

SAFETY MECHANISM FOR A FIREARM

BACKGROUND OF THE INVENTION

The present invention relates to improvements in firearms and particularly to an improved safety mechanism for bolt action firearms.

A long-standing problem in bolt action firearms is that when the bolt is rotated to the unlocked position in opening the breech, the firearm may accidentally discharge a cartridge contained in its chamber. This occurs because many safety mechanisms for bolt action firearms must be placed in an "off-safe," or firing, position to permit the bolt to be raised from its closed and locked position.

Particularly when firearms have been designed or modified for hunting use, the trigger mechanism is often adjusted to require only a very small amount of movement to release the striker which propels the firing pin into the primer of the cartridge. While in most military rifles an appreciable amount of slack in the trigger mechanism must be taken up before the striker is released, such firearms when modified for hunting use ordinarily do not have such slack in the trigger mechanism, and are subject to accidental discharge as a result.

Some bolt action firearms employ a safety mechanism attached to the rear end of the breech bolt. Typically, a knob or small lever of such a safety mechanism must be moved to engage or disengage the safety, a movement requiring the shooter to release his grip on the stock of the firearm.

Most previously known safety mechanisms for bolt action firearms are either of the bolt mounted type just described, or else operate by blocking a portion of the trigger or sear mechanism, preventing the trigger from being moved sufficiently for the sear to release the striker. Because of the short distance which the trigger must move to discharge a cartridge in a firearm designed for hunting use, however, even a small amount of wear in a safety mechanism of this type may be sufficient to allow an accidental discharge of the firearm, upon rotation of the bolt to open the breech, or should the trigger snap on an object as the firearm is being carried.

Customarily, in the case of known firearms which are provided with a lock for securing the bolt against rotation, the bolt lock is coupled with the safety mechanism in such a way that when the safety mechanism is set on "safe," the bolt is prevented from opening. In such firearms, then, the bolt and firing mechanism are both locked or else both capable of actuation. As a result, there is a definite uncertainty while handling the firearm, because a shot can be accidentally discharged as the bolt is rotated.

What is needed, therefore, is a safety mechanism for a bolt action firearm which can secure the bolt in its locked position, preventing opening of the bolt and also preventing actuation of the firearm, and which selectively permits rotation of the bolt from its locked position while still preventing discharge of a cartridge. Additionally, such a safety mechanism should be handily operable by the shooter without the need to remove his hand from its normal position on the stock of the firearm.

SUMMARY OF THE INVENTION

The present invention overcomes the aforementioned shortcomings and disadvantages of previously known

safety mechanisms by providing a three-position safety mechanism mounted on the tang of the receiver of the bolt action firearm, where it is thumb-operable. In one "safe" position the safety mechanism of the present invention prevents discharge of the firearm and also prevents rotation of the bolt, while in another "safe" position it prevents discharge of the firearm, yet allows rotation of the bolt from its closed-and-locked position to a position in which the safety mechanism of the firearm prevents the firearm from discharging the cartridge. In a third, or "off-safe" position the safety mechanism permits discharge of the weapon.

It is therefore a primary objective of the present invention to provide an improved safety mechanism for use in bolt action firearms.

It is another important objective of the present invention to provide a safety mechanism for bolt action firearms which cannot be overcome by pulling the trigger of such firearm.

It is yet another important objective of the present invention to provide a safety mechanism which prevents discharge of the firearm independently of the trigger and sear mechanism.

It is yet a further objective of the present invention to provide a safety mechanism which prevents inadvertent rotation of the breech bolt of a bolt action firearm.

It is a still further objective of the present invention to provide a safety mechanism which is operable without the need for the shooter to move his hand from its normal position gripping the stock of the firearm.

The present invention provides a thumb-operated three-position safety mechanism which is located conveniently on the tang of the receiver portion of the firearm. It is applicable to nearly any bolt action firearm having a striker located at the rear of the bolt, and having a cocking lug for engaging the sear mechanism on the bottom of the striker.

The safety mechanism of the invention comprises a lock pin which extends laterally toward the striker through a bore provided in the tang of the receiver, and which is laterally movable by action of a cam to engage and hold the striker, preventing discharge of the firearm. Another cam is used to move a blade into a groove in the breech bolt of the firearm to secure the bolt in a closed position.

In a preferred embodiment, one end of the lock pin fits into an opening in a safety mechanism operating lever which extends upward from the tang of the receiver to a position where a shooter can easily move the lever with his thumb. Movement of the lever forward or rearward rotates the lock pin, and a helical cam groove included in the lock pin moves it laterally of the firearm as it is rotated. When the firearm is cocked, the lock pin can be moved in this manner into a recess which is provided in the cocking lug. As the lock pin extends into the recess in the cocking lug, it engages a conical inner surface of the recess in the cocking lug, forcing the cocking lug, and thereby also the striker, to move a slight distance rearward within the receiver. With the lock pin engaged in the recess in the cocking lug, the sear lever is free to move away from and to return to its position locking the cocking lug, allowing operation of the trigger mechanism while the safety mechanism is in one of the two "safe" positions. The lock pin of the safety mechanism of the present invention thus holds the striker securely in a rearward position independently of the trigger mechanism, prevent-