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FIRING MECHANISM FOR FIREARMS

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This invention relates to firearms and has particular reference to means for controlling the firing thereof.

Many well-known firearms employ a breech closing bolt which has a reciprocating movement in opening and closing the breech and which may be locked in the closed position by any suitable means. Most of these firearms are provided with spring-urged bolt mounted strikers or firing pins and depend upon means relatively fixedly mounted in the receiver to engage the firing pin or an extension thereof to restrain it against forward movement and to insure trigger controlled release when such release is desired. It is to this type of firearm that our invention is particularly applicable.

A suitable fire control for a firearm of this type provides readily operable means for locking the firing pin positively in a "Safe" position as well as a trigger controlled sear to permit the instant release of the firing pin when it is desired to fire. The value of any safety is proportional to the positiveness of its action. To this end we have found it to be essential that the safety means be so arranged that an inadvertent operation of the trigger while the safety is in "Safe" position will not condition the arm to fire upon release of the safety. The value of any type of sear mechanism is proportional to the degree in which it provides for facile, clean, release free from the disturbing effects of drag, creep, or slap.

It is an object of our invention to provide a fire control having a safety which operates by positively moving the firing pin rearwardly out of contact with the sear and there releasably retaining it. In this way, should the trigger be operated while the safety is engaged, the trigger and sear springs will immediately reposition the mechanism to catch the firing pin upon release of the safety.

It is a further object of this invention to provide a sear and control therefor which operate on barely perceptible movement of the trigger, yet releases the firing pin instantly and completely

It is contemplated that these objects may be best attained by mounting on the receiver a housing containing two similarly shaped members engageable with the firing pin in such a way that the firing pin energy urges the members to move out of opposition thereto. One of these members may be conveniently identified as a safety cam and the other as a sear. A safety piece arranged to move into contact with the safety cam and a trigger assembly arranged to releasably oppose disengaging movement of the sear, provide for controlling the movement of these members, and through them the firing pin is controlled.

The exact nature of the invention as well as

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other objects and advantages thereof will become more clearly apparent from consideration of the specification referring to the accompanying drawings in which:

Figure 1 is a vertical, longitudinal sectional view of a portion of the assembled rifle action.

Figure 2 is a rear elevational view of the receiver and trigger housing assembly.

Figure 3 is a vertical, transverse sectional view on the line 3—3 of Fig. 1, the stock and trigger guard having been removed to correspond with Fig. 2.

Figure 4 is a partial left side elevational view of the receiver and trigger housing assembly.

Fig. 5 is a right side elevational view of the fire control assembly, the right-hand side plate and elements supported directly thereon having been removed for clarity in illustrating the interior construction.

Fig. 6 is a vertical sectional view taken on the line 6—6 of Fig. 5.

Referring to the drawings by characters of reference, it may be seen that the portion of a rifle action which is illustrated comprises a receiver 1 which serves as a housing for a conventional type of upturn and pull back bolt 2 and as a mounting for a trigger housing 4. In the usual fashion the rear end of the bolt is closed with a bolt plug 5 which serves as an abutment for the main spring 6 and as a guide for the firing pin 7. Secured on the rear end of the firing pin by a cross pin 8 is a firing pin head or cocking piece 9. The cocking piece is formed with a rib 10 which is slidably received in a groove 11 in the receiver and with an angularly disposed sear engaging face 12.

A longitudinally extending mortise 13 is milled through the bottom wall of the receiver to accommodate the trigger housing 4 which is secured therein by cross pins 14 and 15 mounted in the receiver and passing through the trigger housing assembly to serve as pivots and stops for elements therein.

Between the side plates of the trigger housing which may be conveniently blanked and formed from a single piece of sheet metal, the front cross pin 14 pivotally supports the sear 16 and the safety cam 17. Each of these members occupies substantially half of the width between the side plates and in their top contour they are substantially identical. They are provided with similar striker engaging faces 18 and 19, the angular relationship between these striker engaging surfaces and the sear engaging face 12 being such that there is a tendency for sear and safety cam to swing counter-clockwise about the pivot pin 14 under the urging of the main spring 6 which acts through the firing pin 7. Such an angular relationship between the engaging faces and the radius passing through the contact point is com-