G. H. GARRISON.

SAFETY DEVICE FOR FIREARMS.

APPLICATION FILED JAN. 28, 1920.

1,389,944.

Patented Sept. 6, 1921.

2 SHEETS—SHEET 1.

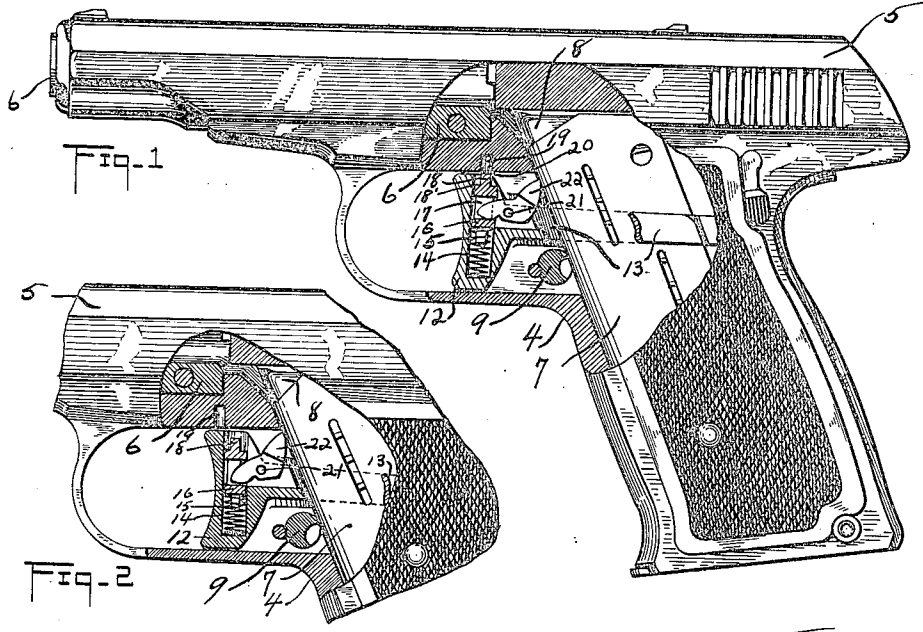


Fig. 1

Fig. 2

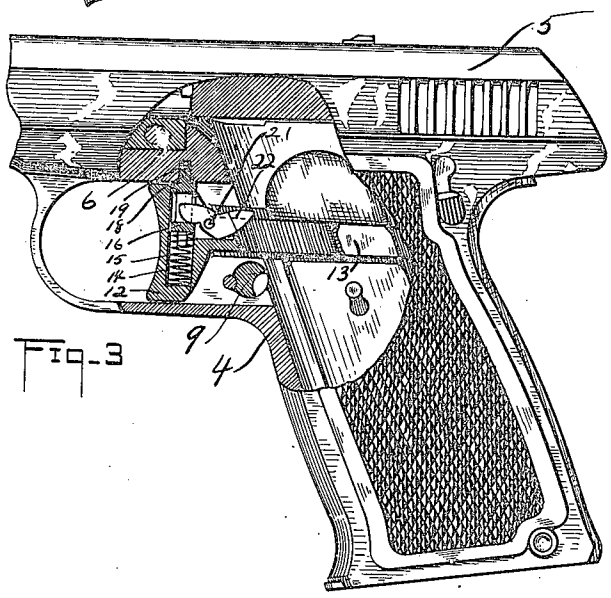


Fig. 3

WITNESS:

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2 SHEETS—SHEET 2.

Fig. 4

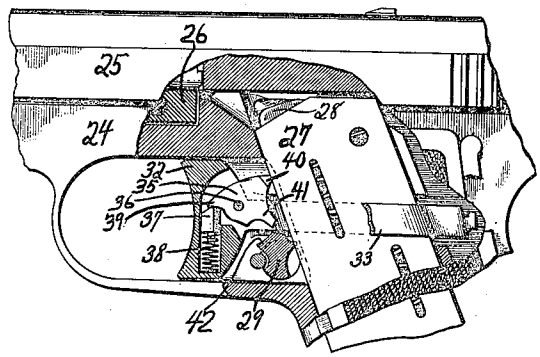
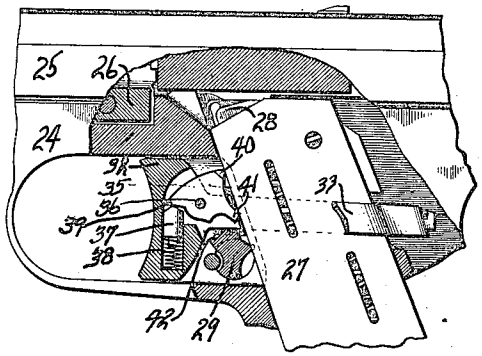


Fig. 5



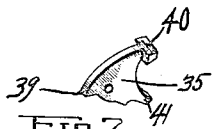
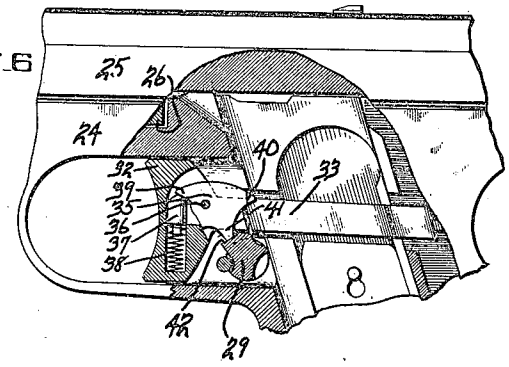


Fig. 7

Fig. 6



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UNITED STATES PATENT OFFICE.

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SAFETY DEVICE FOR FIREARMS.

1,389,944. Specification of Letters Patent. Patented Sept. 6, 1921.

Application filed January 28, 1920. Serial No. 354,537.

To all whom it may concern:

Be it known that I, GEORGE H. GARRISON, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improved Safety Device for Firearms, of which the following is a specification.

In the use of firearms having removable cartridge magazines, serious accidents often occur because the user mistakenly thinks that the removal of the magazine unloads the arm. This is not necessarily the case as frequently an unused cartridge remains in the chamber. It is the object of my present invention to prevent accidents of this kind by providing means which will automatically prevent firing of the arm when the magazine is partly or entirely removed.

This means preferably consists of a safety latch carried by the trigger, spring-impelled into engagement with an abutment on some stationary part of the arm for locking the trigger against actuation and means operated by the magazine for withdrawing the latch from the abutment for allowing retraction of the trigger when the magazine is in place in the arm.

Another object is to provide such a latch carried by the trigger, a spring for impelling the latch to safety position and means cooperating with the magazine for retracting the latch when the magazine is inserted.

A further object is to provide such a construction where the latch impelling spring also serves to return the trigger after it has been retracted.

With these and incidental objects in view, the invention consists in certain novel features of construction and combination of parts which are set forth in the appended claims and two forms of embodiment whereof are hereinafter described with reference to the drawings which accompany and form part of the specification, wherein:

Figure 1 is a side view partly in section showing a pistol embodying my invention, the magazine being in place in the arm and the parts being so positioned that the trigger may be retracted.

Fig. 2 is a view similar to Fig. 1 showing the trigger retracted.

Fig. 3 is a view similar to Fig. 1 showing the magazine removed and the trigger locked against actuation.

Fig. 4 is a side view of a pistol embodying a modified form of my invention.

Fig. 5 is a view similar to Fig. 4 showing the trigger retracted.

Fig. 6 is a view similar to Fig. 4 showing the magazine removed and the trigger locked against actuation and

Fig. 7 is a perspective view of one of the parts.

In that form of my invention shown in the drawings, it is embodied in a hand magazine pistol of the type shown in application Serial Number 42,774, filed July 30, 1915 by John D. Pedersen, but it is to be understood that the invention is applicable to magazine firearms of any kind.

Referring to Figs. 1 to 3 inclusive of said drawings the numeral 4 indicates the frame of a pistol of any suitable construction which may be provided with a reciprocable action slide 5 and a barrel 6. In a suitable chamber in the frame is located the usual magazine 7 for holding the cartridges and feeding them upward to the cartridge placing means. The numeral 8 designates the follower of such a magazine. The magazine is held in position in the arm by a suitable means such as a catch 9.

The numeral 12 designates a trigger, formed, as is common, with trigger bars 13 lying on either side of the magazine chamber and serving to transmit the movement of the trigger for releasing any desirable firing mechanism (not shown). In this form of my invention the trigger is provided with a recess 14 for housing a spring 15 bearing at its upper end against the reciprocable latch 16. This latch is preferably formed with a slotted portion 17 and a reduced projection 18 forming shoulders 18′ for limiting the upward movement of the latch. The frame is formed with a recess 19 in line with the projection 18 in the normal position of the trigger. This recess 19 may be of any desired form, it being necessary merely that it provide a substantially vertical shoulder 20. Rearwardly of the latch the trigger is provided with a cross pin 21 upon which is mounted a lever 22, the forward end of which is received in the slot 17 and the rearward end of which may extend into the magazine chamber as in Fig. 3. When the magazine is in place the parts are in the position shown in Fig. 1 wherein the lever 22 is in engagement with the maga-

zine, which serves as an abutment for the lever and enables the spring 15 to draw the trigger forward. In this position of the parts, the trigger may be retracted to the position shown in Fig. 2 and the arm thereby fired. Upon releasing the trigger, the spring 15 will cause the parts to again assume the position shown in Fig. 1.

Whenever the magazine is withdrawn from the arm, the lever 22 has no abutment to sustain the reaction of spring 15 and consequently the spring forces the latch upward until the projection 18 has entered the recess 19 as shown in Fig. 3. It is obvious that in this position of the parts the trigger is completely locked against actuation and that the arm cannot, therefore, be fired until the magazine is again replaced in the arm.

In that form of the present invention shown in Figs. 4 to 7 inclusive, the frame is designated by the numeral 24, the slide by the numeral 25 and the barrel by 26. The numeral 27 indicates the magazine, located, as usual in a chamber in the frame and provided with a follower 28 for feeding the cartridges upwardly to the cartridge placing means. The magazine may be held in place by any desired means as a transversely slidable removable catch 29. In the particular form shown herein this catch also serves as an abutment for the trigger locking latch to be described later.

The trigger designated by the numeral 32 has the rearwardly extending trigger bars 33 for connecting with and actuating any desired firing mechanism. Adjacent the front side of the magazine the trigger carries a movable latch 35, shown as pivoted thereto by the pivot pin 36. The trigger is formed with a recess adjacent the latch 35 for housing the spring pressed plunger 37 pressed upwardly by the spring 38 and engaging the forwardly extending nose 39, of the latch, whereby the latch is spring pressed toward the position shown in Fig. 6. The latch is formed also with a projection 40 bearing against the front wall of the magazine when the magazine is in place (Figs. 4 and 5) and capable of being projected into the magazine chamber when the magazine is removed (Fig. 6). The latch is also formed with a locking arm 41 extending rearwardly from the pivot. The numeral 42 designates an abutment surface formed on any desired stationary part of the arm. In the present case it is shown as a surface on the magazine catch 29. When the magazine is in place in the arm the latch 35 is in the position shown in Fig. 4, the locking arm 41 being positioned just above the abutment surface 42. The trigger can now be retracted into the position shown in Fig. 5 for firing the arm.

When the magazine is removed the projection 40 is left unsupported and the spring 38 forces the latch 35 into the position shown in Fig. 6. The locking arm 41 moves down and into alinement with the abutment surface 42 whereby the rearward movement of the arm 41 is obstructed and the trigger blocked against retraction. The abutment surface 42 is preferably formed on the surface of a cylinder concentric with the pivot pin 36, when said pin is in the position shown in Fig. 1. The insertion of the magazine will restore the parts to the positions shown in Fig. 4 to permit retraction of the trigger and firing the arm.

As in the first form, the latch 35 and cooperating elements serve also as a trigger spring for returning the trigger to its forward position after retraction.

It will be seen, therefore, that I have provided a safety mechanism which while easily and cheaply made is at the same time thoroughly reliable and effectively prevents firing of the arm when the magazine is removed.

While I have shown but two embodiments of my invention, it is clear that other forms thereof may readily be provided without departing from my invention as defined in the following claims:

1. In a firearm of the type having firing mechanism, a frame and a removable magazine in the frame; a trigger for operating said firing mechanism, safety means carrier by said trigger engageable with a stationary abutment on the frame for locking the trigger against actuation and means operable by the insertion of the magazine for withdrawing said safety means from said abutment for permitting actuation of the trigger.

2. In a firearm of the type having firing mechanism, a frame and a removable magazine in the frame; a trigger for operating said firing mechanism, safety means carried by said trigger coöperable with the frame for locking the trigger against actuation, and means operable by the insertion of the magazine for moving said safety means for permitting actuation of the trigger, said means comprising a lever having a part engageable with the safety means and another part engageable with the magazine.

3. In a firearm of the type having firing mechanism, a frame and a removable magazine in the frame; a trigger for operating said firing mechanism, safety means carried by said trigger coöperable with the frame for locking the trigger against actuation, and means operable by the insertion of the magazine for moving said safety means for permitting actuation of the trigger said means comprising a lever pivoted to the trigger and having a part engageable with the safety means and another part engageable with the magazine.

4. In a firearm of the type having firing

mechanism, a frame and a magazine in the frame; a trigger for operating said firing mechanism, a movable latch carried by said trigger and spring impelled into engagement with a shoulder on the frame for locking the trigger against actuation, and means operable by the insertion of the magazine for withdrawing the latch from the frame.

5. In a firearm of the type having firing mechanism, a frame and a magazine in the frame; a trigger for operating said firing mechanism, a movable latch carried by said trigger and spring impelled into engagement with a shoulder on the frame for locking the trigger against actuation, and means operable by the insertion of the magazine for withdrawing the latch from the frame, said means comprising a lever having a part engageable with the latch and another part engageable with the magazine.

6. In a firearm of the type having firing mechanism, a frame and a magazine in the frame; a trigger for operating said firing mechanism, a movable latch carried by said trigger and spring impelled into engagement with a shoulder on the frame for locking the trigger against actuation, and means operable by the insertion of the magazine for withdrawing the latch from the frame, said means comprising a lever pivoted to the trigger and having a part engageable with the latch and another part engageable with the magazine.

7. In a firearm, a frame, firing mechanism, a trigger for operating said firing mechanism, a movable latch carried by said trigger and engageable with a shoulder on the frame for locking the trigger against actuation, and means for moving said latch out of engagement with said shoulder for permitting actuation of said trigger.

8. In a firearm of the type having firing mechanism, a frame and a magazine in the frame; a trigger for operating said firing mechanism, a movable latch carried by said trigger and spring impelled into engagement with a shoulder on the frame for locking the trigger against actuation, and means movable upon the insertion of the magazine for withdrawing said latch from engagement with said shoulder.

9. In a firearm of the type having firing mechanism, a frame and a magazine in the frame; a trigger for operating said firing mechanism, a movable latch carried by said trigger, a spring for impelling said latch into engagement with a shoulder on the frame for locking the trigger against actuation and a lever pivoted to the trigger and engageable with the magazine and latch, whereby the magazine serves as an abutment and allows the latch spring to impel the trigger forwardly and the removal of the magazine allows the latch spring to force the latch into engagement with the shoulder on the frame for locking the trigger against actuation at all times when the magazine is removed.

10. In a firearm of the type having firing mechanism, a frame, a magazine in the frame and a trigger for operating said firing mechanism; a trigger spring for retracting said trigger and a safety device mounted on said trigger and spring impelled toward operative position by said trigger spring.

11. In a firearm of the type having firing mechanism, a frame, a magazine in the frame and a trigger for operating said firing mechanism; a trigger spring for retracting said trigger, and a safety device spring impelled toward operative position by said trigger spring.

12. In a firearm of the type having firing mechanism, a frame, a magazine in the frame and a trigger for operating said firing mechanism; a trigger spring for retracting said trigger, a safety device spring impelled toward operative position by said trigger spring, and means coöperating with said magazine for holding the safety device in inoperative position when the magazine is in place in the frame.

13. In a firearm of the type having firing mechanism, a frame, a magazine in the frame and a trigger for operating said firing mechanism; a trigger spring for retracting said trigger, and a safety latch mounted on said trigger, said latch being formed with an arm engageable in one position of the latch with an abutment on the frame, and with a projection engageable with the magazine when the magazine is in place in the frame.

GEORGE H. GARRISON.