July 2, 1929. G. H. TANSLEY 1,719,384

MAGAZINE SAFETY DEVICE FOR AUTOMATIC PISTOLS

Filed Aug. 5, 1926

Fig. 1

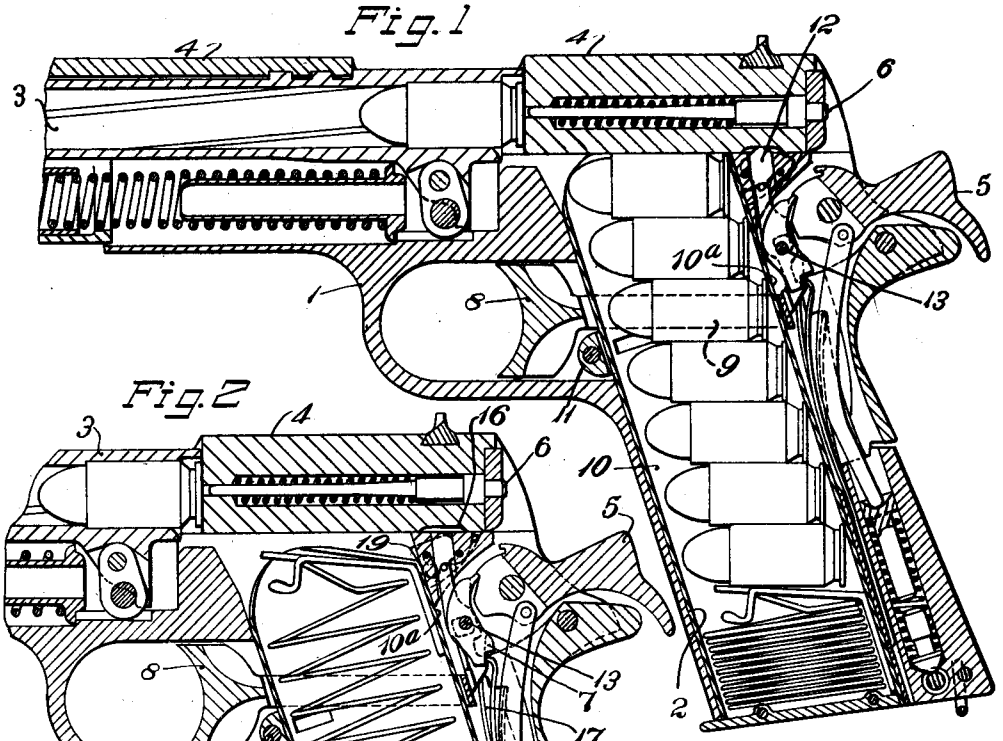


Fig. 2

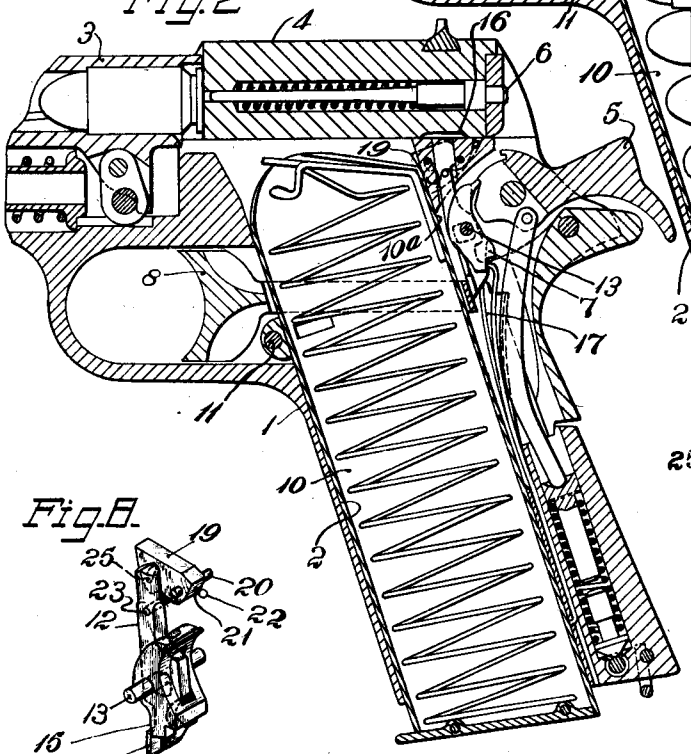


Fig. 4

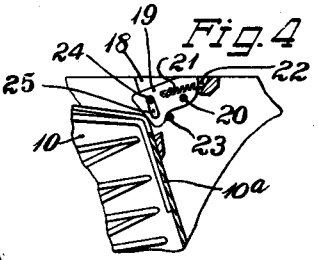


Fig. 8

Fig. 3

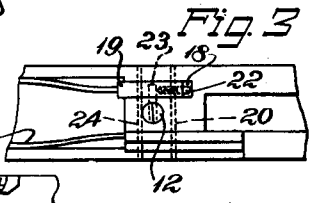


Fig. 7

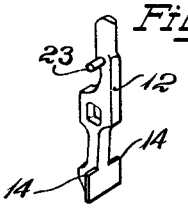


Fig. 5

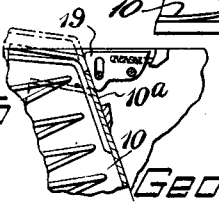
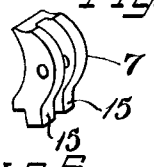


Fig. 6



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Patented July 2, 1929. 1,719,384

UNITED STATES PATENT OFFICE.

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MAGAZINE SAFETY DEVICE FOR AUTOMATIC PISTOLS.

Application filed August 5, 1926. Serial No. 127,428.

The invention relates particularly to a safety device of the type which renders the firing mechanism of the pistol inoperative when the magazine is withdrawn or partly withdrawn from its normal position. It is well known that the user of an automatic pistol frequently assumes that the withdrawal of the magazine necessarily leaves the pistol in unloaded condition and that the trigger may then be safely pulled without danger of discharge. As a matter of fact, however, one cartridge may remain in the firing chamber even after the magazine is withdrawn and this common erroneous assumption on the part of the users constitutes a serious source of danger in connection with firearms of this class.

Many different devices and mechanisms have been proposed and used for eliminating this source of danger, these prior devices and mechanisms making use of a number of different principles, some of them locking certain parts of the firing mechanism and others breaking the train of connection between the trigger and the other parts of the firing mechanism. By the present invention I have provided a safety device of the class described which involves breaking the connection between the trigger and the sear when the magazine is withdrawn, and with the result that the sear is not moved when the trigger is pulled.

The object of the present invention is to provide a safety device of the class described which is very simple in construction and reliable in operation, which will operate satisfactorily notwithstanding minor variations in the size and shape of the magazine and which may be readily combined with other safety features. Further objects of the invention will be apparent from the following specification and claims.

In the accompanying drawing, I have shown the embodiment of the invention which is now deemed preferable, but it will be understood that variations in construction may be made within the scope of the appended claims without departing from the spirit of the invention.

Of the drawing,

Fig. 1 is a central fragmentary longitudinal sectional view of an automatic pistol embodying the invention, the hammer being shown in cocked position and the magazine being shown in its normal position.

Fig. 2 is a view similar to Fig. 1 except that it shows the magazine partly withdrawn.

Fig. 3 is a fragmentary plan view of the frame, the breech block having been removed.

Fig. 4 is a fragmentary sectional view taken along the line 4—4 of Fig. 3.

Fig. 5 is a view similar to Fig. 4 but showing the parts in different relative positions.

Figs. 6 and 7 are perspective views showing the sear and the connector respectively.

Fig. 8 is a perspective view showing the relationship between the sear, the connector and the safety actuating lever.

The pistol shown in the drawing is similar to that shown in the Browning Patent, No. 1,070,582, dated August 19, 1913, and reference is made to that patent for a full disclosure of the details of construction.

The pistol comprises a frame 1 having a magazine chamber 2 in the grip portion thereof, a barrel 3, a breech block 4 longitudinally movable on the frame 1, a hammer 5 adapted to engage a firing pin 6, a sear 7 adapted to hold the hammer in cocked position, and a trigger 8 preferably integrally formed with a trigger bar 9 for moving the sear to release the hammer. A magazine 10 of any usual or preferred form is normally located in the chamber 2, the magazine having the usual flat rear side surface 10^a and being held in place by the usual manually releasable latch 11. By releasing the latch the magazine can be removed for reloading.

For normally forming a connection between the trigger bar and the sear there is provided a connector 12 which is vertically movable and which, when in its upper position as shown in Fig. 1, is adapted to transmit the motion of the trigger bar to the sear.

Preferably, and as shown, the sear 7 is bifurcated and is mounted on a pivot pin 13. The connector 12 extends between the bifurcations of the sear and is provided with a transverse aperture through which the pivot pin 13 extends. This aperture is large enough to permit a slight vertical movement of the connector. The connector is provided with transversely extending flanges 14, 14 which are in position to be engaged by the trigger bar 9 and which serve when the connector is in its upper position to engage the heel portions 15, 15 of the sear. When the connector is in its lower position the flanges 14, 14 pass under the said heel portions of the sear without engaging them.

The upper end of the connector 12 extends through a hole in the top of the frame and normally it projects into a recess 16 in the breech block 4, the connector being pressed upward by means of a spring 17 which engages a beveled surface near the bottom. It will be obvious that when the breech block 4 is in any position except in normal firing position as shown, the connector will be forced downward so that the flanges 14, 14 will no longer engage the heel portions 15, 15 of the sear. In this way the pistol is rendered inoperative except when the breech block is in its normal position.

In accordance with the invention I make use of the disconnector 12 for also rendering the firing mechanism inoperative when the magazine is withdrawn or partly withdrawn. To this end I provide an actuating element which is located in a recess adjacent the magazine chamber and which is movable into and out of a projecting operative position in the path of movement of the magazine. The said element is normally held out of the said position and in a fixed inactive position by reason of engagement with a flat side surface of the magazine parallel with the direction of movement of the magazine, as for instance the said flat rear side surface 10^a. A spring is provided for moving the said element into the aforesaid projecting operative position when the magazine is removed or partly removed. In addition there is provided means forming an operative lost motion connection between the said element and the said connector 12 whereby the element upon movement thereof by the said spring to its operative position as aforesaid moves the connector to its lower inoperative position, the said lost motion connection leaving the connector 12 free to be similarly moved by the breech block 4 independently of the said element.

In order to provide space for the said actuating element a slot 18 is formed in the frame at one side of the hole through which the connector 12 projects, as clearly shown in Figs. 3 and 4. In this slot is mounted the said actuating element, preferably in the form of a safety actuating lever 19 which is pivotally mounted by means of a transverse pivot pin 20. A spring is provided for moving the lever 19 in the counter-clockwise direction about the pivot pin 20 and preferably I provide a coil spring 21 seated in a hole in the lever and engaging a plunger 22, which plunger engages the rear wall of the slot 18.

The lever 19 is normally held in its upper inactive position by reason of the engagement of its forward outer end with the flat rear wall of the magazine 10 when the magazine is in its normal or fully inserted position as shown in Fig. 1, or is nearly in its fully inserted position as shown in Fig. 5. When the magazine is withdrawn or partly withdrawn the lever 19 is moved in the counter-clockwise direction by the spring 21 and the plunger 22 to the position shown in Figs. 2 and 4. Fig. 5 illustrates the fact that the movement of the lever 19 to its inactive position is not dependent upon a precise location of the upper rear corner of the magazine. The fully inserted position of the magazine is indicated by dotted lines in Fig. 5. The full lines in Fig. 5 show the magazine in a position slightly below its fully inserted position but by reason of the fact that the lever 19 engages the said flat rear side surface 10^a of the magazine, which is parallel with the direction of magazine movement, it is nevertheless being held in its inactive position. It will be obvious that, with the magazine in any position ranging from the full line position as shown to the dotted line position as shown, the flat side surface 10^a will serve to hold the actuating lever 19 in its inactive position.

A connection is provided between the actuating lever 19 and the connector 12 so that the connector is moved downward to its inoperative position whenever the lever 19 is moved to the position shown in Figs. 2 and 4. This connection is in the form of a pin 23 projecting laterally from the connector into the path of the lever. It will be observed that the pin 23 provides a lost motion connection which permits the connector to be moved downward by the breech block 4 as already described entirely independently of the lever 19.

Preferably a transverse pin 24 is provided which extends through a slot 25 in the lever 19 and serves as a means for limiting the angular movement of the said lever.

From the foregoing description it will be obvious that whenever the magazine 10 is withdrawn or partly withdrawn, the actuating lever 19 will be moved by the spring 21 to the position shown in Figs. 2 and 4, thus moving the connector 12 downward to the inoperative position as shown in Fig. 2. With the connector in this position the trigger may be pulled without moving the sear and it is thus impossible to fire the pistol. It will also be observed that the lever 19 does not in any way interfere with the movement of the connector downward to its inoperative

position by means of the breech block 4. The lever 19 engages the flat rear surface of the magazine with the result that the lever is held in its upper position by the magazine notwithstanding any minor defects or variations in the length of the magazine or the shape of the upper rear corner thereof. It will be observed that the action of the lever 19 is not only independent of minor variations in the length of the magazine or in the shape of the upper rear corner thereof, but is also independent of minor variations in the latch construction which might cause the magazine to be held in positions higher or lower than the true theoretical position.

What I claim is:

1. In an automatic pistol having a frame provided with a magazine chamber in the grip portion thereof, a removable magazine in the chamber, a breech block longitudinally movable on the frame, a hammer, a sear, a trigger and trigger bar for moving the sear to release the hammer, and a connector normally held in an upper operative position in which it provides a connection between the trigger bar and the sear and movable by the breech block to a lower inoperative position in which it leaves the said trigger bar and sear disconnected, the combination with the aforesaid parts of an actuating element located in a recess adjacent the magazine chamber and movable into and out of a projecting position in the path of movement of the magazine, the said element being normally held out of the said projecting position and in a fixed inactive position by reason of direct engagement with a flat side surface of the magazine which is parallel with the direction of magazine movement, a spring for moving the said element into the aforesaid projecting position when the magazine is removed, and means forming an operative lost motion connection between the said element and the said connector whereby the element upon movement thereof by the said spring to its projecting operative position moves the connector to its lower inoperative position, the said lost motion connection leaving the connector free to be similarly moved by the breech block independently of the said element.

2. In an automatic pistol having a frame provided with a magazine chamber in the grip portion thereof, a removable magazine in the chamber, a breech block longitudinally movable on the frame, a hammer, a sear, a trigger and trigger bar for moving the sear to release the hammer, and a connector normally held in an upper operative position in which it provides a connection between the trigger bar and the sear and movable by the breech block to a lower inoperative position in which it leaves the said trigger bar and sear disconnected, the combination with the aforesaid parts of a transversely pivoted actuating lever located in a recess adjacent the magazine chamber and normally held in an upper inactive position by reason of engagement with a flat side surface of the magazine which is parallel with the direction of movement of the magazine, a spring for moving the said lever downward about its pivot so as to project into the magazine chamber when the magazine is removed, and means forming an operative lost motion connection between the said lever and the said connector whereby the lever upon movement thereof by the spring moves the connector to its lower inoperative position, the said lost motion connection leaving the connector free to be similarly moved by the breech block independently of the lever.

3. In an automatic pistol having a frame provided with a magazine chamber in the grip portion thereof, a removable magazine in the chamber, a breech block longitudinally movable on the frame, a hammer, a sear, a trigger and trigger bar for moving the sear to release the hammer, and a connector normally held in an upper operative position in which it provides a connection between the trigger bar and the sear and movable by the breech block to a lower inoperative position in which it leaves the said trigger bar and sear disconnected, the combination with the aforesaid parts of a transversely pivoted actuating lever located in a recess adjacent the magazine chamber and entirely at one side of the connector, the said lever being normaly held in an upper position by reason of engagement with the magazine, a spring for moving the said lever downward about its pivot so as to project into the magazine chamber when the magazine is removed, and a pin projecting laterally from the connector into the path of movement of the lever whereby the lever upon movement thereof by the spring engages the pin to move the connector to its lower inoperative position, the said pin leaving the connector free to be moved to its lower inoperative position by the breech block independently of the lever.

4. In an automatic pistol having a frame provided with a magazine chamber in the grip portion thereof, a removable magazine in the chamber, a breech block longitudinally movable on the frame, a hammer, a sear, a trigger and trigger bar for moving the sear to release the hammer, and a connector normally held in an upper operative position in which it provides a connection between the trigger bar and the sear and movable by the breech block to a lower inoperative position in which it leaves the said trigger bar and sear disconnected, the combination with the aforesaid parts of a transversely pivoted actuating lever located in a recess adjacent the magazine chamber and entirely at one side of the connector, the said lever being normally held in an upper position by reason of engagement with the magazine, a pin extending transversely of the recess and through a slot in the lever for limiting the movement of the lever, a spring pressed plung-

er seated in an aperture in the lever and engaging the rear wall of the recess for moving the said lever downward about its pivot so as to project into the magazine chamber when the magazine is removed, and means forming an operative lost motion connection between the said lever and the said connector whereby the lever upon movement thereof by the spring plunger moves the connector to its lower inoperative position, the said lost motion connection leaving the connector free to be similarly moved by the breech block independently of the lever.

GEORGE H. TANSLEY.