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Lauck

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(54) **ADJUSTABLE/LOCKABLE SAFETY-SELECTOR SWITCH FOR AR15/M16 STYLE FIREARMS**

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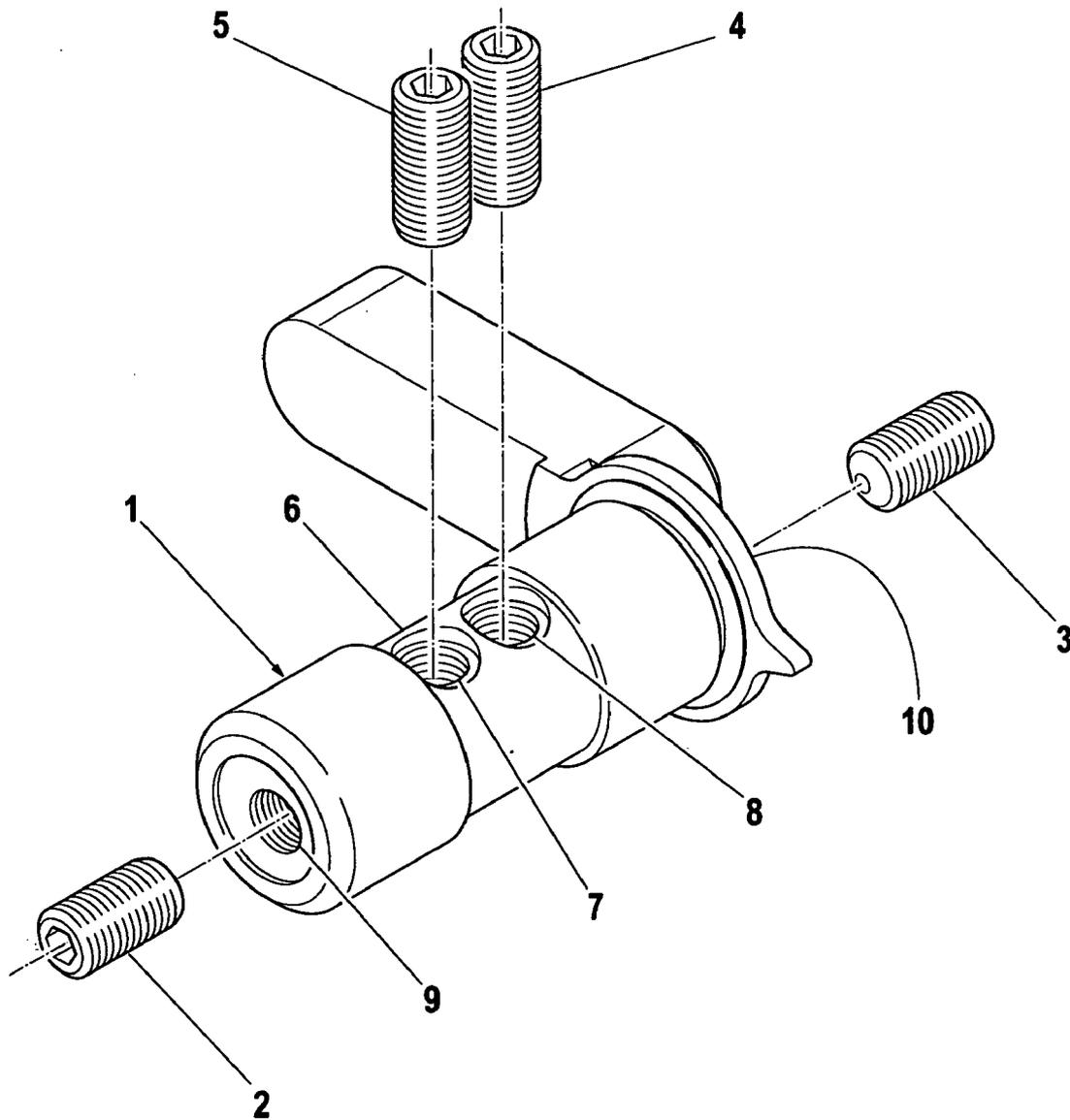
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(57) **ABSTRACT**

(76) **Inventor: David Michael Lauck, Gillette, WY (US)**

Correspondence Address:
David M. Lauck
P.O. BOX 651
GILLETTE, WY 82717 (US)

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A device is provided to securely solve the safety problem when tolerance stack up is present so that the AR15/M16 style firearm will not fire or allow unsafe movement of the trigger components when the safety-selector switch is in the "safe" position. The device is mounted to the safety-selector switch, uses a plurality of adjustment set screws and locking screws, with the number varying upon the safety-selector switch being for an AR15, an M16, or a left, right, or ambidextrous model AR15/M16 style firearm, and being a semi-auto or selective-fire version of the AR15/M16 firearm.



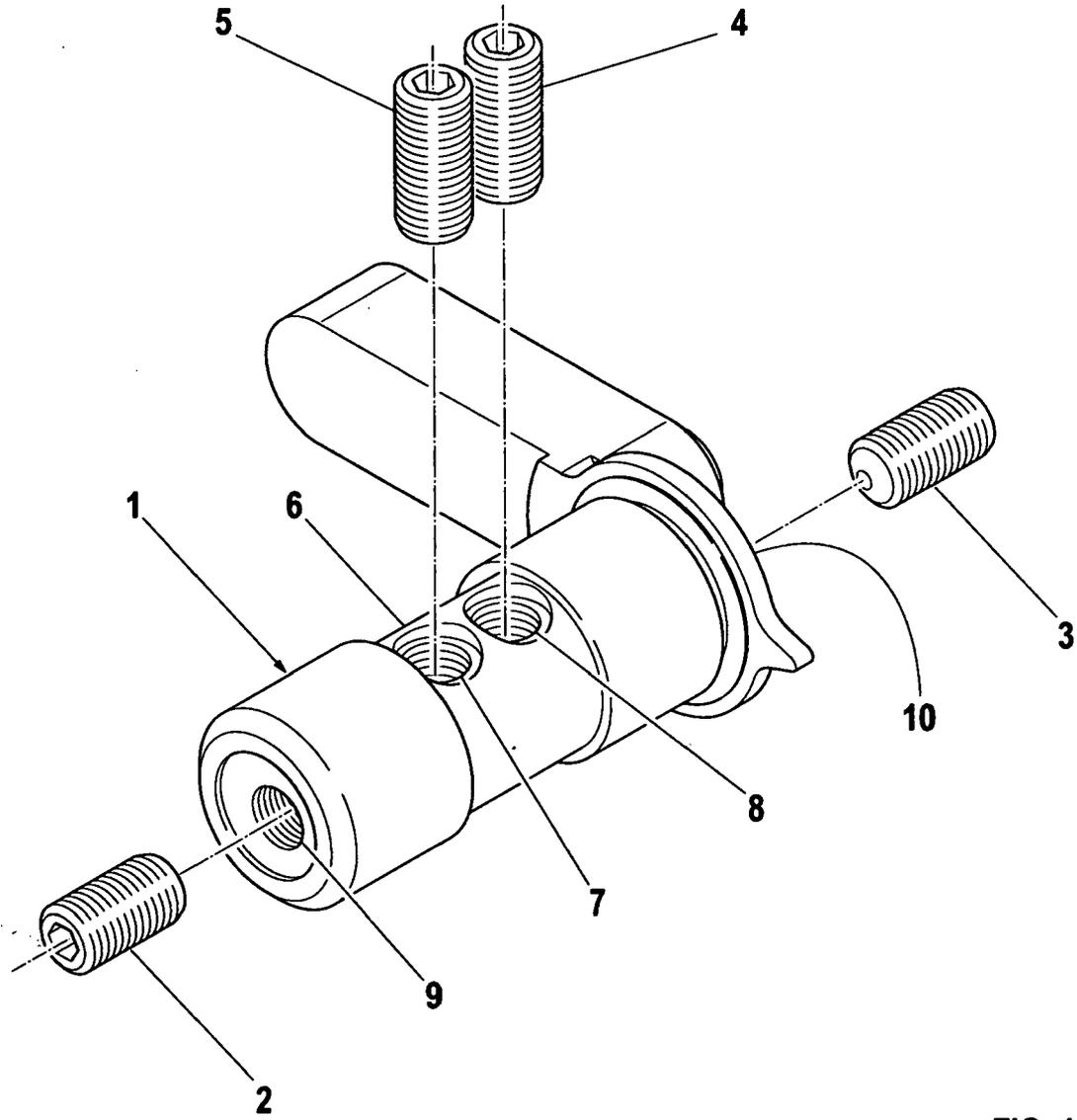


FIG. 1

**ADJUSTABLE/LOCKABLE
SAFETY-SELECTOR SWITCH FOR AR15/M16
STYLE FIREARMS**

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to an adjustable/lockable safety-selector switch for AR-15/M-16 style firearms, and more particularly to a safety-selector switch for right hand, left hand, ambidextrous and select fire AR15/M16 style firearms as well as standard and oversize selectors/levers and single and two-stage trigger groups for AR15/M16 style firearms.

[0003] 2. Description of the Prior Art

[0004] Mass production of parts and assembly-line style installation of parts often leads to a combination of tolerances being added together, and this is commonly referred to as "tolerance stack up". In the case of trigger parts and mechanisms, tolerance stack up can lead to a dangerous firearm, a firearm that can fire or nearly fire when the safety-selector switch is in the "safe" position.

[0005] This is especially a problem with the AR15/M16 style firearm because the safety-selector switch or lever enters the receiver of the firearm through a hole of a specific size. This means that the diameter of the safety-selector switch's cross shaft is limited by the size of the lower receiver's entry hole.

[0006] The cross shaft is the part of the safety-selector switch that is designed to block component movement in the trigger group when the safety-selector switch is in the "safe" position, thus locking and blocking the trigger group components in a safely engaged condition. This should mean that the hammer and sear are blocked in a condition with a safe and functional amount of contact or engagement between the two parts when the hammer is in its cocked position.

[0007] When the safety-selector switch is moved to the "fire" position, there is room for the trigger components to move out of their engaged position, thus allowing the hammer to fall and the firearm to discharge the cartridge in the chamber when the trigger is pulled. This is accomplished via a recess machined into the safety selector's cross shaft. This recess allows trigger component movement when the selector is in the "fire" position. Safety problems occur when tolerance stack up is present and the trigger components are allowed to move out of, or nearly out of their safely engaged, blocked position when the safety is "on".

SUMMARY OF THE INVENTION

[0008] It is an object of this invention to provide a device to securely solve the safety problem when tolerance stack up is present so that the AR15/M16 style firearm will not fire or allow unsafe movement of the trigger components when the safety-selector switch is in the "safe" position.

[0009] In a preferred embodiment, the above object is achieved with the embodiment being mounted to the safety-selector switch of the AR15/M16 style firearm. The embodiment uses a plurality of adjustment set screws and locking screws, with the number of set screws and locking screws varying depending upon if the safety-selector switch is for an AR15, an M16, or a left hand, a right hand, or an ambidextrous model AR15/M16 style firearm. The number of set screws and locking screws also varies depending upon

whether or not the firearm is a semi-auto or a selective-fire version of the AR15/M16 firearm.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is an exploded view of a safety-selector switch for an AR15 rifle showing the adjustment and locking screws.

DETAILED DESCRIPTION OF THE INVENTION

[0011] Referring to FIG. 1, a safety-selector switch 1 for an AR-15 type firearm and lock screws 2 and 3 and adjustment set screws 4 and 5 lock screws are shown. Two threaded holes 7 and 8 are positioned in the cross shaft 6 of the safety-selector switch. The cross shaft 6 has two threaded holes 9 and 10 (only 9 is shown in the drawing) positioned on each end of the safety-selector switch.

[0012] The adjustment set screws 4 and 5 are threaded vertically into two threaded holes 7 and 8 in the cross shaft 6 of the safety-selector switch 1. When the safety-selector switch 1 is in the "safe" position, these adjustment set screws 4 and 5 may be screwed out from the bottom, or six o'clock position on the cross shaft, to effectively take up any tolerance stack up.

[0013] The adjustment set screws 4 and 5 can be adjusted to bear against the trigger tail and effectively block the movement of the hammer and sear, thus greatly increasing the safety-selector switch's effectiveness in the "safe" position. The adjustability allows for the proper fitting of the safety-selector switch to the trigger tail, thus increasing the mechanical safety of the trigger group, and in turn increases the mechanical safety of the firearm.

[0014] Once the adjustment set screws 4 and 5 have been adjusted to properly and safely interact with the trigger group, the adjustment setting may be locked into position. This is accomplished by screwing lock set screws 2 and 3 into the two small holes 9 and 10 into the safety-selector switch horizontally from the three o'clock and nine o'clock positions, otherwise known as the ends of the horizontal cross shaft 6.

[0015] Locking set screws 2 and 3 from each end of the shaft are threaded into the two threaded small holes 9 and 10 to bear against the vertical adjustment set screws 4 and 5. This effectively locks them into their properly adjusted positions. Industrial thread locking compounds may also be used to ensure that the locking set screws 2 and 3 are secured even further, yet still allow the components to be later disassembled as needed.

[0016] Due to there being multiple different forms of safety-selector switches currently being used with AR15/M16 style firearms, the number of adjustment set screws and locking set screws required will vary. The safety-selector switch for the semi-auto AR15 that uses a lever for right-handed shooters utilizes four set screws. There are two adjustment set screws that are positioned parallel to the flat on the cross shaft. The two holes for these adjustment set screws are drilled and tapped for the adjustment set screws all the way through the cross shaft. The two locking set screws are positioned horizontally at the three o'clock and nine o'clock positions on the cross shaft and the two holes for these locking set screws are drilled and tapped so that they interface with the two vertical holes for the adjustment set screws. This results in the adjustment set screws being adjusted and then the locking set screws being fixed to ensure that the adjustment set screws are locked and secured in position.

[0017] The safety-selector switch for left handed shooters and ambidextrous safety-selector switches use only two set screws. One adjustment set screw is used to block the hammer and sear into their position of maximum engagement while one locking set screw is used to lock the adjustment set screw into its properly adjusted position. Four set screws are not used because the right side of the cross-shaft is occupied by the left-handed lever and its shaft attachment

[0018] Select fire safety-selector switch levers generally use two set screws. One adjustment set screw is used to block the hammer and the sear in their position of maximum engagement when the safety is on. One locking set screw is used to lock the setting on the adjustment set screw. Because of the different contour of the select fire cross-shaft, the positioning of four set screws is not possible.

[0019] While the invention has been shown and described with reference to a certain specific preferred embodiment, modification may now suggest itself to those skilled in the art. Such modifications and various changes in form and detail may be made herein without departing from the spirit and scope of the invention. Accordingly, it is understood that the invention will be limited only by the appended claims.

1. An improved safety selector switch for a AR-15 type or derivative firearm, the selector switch comprising:

- (a) a safety selector switch with a cross shaft and a lever;
- (b) at least one bore hole positioned through said cross shaft;
- (c) at least one adjustment screw to interface with said at least one bore hole;
- (d) at least one bore hole positioned on the safety selector switch at the end of said cross shaft;
- (e) at least one locking screw to interface with said bore hole on the end of said cross shaft; and
- (f) at least one locking screw interfacing with at least one adjustment screw when adjustment screw is positioned in the cross shaft, and whereby when said

the safety selector switch is assembled in an AR-15 type or derivative firearm and positioned so that when the switch is in the safe position, the at least one bore hole positioned through said cross shaft is positioned at the six o'clock position on said cross shaft, and whereby the at least one adjustment screw is positioned in said at least one bore hole to interface with the trigger tail of said firearm, thus preventing movement of the hammer and sear of said firearm when said safety selector switch is in the safe position, and whereby said at least one locking screw interfaces with said at least one adjustment screw to lock said at least one adjustment screw in position in said cross shaft of the safety selector switch.

2. The improved safety selector switch as claimed for in claim 1 whereby said safety selector switch is intended for use with right-handed shooters, and whereby said number of adjustment screws and corresponding bore holes positioned through said cross shaft of said safety selector switch is two, and whereby said number of locking screws and corresponding bore holes positioned on the safety selector switch at the end of said cross shaft is two.

3. The improved safety selector switch as claimed for in claim 1 whereby said safety selector switch is intended for use with left-handed shooters, and whereby said safety selector switch uses one adjustment screw and corresponding bore hole positioned through said cross shaft and one locking screw and corresponding bore hole positioned on the safety selector switch at the end of said cross shaft.

4. The improved safety selector switch as claimed for in claim 1 whereby said safety selector switch is an ambidextrous safety selector switch, said ambidextrous safety selector switch comprising an additional lever and shaft attachment screw for attachment of said additional lever to said cross shaft, and whereby said safety selector switch uses one adjustment screw and corresponding bore hole positioned through said cross shaft and one locking screw and corresponding bore hole positioned on the safety selector switch at the end of said cross shaft.

5. The improved safety selector switch as claimed for in claim 1 whereby said derivative firearm is an M16, M16A1, M16A2, or M16A4 rifle or derivative there from and whereby said safety selector switch uses one adjustment screw and corresponding bore hole positioned through said cross shaft and one locking screw and corresponding bore hole positioned on the safety selector switch at the end of said cross shaft.

6. The improved safety selector switch as claimed for in claim 1 whereby said derivative firearm is an M4, M4A1, or M4A2 carbine or derivative there from and whereby said safety selector switch uses one adjustment screw and corresponding bore hole positioned through said cross shaft and one locking screw and corresponding bore hole positioned on the safety selector switch at the end of said cross shaft.

7. The improved safety selector switch as claimed for in claim 4 whereby said derivative firearm is an M16, M16A1, M16A2, or M16A4 rifle or derivative there from.

8. The improved safety selector switch as claimed for in claim 4 whereby said derivative firearm is an M4, M4A1, or M4A2 carbine or derivative there from.

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