

Dec. 8, 1953

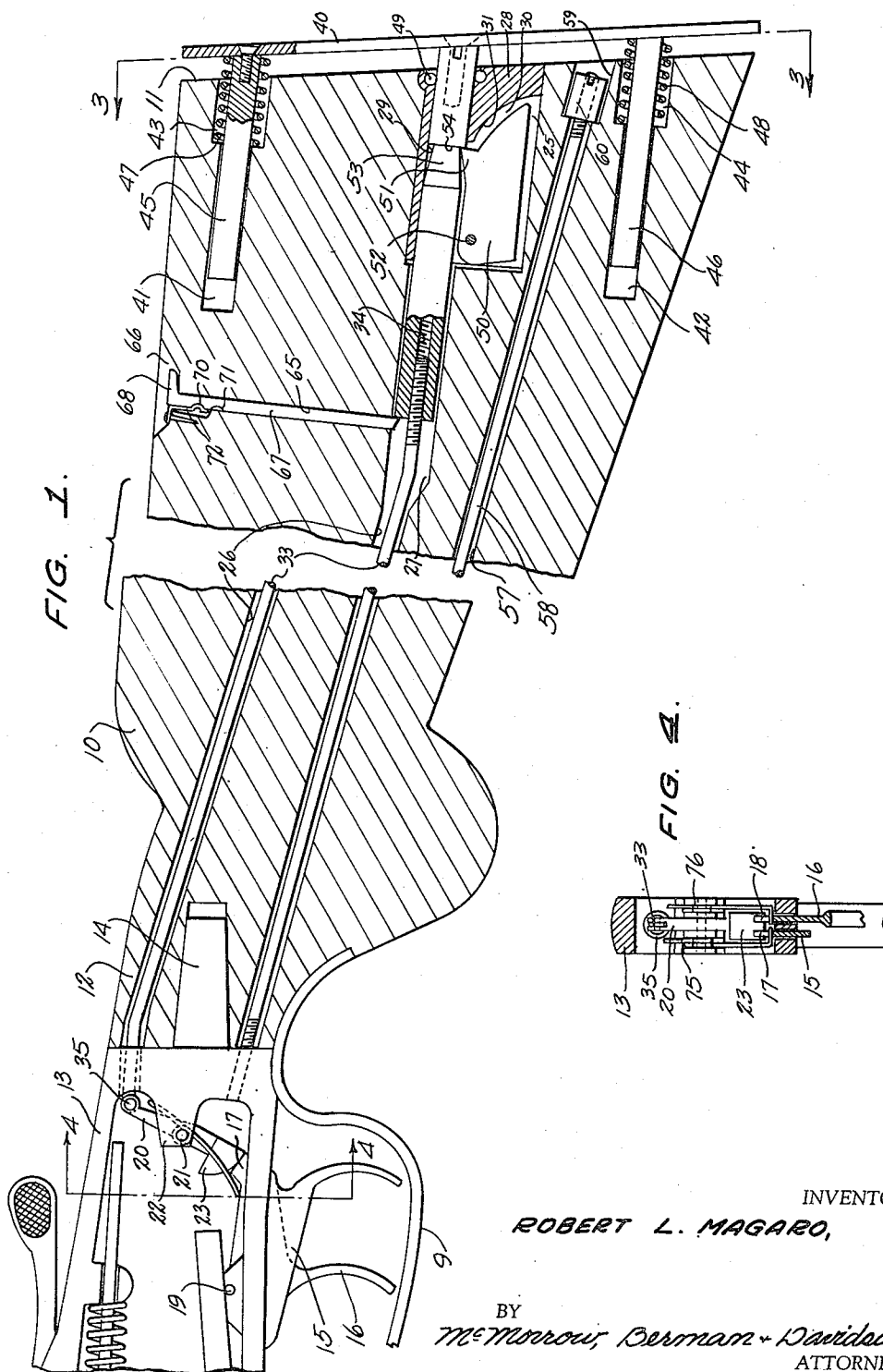
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2,661,561

SAFETY LOCK FOR FIREARMS

Filed Oct. 12, 1951

2 Sheets-Sheet 1



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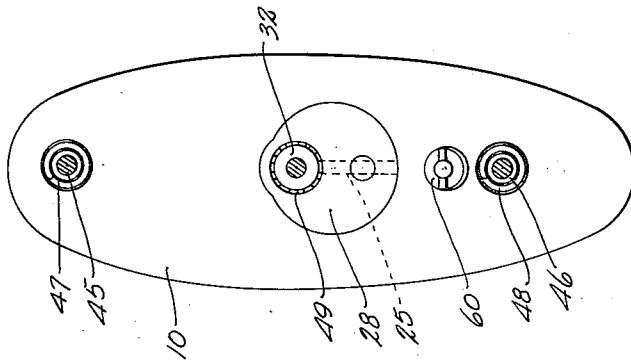


FIG. 3.

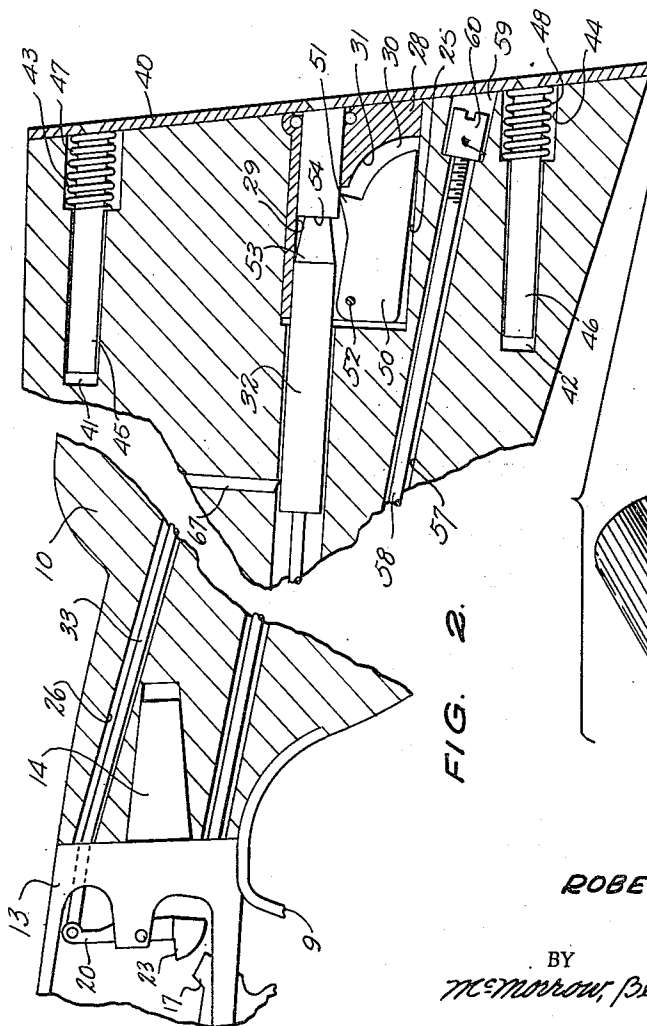


FIG. 2.

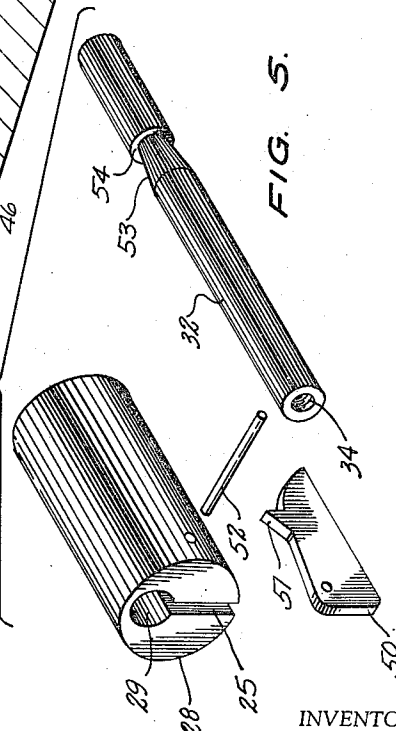


FIG. 5.

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## UNITED STATES PATENT OFFICE

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## SAFETY LOCK FOR FIREARMS

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thirty-five per cent to Fannie Ricci, West Fair-  
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Application October 12, 1951, Serial No. 250,986

2 Claims. (Cl. 42—70)

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This invention relates to safety locks for firearms, such as shotguns and rifles, and more particularly to a safety lock which precludes firing of the associated gun except when the gun is in firing position against the shoulder of the user.

The present invention constitutes a continuation-in-part of my application Serial No. 207,368 filed January 23, 1951, now Patent No. 2,625,765, for Safety Lock for Firearms, and has among its objects the provision of an improved trigger engaging latch so constructed that the trigger cannot be accidentally locked in non-safety position, and an improved mounting for the movable butt plate or shoulder piece and safety lock stem which provides a firm and secure mounting for the butt plate and stem, facilitates the manufacture, assembly and installation of the safety lock, and reduces the manufacturing cost thereof.

Other objects and advantages will become apparent from a consideration of the following description and the appended claims in conjunction with the accompanying drawings wherein:

Figure 1 is a longitudinal, medial cross sectional view through the stock end portion of a shotgun showing the application to the shotgun of safety lock mechanism illustrative of the invention;

Figure 2 is a fragmentary cross sectional view similar to Figure 1, but showing the parts in a different operative position from that illustrated in Figure 1;

Figure 3 is a transverse cross sectional view on the line 3—3 of Figure 1;

Figure 4 is a transverse cross sectional view on the line 4—4 of Figure 1; and

Figure 5 is an exploded perspective view of one organization of the safety lock mechanism.

With continued reference to the drawings, the gun has a stock 10 formed of a suitable material, such as wood, and of well known shape and construction. The stock has a flat butt end 11 which is perpendicular within a small angle to the longitudinal center line of the gun and is reduced in size at its other end to provide the grip end 12. A breech assembly including a hollow, metal housing 13 is mounted on the grip end of the stock and extends longitudinally of the stock from the grip end thereof, being secured to the stock by suitable tongues, as indicated at 14, received in grooves or recesses in the stock and secured to the latter by suitable fasteners, such as screws.

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as that illustrated, triggers 15 and 16 are pivotally mounted in the housing adjacent the grip end of the stock and project from the bottom side of the breech housing through suitable slots in the bottom wall of the housing. These triggers are enclosed in a trigger guard 9 of well known shape and construction secured at one end to the grip portion of the stock and at its other end to the breech housing 13 in a manner well known to the art.

The triggers 15 and 16 have abutment formations 17 and 18 thereon within the housing 13 and spaced from the pivotal connection 19 between the triggers and the housing in a direction toward the adjacent end of the stock.

A latch dog 20 is disposed within the housing 13 and pivotally mounted intermediate its length to the housing by a pivot pin 21 extending through registering apertures in a lug 22 projecting inwardly from the end of the housing adjacent the stock and in the latch dog 20. At its bottom end the latch dog 20 is provided with a shoe formation 23, the bottom surface of which is curved forwardly and upwardly, as is clearly illustrated in Figure 1, which bottom surface engages the abutment formations 17 and 18 on the triggers when the latch dog is in a predetermined position in the housing and holds the triggers in their non-firing position. The curved bottom surface on the shoe formation 23 precludes the possibility of the latch dog engaging the triggers and locking them in firing position in the event the latch dog should be moved to its non-firing position while firing pressure was still exerted on one or both of the triggers.

The stock has a recess 25 of cylindrical shape intermediate the width thereof and opening at one end to the surface of the butt end of the stock, the longitudinal center line of this recess being disposed within a small angle of being perpendicular to the surface of the butt end of the stock. The stock also has a bore 26 leading from the inner end of the recess 25 into the housing 13 adjacent the end of the latch dog 20 remote from the trigger engaging shoe 23, the portion of this bore adjacent the recess being formed with a counterbore 27. A cylindrical block 28, preferably formed of aluminum, is closely received in the recess 25 and has a bore 29 extending longitudinally thereof in alignment with the counterbore 27. The bore 29 is eccentric of the cylindrical block and a slot 30 extends longitudinally of the block and from the bore 29 to the surface of the block at the location around the block most remote from the longitudinal

In the case of a double barreled shotgun, such

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center line of the bore 29. This slot 25 extends to the inner end of the block, but terminates in a curved surface 31 short of the outer end of the block and the block is so positioned in the stock that the open side of the slot 30 is between the longitudinal center line of the bore 29 and the bottom edge of the stock.

A cylindrical stem 32 extends slidably through the bore 29 of the block 28 and into the counterbore 27 and a link rod 33 connects the inner end of the stem 32 to the latch dog 20 at the end of the latter remote from the trigger engaging shoe 23. The stem is provided in its inner end with a coaxial screw threaded well or bore 34 which receives the adjacent screw threaded end portion of the link 33 and the latch dog 20 is provided with apertured lugs disposed at the opposite sides of a flattened and apertured end portion of the link rod and pivotally connected to the corresponding end of the link rod by a pivot pin or rivet 35 extending through the registering apertures in the lug and the flattened end portion of the link rod.

A shoulder piece 40 in the form of a flat plate having an outline corresponding to the contour of the butt end of the stock is secured intermediate its length to the outer end of the stem 32 and overlies the butt end surface of the stock substantially parallel to the latter. The stock is provided with cylindrical wells 41 and 42 disposed one at each side of the recess 25 and opening to the butt end surface of the stock, these wells or bores having counterbores 43 and 44 respectively, in their ends adjacent the butt end of the stock. Guide pins 45 and 46 are slidably received in the wells 41 and 42 respectively, and are firmly connected at their outer ends to the shoulder piece 40 and compression springs 47 and 48 surround the pins 45 and 46 within the counterbores 43 and 44 respectively, and resiliently urge the shoulder piece 40 away from the butt end surface of the stock, movement of the shoulder piece away from the stock being limited to a predetermined distance by movement of the latch dog 20 to its limiting non-firing position.

Ball bearings 49 are mounted in the block 28 surrounding the bore 29 at the outer end of the latter and bear against the stem 32 to provide an antifriction bearing between the stem and the block, so that the stem will slide freely through the block when the shoulder piece 40 is subjected to the pressure of the springs 47 and 48 or to shoulder pressure overcoming the force of the springs.

A latch dog or button 50 of elongated, rectangular cross sectional shape and having a pointed detent 51 thereon is disposed in the slot 25 and pivotally secured near one end thereof to the block 28 by a pivot pin 52 extending through registering apertures in the block and in the latch dog 50. The stem 32 is provided within the bore 29 of the block with a tapered reduction 53 terminating in a radial shoulder 54 and the detent 51 of the latch dog 50 engages the shoulder 54 to hold the stem 32 in its non-firing position to which it is moved by the springs 47 and 48, whenever the gun is disposed in a butt end down position. The latch dog 50 is moved by gravity into engagement with the shoulder 54 when the gun is in a butt end down position and falls away from the stem 32 to release the latter when the gun is held in substantially horizontal firing position.

The stock 10 is provided with a second bore 57 substantially parallel to the bore 26 and a rod

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58 extends through the bore 57 and is threaded at one end into a tapped hole in the rear wall of the housing 13. At the butt end of the stock the bore 57 is provided with a counterbore 59 and a nut 60 is disposed in the counterbore 59 and threaded onto the adjacent screw threaded end of the rod 58 to firmly secure the stock to the breech mechanism housing.

The stock is provided with a transverse bore 65 extending from the upper edge of the stock to the counterbore 27 substantially perpendicular to the latter, and the stock is provided at the outer end of the bore 65 with a rounded recess 66. A locking pin 67 extends through the bore 65 and has at one end a head 68 received in the recess 66. At its other end the pin projects into the counterbore 27 and engages the adjacent end of the stem 32 to securely hold the stem in its non-firing position when the locking pin is in the position illustrated in Figure 1. The locking pin is provided near the head thereof with two adjacent recesses 70 and 71 and a spring detent 72 is secured to the stock and projects into an enlargement in the outer end of the bore 65 to engage in the recesses 70 and 71. When the spring detent is engaged in the recess 70 the stem is locked in its non-firing position, as illustrated in Figure 1, and when the spring detent is engaged in the recess 71 the pin is held clear of the stem 32 freeing the latter for movement to its firing position, as illustrated in Figure 2.

Trigger springs 75 and 76 are secured in the housing 13 and engage the triggers 15 and 16 to resiliently urge the triggers to their extended or non-firing position, the triggers being moved by finger pressure against the force of these springs to fire the gun.

With this arrangement, when the locking pin 67 is in its innermost limiting position engaging the inner end of the stem 32, the gun is locked against firing in any position. This lock is convenient for use while storing or transporting the gun.

When it is desired to use the gun, the locking pin 67 is moved outwardly to its stem releasing position and the firing of the gun is now placed under automatic locking control. If the gun, while being carried, is set down on its butt end, the latch dog 50 engaging the shoulder 54 on the stem 32 holds the stem in non-firing position, so that the triggers cannot be accidentally moved at such a time to fire the gun. This is of material advantage as it eliminates many accidents, such as those caused by the gun being fired by a twig or bush engaging the triggers while the gun is rested upon its butt end as the hunter using the gun is making his way through or over a fence.

When the gun is raised and brought to firing position the latch dog 50 drops away from the shoulder 54 freeing the stem 32 and pressure of the shoulder on the shoulder piece 40 moves the stem inwardly of the counterbore 27, thereby swinging the latch dog 20 through the intermediacy of the link rod 33 to move the latch dog shoe 23 away from the abutment formations 17 and 18 on the triggers. The gun is now free to fire and may be fired by the user by applying finger pressure to the triggers in the usual manner.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the

appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are, therefore, intended to be embraced therein.

What is claimed is:

1. In combination with a gun stock having a recess opening to the butt end thereof and a shoulder plate mounted on said stock and spring urged to a position a predetermined distance from the butt end of said stock, locking means for the associated gun firing mechanism comprising a metallic block of cylindrical shape secured in said recess and having a bore extending longitudinally therethrough and a slot extending longitudinally thereof and from said bore to the surface of said block, a stem extending slidably through the bore of said block and having an annular shoulder intermediate its length, said stem being secured at one end to said shoulder plate and being adapted for connection at its other end to locking elements associated with the firing mechanism, and a latch dog disposed in said slot and pivotally connected near one end to said block for swinging movements relative to the block, said latch dog having thereon a formation engaging the annular shoulder on said stem and holding said stem against longitudinal movement relative to said block in a direction to release the associated firing mechanism whenever the gun is in an inverted or stock down position and releasing said stem whenever the gun is in a firing position.

2. In combination with a gun stock having a recess opening to the butt end thereof and a shoulder plate mounted on said stock and spring urged to a position a predetermined distance from the butt end of said stock, locking

means for the associated gun firing mechanism comprising a metallic block of cylindrical shape secured in said recess and having a bore extending longitudinally therethrough and a slot extending longitudinally thereof and from said bore to the surface of said block, a stem extending slidably through the bore of said block and having an annular shoulder intermediate its length, said stem being secured at one end to said shoulder plate and being adapted for connection at its other end to locking elements associated with the firing mechanism, a latch dog disposed in said slot and pivotally connected near one end to said block for swinging movements relative to the block, said latch dog having thereon a formation engaging the annular shoulder on said stem and holding said stem against longitudinal movement relative to said block in a direction to release the associated firing mechanism whenever the gun is in an inverted or stock down position and releasing said stem whenever the gun is in a firing position, and antifriction bearing elements carried by said block within said bore and engaging said stem to facilitate longitudinal sliding movements of said stem relative to said block.

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