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TRIGGER SAFETY DEVICE FOR GUNS

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Fig. 1

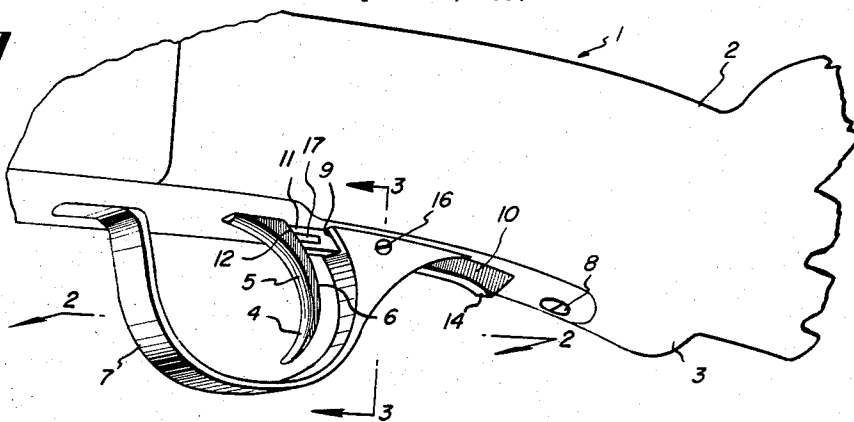


Fig. 2

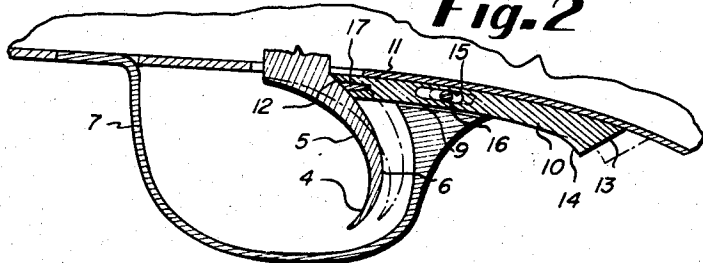


Fig. 3

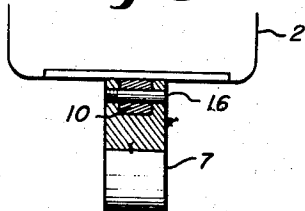


Fig. 4

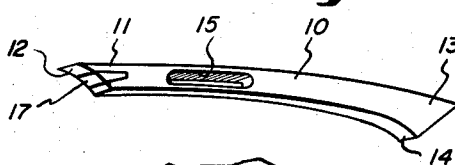


Fig. 6

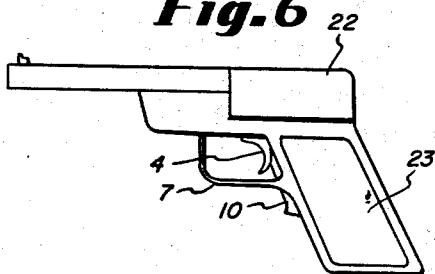
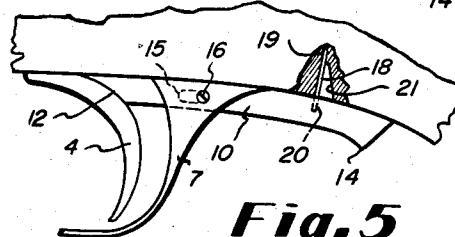


Fig. 5



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TRIGGER SAFETY DEVICE FOR GUNS

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5 Claims. (Cl. 42—70)

The present invention relates to a safety mechanism for a gun, more particularly, to a slidable locking bar which lockingly engages the trigger and is released from locking engagement by the hand of the firer being placed in the firing position, the locking bar being automatically returned to the locking position when the hand of the firer is removed.

It is, therefore, the principal object of this invention to provide an improved and simplified safety mechanism for any type of gun which is fired by a trigger.

It is another object of this invention to provide a safety mechanism which is unlocked by the firer's hand being placed in the firing position and automatically locks the gun against firing when the hand of the firer is removed from the firing position.

It is a further object of this invention to provide a safety mechanism on the under-side of the gun stock and adjacent the trigger guard, but which is not unlocked merely by the weight of the gun when it is carried in the firer's hand.

It is an additional object of this invention to provide a safety locking bar which engages the trigger to lock the same against firing and which automatically returns to the locking position after the gun has been fired.

Other objects and advantages of this invention will become apparent upon reference to the accompanying description when taken in conjunction with the following drawings wherein

Figure 1 is an overall perspective view of a portion of a single barrel shot gun which has been equipped with the locking lever of this invention;

Figure 2 is a sectional view taken along the line 2—2 of Figure 1, which corresponds substantially with a vertical longitudinal plane extending through the rifle;

Figure 3 is a sectional view taken along the line 3—3 of Figure 1;

Figure 4 is an overall perspective view of the locking bar per se of this invention;

Figure 5 is a side elevational view of a portion of a single barrel shot gun which has a modification of this invention; and

Figure 6 is a side elevational view of a pistol which is equipped with the locking bar of this invention.

Returning now to the drawings and more particularly to Figure 1, wherein like reference numerals represent the same parts throughout the various views, 1 indicates a single barrel shotgun or a similar shoulder weapon having a stock 2 and a pistol grip 3 only a portion of which is shown. An action which may be conventional is installed in the hollowed-out portion of the stock and has a trigger 4 extending downwardly through the under-side of the stock 3. The trigger has a front face 5 which is engaged by the finger of the firer, in order to actuate the trigger, and a rear face 6. A trigger guard 7 encloses the trigger 4 in a conventional manner and is secured to the stock by guard screws 8, only one of which is shown.

The structure as described above may be found in any conventional type shoulder weapon. Next, the inven-

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tion and the manner in which it is installed in such a weapon, will be described. An opening 9 which is rectangular in cross section and adjacent the under-side of the stock is located in the rear portion of the trigger guard behind the rear face 6 of the trigger. A locking bar 10 which has a cross section corresponding to that of the opening 9 is slidably mounted within this opening. The locking bar has a forward end 11 which is wedge-shaped, as indicated at 12, so as to fit between the rear face of the trigger and the under-side of the stock, as illustrated in Figures 1 and 2. The rear end of the locking bar indicated at 13, has a raised portion 14 which is gripped by the fingers of the firer when the hand is placed in a firing position and facilitates the rearward sliding movement of the locking bar. There is an elongated opening 15 which extends transversely through the locking bar 10 and is in a horizontal plane when the gun is held in a normal firing position. A pin 16 passes through the trigger guard and the elongated opening 15 to limit the sliding movement of the locking bar. A magnet 17 is set into the forward end 11 of the locking bar.

The advantages of this invention will become apparent from a description of the operation of the locking bar or slide which constitutes the safety mechanism. When the gun 1 is carried in one hand, as is commonly done, the gun is generally supported at a point immediately behind the trigger guard, by the firer's hand, and rests in the curled fingers thereof. The weight of the gun upon the firer's hand when in this position will not move the locking bar since a rearward sliding motion of the bar is necessary in order to unlock the trigger. Consequently this is a true safety mechanism since it will be released only when the gun is held in firing position. When the gun is raised to the firing position, the firer inserts his finger in the trigger guard forwardly of the trigger, and the remainder of the fingers of his hand wrap around the stock behind the trigger guard. In this position the fingers engage the locking bar 10 and the continued wrapping of the fingers about the stock in order to complete the grip of the firer will result in a rearward movement of the locking bar. The rearward movement of the locking bar is of course limited by the length of the elongated slot 15 which is of the order of $\frac{1}{4}$ of an inch long. Thus it can be seen that very little movement of the slide is necessary in order to release the trigger.

The locking bar will remain in the unlocked position as long as the firer maintains his trigger hand in the firing position upon the gun as described above. After the trigger has been fired the rear face of the trigger is in engagement with the magnet which is mounted on the forward end of the locking bar. Thus, immediately upon the firer removing his hand from the firing position, the locking bar will be released and will return with the trigger under the action of the magnet to the locking position as illustrated in Figures 1 and 2. The trigger is again locked against movement and will not be unlocked until the gun is again placed in the firing position, as described above.

While use of a magnet in the forward end of a locking bar is preferred, since the resulting construction is greatly simplified, a modification is illustrated in Figure 5 which provides an alternative structure for returning the locking bar to the locking position.

In Figure 5 a thin leaf spring or shim 18 has one end 19 mounted in the stock 2 and the other end 20 secured in the top surface of the locking bar 10. There is a recess 21 in the under-side of the stock surrounding the spring 18 which is shaped to limit the movement of the spring and consequently the sliding action of the locking bar.

In operation, the modification of Figure 5 functions in the same manner as the modification illustrated in Fig-

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ures 1 and 2. The locking bar 10 is unlocked from the trigger by the positioning of the hand of the firer in the firing position and similarly the slide is returned to its locking position as illustrated in Figure 5 when the hand of the firer is removed from this position. This modification, while just as effective as the use of the magnet in the locking bar, involves alteration of the stock in order to insert the leaf spring.

As described above, it is apparent that the safety lock of this invention will operate with the magnet alone or with the leaf spring alone. In addition a piece of pliable steel set in the stock at an angle of about 80° will return the locking lever, after firing, to lock the trigger.

The invention, as illustrated in Figures 1 and 2, or the modification as illustrated in Figure 5, may be installed on any type of weapon which is fired by a trigger. As an example reference is made to Figure 6 wherein the locking bar of this invention is mounted upon a pistol indicated at 22. The locking bar here also functions in the same manner as described above, namely, positioning of the hand of the firer on the pistol grip will slide the locking bar downwardly sufficiently to release the same from the trigger. In a like manner the locking bar will return into the locking position, as shown in Figure 6, when the grip of the firing hand about the pistol grip is relaxed.

Other weapons to which this invention may be applied are rifles, shot guns having one and two barrels, machine guns, automatic rifles, carbines and the like. This list is not exhaustive but is merely illustrative of the many types of weapons fired by triggers which may be readily equipped with this invention.

The locking action of the locking bar is obtained primarily by a wedging action on the forward end of the locking bar between the rear face of the trigger and the under-side of the stock. Since the forward end of the locking bar is snugly wedged between the trigger and the stock, any force exerted upon the trigger when the locking bar is in the locked position, will not move the trigger to fire the gun since this force will be translated into components which wedge the forward end of the locking bar against the under-side of the stock. A sliding movement of the locking bar sufficient to lock the locking bar is possible only by additionally placing the fingers around the stock in a firing position and drawing the locking bar rearwardly by gripping the raised portion of the locking bar.

Thus it can be seen that the present invention discloses a safety mechanism for guns which is automatically unlocked by placing the hand of the firer in the firing position and is locked when the hand is in this position. Except for the opening in the trigger guard behind the trigger, no modification of a gun is necessary in order to install the locking bar upon a weapon. The locking bar itself is extremely simple to manufacture and comprises a piece of metal machined to the shape as illustrated in Figure 4 and equipped with a magnet inset into the forward end of the locking bar. Furthermore, this safety mechanism does not depend upon any complicated system of levers since the locking bar or slide coacts directly with the trigger to lock the trigger against movement.

It will be understood that this invention is susceptible to modification in order to adapt it to different usages and conditions and, accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claims.

I claim:

1. In a safety mechanism for a gun, a gun stock, a metallic trigger, a trigger guard enclosing said trigger, a locking bar slidably carried by said trigger guard and engageable with the rear surface of said trigger to lock the same against movement, the forward end of said

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locking bar shaped to wedge between the rear of said trigger and the under-side of the gun stock to lock said trigger against movement, and a magnet in the forward end of said locking bar and attracted by said trigger when spaced therefrom to return said locking bar to its locked position between the trigger and the underside of the gun stock.

2. In a safety mechanism for a gun, a gun stock, a trigger, a trigger guard enclosing said trigger, a locking bar slidably supported by said trigger guard and engageable with the rear surface of said trigger to lock the same against movement, the forward end of said locking bar shaped to wedge between the rear of said trigger and the under-side of the gun stock to lock said trigger against movement and released therefrom by sliding movement away from said trigger, and a leaf spring having one end secured in the gun stock and the other end in said locking bar to return said locking bar to the locked position between the trigger and the underside of the gun stock.

3. In a safety mechanism for a gun, a gun stock, a metallic trigger, a trigger guard enclosing said trigger, a locking bar slidably carried by said trigger guard and engageable with the rear surface of said trigger to lock the same against movement, the forward end of said locking bar shaped to wedge between the rear of said trigger and the under-side of the gun stock to lock said trigger against movement, and a magnetized element at the forward end of said locking bar and attracted by said trigger when spaced therefrom to return said locking bar to its locked position between the trigger and the underside of the gun stock.

4. In a safety mechanism for a gun, a gun stock, a trigger, a trigger guard enclosing said trigger, a locking bar slidably supported by said trigger guard and engageable with the rear surface of said trigger to lock the same against movement, the forward end of said locking bar shaped to wedge between the rear of said trigger and the under-side of the gun stock to lock said trigger against movement and released therefrom by sliding movement away from said trigger, and a leaf spring having one end secured in the gun stock and the other end in said locking bar to return said locking bar to the locked position between the trigger and the underside of the gun stock, said gun stock having a portion engageable by said leaf spring to limit the sliding movement of said locking bar.

5. In a safety mechanism for a gun, a gun stock, a trigger, a trigger guard enclosing said trigger, a locking bar slidably supported by said trigger guard and engageable with the rear surface of said trigger to lock the same against movement, the forward end of said locking bar shaped to wedge between the rear of said trigger and the under-side of the gun stock to lock said trigger against movement and released therefrom by sliding movement away from said trigger, the said gun stock having a cavity on the under-side thereof above said locking bar, and a leaf spring having one end secured in said cavity of the gun stock and the other end in said locking bar to return said locking bar to the locking position between the trigger and the under-side of the gun stock, a wall of said cavity being engageable by said leaf spring to limit the sliding movement of said locking bar.

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