartridges, a filler piece 37 may be inserted in the front corners of the interior of the casing as shown in FIGURE 3a. The corner of the casing itself could be so shaped as to perform this function.

Notch 27 on the main follower is so shaped as to engage guide 31 and, similarly, notch 29, also on the main follower is adapted to engage guide 33. This engagement keeps the follower assembly properly centered when it is in the lower part of the magazine, as shown in FIGURE 2.

At the rear of the platform, as shown in FIGURES 6 and 7, is situated an extension or tang 39, which cooperates with a device in the firearm (not shown) to prevent the breech from closing when the magazine is emptied, thus notifying the operator that the firearm is out of ammunition. It is immaterial to the present invention whether or not such a tang is employed on the follower platform, as some magazines are made without the said type of tang.

The numerals 100 to 127 in FIGURES 1, 2, 3, 4, and 5, indicate cartridges in the magazine. The cartridges will be discussed hereinbelow under the heading of operation.

OPERATION

The magazine is filled in the well-known manner by pressing cartridges downward between lips 5. After a sufficient number of cartridges have been inserted to fill the upper parallel portion of the magazine compartment,

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introduction of more cartridges will cause the staggered rows to buckle and be disposed generally as shown in FIGURE 2. Guide 33 does not extend into the upper parallel portion of the magazine, its upper end being visible in the cutaway portion of FIGURE 1. Each cartridge that is pressed down sufficiently to contact guide 33 is thereby pivoted away from the center of the magazine, the fulcrum being a point on the length of the cartridge near its shoulder, or bottle neck. (The said point lies approximately on line 2—2 in FIGURE 1.)

After pivoting, the cartridges take up the formation shown in FIGURE 4 and the lower part of FIGURE 2. There are now two pairs of staggered rows, separated at the front and rear of the magazine compartment by guides 31 and 33 respectively, but interlocked at the cartridge shoulders as may be seen in FIGURE 4, which is a section approximately on line 4—4 of FIGURE 2, but so taken as to clarify the disclosure. In FIGURE 4, to emphasize the interlocking of the cartridge shoulders, a broken line indicates the shoulder of cartridge 117, below and interlocked with the shoulder of cartridge 118.

During the filling of the magazine, the action of the follower assembly may be understood by comparing its disposition in FIGURES 5 and 2. Whenever the follower assembly is in the upper portion of the magazine, auxiliary platforms 21 and 23 are urged toward one another by the converging side walls of the magazine. (In FIGURE 5, the auxiliary platforms have been moved inward, but for clarity, a slight space is shown between them and the magazine walls.) In the filling process, FIGURE 5 would represent the condition of the magazine when only four cartridges have been inserted.

When the magazine has been filled to capacity, stop 19 contacts floor plate 15 and thereby prevents overfilling. It will be noticed in FIGURE 2 that the several rows of cartridges in the lower portion of the magazine are interlocked in a formation of four staggered rows. Similarly, in the upper portion of the magazine, the two staggered rows are interlocked. The length of the upper, narrow portion is not a limitation on the invention but, if the magazine is to be used with an existing firearm, it will be necessary to make the upper portion compatible with that firearm. To obtain maximum cartridge capacity it is, of course, desirable to have the multiple rows extend as far as possible.

Cartridges are rammed out of the magazine in the well-known manner, sliding forward under one or the other of lips 5 toward the firing chamber (not shown) of the weapon. Upon removal of a single cartridge at the lips, the formations of cartridges in the upper and lower parallel portions of the magazine move, as formations, toward the exit. At the same time, cartridges in the converging portions move, individually, toward the exit, those in the outside rows being forced to merge into the adjacent inner rows.

The side walls of the magazine are so faired that car-

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tridges passing up the magazine above the end of guide 33 are urged into a double staggered column as is common practice in present day magazines. This is illustrated in FIGURE 3.

The disposition of the bottom layer of four cartridges after converging may be understood by comparing their positions in FIGURES 2 and 5. In FIGURE 5, it will be noted that cartridges 124 and 127 have rolled up onto the main follower platform, thereby forcing cartridges 125 and 126 to move ahead of them.

There is thus disclosed a multiple row cartridge magazine which is simple in construction and can be applied to existing or future firearms to increase their firepower.

I claim:

1. In a multiple row cartridge magazine in combination: a casing comprising a single compartment having a front wall, a rear wall, and side walls each having a converging portion; cartridge retaining means at the top of said casing; spring retaining means at the bottom of said casing; cartridge guide means on the interior of said front wall; cartridge guide means on the interior of said rear wall positionally adapted for blocking merging of rows of cartridges engaged therewith; a follower comprising a main cartridge platform and a pair of auxiliary platforms movably mounted thereon and adapted for movement toward the center of said main platform; a spring exerting thrust against said follower and against said spring retaining means; and means for retaining said magazine in a firearm.

2. A magazine as set forth in claim 1 further characterized by said auxiliary platforms being spring loaded away from one another.

3. A magazine as set forth in claim 1 further characterized by said cartridge guide means on the interior of said rear wall not extending the full height of said rear wall.

4. A magazine as set forth in claim 1 further characterized by said spring comprising a plurality of resilient wire loops.

5. A magazine as set forth in claim 1 further characterized by said spring comprising a plurality of resilient wire loops, the loops at one end of said spring being dimensionally adapted for passing through said converging portion of said compartment.

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