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UNITED STATES PATENT OFFICE.

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AUTOMATIC PISTOL.

Application filed August 3, 1921. Serial No. 489,513.

To all whom it may concern:

Be it known that I, CRAWFORD C. LOOMIS, a citizen of the United States, residing at Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Automatic Pistols, of which the following is a specification.

This invention relates to improvements in automatic pistols and has particular reference to improved means for transferring a cartridge from the magazine to the chamber.

Another object is to provide means for removing the cartridge from the magazine in such a way that its removal is interfered with by the underlying cartridge as little as possible.

A further object is to cause a preliminary lifting of the nose of the cartridge in order to facilitate its insertion into the chamber.

A further object is to provide means on the breech block to hold the cartridge against the breech block in a position insuring its easy entrance into the chamber.

In the attached drawing,

Fig. 1 is a fragmentary sectional view of a pistol embodying the invention, the breech block being shown in a fully retracted position;

Fig. 2 is a view similar to Fig. 1, showing the breech block moved slightly forward;

Fig. 3 is a similar view, showing the breech block slightly advanced and the cartridge tilted upwardly toward the chamber;

Fig. 4 is a top view of the magazine, taken on the line 4—4 of Fig. 2, showing the cartridge in the position shown in Fig. 2.

Fig. 5 is a cross sectional view on line 5—5 of Fig. 2.

Attached drawing shows the invention as embodied in a pistol of the type shown in patent to Pedersen No. 1,348,733, Aug. 3, 1920, to which patent reference is made for a disclosure of a complete pistol but it is to be understood that the invention is applicable to many kinds of magazine firearms.

In said drawing the numeral 11 designates a suitable barrel with a chamber 11' for receiving and holding the cartridge during the time of firing. The numeral 12 designates the frame of the firearm which may be either a hand pistol or a shoulder

arm of suitable type. The numeral 13 designates the usual slide, common in automatic pistols, mounted for reciprocation on the frame 12 and carrying the breech block 20 whether integral therewith or separately constructed as in the Pedersen patent referred to. The barrel may be attached to the frame by any suitable means, as a cross pin 14. The frame is preferably provided with a magazine receiving chamber for housing the magazine 15 for holding a number of cartridges, only two of which number, 16 and 17, are visible in the drawing. Said cartridges are spring impelled upwardly by any suitable magazine spring and follower and they are stopped against upward movement out of the magazine by magazine ears 18 and 19, preferably arranged substantially horizontally. The rear portions 18' and 19' of the magazine ears are inclined downwardly for a purpose to be set forth later.

In the case of certain cartridges, for example the .32 calibre automatic Colt pistol, the rim extends somewhat beyond the body of the cartridge shell and a circumferential groove is formed immediately ahead of said rim so that the cartridges may interlock by the entrance of the rim of one cartridge into the groove of the cartridge immediately underneath, which will result in great difficulty in forcing the upper cartridge forwardly out of the magazine.

In the cartridges illustrated the forward portion of said groove is formed as a conical shoulder 16' and 17' against which the forward edge of the rim of the cartridge immediately above will bear, causing considerable resistance to removal of the top cartridge. By inclining the rearward portion of the magazine ears as shown at 18' and 19', the face of the cartridge is allowed to move upwardly and forwardly in a direction parallel to incline 17' on the lower cartridge. It is therefore unnecessary for the upper cartridge to depress the remaining cartridges against the action of the magazine spring, which permits of an easy forward removal of the cartridge.

The frame and a portion of the barrel are cut away, as shown at 12', in order to provide for a bullet incline, i. e., a guide surface facilitating the entry of the bullet into the chamber. The angle of this incline, with respect to the horizontal surface, is

necessarily quite large and for this reason the bullet in certain arms of this class, strikes the bullet incline at such an angle that the bullet will not rise up the incline, resulting in a blocking of the gun. This difficulty is particularly prevalent in the use of lead bullets.

For this reason it is extremely desirable that means be provided for causing a preliminary lifting of the nose of the cartridge in order to facilitate its entrance into the chamber. For this purpose, the breech block 20 is provided with a downwardly extending cartridge feeding lug 22, so located as to engage the face of the cartridge shell as far down as possible. One of the magazine ears; preferably the ear 18 on the same side of the cartridge as the lug 22, is provided with a cartridge retaining shoulder 23, which may be formed by cutting a notch 24 into said ear 18. This retaining shoulder serves to apply resistance to the cartridge at a point above the point of contact of the feeding lug 22, whereby a turning moment is set up, causing the nose of the cartridge to tilt upwardly into the inclined position shown in Fig. 3. Further tilting movement is arrested by the magazine ears 18 and 19 and the pressure of the cartridge or follower immediately below. A further movement of the breech block will cause the bullet to be inserted into the chamber and such entry into the chamber will take place before the cartridge shell is entirely released from ears 18 and 19. After such release the base of the cartridge will be caused to slide upwardly along the face of the breech block 20, with its rim behind the extractor claw 25.

In order to support the cartridge in such forward position it is desirable to provide a cartridge supporting shoulder 24' upon which the rim of the cartridge may rest. Such a cartridge supporting shoulder is preferably formed by an integral upward extension of the feeding lug 22 as shown in the drawing.

The transfer of the cartridge from the magazine to the chamber takes place as follows:

Assuming the upper cartridge to be interlocked with the cartridge immediately beneath, as shown in Fig. 1, the forward movement of the breech block 20 will cause the feeding lug 22 to force the cartridge forwardly and upwardly into the position shown in Fig. 2, where the rim of the cartridge is retained against the shoulder 23, as is best shown in Fig. 4. During this movement the base of the cartridge is guided by the inclined portions 18', 19' of the magazine ears in a direction substantially parallel to the conical surface 17'. A further forward movement of the block causes the cartridge to tilt upwardly into the position shown in Fig. 3. A further forward move-

ment will cause the bullet to enter the chamber and the base of the cartridge to be released from the magazine ears, permitting it to slide upwardly along the face of the breech block under the extractor claw and over the supporting shoulder 24'. This supporting shoulder is also useful in supporting the empty shell during the extraction movement.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on the frame, a magazine having a discharge opening adjacent said breech block, a downwardly extending feeding lug on the breech block and means formed upon the magazine whereby the cartridge is given a preliminary tilting movement during the forward movement of the breech block.

2. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on the frame, a magazine having a discharge opening adjacent said breech block a downwardly extending feeding lug on the breech block adapted to engage a cartridge at a point below its top edge and means on the magazine whereby said lug imparts a preliminary tilting movement to the cartridge upon a forward movement of the breech block.

3. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on the frame, a magazine having a discharge opening adjacent said breech block, a retaining shoulder adjacent said discharge opening engageable with the cartridge at a point near its top edge, and a downwardly extending feeding lug on the breech block adapted to engage the cartridge at a point below its top edge, whereby the cartridge is tilted upwardly for easy entrance to the chamber.

4. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on the frame, a magazine adapted to retain cartridges in a certain position, means on said breech block for transferring a cartridge from the magazine to the chamber, said magazine having a discharge opening adjacent said breech block and retaining ears adjacent said discharge opening, the rear portion of said retaining ears being inclined relative to the axis of the cartridges contained in said magazine, whereby when a cartridge is moved forwardly by said transferring means the rim thereof is raised and released from engagement with the cartridge below.

5. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on the frame, a magazine having a discharge opening adjacent said breech block and retaining ears adjacent said discharge opening, the rear portion of said retaining

ears being formed to permit an upward and forward movement of the base of the cartridge to permit its release from the cartridge below, a retaining shoulder adjacent
 5 said discharge opening engageable with the cartridge at a point near its top edge, and a downwardly extending feeding lug on the breech block adapted to engage the cartridge at a point below its top edge, whereby the
 10 cartridge is tilted upwardly for easy entrance to the chamber.

6. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on the frame, a magazine having a discharge
 15 opening adjacent said breech block; means for retaining a cartridge against the face of the breech block comprising an extractor claw and a cartridge feeding and supporting member tending throughout the loading
 20 movement to turn the nose of the cartridge up, and serving during the extracting movement to support the cartridge.

7. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on
 25 the frame, a magazine having a discharge opening adjacent said breech block, and means for tilting the cartridge upwardly toward the chamber comprising a device on said magazine and a cooperating device asso-
 30 ciated with the breech block.

8. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on the frame, a magazine having a discharge
 35 opening adjacent said breech block, and means on said magazine and breech block, respectively, for causing a preliminary upward and forward movement of the base of the cartridge for permitting its release from the cartridge below.

9. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on the frame, a magazine having a discharge
 40 opening adjacent said breech block, means on said magazine for engaging said cartridge, and an extension from said breech block for cooperating with said means to tilt the cartridge upwardly toward the
 45 chamber.

10. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on the frame, a magazine having a discharge opening adjacent said breech block, an extension from the breech block and
 50 means on the magazine cooperating with said extension to cause a preliminary tilting movement of the cartridge during a forward movement of the breech block.

11. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on the frame, a magazine having a discharge opening adjacent said breech block
 60 and retaining ears adjacent said discharge opening, a shoulder formed in one of said retaining ears adapted to engage the rim of a cartridge, and a depending lug secured to the breech block whereby during its forward
 65 movement it will force said cartridge into engagement with said shoulder, further movement of the lug tilting said cartridge upwardly so that its axis becomes parallel
 70 with the said retaining ears.

12. In a firearm, a frame, a firing chamber, a breech block mounted for reciprocation on the frame, a magazine having a discharge opening adjacent said breech block
 75 and retaining ears adjacent said discharge opening, a shoulder formed in one of said retaining ears adapted to engage the rim of a cartridge, and a depending lug secured to the breech block whereby during its forward
 80 movement it will force said cartridge into engagement with said shoulder, further movement of the lug tilting said cartridge upwardly so that its axis becomes parallel
 85 with the said retaining ears, the said cartridge being guided by the said retaining ears.

13. In a firearm, a frame, a firing chamber, a magazine having a discharge opening, an inclined guideway extending from said
 90 chamber to said magazine, means independent of said guideway for causing a preliminary upward and forward movement of the base of the cartridge during a forward movement of the breech block and means for tilting
 95 a cartridge in the magazine during a further forward movement of the breech block for changing the angle between the longitudinal axis of said cartridge and said guideway, whereby entry of said cartridge
 100 into said chamber is facilitated.

14. The process of transferring a cartridge from a magazine to a firing chamber, comprising imparting a forward and upward
 105 movement to the base of the cartridge to release said cartridge from an adjacent cartridge, tilting said cartridge so that its forward end is raised to facilitate its insertion into the chamber, and then moving said
 110 cartridge into said chamber.

In witness whereof I have signed my name hereto this 22 day of July 1921.

CRAWFORD C. LOOMIS.