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R. VON FROMMER

AUTOMATIC FIREARM

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1,579,742

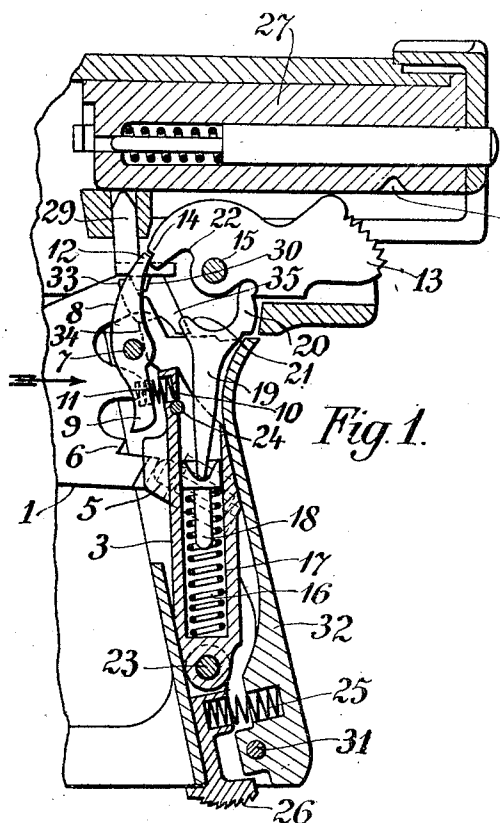


Fig. 1.

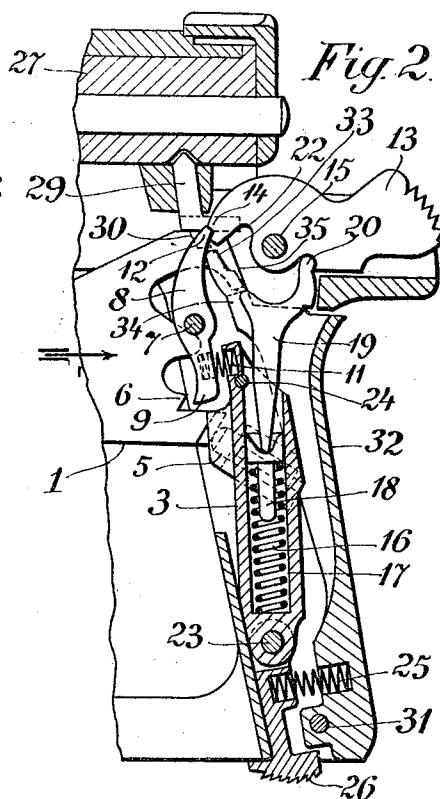


Fig. 2.

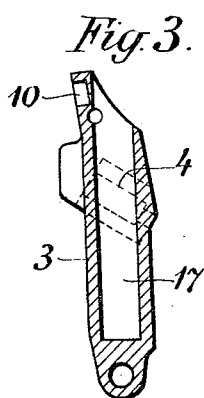


Fig. 3.

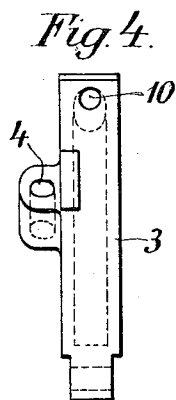


Fig. 4.

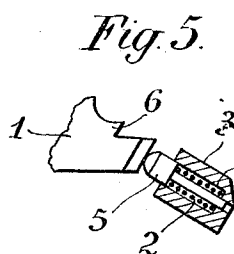


Fig. 5.

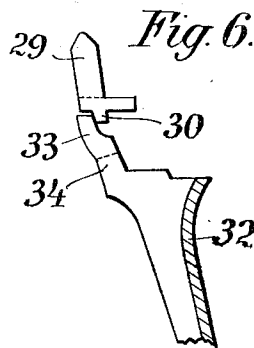


Fig. 6.

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RUDOLF VON FROMMER, OF BUDAPEST, HUNGARY.

AUTOMATIC FIREARM.

Application filed January 23, 1924. Serial No. 687,912.

To all whom it may concern:

Be it known that I, RUDOLF VON FROMMER, a citizen of Hungary, residing at Budapest, Hungary, have invented new and useful Improvements in Automatic Firearms, of which the following is a specification.

This invention relates to an automatic firearm the pull-off-mechanism of which, that is the trigger, the trigger lever or disengager, and the hammer are subject to the pressure of one spiral-spring respectively, that is to the pressure of three spiral springs altogether arranged in one single spring-case mounted upon the frame by means of pins. The action of the main-spring is transmitted to the hammer by the longer arm of a crutch like pressure-piece, the shorter arm of which is adapted to prevent the hammer from moving forward over a desired limit when the breech-bolt is removed from the gun. In connection with this pull-off-mechanism the firearm is arranged in such a manner that while the breech-bolt remains in its rearward position the pull-off-mechanism, that is to say the automatic safety-device is locked. According to my present invention such locking is performed by one of the parts of the firearm which is influenced by the movements of the breech-bolt. In the example referred to in the present description the locking of the safety-device is performed by the interrupter of the pull-off-mechanism of the gun.

In the accompanying drawing one form of the embodiment of the invention is shown by way of example.

Fig. 1 is a longitudinal sectional view of one part of the firearm in question, the breech-bolt being in its rearward position. Fig. 2 shows the same arrangement the breech-bolt being locked. Fig. 3 is a longitudinal sectional view of the spring-case the springs being removed. Fig. 4 is a front elevation of the spring-case. Fig. 5 is a detail view showing a part of the disengager and its actuating spring. Fig. 6 is a detail view showing the interrupter and one part of the automatic safety-device.

The pull-off-mechanism consists of a disengager 1 pressed by the trigger when firing

against the action of spiral-spring 2 (see Fig. 5) in the direction of the arrow shown in Figs. 1 and 2. This spring is located in bore 4 of the spring-case 3. The action of the spiral-spring 2 is transmitted to the disengager 1 by the slightly rounded head of pin 5. When firing the tooth 6 of the disengager 1 works the arm 9 of the sear 8 pivoted at 7 (Fig. 2), and presses the same against the action of the spiral-spring 11 provided in bore 10 of the spring-case 3. The other arm 12 of the sear 8 is thus lifted from the top-notch 14 of the hammer 13 pivoted at 15, and in consequence of this action the hammer 13 is allowed to be driven forward by main-spring 16 arranged in bore 17 of the spring-case 3. The work of the main-spring 16 is transmitted by a pin 18 provided with a grooved head to a crutch like pressure-piece 19 having a longer arm 20 that actuates the hammer 13, and a shorter arm 21 which prevents the hammer from shooting forward over a desired limit when the breech-bolt is removed. In case the breech-bolt is provided in the firearm the forward movement of the hammer is limited by the breech-bolt itself as can be seen in Fig. 2. When the breech-bolt is removed the hammer 13 is stopped in its forward movement by the shorter arm 21 of the pressure piece 19 through the striking of the recess 22 of the hammer at the arm 21. The spring-case 3 is fastened to the frame by means of pins 23 and 24, the former also serving as a fastener for the magazine-holder 26 subject to the pressure of spring 25, whilst the latter limits the stroke of the main-spring that is to say of the pin 18 in case the hammer is removed from the gun. In connection with this pull-off-mechanism there is provided a safety-device of well known type, which differs from those heretofore known by its being kept locked while the breech-bolt remains in its rearward position, and the features of which are as follows:—

A recess 28 is arranged on the breech-bolt 27 for the interrupter 29. As it is well known the interrupter is provided to prevent the gun from being fired, unless the

breech-bolt is locked, and it also serves to prevent the firing of more than one shot at one pull at the trigger.

The interrupter 29 enters the recess 28 in the closed position of the breech bolt 27 in such a manner that the interrupter 29 lies upon the releaser 1 which is pressed upward and forward by the spiral spring 2 and guided by the pin 7, Fig. 2. The entering of the interrupter into the recess 28 can be accomplished only when the breech bolt is closed, for in this case only are the recess 28 and the interrupter 29 opposite each other.

The interrupter 29 is provided on its lower edge with a tooth 30 that rests when the breech-bolt is in its rearward position behind the nose 33 of an automatic safety-lever 32 pivoted at 31 being subject to the pressure of spring 25 (Fig. 1), the automatic safety-device thus being locked against the action of spring 25 when the breech is in its rearward position.

This locking is necessary because the effect of the recoil resulting from the forward rushing of the breech in such types of automatic firearms tends to work the trigger-mechanism and the automatic safety lever and causes the weapon to be fired unintentionally the nose 34 of the automatic safety device being in front of the nose 35 of the disengager 1, Fig. 1. In consequence of the effect of the recoil resulting from the forward rushing of the bolt, the automatic safety lever 32 is pushed backwards and takes the disengager with it, whereupon the weapon is fired. The object of the present arrangement is to prevent this unintended firing by locking the safety lever and consequently the trigger mechanism when the breech bolt is in the unclosed position and keeping the safety lever and the trigger-mechanism in this locked position until the breech bolt is closed. When the breech-bolt is closed the safety-lever is released for the interrupter 29 can now enter the recess 28, and in this manner the tooth 30 leaves the path of the nose 33. So far, however, the breech-bolt is entirely closed and has returned to its state of rest, so that no recoil action takes place any longer; and the safety-lever is subject to the action of spring 25 only. Since, however, at the same time the interrupter 29 enters the recess 28 and the disengager 1 is enabled to rush upwards and forward its nose 35 is no longer behind the nose 34 of the safety-lever but beyond it (Fig. 2), whereby the safety-lever is prevented from carrying the disengager backwards.

Obviously, the present locking device may also be arranged in such a manner that a further tooth of the interrupter 29 is locking one of the other members, for instance the hammer or the disengager, or both of them, and it is evident as well that one or two, or

in any other desired combination more of the above said three-trigger elements and one safety-member may be locked by the interrupter 29 without leaving the spirit and the scope of my present invention.

Claims:

1. In an automatic firearm, a breech-bolt, an interrupter controlled by said breech-bolt, a trigger, a disengager controlled by the trigger and by said interrupter, an automatic safety device in engagement with the said disengager in the released position of the safety device, in combination with means on the said interrupter adapted to lock the automatic safety-device when the breech-bolt is unclosed and to unlock the same when the breech-bolt is closed.

2. In an automatic firearm, a hammer mechanism, a pivoted sear adapted to retain said hammer mechanism in inoperative position, a disengager for moving said sear on its pivot thereby to release the hammer mechanism, a spring casing secured to the frame of the firearm, a main spring for operating the hammer mechanism, a spring for moving the disengager out of its sear-operating position and a spring for actuating the sear into hammer-engaging position, all of said springs being separately housed in said casing.

3. In an automatic firearm, a hammer mechanism, a pivoted sear adapted to retain said hammer mechanism in inoperative position, a disengager for moving said sear on its pivot thereby to release the hammer mechanism, a spring casing, pins for securing the spring casing to the firearm, a magazine holder secured to the firearm by one of said pins, a main spring for operating the hammer mechanism, a spring for moving the disengager out of its sear-operating position, and a spring for actuating the sear into hammer-engaging position, all of said springs being separately housed in said casing.

4. In an automatic firearm, the combination of hammer mechanism, a pivoted sear adapted to retain said hammer mechanism in inoperative position, a disengager for moving said sear on its pivot thereby to release the hammer mechanism, a spring casing secured to the frame of the firearm, a main spring for operating the hammer mechanism, a spring for moving the disengager out of its sear-engaging position, a spring for actuating the sear into hammer-engaging position, all of said springs being separately housed in said casing, and a pin carried by said spring casing and disposed in position to limit the movements of the main spring.

5. In an automatic firearm, a hammer mechanism, a pivoted sear adapted to retain said hammer mechanism in inoperative position, a disengager for moving said sear on its pivot thereby to release the hammer mechanism, a spring casing secured to the

frame of the firearm, a main spring for operating the hammer mechanism, a spring for moving the disengager out of its sear-operating position, a spring for actuating the sear into hammer-engaging position, all of said springs being separately housed in said casing, and a movable member between said hammer and main spring and having means for transmitting the action of the spring to the hammer and means for limiting the stroke of said hammer. 10

In testimony whereof I have signed my name to this specification.

RUDOLF v. FROMMER.