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[11] **3,732,641**

[45] **May 15, 1973**

[54] **TRIGGER SAFETY FOR HANDGUNS**

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[22] Filed: **Oct. 18, 1971**

[21] Appl. No.: **190,341**

[52] **U.S. Cl.** .....**42/1 Y**
[51] **Int. Cl.**.....**F41c 27/10,** F41c 17/02
[58] **Field of Search**.....42/1 Y

[56] **References Cited**

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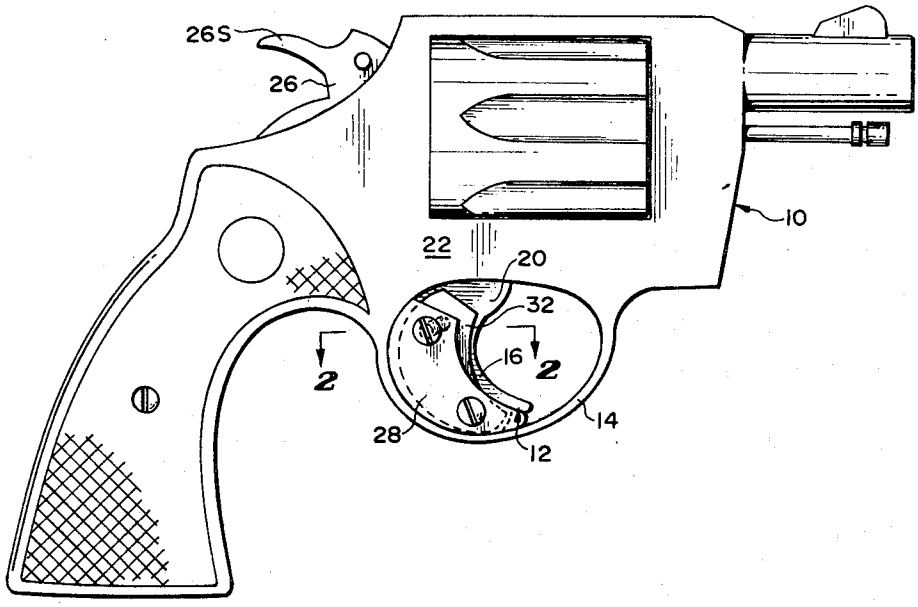
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Primary Examiner—Benjamin A. Borchelt
Assistant Examiner—C. T. Jordan
Attorney—Watson D. Harbaugh et al.

[57] **ABSTRACT**

A trigger safety lock for firearms in which an insert fits in place between the guard and trigger at the rear of the trigger and within the confines of the guard as held in place by flanges engaging the sides of the trigger to block trigger actuation. The insert presents a puzzle to the uninitiated as to its release, yet for the initiated, is easily and quickly released and falls out of the way for immediate use of the firearm.

11 Claims, 11 Drawing Figures



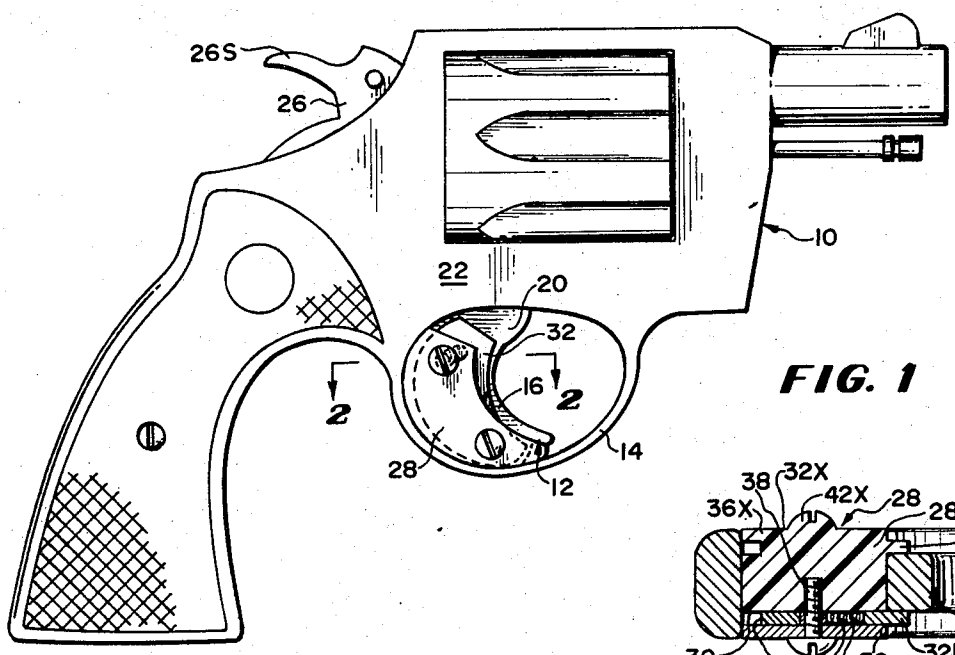


FIG. 1

FIG. 2

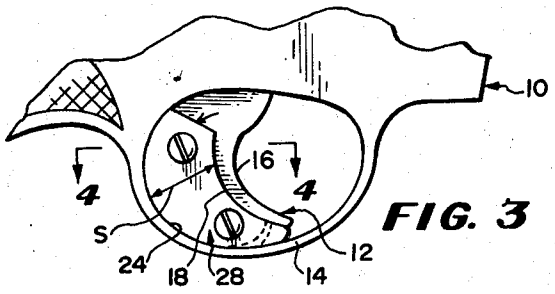


FIG. 3

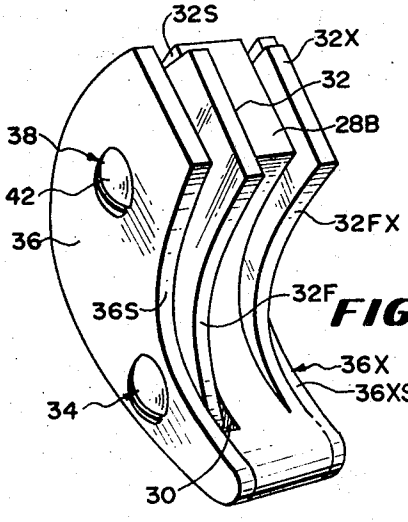


FIG. 5

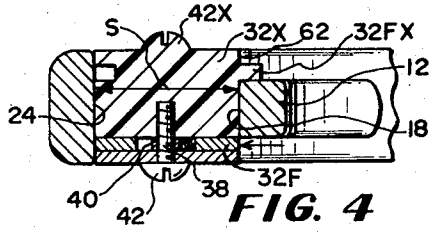


FIG. 4

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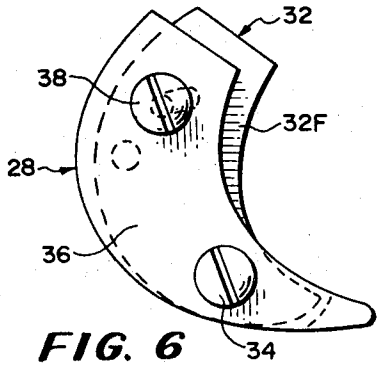


FIG. 6

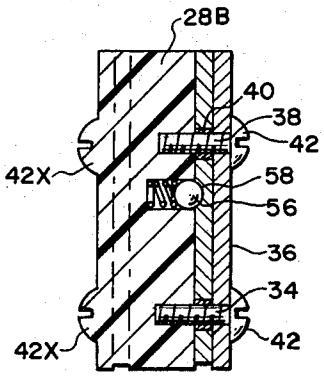


FIG. 7

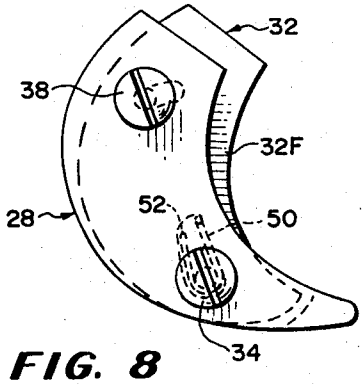


FIG. 8

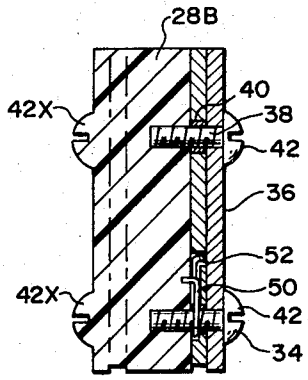


FIG. 9

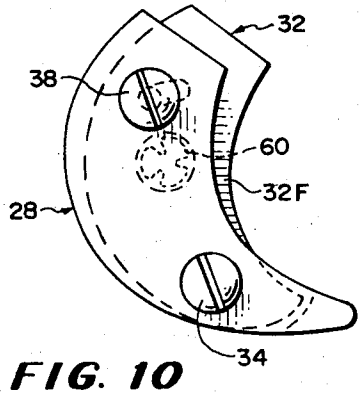


FIG. 10

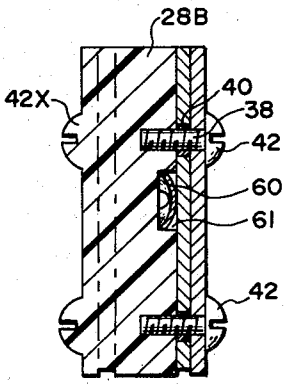


FIG. 11

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TRIGGER SAFETY FOR HANDGUNS

BACKGROUND OF THE INVENTION

Many devices have been provided to lock a trigger against inadvertent actuation including slide buttons in the rear end of the trigger guard whose mode of operation is immediately perceivable. Others employ keys that become lost and many consist of devices that interfere with holstering a gun. Others are two part devices that separate when unlocked while others interfere with and discourage practice in handling and "dry firing" a gun with a full hand grip and finger naturally in place to fire.

SUMMARY OF THE INVENTION

One of the objects of the invention is to provide a trigger lock which eliminates the above objections and provides a non-apparent release movement in the nature of a puzzle to uninitiated persons, including children, that might toy with a gun.

A further object of the invention is to provide a keyless trigger lock that can be released by an initiated person with a single slight movement of a finger or thumb for the device to be dropped out while the gun is being held in firing position after which the gun can be immediately fired.

Another object of the invention is to provide a lock which does not otherwise interfere with the normal handling and storage of a firearm.

The gun trigger safety block insert follows the shape of the space between the rear side of the trigger and the curve of the guard behind it to prevent accidental firing and thwart unguarded toying with the trigger.

The trigger safety comprises a somewhat moon-shaped block which fits loosely in the trigger guard behind the trigger so that it is easily located in place and quickly drops out when free to do so. The device appears to be identical on both sides when in place and is held there by two flanges that overlap the rear edges of the curved trigger. One of the flanges is part of a plate that advances and is retracted in only one of many possible directions and preferably is urged to and held in its locking position by a spring or detent, or by both a spring and detent, so that the person releasing the proper plate-flange must be positive in the correct direction of movement although other elements are suggestive of possible movement and initially the plate resists such movement.

Preferably, the two flanges marginally overlap the opposite rear edges and sides of the trigger although they could overlap the rear end of the guard. Both being curved the insert would be held in coplanar relationship with the guard and trigger by the curvature until one of the plates is retracted enough to clear the trigger, or guard, depending on how either plate is mounted. This provides a single mode of operation out of a permutation of possible movement an uninitiated person could make and thereby serves as a deterrent to meddling. Visual intelligence as to which plate is movable and its direction are concealed in the construction which otherwise may require a screw driver to remove.

Safety-wise, there is nothing in front of the trigger to manipulate and until completely released the trigger cannot be pulled the distance required to fire the gun, yet the gun can be handled safely in "dry firing" practice and holstered without interference. Other objects and advantages will appear from the drawings and description of the embodiments including the simplicity of construction, minimum number of parts, its efficient operation and the inexpensiveness to manufacture.

IN THE DRAWINGS

FIG. 1 is a side elevation of a firearm utilizing an embodiment of the invention to block the trigger and safeguard against unintentional firing of the firearm;

FIG. 2 is a section taken on line 2—2 of FIG. 1 showing the guard insert in locked position;

FIG. 3 is a partial view showing the insert released and ready for removal;

FIG. 4 is a section taken on line 4—4 of FIG. 3;

FIG. 5 is a perspective view of the guard insert as a free unit and indicating the symmetry of its construction with dummy elements simulating elements of which only one operable and in a particular direction;

FIGS. 6, 8 and 10 are side elevations of similar guards with different elements to hold the locking blade in locked position;

FIGS. 7, 9 and 11 are sectional views of embodiments shown in FIGS. 6, 8 and 10 respectively revealing the elements employed to urge or hold the locking plate in locking position.

DESCRIPTION OF PREFERRED EMBODIMENTS

Similar reference characters refer to similar elements in the several views, and referring to FIG. 1 a conventional snub nose revolver 10 is representative of all firearms having a curved trigger 12 encompassed by a trigger guard 14. The trigger is concavely curved at 16 to fit a person's finger and this curvature is accompanied by a convexly curved contour along the back of the trigger also as at 18 with some of the main portion 20 of the trigger exposed below the frame 22. As more particularly shown in FIG. 3, the trigger guard as at 24 is rounded away and spaced from the back 18 of the trigger enough to provide a space S to permit a full pull of the trigger which cocks and releases the hammer 26. If the hammer is cocked by manual movement of its spur 26S, the trigger still has to be moved a substantial distance into the space S before the hammer is released. Any movement of the trigger in either case is blocked by the insert means 28 embodying the invention which freely fills and follows the shape of the space S.

The insert 28 is preferably made of a hard plastic, preferably nylon because of hardness and lubricity, colored to represent gun bluing which is dark enough to hide hair line joints. When assembled the insert preferably has the same thickness as the width of the guard 14 and has two forward reaching flanges 32F and 32FX spaced a distance to closely overlap the sides of the trigger 12, both being marginally shaped to follow the shape of the trigger, but terminating short of the front face of the trigger a short distance so that finger pressure is not borne by them if applied against the trigger. Opposite face sides of the insert 28 are asymmetrically identical and duplicate in appearance all exposed elements employed in the assembly of parts making up the insert.

In the embodiment shown of the insert in FIG. 5 one side of a main body portion 28B is recessed as at 30 to receive a release plate 32 pivotally mounted on a screw 34 for sliding movement between two positions, one of which as shown in FIGS. 1 and 2 extends a flange portion 32F into overlapping relationship with the trigger

and leaving a slot 32S along its back side, and the other position of which is shown in FIGS. 3 and 4 in which the plate 32 is displaced rearwardly withdrawing its flange portion 32F wherein its edge is coincident with those of the main body 28B and the contours 18 and 24 of the trigger and guard. In this latter position the insert can be inserted to or removed from its trigger blocking position.

The plate 32 is slidably supported for this operation and purposes in the recess 30 by a cap plate 36 secured to the main body by screws 34 and 38 having spacer sleeve inserts 40 on them engaging the main body 28B to locate the head 42 of the screw firmly for securing the cap plate 36 slidably and snugly against the release plate 32. The plate 32 is pivoted on the shank of the screw 34 as mentioned and is provided with an arcuate slot 44 accommodating the other securing screw 38, preferably with a compression spring 46 therein urging the plate flange 32F to overlap the trigger (FIG. 2).

Upon the other side of the insert the appearance is imitated of the plate 32 at 32X, flange 32F at 32FX, cap 36 at 36X and screw heads 42 at 42X. The flange portion 32FX then serves as a fixed stop for locating the insert properly in the space S when the insert is moved into its trigger blocking position. Of course, it will be appreciated that the plate 32 can be located on either side of the insert, or upon both sides, if desired, and when the plate is retracted to the position of coincidence with the main body, the insert can be pushed out to ready the trigger for actuation. Furthermore, it will be noted that a double headed brass rivet extending all the way through the insert can be used to hold one or two caps 36 in place for duplicating appearances.

In FIGS. 6–11 three modifications are shown. In FIGS. 8 and 9 a torque spring 50 is employed, supported on the pivot screw 34 with one of its angled ends engaging either with the main body 28B or the cap plate 36 while the other end urges the plate 32 into overlapping relation with the trigger.

In FIGS. 6 and 7 a spring urged detent 56 carried by the main body engages in a recess 58 on the plate 32 when the flange portion 32F thereof is in trigger overlapping position. This imposes upon the plate 32 an added restraint to be overcome when retracting the plate for removing the insert to add to the puzzlement of the uninitiated as to how to remove the insert. Preferably spring 46 or 50 is also used in this embodiment to urge the plate 32 to a position overlapping the trigger when free to do so.

FIGS. 10 and 11 illustrate an embodiment in which a friction member is used comprising a cupped circular spring element 60 received in a recess 61 interengaging the main body 28B and the plate 32 in order to retard movement that is not positively made of the plate 32 to and from its operative position.

In operation it can be appreciated that without instruction, the appearance of the insert does not readily show how it can be quickly removed unless the thought of removing the screws presents itself. This, of course, can be done but the expected delay in doing this engenders the safety and deliberation sought to be accomplished. Furthermore, identical appearances of the two sides of the insert would also discourage meddling if there was any curiosity of uninitiated to free and play with the trigger, yet to the initiated the tip of the nail of the trigger finger can engage the exposed front face of the flange portion 32F with rearward pressure and the insert is ready to drop free either into the cupped other hand of the user or to the ground from which it can be retrieved later, and the finger is immediately ready and in position to squeeze the trigger if desired.

As the insert slips out of trigger blocking position the edges 36S and 36XS of the outer sides 36 and 36X of the insert prolong the prevention of finger actuation of the trigger until any pressure on the trigger is released to permit the insert to fall free. Thus a fast release trigger block is provided which, when in place, permits a safe dry run practice with small arms, yet can be safely released and removed for arming the trigger within a fraction of a second, the insert falling free while the finger is moving in front of the trigger.

To small children the difficulty of available strength to effect release even if the manner of release is solved is a safety deterrent. When held in place the apparent ability to twist the rear of the insert outwardly is also a deterrent to meddling because the insert is held in place geometrically by the curvature of the side flanges which obstruct moving the coplanar mating curved contours of trigger and flanges out of coplanar relationship. The difficulty of solving the puzzle deters the uninitiated including the time that might be taken to study the puzzle.

What is claimed is:

1. A trigger safety lock for guns having space between a curved trigger guard element and a curved trigger element for trigger movement, including an insert fitting in said space having curved spaced flanges overlapping both of the sides of the rear portion of one of said elements, and means for retracting at least one of said flanges to within the contour of said space.

2. The combination defined in claim 1 in which said means includes a recess in said insert and said one of said flanges is carried by a member retractable in said recess.

3. The combination defined in claim 2 including a spring in said recess urging said member and flange to a position in which the flange overlaps a side of the trigger element.

4. The combination defined in claim 1 in which the overall thickness of the insert is the width of the trigger guard element and the space between said flanges is the thickness of said trigger element.

5. The combination defined in claim 1 in which the opposite sides of said insert are visually asymmetrically identical.

6. A trigger safety lock for guns having a trigger guard and a curved trigger therein with space between them for relative trigger movement, an insert fitting in said space comprising a main body member having a peripheral contour mating in said space with said guard and trigger and a recess adjacent to the trigger at one side of the trigger, a flange carried by said insert overlapping the other side of the trigger, means slidably movable in said recess having a flange element moved thereby from a position within said contour to a position overlapping said one side of the trigger, and resilient means urging said slidable means and flange element thereon to said overlapping position.

7. The combination defined in claim 6 including a pivot means supporting the slidable means at one end within the confines of said recess,

cap means engaging the outer surface of said slidable means within the confines of said contour, said pivot means securing said cap means in place,

said flange means in its trigger overlapping position being accessible for finger contact and pressure to retract said flange element to said position within the confines of said contour.

8. In combination with a curved trigger guard and a curved trigger having a space between them for the movement of the trigger, a safety trigger means comprising a unitary insert of plastic fitting in said space and including a body member defining a peripheral contour mating with that of said space,

a cap member secured to said body member, said members defining a recess between them, one wall of said recess being coplanar with one side of said trigger,

a flange on said unit overlapping the other side of said trigger,

a member slidably mounted in said recess and having an edge portion overlapping the one side of said trigger in one position and being movable to a second position within the confines of said contour,

resilient means for restraining movement of said slidable member from said one position to said second position,

said edge portion in its trigger overlapping position being accessible to finger contact and pressure to overcome said resilient means for movement thereof to said second position.

9. The combination defined in claim **8** in which said resilient means includes a detent means carried by one of said members engaged when the edge portion of said slidable member is in said overlapping position.

10. The combination defined in claim **8** in which said resilient means includes a frictional slider interengaging said sliding member and one of the other members.

11. The combination defined in claim **8** in which said cap member is secured to said body member by means of an element interconnecting said cap member and said body member, and said resilient means comprises a torque spring carried by said element interconnecting said slidable members and one of the other members.

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