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TRIGGER-ADJUSTING MEANS FOR FIREARMS

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4 Claims. (Cl. 42-69)

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My invention relates to means for adjusting the trigger of a firearm. In virtually all firearms there is a certain amount of play in the trigger thereof relative to the sear which is sometimes known as the slack. This play or slack enables the trigger to be pulled rearwardly for varying distances before the sear is moved in a direction to release the firing mechanism of the firearm. Likewise, virtually all triggers, after the same have moved rearwardly and disengaged the sear from the firing pin, continue to move rearwardly in a movement known as back lash. The trigger moves more or less after the slack is taken up and moves the sear with it for varying distances before the firing mechanism is released. In target shooting, it is highly desirable to eliminate slack and minimize the backlash. Also, some shooters desire to minimize the pull or movement of the trigger after the slack is taken up through the disengagement of the sear, whereby what is known as a "hair trigger" is achieved.

With the foregoing in view, it is an object of the invention to provide improved means for adjusting the trigger of a firearm to eliminate slack and to minimize the backlash of the trigger.

A further object is to provide such an adjusting means which includes means whereby the pull of the trigger can be shortened as desired.

A further object is to provide such a trigger-adjusting means which includes at least one threaded member threaded through the trigger and engageable with the sear to force the trigger in a trigger-pulling direction relative to the sear, whereby to eliminate slack and/or to minimize the pull.

A further object is to provide in a trigger-adjusting means such as that last described a second screw threaded through the trigger and engaging the sear to minimize backlash.

Other objects and advantages reside in the particular structure of the invention, combination and arrangement of the several parts thereof, and will be readily understood by those skilled in the art upon reference to the attached drawing in connection with the following specification, wherein the invention is shown, described and claimed.

In the drawing:

Figure 1 is an elevational view of the firearm typical of that to which the trigger-adjusting means according to the invention is adapted to be applied;

Figure 2 is a longitudinal vertical section through a portion of the firing mechanism showing the trigger-adjusting means according to the invention applied thereto;

Figure 3 is a horizontal sectional view taken substantially on the plane of the line 3-3 of Figure 2.

Referring specifically to the drawing, Figure 1

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designates a firearm 10 which may be a Mauser, Springfield 1903, or like firearm, including firing mechanism now to be described.

Referring now to Figure 2, 11 designates generally a trigger for the firearm 10 which includes a finger piece 12. The upper end of the trigger 11 is pivoted by the trigger pin 13 to a sear 14 intermediate the free end of the latter and the sear pin 15 thereof. The sear pin 15 pivots the sear 14 to a receiver 16 which is fixed to the firearm 10 in any suitable and/or well known manner. The free end of the sear is formed with an upwardly-directed lug 18 which is engageable with a notch 19 of a cocking piece 20 comprising a portion of the firing mechanism of the firearm 10. The forward end of the cocking piece 20 may be provided with the usual firing pin 21. Any suitable spring means, not shown, loads the cocking piece and the firing pin 21 for movement in a firing direction. The lug 18 of the sear extends upwardly through a recess 27 in the receiver 16. The opposite end of the sear is loaded by a coil spring 17 interposed between the same and the receiver 16 in a direction to cause engagement of the lug 18 with the notch 19. Likewise, the trigger 11 includes a cam portion 24 which is engageable with the under surface of the receiver 16, whereby upon a rearward pull of the trigger from the solid to the broken line position, Figure 2, causes the sear to be cammed downwardly on its pin 15, whereby the lug 18 is disengaged from the notch 19 of the cocking piece.

However, in most triggers sufficient play exists so that the trigger is normally positioned in the chain dotted line position of Figure 2, which is considerably forwardly of the solid line position. Thus, in normal operation of the trigger it is necessary to move the finger piece from the chain dotted line position to the full line position before any movement is imparted to the sear in a cocking piece-disengaging direction. Likewise, it is thereafter necessary to move the finger piece from the solid line position to the broken line position, Figure 2, before the lug 18 is entirely disengaged from the notch 19.

To limit the movement of the trigger to a minimum, there has been provided the forwardly-directed extension 22 of the trigger which extends longitudinally of the receiver 16 below the sear 14. The forward end of the extension 22 is formed with an interiorly-threaded hole therein through which is extended an adjusting screw 23. The adjusting screw 23 includes an upper free end which engages with the under surface of the sear 14, whereby the trigger is moved in a sear-disengaging direction from say the chain dotted line position to the solid line position of Figure 2, or even to some point intermediate the solid line position and the broken line position, whereby the sear lug 18 is almost completely

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disengaged from the notch 19 of the cocking piece. Obviously, when so adjusted, it requires but a slight pull in a rearward direction of the finger piece 12 to release the lug 18 entirely from the notch 19 and permit the firearm to be fired. This arrangement eliminates the slack in the trigger and shortens the pull whereby to achieve a hair trigger which, as aforesaid, may be desirable especially in a firearm used for target practice.

To eliminate the back lash which is the movement of the trigger after it has released the sear lug 18 from the cocking piece 20, I have provided a second and rearwardly-directed extension 25 which extends longitudinally of the receiver 16 below the sear 14. This extension 25 likewise is formed with an interiorly-threaded hole there-through through which is threaded an adjusting screw 26. The adjusting screw 26 likewise has a free end extending in a direction toward the under surface of the sear below the lug 18. However, the adjusting screw 26 is not adjusted until it is engaged with the sear. Instead, it is so adjusted as to engage with the sear only when the same has assumed the broken line position of Figure 2, at which point it will be clear of the notch 19. Thus, there will be little or no movement of the trigger in a back lash-providing direction after the cocking piece has been released. Thus, back lash is virtually, if not entirely, eliminated.

The device according to the invention, as aforesaid, is shown applied to a specific form of firing mechanism. However, it is obvious that the same may be applied to other forms of firearms including different types of firing mechanisms. With the foregoing in view, it is understood, therefore, that while I have shown and described what is now thought to be a preferred form of the invention, the same is susceptible of other forms and expressions. Consequently, I do not limit myself to the precise structure shown and described hereinabove except as hereinafter claimed.

I claim:

1. In a firearm, a receiver, a sear, means pivoting said sear intermediate its ends on said receiver, spring means operating between said receiver and said sear at one side of said pivot means whereby said sear is normally urged toward firing mechanism engaging position, a trigger pivotally mounted on a portion of said sear at the opposite side of said pivot means from said spring means, said trigger having a cam arranged to effectively engage a portion of said receiver and swing the said portion of said sear away from said receiver against the resistance of said spring means so as to disengage said sear from associated firing mechanism when said trigger is pulled rearwardly from its starting position, an extension on said trigger projecting forwardly therefrom beyond the pivotal point of said trigger toward the pivotal point of said sear, and a screw on said extension adjustable to engage said sear in the region of its pivotal point to impart a more rearward starting position to said trigger.

2. In a firearm, a receiver, a sear, means pivoting said sear intermediate its ends on said receiver, spring means operating between said receiver and said sear at one side of said pivot means whereby said sear is normally urged toward firing mechanism engaging position, a trigger pivotally mounted on a portion of said

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sear at the opposite side of said pivot means from said spring means, said trigger having a cam arranged to effectively engage a portion of said receiver and swing the said portion of said sear away from said receiver against the resistance of said spring means so as to disengage said sear from associated firing mechanism when said trigger is pulled rearwardly from its starting position, an extension on said trigger projecting forwardly therefrom beyond the pivotal point of said trigger toward the pivotal point of said sear, and a screw on said extension adjustable to engage said sear in the region of its pivotal point to impart a more rearward starting position to said trigger, a rearward extension on said trigger extending along a portion of said sear, a screw on said rearward extension adjustable toward said portion of said sear to engage said portion when said trigger is pulled rearwardly in a manner to prevent said trigger from reaching the limit of its normal rearward movement.

3. In a firearm having firing mechanism including a receiver, a sear pivoted intermediate its ends on said receiver and having firing mechanism engaging portion on one end, spring means normally pivoting said sear into firing mechanism engaging position, a trigger pivoted on said sear intermediate the ends thereof at a point at one side of the pivotal point of said sear, an extension on said trigger extending beneath said sear in a direction opposite said firing mechanism engaging portion of said sear, a screw on said extension adjustable to engage said sear to limit normal pivoting of said trigger relative to said sear in a direction away from said firing mechanism engaging portion of said sear.

4. In a firearm having firing mechanism, a receiver, a sear pivoted intermediate its ends on said receiver and having on its rearward end a lug engageable with the firing mechanism to retain said mechanism in cocked position, spring means operating between the forward end of said sear and said receiver whereby said sear normally occupies a position in which its lug engages the firing mechanism, a trigger pivoted on said sear at a point intermediate the ends of said sear and rearwardly of its pivotal point, said trigger having a cam engaging said receiver whereby upon rearward movement of said trigger said sear is moved downwardly to release the firing mechanism against the resistance of said spring means, and whereby upon release of said trigger said spring means is effective to return said trigger to a full forward position, a forward extension on said trigger extending along said sear, a screw on said extension adjusted to engage the underside of said sear and prevent said spring means from returning said trigger to its full forward position.

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