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REMOTE SAFETY FIRING MECHANISM

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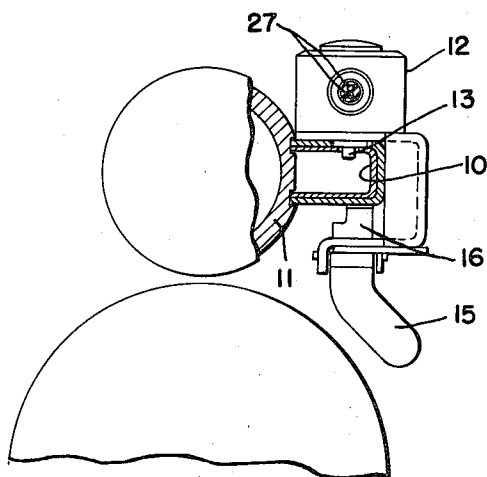


FIG. 1.

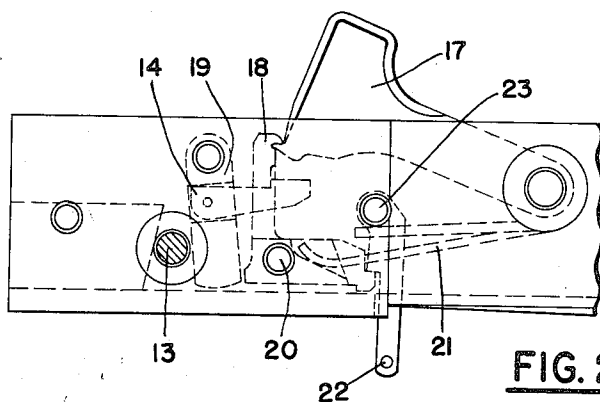


FIG. 2.

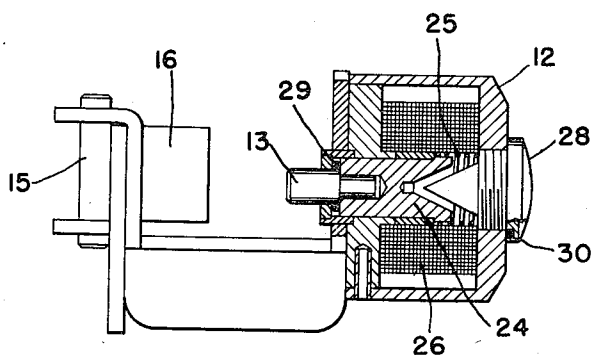


FIG. 3.

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1

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REMOTE SAFETY FIRING MECHANISM

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1 Claim. (Cl. 89—28)

This invention relates to safety devices such as are adapted to lock the firing mechanism of a firearm in an inoperable condition, and more especially to a remotely controlled safety device which is readily attached to or detached from the housing of a gun fire control mechanism and which is so biased that its failure always leaves the firing mechanism in a locked or "safe" condition.

As hereinafter explained in greater detail, a spring loaded stop pin is arranged to lock the sear of the firearm and to be withdrawn from locking position by an electromagnet which has its energization controlled from a remote point such as the turret of a tank or the like.

The invention will be better understood from the following description when considered in connection with the accompanying drawings and its scope is indicated by the appended claim.

Referring to the drawings:

Fig. 1 illustrates, partly in section, the general relation between the rifle barrel, the housing of the fire control mechanism and the remotely controlled safety device,

Fig. 2 shows various details of the fire control mechanism and indicates its relation to an operating element of the safety device, and

Fig. 3 is a view, partly in section showing various details of the safety mechanism.

As indicated by Fig. 1, the fire control mechanism of the rifle is enclosed within a housing 10 which is attached to a barrel 11. A safety device 12 has a pin 13 which extends through the housing 10 into locking engagement with a sear release 14 (see Fig. 2) which may be operated by a lanyard or other suitable means. The device 12 is fixed to the housing 10 by a clamping lever 15 which has at its pivoted end a cam-shaped surface adapted to force a member 16 into clamping engagement with the housing 10.

The firing mechanism of Fig. 2 includes a hammer 17, a sear 18, the sear release 14, and a sear release retainer 19 to which a firing lanyard may be attached. The sear 18 having a pivot 20, is biased to its illustrated position by a spring 21 and is arranged to be locked in its illustrated position by a lever 22 which has a pivot 23.

2

The safety device of Fig. 3 includes an armature 24 of an electromagnet as illustrated. This armature supports the previously mentioned locking pin 13 and is biased to its illustrated and locked position by a spring 25. Surrounding the armature 24 is a coil 26 of said electromagnet which has input leads 27 (see Fig. 1).

When the coil 26 is energized after the locking lever 22 has been moved counter clockwise from its illustrated safe position, the armature is moved against the stop 28, thus retracting the pin 13 from its locking or blocking position and unlocking the sear release retainer 19. This allows the sear retainer 19 to be moved clockwise with the sear release 14 for releasing the hammer when the gun will fire. As long as the pin 13 blocks such movement of the sear release 14 the gun cannot be fired. The O ring seals 29 and 30 are provided to prevent foreign material from clogging the solenoid so as to retard its movement.

As will be appreciated by those skilled in the art, the above described safety device has the important advantage that it always fails safe since the pin 13 is always biased into locking engagement with the sear release retainer 19.

We claim:

A firing mechanism for a gun of the type having two safety devices, one manually controllable and the other electrically and remotely controllable, said mechanism comprising a hammer, an L shaped sear locking the hammer against actuation for rendering the gun safe, a pivotal support for said sear, one arm of said sear engaging said hammer, a pivotal locking lever engaging another arm of said sear and by means of which the said sear may be manually locked, or unlocked when said lever is disengaged from said sear, a spring biasing said sear to a locking position, a sear retainer pivoted adjacent said sear, a sear release mounted in said retainer for releasing the sear from said hammer, said remotely controllable safety device including means for removably clamping the same to a gun, a housing, an electromagnet within said housing and including an armature coaxially mounted within a coil of said electromagnet, a locking pin extension of said armature, a spring cooperating with said housing and armature for biasing said pin to a locking position substantially contiguous to said sear release when said pin is extended by said housing spring to a position where said pin blocks any sear releasing movement of said retainer, and when said pin is retracted by said electromagnet the sear retainer and release are free for sear releasing movement and whereby in event of failure of said electromagnet the pin is moved to its locking position by said armature spring.

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