Dec. 7, 1971 D. J. FOOTE 3,624,945

UNIVERSAL SELF-CONFORMING TRIGGER LOCK FOR FIREARMS

Filed April 13, 1970 2 Sheets-Sheet 1

Fig_1

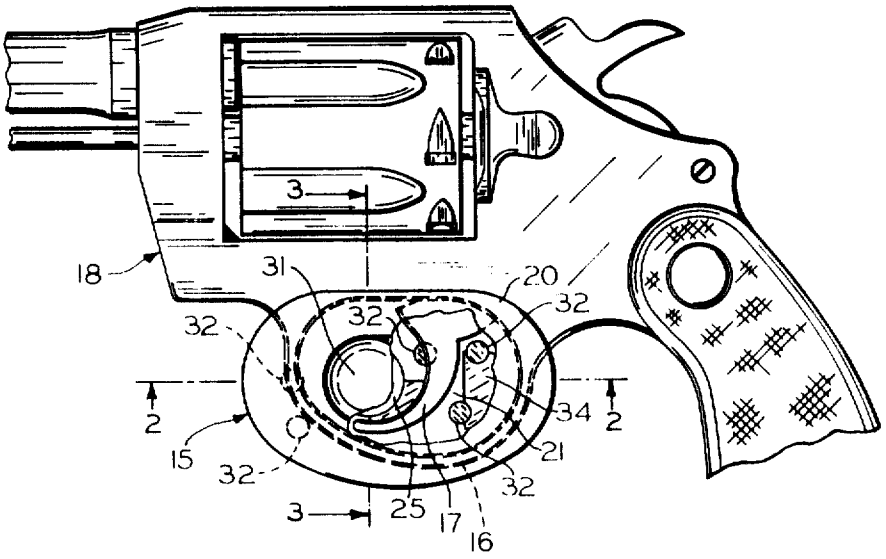


Fig_2

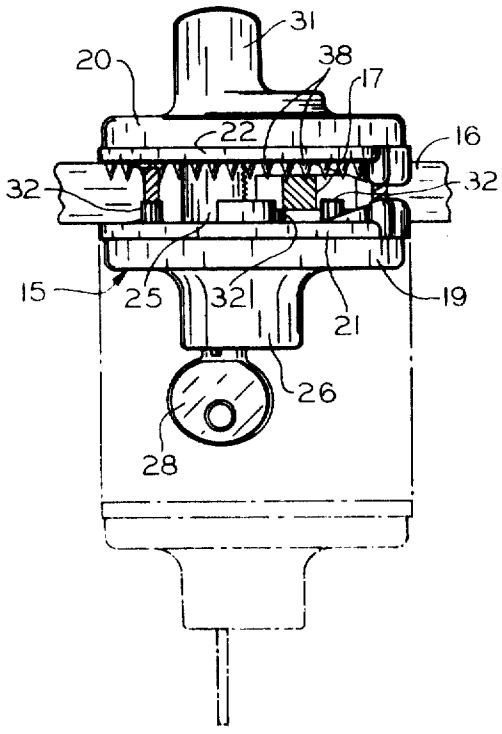
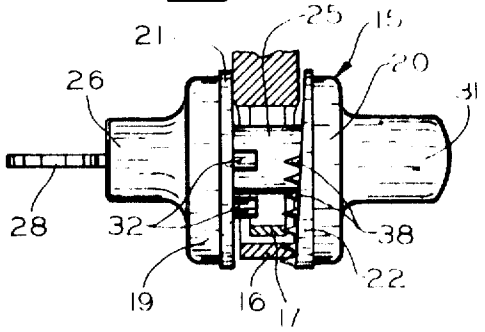


Fig_3



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UNIVERSAL SELF-CONFORMING TRIGGER LOCK FOR FIREARMS

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Fig_4

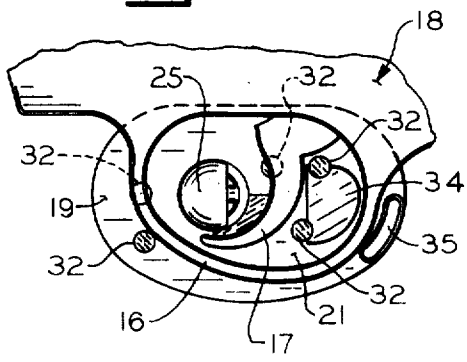


Fig_5

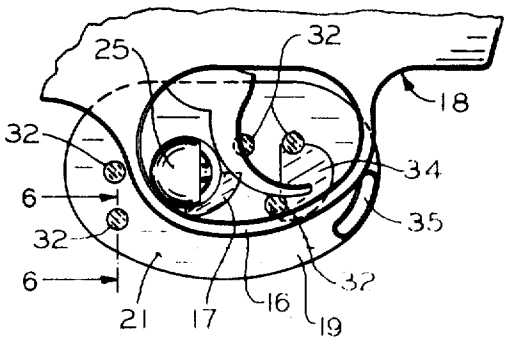


Fig_6

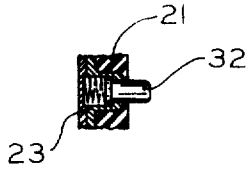


Fig_7

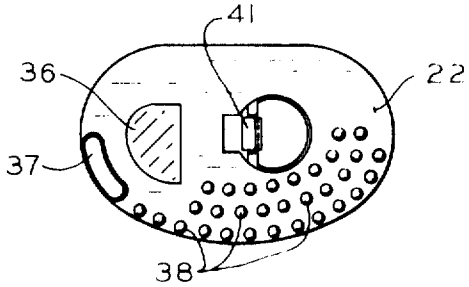


Fig_8

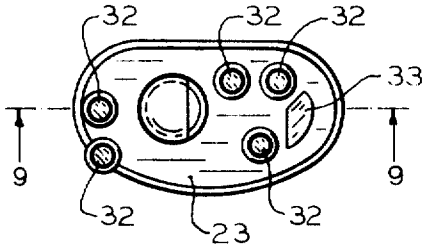


Fig_10

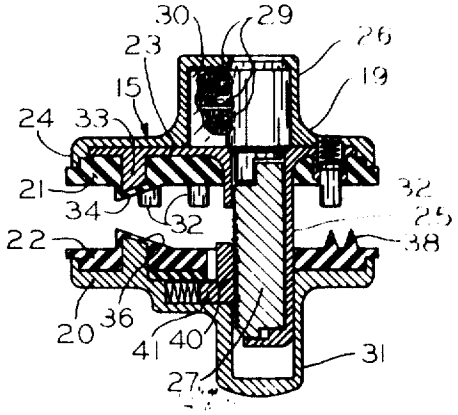
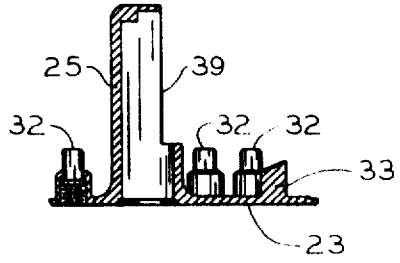


Fig_9



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UNIVERSAL SELF-CONFORMING TRIGGER LOCK FOR FIREARMS

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Int. Cl. F41c 27/10
U.S. Cl. 42—1 Y 6 Claims

ABSTRACT OF THE DISCLOSURE

To protect the triggers of guns, rifles, pistols and various forms of firearms against accidental or unauthorized operation a firearm trigger lock is provided for detachable, self-conforming and non-shiftable mounting on the trigger guard portion of a firearm to enclose the latter and prevent unauthorized movement of the firearm trigger. A cover section of the trigger lock carries a transverse cylinder shell and strategically located transverse, axially yieldable plungers and other means designed to engage portions of the trigger guard and trigger to prevent movement of the latter and prohibit shifting of the trigger lock regardless of how it is mounted on the trigger guard. Moreover, the trigger lock is universal in respect to its adaptability to trigger guards of various shapes and sizes and the disposition of the trigger therein, permitting its use on firearms of various types.

BACKGROUND OF THE INVENTION AND SUMMARY THEREOF

This trigger lock for releasable adjustable locking on the trigger guard of any conventional firearm is key-operated and includes a pair of laterally separated side sections or covers each having on its inner side a resilient pad with one of the sections termed the "carrier" section being formed with a plurality of transverse, strategically located, spring-loaded axially yieldable plungers, any of which can recede to no-interfering positions but which, in conjunction with a transverse pin cylinder shell, lodge in such relation to the firearm trigger and to the trigger guard, that the side sections or covers cannot be shifted on the trigger guard and the trigger is completely protected against unauthorized movement. The side covers of the lock can be mutually released and removed from the trigger guard to which they have been applied by an authorized possessor of the proper key which controls the pin cylinder mechanism within the transverse shell. The trigger lock of the present invention, besides being universal and self-conforming relative to the trigger guard of the particular firearm on which it is mounted, is detachable and portable.

The improved trigger lock includes a pair of complementary side elements or covers which have resilient pads (one of which may be tapered) which, when the trigger lock is applied to a firearm trigger guard, are squeezed and compressed through internal ratchet lever locking mechanism in the lock assemblage, whereby the trigger lock adjustably encloses the trigger guard in a manner so as to prevent access to the firearm trigger. The transverse cylinder shell and spaced-apart yieldable plungers carried by the carrier cover locate within the trigger guard in proximity to the trigger and guard in a self-conforming manner to prevent undesired shifting or movement of the lock assemblage.

The improved trigger guard is relatively simple in design and construction, is positive and fool-proof in use, may be applied in a plurality of positions to the trigger guards of various forms of firearms, is easily removable by one having the proper key, is portable, and is otherwise particularly well adapted for its intended purposes.

DESCRIPTION OF THE PRIOR ART

The assignee of the present invention is the owner of the prior Foote Pat. No. 3,392,471 for Adjustable Trigger Locks for Firearms and of the Foote and Buchmann Pat. No. 3,422,560 for Adjusatable Gun Trigger Locks, but involves mechanism very different from the latter and is an improvement over the former in the provision of yieldable strategically positioned transverse plungers, a pad wedge and other elements which render the present trigger lock universal and self-conforming. Other prior art patents of which Bjorklund No. 2,664,658 is typical cover devices constructed to fit only one type of gun. As far as applicant is aware there is nothing presently available in the firearm trigger lock art having the adjustable, lockable side cover features of Foote No. 3,392,471 plus the strategically positioned transverse yieldable plungers to render the trigger lock non-shiftable on its trigger guard, self-conforming, and adaptable to trigger guards of various shapes and sizes and compensatory relative to the disposition of the trigger therein.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings wherein the same reference characters designate the same or similar parts in all of the views:

FIG. 1 is a side view of a pistol showing the improved trigger lock applied to the trigger guard in protective relation to the trigger, with part being broken away;

FIG. 2 is a horizontal sectional view through the trigger guard taken approximately along line **2—2** of FIG. 1 showing the trigger lock applied to the trigger guard, there being a broken line showing of one cover of the lock as separated from the other cover element,

FIG. 3 is a transverse sectional view taken approximately along line **3—3** of FIG. 1;

FIG. 4 is a fragmentary view of the trigger lock applied to the pistol trigger guard, as in FIG. 1, only with the complementary cover element removed to show one relationship of the yieldable plungers, cylinder shell, wedge and pad to the trigger and guard;

FIG. 5 is a view similar to FIG. 4 only with the pistol pointed in the opposite direction and showing an alternative mounting of the trigger lock on the trigger guard and the corresponding disposition of the trigger lock elements;

FIG. 6 is a detail, fragmentary sectional view through a yieldable plunger taken on line **6—6** of FIG. 5;

FIG. 7 is a plan view of the complementary cover element of the trigger lock looking at the pad carried thereby;

FIG. 8 is a plan view of the plunger and cylinder shell carrying insert of the carrier cover element of the trigger lock;

FIG. 9 is a longitudinal sectional view of the carrier cover insert taken on line **9—9** of FIG. 8; and

FIG. 10 is a sectional view of the trigger lock assemblage in its connected-together locked condition, the firearm trigger guard and trigger being omitted.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The improved trigger lock designated generally by the numeral **15** provides a detachable, portable lock or safety device to substantially enclose the trigger guard portion of a firearm of any conventional type, in blocking relation to the trigger and thereby prevent the accidental discharge of the loaded gun or the unauthorized use there of by a child, tamperer or other unauthorized person. It is also intended that the adjustable, self-conforming and detachable trigger lock be of a type to fit all of the trigger guards of conventional firearms, regardless of the location of the triggers therein and the trigger guard size, being

applicable thereto in a self-conforming and non shiftable manner irrespective of the disposition of the lock on the particular trigger guard.

By the way of illustration the improved trigger lock **15** is shown in relation to the trigger guard **16** surrounding the trigger **17** of a pistol **18**. When the lock is applied to the trigger guard **16** the trigger **17** is completely covered and rendered inaccessible for manual manipulation. Also, certain elements forming parts of the improved lock assemblage are positioned in juxtaposition to portions of the trigger guard so that such shifting or movement of the lock assemblage on the trigger guard, as might be effective to actuate the trigger, is prevented.

As is best shown in FIGS. 2, 3 and 10 of the drawings the improved trigger lock includes a key-receiving carrier cover **19** there is interposed between its pad **21** and the decovers are adapted to be applied to the opposite sides of the trigger guard **16** of the firearm **18** and adjustably conform to the breadth of the trigger guard **16**. The covers **19** and **20** are both of similar ovate shape and size and, as will hereinafter appear, when applied to a firearm trigger guard in any manner, they are adjustably and self-conformingly held and locked together in the desired degree of transverse separation by means which will hereinafter appear, similar in that respect to the Foote Pat. No. 3,392,471. The cover **19** and **20** are of metal and the inner face of each is flanged to receive resilient pads **21** and **22** respectively. However, with respect to the carrier cover **19** there is interposed between its pad **21** and the depressed inner face of said cover, a metallic carrier insert **23** of a size and shape to fit within the flanged periphery **24** of said cover. As is best shown in FIGS. 8, 9, and 10 said insert **23** is formed with an integral transverse cylinder shell **25** which projects at its inner end into a boss **26** projecting from the exterior face of said cover **19**. The shell **25** turnably houses a plug **27** whereby a key **28** inserted into a slot therefor accessible through an opening in the exposed end of the boss **26** actuates tumbler pins **29** which yieldably extend into the pin extension **30** anchored within the boss **26**. The complementary cover **20** is formed on its face with a hollow boss **31**, which, when the covers are united on opposite sides of the trigger guard **16**, receives the extended end portion of the cylinder shell **25**, as shown in FIG. 10, the pad **22** being apertured to permit said end portion of the shell **25** to pass therethrough into said boss **31**. Besides the shell **25** the insert **23** carries a plurality of transverse spring loaded plungers **32** of any desired shape which are spaced apart and strategically located so that certain of the same will perform blocking and shift preventing functions within the trigger guard **16** and regardless of the shape of the latter and location of the trigger **17** therewithin. Any of said plungers **32** may axially recede to non-interfering positions should pressure be exerted against the ends thereof in an axial direction if a particular plunger underlies a portion of the trigger or trigger guard, as shown in FIGS. 1, 2, 4 and 5. Also, the face of the insert **23** is formed with a raised portion **33** to underlie and give support for an eccentrically shaped wedge **34** on the exposed face of the pad **21**, said wedge being inclined and performing wedging and blocking actions when the lock is in use, as in FIG. 2 and it cooperates with a raised rib **35** on said face of said pad **21**. The latter normally locates exteriorally of a marginal portion of the trigger guard, as shown in FIGS. 4, 5, and 10. Said wedge **34** and rib **35** complement a similar wedge **36** and rib **37** on the exposed face of the pad **22** carried by the complementary cover **20**. The pad **22** also carries a plurality of tapered protuberances **38** which may engage portions of the trigger guard and prevent slippage and marring. Additionally, the pad **21** is apertured to accommodate the projecting cylinder shell **25**. Because firearm trigger guards are normally tapered and increase in breadth from top to bottom the pad **22** is conversely tapered, as shown in FIG. 3, so that the mounted trigger lock **15** will firmly and evenly engage the trigger guard.

As disclosed in the prior Foote Pat. No. 3,392,471 the inner extended end portion of the cylinder shell **25** has an elongated opening **39** therein to expose a side wall portion of the plug **27**. A side wall portion of the key plug is formed with an extent of ratchet teeth **40**. When the plug **27** is turned through a certain arc through an applied key **28** the ratchet teeth **40** will be presented to and exposed through the opening **39** for engagement with the teeth on a spring loaded ratchet dog **41** to thereby hold the covers **19** and **20** in adjusted clamping position relative to the opposite sides of the trigger guard. A turning movement of the plug in the opposite direction through the applied key wil cause the teeth **40** to move away from their exposed position and out of engagement with the dog **41** whereby the cylinder-plug unit **25–27** may be moved axially to separate the carrier cover **19** from the complementary cover **20**, whereby complete removal of the lock assemblage from the trigger guard is possible.

One manner in which the improved trigger lock may be mounted on the trigger guard of a firearm is shown in FIGS. 1, 2, 3, and 4. The carrier cover **19** is manually positioned against the remote face of the trigger guard with its resilient pad or cushion **34** in contact with the latter. The complementary cover **20** is then positioned against the other side (the front in the drawings) of the trigger guard so as to cover the same with its pad **22** in contact with the guard surface. The cylinder shell **25** carried by the cover **19** is passed transversely through the opening in the trigger guard. In this particular disposition of the lock covers, the cylinder shell **25** will locate forwardly of the trigger **17** with the extended end of the shell being inserted into the hollow boss **31** in the complementary cover **20**. The two covers may be brought together as firmly as desired with the pads **21** and **22** impinging against the opposite outer surface portions of the trigger guard **16**. During this mounting operation the plug **27** is in a position so that the ratchet dog **41** and inward adjustments are possible, but the ratchet dog will prevent outward separation of the covers. When the two covers are thus clamped onto the firearm trigger guard the axially yieldable plungers **32**, wedges **34** and **36** and ribs **35** and **37** come into play. The plungers **32** are of a sufficient number and are so strategically, non-uniformly located that most of the same (not necessarily all) will locate in functioning juxtaposition to portions of the trigger guard **16** and trigger **17**, as shown in FIGS. 1 and 4, and this will be the case irrespective of the size or design of the trigger guard and the location of the trigger therein, thereby rendering the trigger lock self-conforming relative to practically any firearm trigger guard and trigger. From FIGS. 1 and 4 it will be observed that in the illustrated mounting of the trigger lock certain of the plungers **32** as well as the cylinder shell **25**, will block unauthorized movement of the trigger **17**, while others recede inwardly to noninterfering positions because they happen to underlie portions of the trigger guard and trigger. A trigger lock, to be effective when mounted, must be prevented from any shifting thereof on the guard to an extent which might cause any of the transverse guarding elements to undesirably engage and actuate the trigger **17**, or which might allow trigger movement known as "fanning" in a single action firearm wherein the barrel might be rotated through cocking. Contributing to the elimination of such problems are the wedges **34** and **36** and the peripheral ribs **35** and **37**. The latter, as shown in FIG. 4, locate exteriorally of one end of the trigger guard while one or more of the plungers **32** may locate exteriorally of a remote portion of the trigger guard. The improved lock assemblage not only conforms to the trigger guard to which it is applied and prevents movement of the trigger, but it also is non-shiftable.

It is not essential that the covers of the trigger lock be applied to the trigger guard in a single prescribed position. Depending on the type and size of trigger guard and the convenience of the user, the lock may be applied

to a trigger guard in dispositions other than that of FIGS. 1 and 4, FIG. 5 illustrating one of many other modes of application. In FIG. 5 the lock assemblage covers **19** and **20** are positioned somewhat more rearwardly on the trigger guard with the cylinder shell **25** locating against the rear of the trigger **17**. One plunger **32** locates against a forward edge of the trigger and another plunger engages the rear of the trigger so that unauthorized movement of the latter is prevented. Ribs **35** and **37** engages the front end of the trigger guard and still another plunger **32** locates near the rear end of the trigger guard. Thus the trigger is effectively blocked against movement and the lock cannot shift on the trigger guard. The wedges **34** and **36** contribute toward insuring the retention of the lock assemblage on the trigger guard in its mounted, protective, self-conforming position.

The present trigger lock may be mounted on any trigger guard regardless of the breadth or shape of the latter. As mounted and with the pads firmly compressed against the firearm trigger guard, and with the plungers **32**, wedges **34** and **36**, and ribs **35** and **37** performing their functions, the trigger lock is securely, self-conformingly attached to the trigger guard and prevents access to the covered trigger **17**. The lock cannot be removed without unlocking the unit through the manipulation of the applied key **28**.

By providing a gun trigger lock having a key-controlled pin tumbler cylinder mechanism it is impossible for an unauthorized person to actuate and remove the lock. The trigger lock conformingly covers the trigger guard and it mounts so compactly and snugly that it in no manner interferes with storage, handling or carrying of the firearm, but fully protects the latter.

From the foregoing description it will be evident that the improved trigger lock is readily applicable to the trigger guards of various types of firearms, is easy to apply and remove, is adjustable and conforms to the trigger guard to which it is applied, and is otherwise well adapted for the purposes described.

What I claim is:

1. The combination with a firearm trigger enclosing guard, of a trigger lock, comprising: a pair of cover members applied to opposite sides of said trigger guard; lockable means connecting said cover members and extending transversely into said guard in proximity to the trigger; and other means carried by a cover member and extending into adjacency to portions of the guard and the enclosed trigger including spaced-apart yieldable plungers.

2. The combination of claim **1** wherein said yieldable plungers are plural in number and are strategically spaced-apart in a non-uniform manner.

3. The combination of claim **1** wherein said plungers are axially yieldable and automatically retract to non-interfering positions when contacted end-wise by obstructions.

4. The combination of claim **1** wherein an element of the lockable means which extends transversely into said guard is a shell enclosing a key actuated cylinder plug.

5. The combination of claim **1** wherein the inner face of each cover member carries a resilient pad and the exposed face of a pad is formed with protuberances.

6. In a trigger lock having a pair of opposed cover members shaped to engage and substantially cover opposite faces of a firearm trigger guard with a turntable plug connected to and extending transversely of the plane of one of the cover members through the firearm trigger guard and housed within a cylinder shell with the other cover member being formed with means for adjustably receiving an extended portion of said turntable plug and shell, there also being means which permit the cover members to be adjustably clamped against opposite sides of the trigger guard in connected, spaced relation, the improvements which comprise; axially yieldable, spaced apart plungers projecting transversely inwardly from one of the cover members for entry into a trigger guard in proximity to portions of the latter and the enclosed trigger.

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