United States Patent Office

3,255,545

Patented June 14, 1966

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3,255,545
DROP FIRE PREVENTION MECHANISM
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Filed May 6, 1964, Ser. No. 364,293
4 Claims. (Cl. 42—70)

This invention relates to a device to prevent discharge of a firearm due to its being dropped and in particular to an inertia weight in the fire control mechanism to prevent the firearm from jarring off when dropped on the muzzle.

Normally, firearms have the trigger positioned adjacent the sear and usually directly connected to a sear block or equivalent member. Such a structure is inherently stable and not susceptible to jar-off if properly made. The addition of weight to such a structure, will, however in some instances cause the firearm to jar-off when dropped.

The addition of weight in a fire control system usually occurs when it is necessary to position a trigger remote from the rest of the system. The simple addition of a link between a trigger and sear block or like member adds enough weight to sometimes cause jar-off if the firearm is dropped. If the link is arranged to move forward due to trigger pull, the inertia of this member will cause it to move forward when the firearm is dropped muzzle down and consequently cause the firearm to fire. In such an arrangement the firearm will not fire when dropped butt down. Where such a system is used, means are required in the fire control mechanism to prevent so-called drop firing.

It is therefore the main object of this invention to provide an inertia weight in a fire control mechanism to prevent accidental firing of a firearm.

A further object of this invention is to prevent drop firing of a firearm.

Still another object of this invention is to prevent drop firing of a firearm by means of a trigger balance.

It is contemplated that these objectives may best be achieved by providing an inertia weight to function to prevent jar-off when the firearm is dropped. The inertia weight is called a trigger balance and is mounted in the stock intermediate the ends of a trigger link which joins the trigger and sear block. The balance is spring biased to maintain contact with the link and is freely pivotable in the stock.

It should be understood that the embodiment of the invention to be disclosed are equally applicable to all firearms having the trigger positioned remote from the rest of the fire control mechanism whereby a connecting member is required between the trigger and remainder of the fire control mechanism.

Other objects and advantages of this invention will become apparent as the following description proceeds, and the features of novelty which characterize this invention will be pointed out with particularity in the claims appended to and forming part of this specification.

In the drawings:

FIGURE 1 is a fragmentary sectional side elevation of a firearm incorporating this invention;

FIGURE 2 is a fragmentary sectional view looking down on the trigger link and trigger balance forming a part of this invention; and

FIGURE 3 is a perspective view of the trigger balance and a section of the trigger link forming a part of this invention.

The drawings illustrate a bolt action handgun comprising a receiver 1 mounted on a stock 2 and having a barrel 3 secured in one end. This handgun is of the

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bolt-action type and may more readily be referred to as a bolt-action pistol. A bolt 4 is mounted in receiver 1 for reciprocation to and from the battery or firing position. Bolt 4 is reciprocated manually by bolt handle 5 partially shown in FIG. 1.

The fire-control mechanism 6 includes a trigger 7, a member or trigger link 8 and a sear block 9. A safety 10 is mounted for pivotal movement on pin 11. Trigger 7 is pivotally mounted on trigger pin 12 and has link 8 pivotally attached thereto by pin 13. The remainder of the fire-control mechanism is of the conventional type for bolt action firearms. While this structure is not shown, it is to be understood that a firing pin is contained in bolt 4 and arranged to be cocked upon rotation and reciprocation of the bolt. The pin is held in the cocked position by the sear which in turn is held by sear block 9. Movement of block 9 releases the sear and firing pin allowing the gun to fire.

Receiver 1 is secured to stock 2 by means of screw 14 and another screw not shown which passes through receiver 1 and screws into block 15 positioned in stock 2. Barrel 3 is attached to receiver 1 but not to stock 2 in any manner so it is a free floating barrel. Stock 2 is preferably molded from nylon but can be made of wood or any other material suitable for pistol stocks. A rib 16 is mounted on barrel 3 and the sights are mounted on rib 16. The front sight is not shown but rear sight 17 can be seen mounted on rib 16.

It can clearly be seen in FIG. 1 that the pistol shown has trigger 7 positioned quite a distance from fire control 6. In order for the gun to fire, squeezing trigger 7 must actuate the fire control to cause discharge of a cartridge loaded in the chamber which is within receiver 1. In the particular gun shown, sear block 9 must be moved in response to a squeeze on trigger 7. This movement is accomplished by connecting trigger 7 to sear block 9 by trigger link 8. The added weight of link 8, however, causes difficulties occurring jar-off or firing when the gun is dropped.

Sear block 9 is designed to move forward or toward trigger 7 when trigger 7 is squeezed. This is toward the muzzle end of the pistol. For ease of description the opposite end will be called the butt end. When dropped on the butt end the firearm will not fire or discharge. When firearms discharge as a result of being dropped they are considered to jar-off as a result of the drop. Sear block 9 must move forward before the pistol can fire and dropping on the butt end will not cause this type of movement. When dropped on the muzzle, however, the inertia of link 8 causes it to move forward pulling sear block 9 with it and causing the pistol to fire or jar-off.

In order to prevent jar-off due to dropping, the firearm is provided with an inertia weight or trigger balance 18. Balance 18 is formed with two oppositely extending arms 19 mounted on a thin upright section 20. Arms 19 are received in grooves 21 in stock 2 and are positioned intermediate the ends of link 8. Link 8 is formed with elongated openings 22 and 23 for screw 14 and block 15 as well as opening 24 through which section 20 passes. A trigger balance spring 25 is mounted on arms 19 and biases section 20 of balance 18 toward link 8 except when the pistol is dropped on the butt end.

When the gun is dropped on the muzzle and the inertia of balance 18 forces section 20 against link 8 preventing forward movement by link 8. Normal firing is not impeded by balance 18 because it is freely pivoted in stock 2 and spring 25 is very light. A pull or squeeze on trigger 7 causes a balance 18 to pivot on arms 19 allowing forward movement of link 8 and the consequent firing of the pistol.