July 12, 1960 D. R. SMITH ET AL 2,944,357

CARTRIDGE MAGAZINE FOLLOWER FOR AUTOMATIC PISTOLS

Filed May 15, 1958 2 Sheets-Sheet 1

Fig. 1.

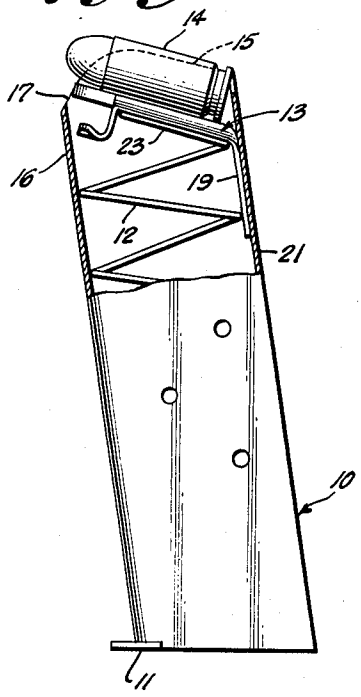


Fig. 2.

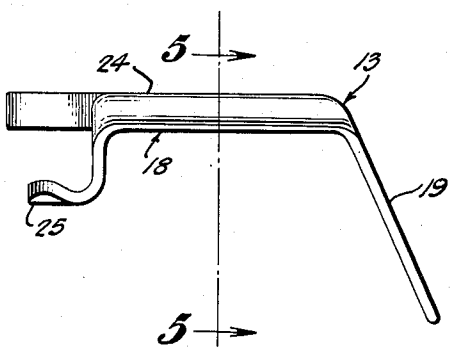


Fig. 3.

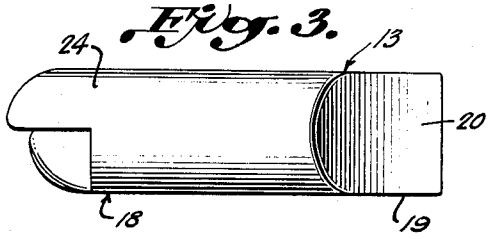


Fig. 4.

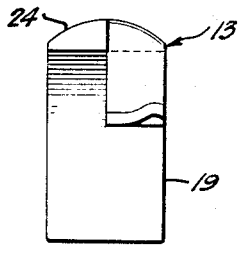
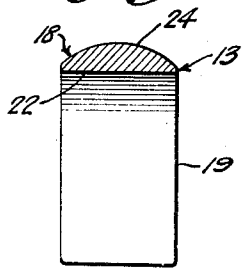


Fig. 5.



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2 Sheets-Sheet 2

Fig. 6.

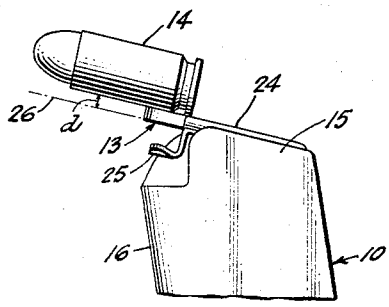


Fig. 8.

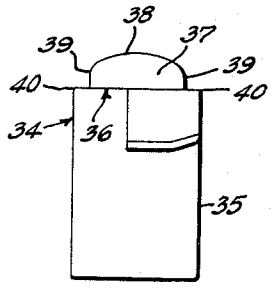


Fig. 7.

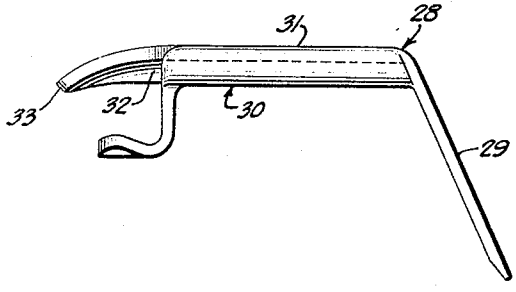


Fig. 9.

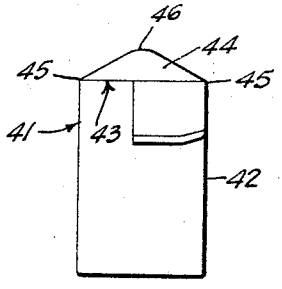
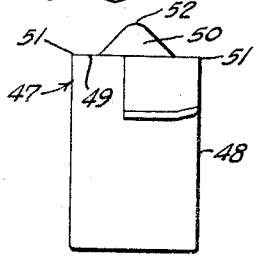


Fig. 10.



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CARTRIDGE MAGAZINE FOLLOWER FOR AUTOMATIC PISTOLS

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2 Claims. (Cl. 42—50)

This invention relates to firearms and more particularly to an improved follower for replacing the follower utilized in conventional cartridge magazines or clips for automatic weapons.

As is well known, automatic pistols as well as many other automatic weapons are commonly supplied with a cartridge magazine or clip which is removably received in the grip of the pistol or other magazine receiving recess, the magazine operating to hold a plurality of cartridges which are fed upwardly by a compression spring and follower, the cartridges being removed from the magazine one at a time and introduced into the chamber of the weapon.

The conventional cartridge magazine is a generally rectangular tube having a length and width slightly greater than the length and diameter respectively of the cartridges to be received therein and the open upper end of the magazine is partially closed by inwardly extending overhanging portions of the opposite sidewalls which engage the uppermost cartridge in the magazine and prevent inadvertent ejection thereof from such magazine. The weapon slide operates to engage the uppermost cartridge in the magazine and slide the same axially from the upper end of the magazine into the weapon chamber and it has been found that with conventional magazines and followers, that the last cartridge therein is frequently damaged as the same is moved into the weapon chamber, or the same may become jammed between the weapon slide and the chamber. This either results in failure of the weapon to operate properly or in the event the cartridge is forced into the chamber, the damage thereto frequently results in considerable shooting inaccuracy.

It has been noted that the above malfunctions occur most frequently with the last cartridge in the magazine and the reason for this appears to be the fact that previous cartridges in the magazine are engaged and supported by the next following cartridge which serves to raise the same into a position approaching the axis of the weapon chamber. Since the follower found in the conventional magazine is provided with a flat cartridge engaging surface, the last cartridge is elevated to a position lower than the previous cartridge, the difference in height being equal to the added elevation provided by the curvature of the cartridge engaging another cartridge. Such additional elevation is not available from the flat surface of the conventional follower and consequently the last cartridge when ejected from the magazine will be at a lower level than the preceding cartridges. Consequently, the last cartridge in the magazine will be spaced an appreciable distance below the axis of the weapon chamber with the result that such cartridge must enter the chamber at an appreciable angle which results in the above mentioned damage thereto and frequent jamming.

It is accordingly an object of the present invention to provide a follower for conventional cartridge magazines for automatic weapons which may be utilized to conveniently replace the conventional follower and which is provided with an arcuate cartridge engaging upper surface having substantially the same radius as the cartridge engaged thereby, which follower operates to elevate the last cartridge in the magazine to substantially the same position as previous cartridges in the magazine.

A further object of the invention is the provision of a follower for the cartridge magazine of an automatic weapon which follower operates to eliminate damage to the last cartridge in the magazine and jamming thereof between the weapon slide and the chamber.

A still further object of the invention is the provision of a follower for the cartridge magazine of automatic weapons which is interchangeable in every respect with the conventional follower supplied with such magazine but which operates to position the last cartridge in the magazine at substantially the same elevation with respect to the center line of the weapon chamber as preceding cartridges in the magazine.

Another object of the invention is the provision of a follower for the cartridge magazine of automatic weapons in which the upper cartridge engaging surface of the follower is formed on a radius to provide the same engagement between the last cartridge and the follower as between adjacent cartridges in the magazine.

A further object of the invention is the provision of a follower for the cartridge magazine of automatic weapons, which follower may be conveniently and economically constructed from readily available materials by a casting or machining operation or if desired, from sheet material by a stamping operation, such follower being interchangeable with the conventional follower normally supplied with such magazine.

Further objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawing wherein:

Fig. 1 is a side elevational view with parts broken away and in section for greater clarity and showing a conventional automatic weapon magazine having a follower constructed in accordance with this invention installed therein and showing a cartridge in place prior to ejection from the magazine;

Fig. 2 a side elevational view of a follower constructed in accordance with this invention;

Fig. 3 a top plan view of the follower shown in Fig. 2;

Fig. 4 a front elevational view of the follower shown in Fig. 2;

Fig. 5 a sectional view taken substantially on the line 5—5 of Fig. 2;

Fig. 6 a fragmentary side elevational view similar to Fig. 1, but showing the position of a cartridge upon ejection from the magazine and showing the difference in elevation of the cartridge resulting from the arcuate cartridge engaging surface on the follower;

Fig. 7 a side elevational view showing a modified follower formed of sheet metal and having a downwardly curved forward end;

Fig. 8 a front elevational view similar to Fig. 4, but showing a modified form of cartridge engaging upper surface;

Fig. 9 a view similar to Fig. 8, and showing a further modified form of cartridge engaging upper surface; and

Fig. 10 a view similar to Fig. 2, and showing a still further modified form of cartridge engaging upper surface.

With continued reference to the drawing, there is shown in Figs. 1 and 6 a conventional cartridge magazine **10** of the type commonly supplied with a United States Model 1911 and 1911A–I .45 caliber automatic pistol and the magazine **10** is generally rectangular in cross section and of tubular formation. The magazine **10** is closed at the lower end by a plate **11** and received within the magazine **10** is a compression spring **12** which engages a follower **13** which in turn, engages a cartridge **14**. While only one cartridge **14** is shown in the maga-

zine in Fig. 1, it is to be understood, that a plurality of cartridges may be received therein and that the compression spring **12** and follower **13** will serve to feed such cartridges upwardly in the magazine **10** as the same are removed therefrom and loaded into the chamber of the pistol.

The upper end of the magazine **10** is open and the sidewalls **15** at the upper end are bent inwardly toward each other to engage the cartridge **14** as shown in Fig. 1, and prevent ejection therefrom upwardly of the magazine **10**. The front wall **16** of the magazine **10** is cut away at the upper end to provide an opening **17** through which the cartridge **14** may be ejected in an axial direction by the action of the slide on the pistol. This operation is entirely conventional in all pistols of this type and with magazines of the type shown.

With particular reference to Figs. 2 to 5, the follower generally indicated at **13**, which constitutes the subject matter of this invention comprises an integral one-piece member having a cartridge engaging portion **18**, which extends obliquely across substantially the entire width of the magazine, and an angular or obliquely extending, positioning, and guiding tang **19** which tang has a flat outer surface **20** for slidably engaging the inner surface of the rear wall **21** of the magazine **10** as clearly shown in Fig. 1. The cartridge engaging portion or body member **18** is provided with a flat or concave lower surface **22** for engaging the upper end **23** of the compression spring **12** and the cartridge engaging portion **18** is also provided with an arcuate cartridge engaging upper surface **24** extending throughout the length of the cartridge engaging portion **18** and with the radius of a cartridge to be engaged thereby. The follower **13** of this invention is also provided with the conventional cut-out lip **25** having a portion extending parallel to said cartridge engaging portion **18** for engaging and cooperating with the magazine lock and safety mechanism of the pistol upon insertion of the magazine **10** therein. While the cartridge engaging portion **18** of the follower **13** has been shown in the drawing as a relatively thick solid member, it is to be understood that if desired, the entire follower **13** may be manufactured as a metal stamping, in which case, the lower spring engaging surface **22** of the follower **13** would in all probability, be concave, rather than flat as shown. However, the arcuate or convex upper cartridge engaging surface **24** would be of the same formation as that shown and described.

The follower of this invention operates in the same manner as a conventional follower for feeding cartridges **14** upwardly in the magazine **10** and with all cartridges except the last one in the magazine, the action of the follower and magazine will be the same as in conventional magazines with the presently supplied followers. However, as noted above, considerable difficulty has been experienced with the last cartridge in the magazine and the follower construction of this invention serves to eliminate this difficulty and the operation of the follower of this invention for this purpose will now be described with particular reference to Figs. 1 and 6. As shown in Fig. 1, the last cartridge **14** in the magazine **10** is in position to be ejected from the magazine **10** and moved into the chamber of the pistol. For this purpose, a slide on the pistol engages the rear end of the cartridge **14** and moves the same axially through the opening **17** in the front wall **16** of the magazine **10** and out of the magazine and into the chamber of the pistol. As shown in Fig. 6, upon movement of the cartridge **14** out of engagement with the overhanging sidewalls **15** of the magazine **10**, the compression spring **12** and follower **13** will operate to move the cartridge **14** upwardly to the position shown in Fig. 6, whereupon continued movement of the cartridge will load the same into the chamber of the pistol. Upward movement of the follower **13** in the magazine **10** is determined by engagement of the follower with the overhanging sidewalls or retaining lips **15** of the magazine **10** and with the conventional flat follower normally supplied with magazines of this type, the upper cartridge engaging surface of the follower in its uppermost position would be substantially in alignment with the dotted line **26** as shown in Fig. 6. However, even though the follower **13** of this invention stops at the same point in its upward movement in the chamber **10**, nevertheless, due to the curvature of the cartridge engaging surface **24** of the follower **13**, the cartridge **14** will be moved upwardly to a position substantially above the position occupied by the cartridge engaged by the conventional flat follower and this difference in height is denoted in Fig. 6 as *d*. Consequently, it will be seen that due to this difference in height of the position of the last cartridge that the same will be more nearly in line with the chamber of the pistol and that consequently the cartridge will be supported and guided to move into the chamber in more nearly a straight line than would be the case with a cartridge supported by a flat conventional follower with the result that damage to the cartridge and jamming of the same between the slide and the chamber is substantially eliminated.

The follower of this invention may be utilized to conveniently replace the conventional follower commonly supplied with automatic weapon magazines of the type under consideration and such replacement may be made without in any way modifying the magazine or follower spring. In making this replacement it is only necessary to compress the spring and remove the conventional follower, after which the follower of this invention may be inserted and the spring released. While the invention has been shown and described in connection with a cartridge magazine for a United States Model 1911 and 1911A–1 .45 caliber automatic pistol, it is to be understood that this is for illustrative purposes only, and that a follower incorporating the principles of this invention may also be utilized in magazines for many other automatic weapons.

With particular reference to Fig. 7 there is shown a slightly modified form of magazine follower **28** having a tang **29** similar to the tang **19** of the above described form of the invention and a cartridge engaging portion **30** having a convex upper cartridge engaging surface **31** corresponding to the cartridge engaging surface **24** of the above described form of the invention. In the form shown in Fig. 7, the entire follower **28** is formed from sheet metal by a suitable stamping or other operation and as a result, the lower surface **32** of the cartridge engaging portion **30** which engages the conventional magazine follower spring is concave.

In addition to being formed from sheet metal, rather than as a casting or machined from solid stock as in the above described form of the invention, the form shown in Fig. 7 is also provided with a downwardly curved forward end or nose portion **33** which serves to facilitate insertion of cartridges into the magazine when loading the same. This downwardly curved nose or forward portion **33** does not in any way alter the operation of the follower in placing a cartridge in proper position for movement into the chamber of the automatic pistol or other weapon since obviously at least a half of the nose portion **33** disposed adjacent to the major body portion **30** constitutes an operable extension of the surface **31** with respect to its cartridge supporting and guiding function. With the exception of facilitating the insertion of cartridges into the magazine, the form of the invention shown in Fig. 7 operates in the same manner as the form of the invention first described.

While the above described forms of the invention provide cartridge engaging surfaces having a radius substantially equal to the radius of the cartridge engaged thereby, the same result may be obtained by providing cartridge engaging surfaces of different configurations and three such different configurations are shown in Figs. 8 to 10. With particular reference to Fig. 8, there is shown a fol-

lower 34 constructed in accordance with this invention and having a tang 35 for engaging the magazine and a cartridge engaging portion 36, including an elongated boss 37 having a convex upper cartridge engaging surface 38 and in which the sides 39 of the boss 37 are positioned inwardly of the side edges 40 of the cartridge engaging portion 36 of the follower 34. In this form of the invention, the surface 38 engages the last cartridge in the magazine and operates in the same manner as the followers above described.

With reference to Fig. 9, there is shown a follower 41 having a magazine engaging tang 42 and a cartridge engaging portion 43. The cartridge engaging portion 43 includes an elongated boss 44 of generally triangular configuration and extending from the opposite side edges 45 of the follower 41 and also having an arcuate apex 46 for engaging the last cartridge in the magazine. The operation of this form of the invention as shown in Fig. 9 is the same as that described above.

The further modified form of the invention shown in Fig. 10 comprises a follower 47 having a magazine engaging tang 48 and a cartridge engaging portion 49. An elongated boss 50, generally triangular in cross section, is provided on the cartridge engaging portion 49 and it is to be noted from an inspection of Fig. 10, that the triangular boss 50 is of less width and terminates inwardly of the side edges 51 of the follower 47 and furthermore, the boss 50 is provided with a convex or arcuate apex 52 for engaging the last cartridge in the magazine. This follower also operates in the same manner as those described above.

Consequently, it will be obvious that followers incorporating the principles of this invention may be manufactured by casting, machining or stamping and that the cartridge engaging portion thereof may incorporate different configurations as described above.

It will be seen that by the above described invention there has been provided a relatively simple and economical follower for automatic weapon magazines which may be conveniently constructed and utilized to replace conventional followers and which will operate to eliminate the difficulties now experienced, particularly in connection with the last cartridge in the magazine.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawing and described in the specification, but only as indicated in the appended claims.

What is claimed is:

1. A one-piece magazine follower, particularly adapted for use in a single column cartridge magazine of an automatic type pistol, comprising an elongated body member having thereon a cartridge-engaging surface, a positioning and guiding tang member at one end of said body member extending obliquely thereto and in a direction opposite to said cartridge-engaging surface, a cut-out lip member depending from the opposite end of said body member, said tang member, lip member and elongated body member being common to a given plane passing through said members, the outer edges of said elongated body member lying in a plane normal to said given plane,

the terminal end of said opposite end of the said body member extending beyond said lip member, the said body member being of such a length that it is adapted, when mounted for use, to extend obliquely across substantially the entire width of the magazine, the cartridge-engaging surface of said elongated body member being non-planar in cross-section, said non-planar cross-section having a maximum height in the medial plane of said body member and above the plane of said edges, said maximum height corresponding to the radial dimension of a cartridge with which the follower is adapted to be used whereby the follower, when magazine-mounted, is adapted to lift a cartridge when the latter is free of the conventional cartridge retaining lips of the magazine to a position appreciably above the magazine body.

2. A one-piece cartridge magazine follower constructed of sheet metal, particularly adapted for use in a single column cartridge magazine of an automatic type pistol, comprising an elongated body member having thereon a cartridge-engaging surface, a positioning and guiding tang member at one end of said body member extending obliqueing thereto and in a direction opposite to said cartridge-engaging surface, a cut-out lip member depending from the opposite end of said body member, said tang member, lip member and elongated body member being common to a given plane passing through said members, the terminal end of said opposite end of the body member extending beyond said lip member and curving slightly downwardly toward said lip to form a nose member adapted to facilitate cartridge loading in the magazine, said elongated body member, lip member and tang member being common to a given plane passing through said members, the outer edges of said elongated body adjacent said cartridge-engaging surface lying in a plane normal to said given plane, the cartridge-engaging surface of said elongated body member being non-planar in cross-section, said non-planar cross-section having a maximum height in the medial plane of said body member and above the normal plane of said edges, said maximum height corresponding to the radial dimension of a cartridge with which the follower is adapted to be used whereby the follower, when magazine-mounted, is adapted to lift a cartridge when the latter is free of the conventional cartridge retaining lips of the magazine to a position appreciably above the magazine body.

References Cited in the file of this patent

UNITED STATES PATENTS

441,673	Krnka	Dec. 2, 1890
687,448	Burgess	Nov. 26, 1901
1,044,983	Brown	Nov. 19, 1912
1,128,180	Orman	Feb. 9, 1915
1,158,981	Carl	Nov. 2, 1915
1,245,499	Orme	Nov. 6, 1917
1,462,972	Lewis	July 24, 1923
1,797,951	Gaidos	Mar. 24, 1931
2,217,848	Schillstrom	Oct. 15, 1940
2,712,705	Amant	July 12, 1955

FOREIGN PATENTS

495,229	Germany	Apr. 5, 1930