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FIREARM TRIGGER LOCK

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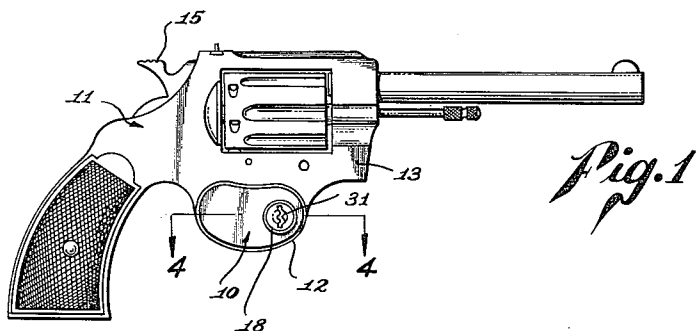


Fig. 1

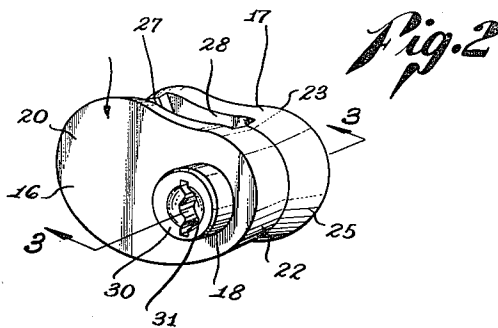


Fig. 2

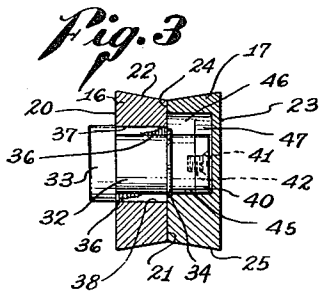


Fig. 3

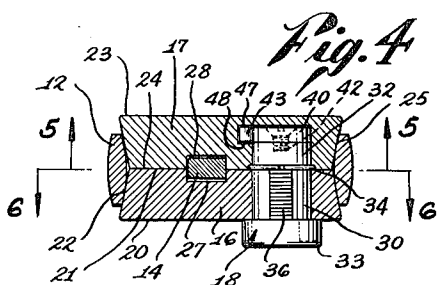


Fig. 4

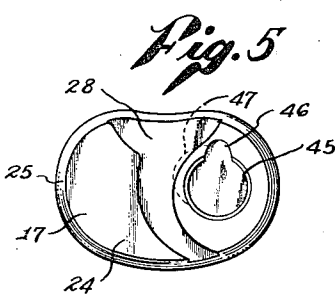


Fig. 5

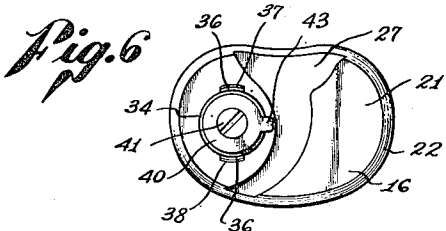


Fig. 6

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FIREARM TRIGGER LOCK

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10 Claims. (Cl. 42-70)

1

My invention relates generally to devices for preventing the discharge of firearms, and more particularly to a locking device which engages within the trigger guard of a revolver or the like to positively prevent accidental or unauthorized firing of the gun.

Various kinds of safety latches have been proposed to prevent accidental discharge of loaded firearms, but such devices are easily removed and do not offer any safety when the gun is within the reach of children, nor do they prevent the unauthorized use of a stolen gun. Many of the prior latch means function only to prevent the complete stroke of a trigger and are useless on certain types of revolvers. For example, in some revolvers the hammer may be cocked with only a slight rearward or forward movement of the trigger, and once retracted, may be driven forwardly to strike the firing pin without subsequent movement of said trigger. Thus the protection is inadequate even with the latch in place.

Moreover, the prior art latches fail to provide the practical characteristics which are important to the use of the device, and would not be rendered otherwise by the addition of locking means. Prior latches are in the nature of bulky appendages which clamp onto the gun rather than fit therein, and depend for security on an external bolt or latch which may be intentionally cut and removed. Any projection on the gun interferes with the proper fitting of a holster and cannot be used on sidearms which must be carried by policemen and other officers of the law.

Accordingly, it is a major object of my invention to provide a gun locking device which prevents the slightest movement of a trigger in any direction, and which is securely positioned to prevent either accidental or unauthorized discharging of the gun.

Another object of my invention is to provide a gun locking device fitted with key locking means to provide a high degree of security.

It is also an object of my invention to provide a gun locking device having internal latch means which is completely enclosed and cannot be cut free from the outside, said device being so interlocked with the integral structure of the trigger guard as to require permanent mutilation of the same in order to remove the device without the use of a key.

A further object of my invention is to provide a gun locking device which seats completely within the trigger guard thereof and has no members projecting outside of the normal profile of the gun to interfere with the fit of a conventional holster.

2

Still another object of my invention is to provide a gun locking device of simple and sturdy construction which can be economically manufactured and marketed at a low cost.

These and other objects and advantages of my invention will become apparent from the following detailed description of a preferred form thereof, and from an inspection of the accompanying drawings, in which:

Fig. 1 is a side elevation of a revolver with a preferred embodiment of the invention shown mounted therein;

Fig. 2 is a perspective view of the preferred locking device showing the opposed side plates engaged together;

Fig. 3 is a cross section of the device taken along the line 3-3 of Fig. 2;

Fig. 4 is a horizontal section taken along the line 4-4 of Fig. 1;

Fig. 5 is an interior elevation of one of the side plates taken in the direction of the arrows 5-5 of Fig. 4; and

Fig. 6 is an interior elevation of the opposed side plate taken in the direction of the arrows 6-6 of Fig. 4.

Referring now to the drawings, and particularly to Fig. 1 thereof, a preferred embodiment of my improved locking device is designated generally by the numeral 10. A conventional revolver 11 having a trigger guard 12 projecting downwardly from a main frame 13 is fitted with the locking device 10 for the purpose of completely enclosing a trigger 14 (seen in Fig. 4). The revolver 11 is of standard design and includes an upper hammer member 15 cooperatively interconnected to the trigger 14. It is to be understood, of course, that the revolver 11 is merely illustrative, and the locking device 10 may be used advantageously on a variety of different guns.

As is best seen in Fig. 2, the locking device 10 comprises two main members or plates 16 and 17 which are adapted to mate side-by-side within the trigger guard 12. Locking means 18 are provided to lock the plates 16 and 17 to each other and thus prevent access to the trigger 14. The plate 16 is formed as a tapered plug having a flat outer face 20 joined to a parallel inner face 21 by a beveled edge surface 22. Both faces 20 and 21 are preferably ellipsoidal conforming to the outline of the trigger guard 12, and the outer face 20 has a span larger than that of the guard so that the beveled edge 22 wedges against the inner rim of the guard, and the plate cannot be passed therethrough. As is best seen in Fig. 4, the beveled edge 22 wedges inwardly to the center

3

of the guard 12, and is of a depth to provide an excess of wedging surface, with the outer plate face 20 being positioned slightly outside of the guard.

The opposite plate 17 is similarly shaped with an outer face 23 joined to an inner face 24 by a beveled edge 25. The plate 17 is adapted to wedge into the opposite half of the trigger guard 12, and is also of such proportions that it cannot be passed completely through the guard. It should be noted that neither of the plates 16 and 17 overhangs the outer rim of the guard 12 so as to distend the profile of the latter. This is of substantial advantage when the revolver 11 is carried in a holster, and is an important feature of my invention.

In order to receive the trigger 14, the adjacent inner plate faces 21 and 24 are provided with arcuate trigger recesses 27 and 28, respectively, as are best seen in Figs. 5 and 6. The recesses 27 and 28 define mating chambers which are shaped to fit closely around the trigger 14 and prevent the slightest movement of the latter. It is therefore impossible to discharge the revolver by means of the trigger 14, and it is normally impossible to cock the hammer 15, since in substantially all revolvers the trigger is either moved forwardly or rearwardly a slight distance during the cocking operation. Furthermore, because of the raised outer faces of the plates 16 and 17, no portion of the trigger 14 is visible, and the internal construction of the plates cannot be ascertained. Thus one attempting an unauthorized removal of the locking device faces an indeterminate problem.

It will be remembered that locking means 18 are provided to lock the plates 16 and 17 together. The locking means preferably include an exposed cylindrical tumbler lock 30 which is rotatably secured within and perpendicular to the plane of the plate 16. The lock 30 is of conventional construction and has a centrally defined key slot 31 within a cylindrical body 32. An enlarged flange 33 is secured to the body 32 and projects outwardly of the plate 16 to prevent inward movement of the body. A split spring keeper ring 34 may be provided adjacent the inner plate wall 21 to hold the body 32 against outward movement, and determine the axial position of the body in cooperation with the flange 33.

Disposed longitudinally along the body 32 is a plurality of raised tumbler plates 36 which are radially slidable with respect to the body, being fitted within suitable opposed channels, and normally urged outwardly by spring tension. The tumbler plates 36 are adapted to fit within opposed locking grooves 37 and 38 formed in the plate 16 and serve to prevent rotation of the body 32. As is conventional, the tumblers 36 project outwardly in an irregular profile corresponding to the predetermined serrations for the key, and may be formed with a generally rectangular cross section, as is best seen in Fig. 6. When the key is properly inserted within the key slot 31, the tumblers 36 are retracted inwardly to an aligned position substantially flush with the surface of the body 32. In this position the body 32 may be freely rotated, since the tumblers 36 are no longer restricted by the walls of the grooves 37 and 38.

The inner end of the body 32 is extended beyond the plate 16 and is adapted to fit within the plate 17. A latch plate 40 is fastened to the terminal end of the body 32 and is fixed for rotation therewith by means such as a threaded screw 41 which engages a tapped hole 42 within

4

the body 32. The latch plate 40 is generally circular and has an outwardly projecting latch arm 43 which extends radially from the axis of the body 32. Upon rotation of the body 32, the latch arm engages and disengages from seat means formed in the plate 17.

As is best seen in Fig. 3, the plate 17 is provided with a circular bore 45 which extends inwardly to a depth sufficient to accommodate the body 32 and latch plate 40. At the top of the bore 45 is a semi-circular notch 46 which extends along the entire length of the bore parallel to the axis thereof. The notch 46 receives the latch arm 43 and permits rearward movement of the body 32 into the bore 45. At the back of the bore 45 is an undercut recess 47 which is laterally offset to provide a forwardly facing seat 48. The recess 47 is cut on an arc eccentric to the bore 45, as is shown in the dotted outline of Fig. 5, and is of a width to receive the latch arm 43 as the latter is rotated by the body 32. The latch arm 43 is prevented from forward movement by the seat 48 when positioned within the recess 47, and thus locks the plates 16 and 17 securely together.

In the operation of the device before the plates 16 and 17 are placed within the trigger guard 12 the key is inserted within the key slot 31. This retracts the tumbler plates 36 from the grooves 37 and 38 and allows free rotation of the body 32. By rotation of the key, the body 32 is turned so that the latch arm 43 is extended upwardly and is in a position to register with the notch 46. The plates 16 and 17 are then fitted within the guard 12 to enclose the trigger 14. As this is done the lock body 32 engages within the bore 45, and the latch arm 43 passes rearwardly through the notch 46 to a point adjacent the recess 47.

The key and body 32 are then rotated counterclockwise as viewed in Fig. 2 so that the latch arm 43 enters the recess 47. Such rotation is continued, until the end of the arm 43 abuts the eccentric peripheral wall of the recess 47. The point of intersection between the tip arc of the arm 43 and the wall of recess 47 is selected so that at the same time, the tumblers 36 are in alignment with the opposed locking grooves 37 and 38. In other words, when the arm 43 has traveled to the end of its counterclockwise arc, it is offset from the vertical locking grooves 37 and 38 an angular amount equal to the spacing between the arm and the tumbler plates 36.

As the key is withdrawn from the key slot 31, the tumbler plates 36 spring outwardly to fit within the grooves 37 and 38 and prevent rotation of the body 32. Separation of the plates 16 and 17 is then impossible because of the engagement of the arm 43 and seat 48. As may now be fully understood, the latch arm 43 is completely enclosed within the plate 17 and cannot be cut free to remove the device. The only apparent method of removing the locking device 10 from the gun is to cut the trigger guard 12 away from the frame 13, and this step is not easily accomplished, nor could it be completed without some danger to the intruder. Hence the device provides a high degree of security against either accidental or unauthorized discharge of the gun, and yet is conveniently removed by the proper person.

Although I have described a preferred embodiment of my invention, it is evident that modifications of design and construction will be apparent to those skilled in the art, and I do not wish to be limited to the details illustrated and

5

described herein, except as defined in the appended claims.

I claim:

1. A locking device of the class described which includes: a pair of opposed plates having beveled peripheral edges shaped to wedge within the complementary inner surface on the trigger guard of a gun, said plates having internal mating recesses to fit around the trigger of said gun and prevent any movement thereof; key fitted locking means rotatably mounted in one of said plates and extending slidably into the other of said plates; engagement means within said first-mentioned plate to hold said locking means against rotation at a predetermined relative position; and latch means carried within said plates and operable by said locking means to move to a position interlocking said plates when said locking means are rotated to said predetermined position.

2. A locking device of the class described which includes: a pair of opposed plates having inwardly convergent beveled peripheral edges shaped to wedge within the complementary inner surface on the trigger guard of a gun, said plates having internal mating recesses to fit around the trigger of said gun and prevent any movement thereof; tumbler locking means rotatably mounted in one of said plates and lockable with said plate at a predetermined position of rotation, said locking means extending slidably into the other of said plates; and latch means mounted on said locking means for rotation therewith, said last-mentioned plate having an undercut recess to engage said latch means and interlock said plates when said locking means are rotated to said predetermined position.

3. A locking device of the class described which includes: a pair of opposed plates having flat inner faces adapted to abut each other and beveled peripheral edges converging inwardly and shaped to wedge within the opposite sides of the complementary inner surface on the trigger guard of a gun, said plates having internal mating recesses to fit around the trigger of said gun and prevent any movement thereof; a generally cylindrical body rotatably mounted within one of said plates and projecting inwardly, said body having key operated tumbler means movable to interlock with said plate at a predetermined rotational position, and the other of said plates having a bore therein to slidably engage the projecting end of said body; and a latch mounted at the inner end of said body for rotation therewith and provided with a radially projecting latch arm, said last-mentioned plate having a notch extending the length of said bore to receive said arm upon the engagement of said body in said bore, and said plate having an undercut internal recess to interlock with said latch arm upon the rotation of said body to said predetermined position.

4. A locking device of the class described which includes: a pair of opposed plates having beveled peripheral edges shaped to wedge within the opposite sides of the trigger guard of a gun, said plates having internal mating recesses to fit around the trigger of said gun and prevent any movement thereof; a generally cylindrical body rotatably mounted within one of said plates and projecting inwardly, said body having a key slot and tumbler means normally extending outwardly to interlock with said plate at a predetermined rotational position, and operable to move substantially within said body upon the insertion of a key in said slot, the other of said plates having

6

a bore therein to slidably engage the projecting end of said body; and a latch mounted at the inner end of said body for rotation therewith and provided with a radially projecting latch arm, said last-mentioned plate having a notch extending the length of said bore to receive said arm upon the engagement of said body in said bore, and said plate having an undercut internal recess to interlock with said latch arm upon the rotation of said body, said recess being shaped to stop the travel of said arm when said body is at said predetermined position, whereby to facilitate the withdrawal of said key for the interlocking of said body in said first-mentioned plate.

5. A locking device of the class described which includes: a pair of opposed plates having flat inner faces adapted to abut each other, and having beveled peripheral edges converging inwardly and shaped to wedge within the trigger guard of a gun, said inner plate faces having mating recesses shaped to fit tightly around the trigger of said gun and prevent any movement thereof; a generally cylindrical body rotatably mounted within one of said plates and projecting inwardly, said body having a longitudinal key slot and radially slidable tumblers mounted within said body and spring urged outwardly, and said mounting plate having a groove extending along said body and adapted to receive said tumblers to hold said body against rotation, said tumblers being movable to a position substantially flush with said body upon the insertion of a key in said slot, the other of said plates having a bore therein to slidably engage the projecting end of said body; flange means mounted on said body to engage said first-mentioned plate and hold said body against axial movement; and a latch secured to the inner end of said body for rotation therewith and provided with a radially projecting latch arm, said last-mentioned plate having a notch extending the length of said bore to receive said arm upon the engagement of said body in said bore, and said plate having an undercut internal recess offset at the distal end of said bore and formed to interlock with said latch arm upon the rotation of said body to prevent the separation of said plates, said recess being shaped eccentric to said bore to stop the travel of said arm when said tumblers are aligned with said plate groove, whereby to determine the correct position for the withdrawal of said key for the interlocking of said body in said first-mentioned plate.

6. A pair of opposed plates having beveled peripheral edges shaped to wedge within the opposite sides of the trigger guard of a gun, said plates having internal mating recesses to fit around the trigger of said gun and prevent any movement thereof; a tumbler lock rotatably mounted within one of said plates and projecting inwardly, said lock having a key slot and tumbler means engageably associated with said plate to interlock said lock at a predetermined rotational position, said tumbler means being operable to move to a position releasing said lock for rotation upon the insertion of a key in said slot, the other of said plates having a bore therein to receive the projecting end of said body; and a latch mounted on the inner end of said lock for rotation therewith, said last-mentioned plate having an undercut internal recess to interlock with said latch upon the rotation of said lock, said recess being shaped to stop the travel of said latch when said lock is at said predetermined position, whereby to facilitate the with-

7

drawal of said key for the interlocking of said lock in said first-mentioned plate.

7. A locking device of the class described which includes: a pair of opposed plates shaped to engage within the opposite sides of the trigger guard of a gun; means within said plates to limit the movement of the trigger of said gun; locking means rotatably mounted in one of said plates and projecting inwardly, said locking means having tumbler means operable to interlock said lock to said plate at a predetermined rotational position, and movable to a position releasing said lock upon the insertion of a key in said slot; latch means mounted at the inner end of said lock to engage the other of said plates upon the rotation of said lock for connecting said plates to each other; and means within said last-mentioned plate to stop the travel of said latch means when said lock is at said predetermined position, whereby to facilitate the withdrawal of said key for the interlocking of said lock in said first-mentioned plate.

8. A firearm trigger lock comprising a first flat plate engageable in the trigger guard of a firearm on one side of the trigger and having its periphery engaged on the inner surface of the trigger guard, a second flat plate engageable in the trigger guard on the other side of the trigger and having its periphery engaged on the inner surface of the trigger guard, a block element laterally carried by the first plate extending transversely behind the trigger to block the movement of the trigger to firing position, said block element having a free end abutting the inner surface of the second plate and spacing said plates apart, a first fastening element formed on the inner surface of one of said plates, and a second complementary fastening element laterally carried by the other of said plates and rotatably engageable therethrough for locking engagement with said first fastening element to releasably secure said plates in position in the trigger guard and position the block element in trigger locking position behind the trigger.

9. A firearm trigger lock comprising a first plate engageable in the trigger guard of a firearm on one side of the trigger and having its periphery engaged on the inner surface of the trigger guard, a second plate engageable in the

8

trigger guard on the other side of the trigger and having its periphery engaged on the inner surface of the trigger guard, at least one of said plates having a portion extending transversely behind the trigger to block the movement of the trigger to firing position, said portion having a free end abutting the inner surface of the second plate and spacing said plates apart, a first fastening element carried by one of said plates, and a second complementary fastening element carried by the other of said plates and movable for locking engagement with said first fastening element to secure said plates in position within said trigger guard.

10. A firearm trigger lock comprising a first plate engageable in the trigger guard of a firearm on one side of the trigger and having its periphery engaged on the inner surface of the trigger guard, a second plate engageable in the trigger guard on the other side of the trigger and having its periphery engaged on the inner surface of the trigger guard, at least one of said plates having a portion extending transversely behind the trigger to block the movement of the trigger to firing position, said portion having a free end abutting the inner surface of the second plate and spacing said plates apart, a first fastening element carried by one of said plates, a second complementary fastening element carried by the other of said plates and movable for locking engagement with said first fastening element to secure said plates in position within said trigger guard, and key fitted locking means mounted in said plate carrying said second fastening element and connected thereto for locking said second element against movement in a direction to release said plates.

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