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W. F. ROPER.

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MAGAZINE SAFETY FOR AUTOMATIC FIREARMS

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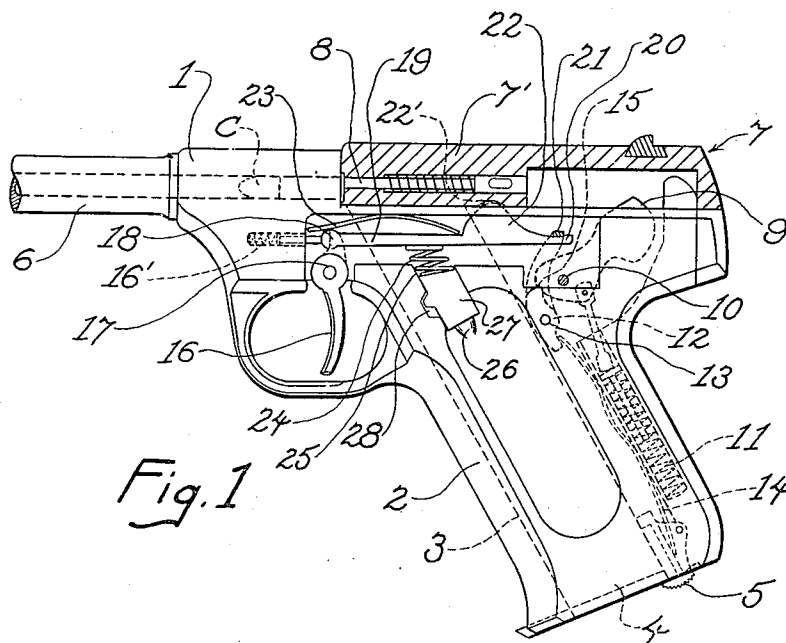
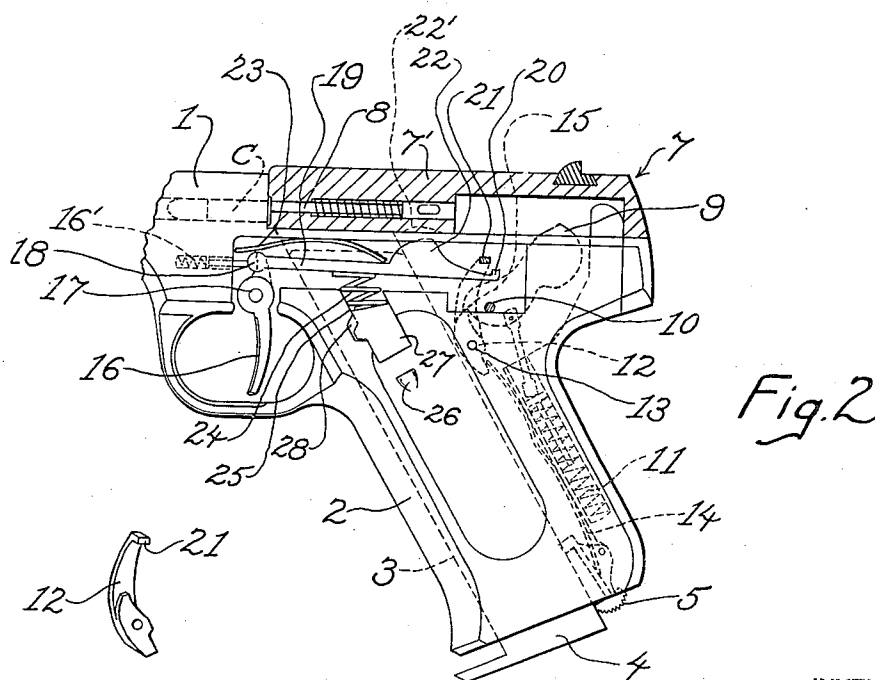


Fig. 3

INVENTOR
WALTER F. ROPER
BY *Chapin & Neal*
ATTORNEYS

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MAGAZINE SAFETY FOR AUTOMATIC FIREARMS

Walter F. Roper, Longmeadow, Mass.

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5 Claims. (Cl. 42—70)

This invention relates to the magazine controlled safety mechanism for firearms and more particularly that type of firearm such as the automatic pistol wherein a removable magazine is received in a magazine chamber.

With the ordinary automatic pistol many serious accidents have occurred due to the faulty expectation that the arm is unloaded when the magazine is removed.

The object of the present invention is to provide simple, sturdy and reliable mechanism of low cost which can be readily applied with slight and immaterial changes of structure to many types of automatic pistols now in use. A particular feature of advantage in my improvement resides in the fact that its positive action is required to render the gun fireable, and that the result of negative action due to malfunction or failure is to make the gun safe.

For illustrative purposes the present invention is disclosed as embodied in the type of automatic pistol known commercially as the Colt's Woodsman, or Hi-Standard Model D, the principal structural parts of which are shown in U. S. Patent 1,638,068, August 9, 1922.

In the accompanying drawing,

Fig. 1 is a fragmentary side view of the pistol with the breechblock thereof in longitudinal section showing the hammer in cocked position ready to fire, the magazine being in place.

Fig. 2 is a similar view with the magazine removed and the firing mechanism made safe; and

Fig. 3 is a detail in perspective of the sear.

The frame of the pistol indicated at 1 has a hand grip portion 2 with the usual magazine chamber 3 adapted to receive therein the removable magazine 4. The magazine is retained therein by a releasable spring catch 5. Behind barrel 6 of the pistol is the recoil actuated breech block 7 which is formed as part of a slide 7' reciprocally guided on frame 1. The firing pin 8 is shown as carried in the breech block 7 and in dotted lines a cartridge C is indicated as being in the chamber of the barrel. The breech block is returned to its breech closing position by a closing spring (not shown) carried in a housing of the slide as is well understood in arms of this type.

The hammer 9 is pivoted at 10 on the frame and is provided with its usual strut and hammer spring 11. The sear 12 is pivoted on the frame at 13 and is urged by its sear spring 14 into engagement with the hammer notch 15 when the hammer is cocked. The cocking of the hammer is accomplished by a rearward movement of breech block 7 either by hand or by the recoil of firing in the usual manner.

The trigger 16 with its independent return spring 16' is pivoted on the frame at 17 and has

a short upper end to which is pivotally connected at 18 a connector bar 19 extending rearwardly therefrom. The rear end of the connector bar is formed as a hook 20 and is adapted to engage a tail piece 21 formed as an integral part of the sear 12 for releasing the sear from its hammer notch 15 when the trigger is pulled. Near the rear end of the connector bar 19 on its upper side is formed a hump 22 adapted to enter a recess 22' on the under side of the slide 7' when the breech is closed and the connector bar is in its up position, said hump 22 being cammed out of said recess to push the connector bar down each time the slide and breech block moves rearwardly in opening the breech.

The parts above described are all conventional and well known in automatic pistols of this type and for a more detailed description of such an arm and its usual operation reference may be had to the patent aforementioned and Browning Patent 1,276,716, dated August 27, 1918. The following description has to do with the modifications that I have introduced into such an arm in order to provide magazine controlled safety mechanism of the positively acting type.

The connector bar 19 is capable of assuming two positions, an up position in which it is connected to the sear 12 and a down position in which it is disconnected from the sear. A spring 23 positioned above said connector bar 19 as shown normally tends to hold it down in disconnected position. This is the safe position in which a pull of the trigger will not release the sear. A second spring 24 is positioned for a thrust against the under side of said connector bar. This second spring 24 is preferably housed in a slot 25 formed in one side of the hand grip. The formation of this slot is the only structural change necessary to make in the frame of the pistol as heretofore used in order to provide for my improvement and it will be noted that this change does not reduce the strength characteristics of the arm in any vital particular. The slot 25 and its housed spring 24 will be covered over by the wood or plastic side plate (not shown) of the hand grip when in place.

When relaxed the second spring 24 has no effect on the connector bar 19 but when placed under tension it overcomes the force of the first spring 23 and moves the connector bar up to its connecting position.

The means for compressing or relaxing the spring 24 are operated by the magazine 4 when pushed home in its chamber 3 or when withdrawn therefrom and said means consist of a small projection or lip 26 formed on one side of said magazine and adapted to engage the lower end of a spring plunger 27 which slides in said slot 25 and bears against spring 24. The slot 25 has a

small side notch 28 and the plunger 27 a small nib to move therein for limiting the stroke of plunger 27.

From the foregoing description the operation of the safety device is clearly apparent. Whenever the magazine is displaced from its chamber the trigger is disconnected from the sear. This may be said to be the normal condition. While spring 23 is used to push the connector bar down, it tends to fall down anyway. In order to make a connection between trigger and sear the magazine must be pushed home into its chamber to compress spring 24. Under these conditions if the critical spring 24 were to break or go dead the gun would still be safe. In other words, in my improvement malfunction makes the gun safe while it requires absence of malfunction to make the gun fireable.

I claim:

1. Magazine controlled safety mechanism for automatic firearms, comprising in combination, a frame having a magazine chamber, a magazine in said chamber, firing mechanism including a hammer, a sear, a trigger and a connector comprising means to make a connection between said trigger and sear, said connector being movable into a position to connect said trigger and sear or into a position to disconnect the same, a spring normally tending to move said connector to its disconnecting position, a second spring positioned when stressed, to move said connector into its connecting position against the force of said first named spring, and means operated by said magazine when home in its chamber, to place said second named spring under stress and thus move said connector into its connecting position, and when said magazine is displaced from its chamber acting to relax said second named spring whereby the first named spring moves said connector to its disconnecting position.

2. Magazine controlled safety mechanism for automatic firearms, comprising in combination, a frame having a magazine chamber, a magazine in said chamber, firing mechanism including a hammer, a sear, a trigger and an independent trigger spring therefor and a connector comprising means to make a connection between said trigger and sear, said connector being movable into a position to connect said trigger and sear or into a position to disconnect the same, a spring normally tending to move said connector to its disconnecting position, a second spring positioned when stressed to move said connector into its connecting position against the force of said first named spring and means operated by said magazine when home in its chamber, to place said second named spring under stress for moving said connector to its connecting position and when said magazine is displaced from its chamber, to relax said second named spring, the relaxing of said second named spring allowing said first named spring to move said connector to its disconnecting position.

3. Magazine controlled safety mechanism for automatic pistols and the like, comprising in combination a frame and hand grip therefor said hand grip having a magazine chamber therein, a magazine in said chamber firing mechanism including a hammer and sear at the rear of said hand grip and a trigger at the front of said hand grip, a connector bar reaching from said trigger to said sear comprising means to make a connection between said trigger and sear, said connector

being movable into a position to connect said trigger and sear or into a position to disconnect the same, a spring normally tending to move said connector bar to its disconnecting position, a second spring positioned when stressed to move said connector bar into its connecting position against the force of said first named spring, means operated by said magazine when home in its chamber to place said second named spring under stress and thus move said connector bar into its connecting position, and when said magazine is displaced from its chamber acting to relax said second named spring whereby the first named spring moves said connector bar to its disconnecting position.

4. Magazine controlled safety mechanism for automatic pistols and the like, comprising in combination a frame and hand grip therefor, said hand grip having a magazine chamber therein, a magazine in said chamber firing mechanism including a hammer and sear at the rear of said hand grip and a trigger at the front of said hand grip, a connector bar reaching from said trigger to said sear comprising means to make a connection between said trigger and sear, said connector being movable into position to connect said trigger and sear or into a position to disconnect the same, a spring associated with said connector bar normally tending to move the same to its disconnecting position, a second spring housed in one side of said hand grip and adapted when stressed to move said connector bar to its connecting position against the force of said first named spring, and means operated by said magazine when home in its chamber, to place said second named spring under stress for moving said connector bar into its connecting position, and when said magazine is displaced from its chamber, to relax said second named spring, the relaxing of said second named spring allowing the first named spring to move said connector bar to its disconnecting position.

5. Magazine controlled safety mechanism for automatic pistols and the like, comprising in combination, a frame and hand grip therefor, said hand grip having a magazine chamber therein, a magazine in said chamber, firing mechanism including a hammer and sear at the rear of said hand grip, and a trigger at the front of said hand grip, a connector bar reaching from said trigger to said sear comprising means to make a connection between said trigger and sear, said connector being movable to an up position to connect said trigger and sear or to a down position to disconnect said trigger and sear, a spring associated with said connector bar normally tending to move the same down to its disconnecting position, one side of said hand grip having a slot therein to provide a housing, a second spring and plunger mounted in said housing beneath said connector bar, said second spring adapted when stressed, to move said connector bar up to its connecting position against the force of said first named spring, said magazine having a part thereon arranged when said magazine is shoved home in its chamber to push upwardly on said plunger and place said second named spring under stress for moving said connector bar up to its connecting position, said magazine and its part when displaced from its chamber acting to relax said second named spring whereby the first named spring moves the connector bar down to its disconnecting position.

WALTER F. ROPER.