March 12, 1968 G. WILHELM 3,372,506

MAGAZINE CATCH FOR FIREARMS

Filed May 13, 1966

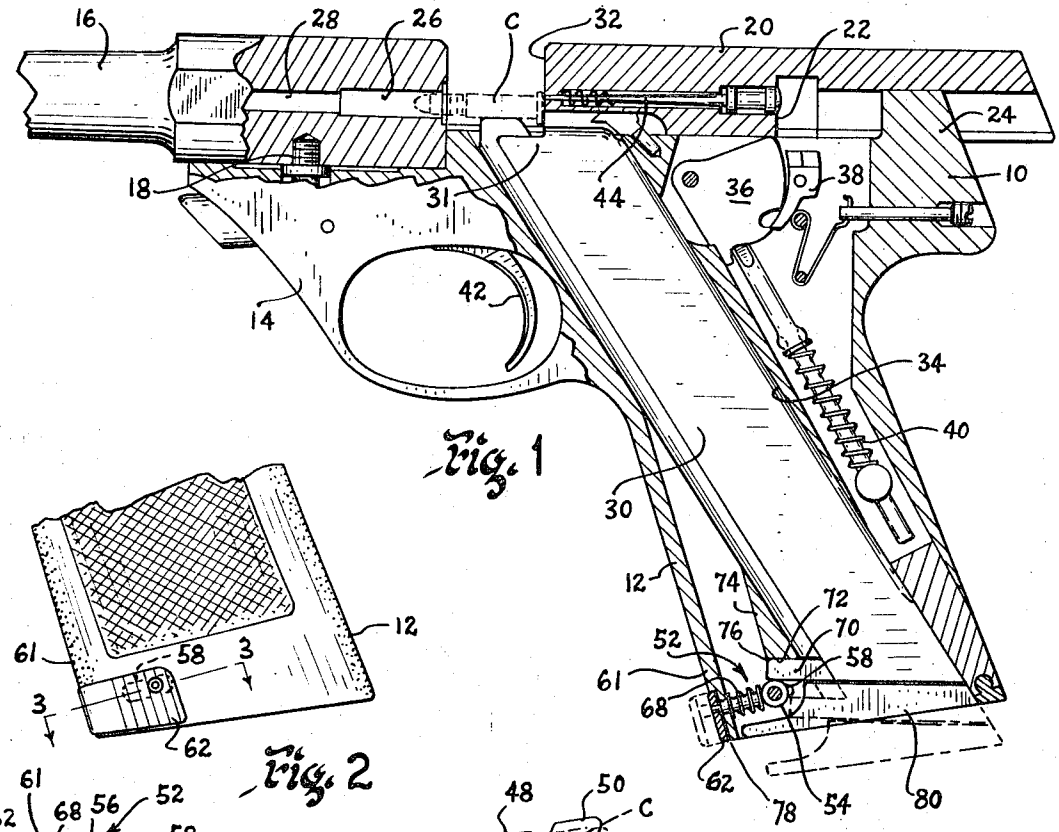


Fig. 1

Fig. 2

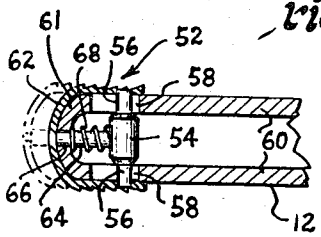


Fig. 3

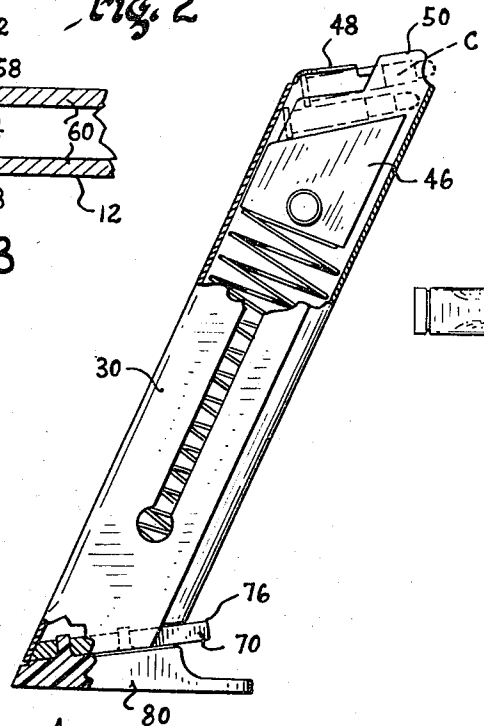


Fig. 4

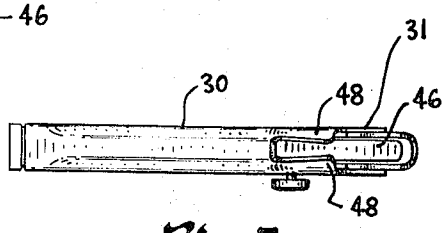


Fig. 5

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United States Patent Office 3,372,506 Patented Mar. 12, 1968

3,372,506

MAGAZINE CATCH FOR FIREARMS

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Filed May 13, 1966, Ser. No. 549,931
8 Claims. (Cl. 42—7)

ABSTRACT OF THE DISCLOSURE

A catch for detachably securing a magazine in the grip of a hand gun or pistol. The catch, which is spring-urged, wedges the magazine against a positioning stop in the gun.

This invention relates to firearms, and it relates more particularly to an improved magazine catch for latching a removable magazine in position in the gun.

It is common practice to provide cartridge holding lips or guide members at the open end of a magazine, in order to guide the cartridges out of the magazine and into the chamber during the chambering operation. Nevertheless, malfunctions in reloading guns which employ this feature sometimes occur, especially in automatic or semi-automatic weapons, because the guide members on the magazine may not be properly positioned with respect to the cartridge chamber of the gun. Such misalignment is frequently due to the fact that it is difficult to hold manufacturing tolerances in the magazine catch, and/or in the magazine, close enough to prevent the guide members on the magazine from being too high or low with respect to the cartridge chamber. The cartridges therefore may not feed properly into the chamber and the gun becomes jammed.

It is accordingly an object of the present invention to reduce or eliminate malfunctions which are caused in this manner, while at the same time make it feasible to increase some manufacturing tolerances and do away with others.

One of the reasons that the cartridge holding lips on the magazine in prior designs do not always line up properly with the chamber of the gun is that it is difficult to make a catch for holding the magazine in an exact position in the gun which will operate smoothly and easily, both in latching and releasing the magazine. The result has therefore usually been that considerable latitude had to be allowed in the alignment of the cartridge guide lips with the chamber in order to make the magazine catch work well.

Another object of the present invention is to provide a magazine catch which positively fixes the magazine in a predetermined position in the gun, so that its cartridge hold-down lips are correctly located with respect to the cartridge chamber, and which operates easily both in latching and releasing the magazine.

These objectives are attained in accordance with the present invention by providing the gun with a latch member which moves into latching engagement with a latching surface on the magazine so that it wedges the magazine against a fixed stop on the frame of the gun. The wedging action of the latch member on the magazine, therefore, ensures that the magazine is always held tightly against the positioning stop in the gun, so that the guide or hold-down lips on the magazine will invariably be located accurately with respect to the cartridge chamber in the gun.

An advantage of this arrangement is that the magazine catch always works easily when the magazine is latched or unlatched. Furthermore, since the latch member is constantly urged into engagement with the magazine when the catch is engaged, no close manufacturing tolerances

are required in the latch parts in order to ensure proper fitting of the latch member with the magazine. Another advantage of the invention is that in semi-automatic pistols in which the magazine fits into the grip of the pistol, the catch may be positioned so that it is urged into latching position by the shooter's hand, thereby preventing accidental disengagement of the latch when the gun is fired.

These and other objects and advantages of the invention will become more readily apparent from the detailed descriptions hereinafter of one embodiment of the invention which is illustrated in the accompanying drawings, wherein

FIG. 1 is a longitudinal section of a pistol, showing a magazine catch embodying the invention;

FIG. 2 is an elevational view of only the lower end portion of the grip of the pistol shown in FIG. 1;

FIG. 3 is a section taken on the line 3—3 of FIG. 2;

FIG. 4 is an elevational view of the magazine, partially broken away and in section; and

FIG. 5 is a top end view of the magazine shown in FIG. 4.

The firearm shown in the drawings purely for illustrative purposes is a semi-automatic pistol having a frame **10**, which includes a grip **12** and trigger guard **14**. A barrel **16** is rigidly secured to the frame **10** above the trigger guard **14** by a take-down stud **18**. An action slide **20** reciprocates forward and back on guideways in the upper rear portion of frame **10**. Slide **20** moves forwardly (to the left as shown in FIG. 1) into breech-closing engagement with the rear end of the barrel **16** and rearwardly until an inner shoulder **22** comes into abutment with a stop portion **24** at the rear of frame **10**.

Slide **20** is shown in FIG. 1 partially open, as it is feeding a fresh cartridge C into the cartridge chamber **26** at the rear end of the bore **28** in barrel **16**, which for all intents and purposes forms an integral part of the frame of the gun when it is fired. Cartridges are supplied by a removable magazine **30** which fits up into the grip **12** from the bottom thereof, the open upper end **31** of magazine **30** being located just below the cartridge chamber **26** when the magazine is in place in the gun, so that cartridges C may be fed into chamber **26** from the magazine by engagement of the face **32** of slide **20** with the base of the top cartridge in the magazine as slide **20** moves forward from its retracted position.

Frame **10** is hollow inside with an elongated section **34** extending up through grip **12** in order to receive magazine **30**. A pivoted hammer **36**, sear **38** and hammer spring **40** are located in the rear portion of frame **10**, while the trigger **42** which actuates sear **38** through a sear bar (not shown) is pivotally mounted within the trigger-guard portion **14**. When slide **20** is moved forward by an action spring (not shown) into breech-closing position, hammer **36** can swing counterclockwise against the rear end of a firing pin **44** in slide **20** in order to fire a cartridge in the chamber.

Cartridges C are loaded into the open end **31** of magazine **30** against a spring-urged follower **46** and are held therein by hold-down lips **48**, **48**, which extend inwardly toward each other from opposite sides of the open end **31**. Lips **48**, **48** are located at the back edge of the magazine, and extending forward along both sides part way to the front edge thereof, so that the cartridges can be pressed upward out of the magazine by the follower **46** as they are moved forward by the slide **20**. A pair of guide fingers **50** extend upwardly from both sides of the magazine forward of hold-down lips **48**, **48** in order to guide the cartridges laterally as they are fed by the slide **20** from the magazine into the cartridge chamber **26**.

The construction and operation of the pistol, and of the magazine, as described hereinabove, are old in the art, and no claim is made thereto per se.

The magazine catch designated generally at 52, which orms the novel feature of the present invention, consists f a cylindrical latch pin 54, which extends transversely f the grip 12 of the pistol is supported by elongated slots 8, 58 in the side walls 60, 60 of the grip. A U-shaped tirrup 62, which spans the narrow front wall 61 of grip 2, is connected to the hollow latch pin 54 inside the grip y means of a mounting pin 56, which fits snugly through atch pin 54 and is securely fastened at its ends to the pposite sides of stirrup 62. In addition, a guide pin 64 xtends perpendicular to latch pin 54 through a hole 66 n the front wall of grip 12 and is fixed at its outer end n the central position of stirrup 62, the opposite end of uide pin 64 being suitably fixed to the mid-portion of atch pin 54. A coil spring 68 surrounding guide pin 64 s compressed between latch pin 54 and the inner surface f the front end wall 61 of grip 12, thereby urging latch in 54 inwardly, or to the right as viewed in FIG. 3.

By drawing stirrup 62 forward, or to the left as seen n FIGS. 1 and 3 toward its broken-line position, latch in 54 may be moved outward against the force of coil pring 68, the ends of the mounting pin 56 of the latch in being guided in slots 58, 58 in the grip while guide in 64 slides longitudinally through the hole 66 in the front edge of grip 12. As will be seen in FIG. 2, slots 58, 58 extend parallel to guide pin 64. Latch pin 54 is therefore mounted for rectilinear movement into and out of engagement with the underside of a forwardly projecting base plate 70 adjacent the lower end of cartridge magazine 30.

It will be noted in FIG. 1 that latch pin 54 moves at an angle to the underside of base 70, which forms the latching surface on magazine 30. Consequently, since the underside of base plate 70 is disposed transversely of the direction in which magazine 30 is inserted into place, movement of latch pin 54 under the urge of spring 68 wedges the magazine upwardly within the grip 12. It will be noted moreover that the slots 58, 58 in which the mounting pin 56 slides form means for restricting the path of movement of the latch pin 54 in order to effect such wedging action by the latch pin against the magazine. When the magazine is fully inserted into the gun, the upperside of base plate 70 engages a stop surface 72 formed by an inner cross-member 74, which is an integral part of grip 12 and extends between the side walls 60, 60 thereof. Latch pin 54 therefore wedges base plate 70 upward into positive engagement with stop surface 72, latching the magazine in place.

In order to remove magazine 30, stirrup 62 is moved manually forward to the broken-line position shown in FIG. 3, which draws latch pin 54 clear of the outer end of base plate 70 on the magazine, permitting the magazine to slide freely out the lower end of grip 12. When a fresh magazine is inserted into the gun, the upper corner 76 engages the undersurface of latch pin 54, camming it back against spring 68 so that the magazine can be readily pushed into place without manipulating the stirrup 62. As base plate 70 rides over the upper surface of latch pin 54, the latter immediately snaps into position against the underside of plate 70 urging the magazine upward into engagement with stop surface 72.

In order to ensure smooth operation of the magazine catch 52 when the magazine is inserted into place, it is desirable to make the upper corner 76 round instead of sharp, thereby reducing friction. Furthermore, the distance which latch pin 54 can move inwardly when the magazine is removed must be limited so that base plate 70 engages pin 54 at a point where the force exerted by the corner 76 on pin 54 is in a direction which will force pin 54 toward its retracted position against spring 68. This can be accomplished by reducing the length of slots 58 in the grip as in the case here illustrated or the point at which stirrup 62 bottoms on the front wall 61 of grip 12 in order to limit the inward travel of latch pin 54. However, in order to ensure the proper functioning of the magazine catch of the present invention, it is important that stirrup 62 does not bottom on grip 12 when the magazine is in place as shown in full lines in FIG. 1. Thus, when the magazine is fully inserted, there should be a small gap 78 between the cross portion of stirrup 62 and the end wall 61. The latch pin 54 will then always urge base plate 70 upward into engagement with stop surface 72 and fix the magazine accurately in position, so that its cartridge guide lips 48 and 50 are properly located for feeding cartridges into the chamber 26.

The magazine catch of the present invention can not jar free or permit the magazine to loosen in the grip, thereby allowing the cartridge means to move out of place.

In the present construction a cover 80 is provided on the bottom of the magazine 30 below base plate 70 purely for appearance purposes.

What is claimed is:

1. In a firearm having a frame, a magazine detachably mounted on said frame, a cartridge chamber, cartridge feeding means for moving cartridges from the magazine into the cartridge chamber, said magazine having guide members for guiding cartridges into the chamber and a stop rigid with the frame for positioning the magazine therein upon insertion of the magazine into the firearm, the improvement in a magazine catch for detachably securing the magazine in the frame comprising in combination, a latch member mounted on said frame for rectilinear movement from a retracted position to a latching position in engagement with said magazine, said magazine having a latch surface disposed transversely of the direction in which said magazine is inserted, spring means for urging said latch member into engagement with said latch surface, and means for restricting the path of movement of said latch member with respect to said latch surface such that it wedges said magazine into engagement with said stop, so that the cartridge guide members on said magazine are correctly positioned in relation to the cartridge chamber.

2. The combination defined in claim 1 which further includes means on said magazine for depressing said latch member into retracted position against the force of said spring means upon insertion of the magazine into the firearm.

3. The combination defined in claim 1, wherein said latch member comprises a cylindrical pin disposed transversely of its path of movement for lateral engagement with said latch surface.

4. The combination defined in claim 1, wherein said firearm is an autoloading pistol, the grip of which forms a part of the frame with said magazine fitting within said grip, said magazine catch being mounted on said grip adjacent the front edge thereof and having a stirrup straddling the front edge of said grip externally thereof, said latch member being secured to said stirrup for movement rearwardly into latching position.

5. The combination defined in claim 4, wherein said latch member comprises a cylindrical pin disposed transversely of its path of movement for lateral engagement with said latch surface, said stirrup being a U-shaped member having its legs extending rearwardly of the firearm, said cylindrical pin being connected at its ends to the legs of said stirrup, said means for restricting the path of movement of said latch member comprising elongated slots in the side walls of said grip through which said cylindrical pin extends at both ends into engagement with said legs, the longitudinal axes of said elongated slots being disposed parallel to the path of movement of said latch member.

6. The combination defined in claim 5 which further includes a guide pin fixed at one end to said cylindrical latch pin and at its other end to said U-shaped stirrup and extending parallel to the path of movement of said latch pin, said grip having an opening in its end wall to receive said guide pin for longitudinal movement therein, said spring means comprising a coil spring surrounding said

guide pin and compressed between the end wall of said grip and said cylindrical latch pin.

7. The combination defined in claim 6, wherein said latch surface on said magazine comprises the under side of a base plate at the bottom of the magazine.

8. The combination defined in claim 7, wherein said base plate projects forwardly of the front edge of said magazine such that both the upper and under sides of the projecting portion of said base plate are exposed, said stop being disposed in the grip of the pistol for engagement by the upper side of said projecting portion, the

forward end of said projecting portion being so disposed when said magazine is being inserted into the gun that it depresses said latch pin into retracted position against the force of said coil spring.

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