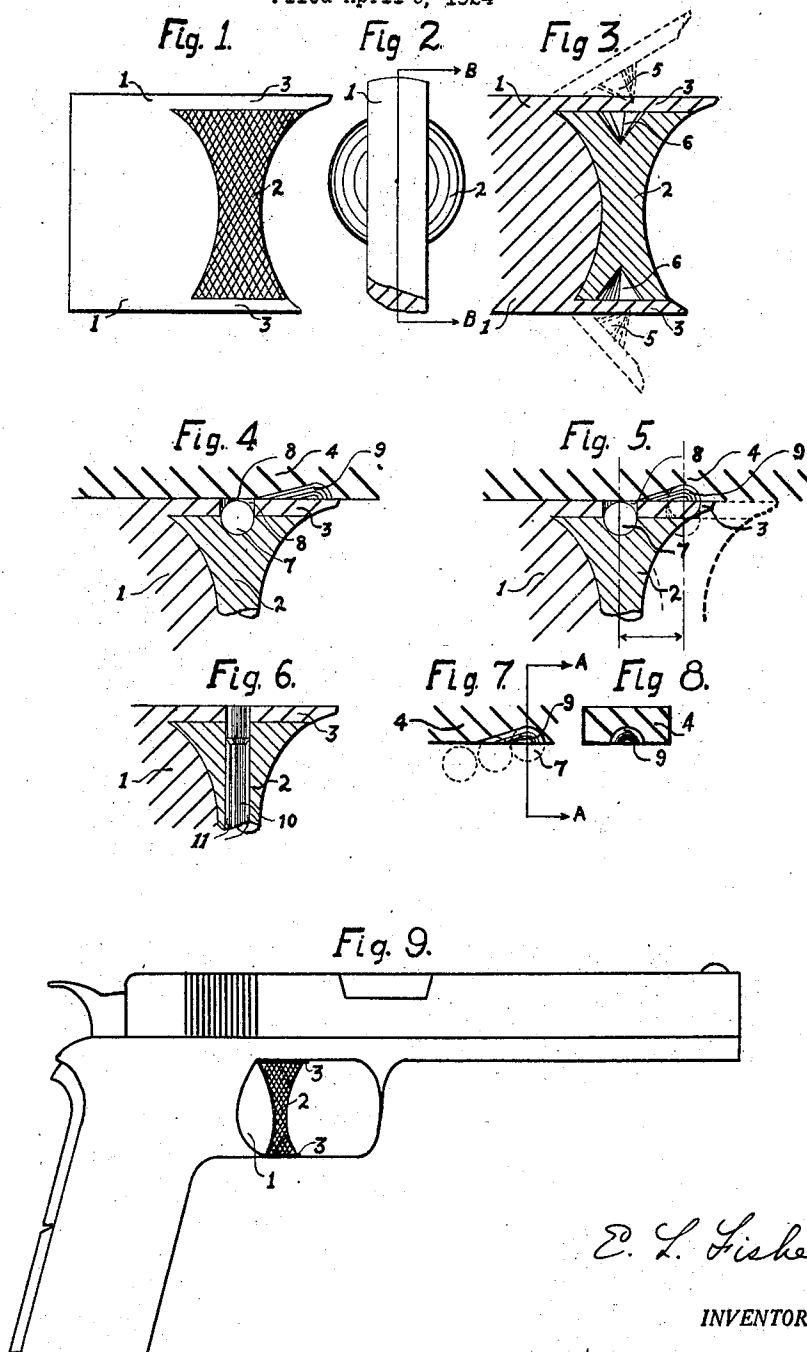


Dec. 30, 1924.

1,521,286

E. L. FISHER
TRIGGER FOR FIREARMS

Filed April 9, 1924



E. L. Fisher.
INVENTOR.
BY *William A. Smith, Jr.*
ATTORNEY

UNITED STATES PATENT OFFICE.

ERNEST L. FISHER, OF NEW BRUNSWICK, NEW JERSEY.

TRIGGER FOR FIREARMS.

Application filed April 9, 1924. Serial No. 705,274.

To all whom it may concern:

Be it known that I, ERNEST L. FISHER, citizen of the United States, residing at New Brunswick, in the county of Middlesex and State of New Jersey, have invented certain new and useful Improvements in Triggers for Firearms, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to triggers for firearms, and has particular reference to a trigger for pistols, revolvers, rifles and the like, which are discharged by a trigger of the sliding type.

It is a well recognized fact among marksmen and other users of firearms that the operation of depressing the trigger to discharge the firearm cause a movement of the muzzle to the right or left of the target or other objective, thus materially affecting the accuracy of the firearm and the effectiveness of the same. This deflection of the muzzle to the right or left is caused by the frictional contact existing between the finger and the surface of the trigger as the finger traverses the trigger surface laterally when depressing the trigger to discharge the firearm. It is further recognized that the accuracy of the firearm is materially affected by the weight of the muzzle of the same, which weight tends to move the muzzle downwardly and to thus cause the bullet to strike a point below the target or other objective.

An object of my invention is to provide an improved trigger for firearms which will eliminate the deflection of the muzzle to the right or left of the target or other objective, due to the finger traversing the trigger surface laterally while depressing the trigger to discharge the firearm. This highly desirable result is accomplished by providing that portion of the trigger which is engaged by the finger with a rotary element or roller which takes up, or compensates for, the lateral movement of the finger, so that the true aim of the weapon is not effected when the trigger is being depressed.

A further object of my invention is to provide a better support for the weight of the muzzle of the firearm, so that the tendency of the muzzle to drop below the point of aim will be overcome to a considerable extent. This highly desirable result is accomplished by so curving the surface of the trigger that the "trigger" or index finger

materially assists in the support of the weight of the muzzle, thus tending to increase the accuracy of the weapon.

A still further object of my invention is to provide an improved trigger for firearms which is simple in construction, reliable in operation, and highly efficient in the purposes for which designed.

In the accompanying drawings, forming a part of this specification, and in which like numerals are employed to designate like parts throughout the several views,

Fig. 1 is a side elevation of my improved trigger;

Fig. 2 is a plan view of the same;

Fig. 3 is a vertical sectional view on the line B—B of Figure 2, showing one method of mounting the roller in the trigger;

Figs. 4 and 5 are fragmental sectional views showing a modified method of mounting the roller in the trigger;

Fig. 6 is a fragmental sectional view, showing a further modified method of mounting the roller;

Fig. 7 is a fragmental sectional view of a portion of the firearm directly above the trigger, showing the path traversed by the ball bearings during the operation of assembling that form of trigger mounting shown in Figures 4 and 5.

Fig. 8 is a vertical sectional view on the line A—A of Fig. 7, and

Fig. 9 is a side elevation of a well known type of automatic pistol, showing the application of my improved trigger thereto.

Referring to the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 1 designates a sliding trigger such as is usually employed in automatic pistols of the type illustrated in Figure 9 of the accompanying drawings. The forward end of the trigger 1 is cut out in the manner clearly shown in Figures 1 and 3, and in this cut out portion is positioned the axially-concaved and knurled roller 2, rotatably mounted between upper and lower sections 3 of the trigger. In that form of my invention shown in Figure 3, I provide the inner surface of the upper and lower trigger sections 3 with conical bosses 5 which fit into corresponding recesses 6 in the roller 2, thus permitting the roller to freely rotate about said bosses. In the operation of assembling the roller within the end of the trigger in this form of my invention, the trigger sec-

tions 3 are bent outwardly; the roller 2 inserted therebetween; and the sections then bent back to their normal position with the conical bosses resting in the recesses 6.

5 In that form of my invention shown in Figures 4 and 5, the roller 2 is rotatably mounted between the trigger sections 3, by means of ball bearings 7, fitting within suitable openings 8 in the trigger sections 3 and 10 in suitable recesses in the top and bottom of the roller 2. The balls 7 contact with the adjacent upper and lower portions 4 of the pistol frame and hence the roller 2, in this form of my device, is rotatably mounted and 15 supported upon ball bearings 7. In Figures 5 and 7 I have illustrated the method of assembling this form of roller mounting. With particular reference to these figures, it will be noted that the adjacent upper and 20 lower portions 4 of the pistol frame are provided with the rearwardly inclined grooves 9. When the trigger 1 is disconnected in the stock of the firearm and is moved forwardly as shown in dotted lines in Figure 5, the 25 ball bearings 7 roll through the openings 8 and into the grooves 9, thus permitting the roller 2 to be detached from the trigger 1, for purposes of replacement or repair.

In Figure 6 I have shown a further modification in the method of rotatably mounting the roller 2 on the trigger. In this form of my invention, I provide the roller with an axially extending opening, into which is 30 inserted the shaft or spindle 10. This shaft or spindle 10 passes through suitable openings in the trigger extensions 3 and constitutes the rotatable mounting for the roller 2. The portion of the shaft or spindle 10 intermediate the ends of the same, is slightly 40 reduced in diameter to provide the annular space 11, thus reducing the frictional engagement between the shaft and roller, and also providing an annular space for the retention of lubricating oil or grease.

45 In the preferred embodiment of my invention I propose to axially concave the roller 2 in such a way that the lower half of the roller is more concaved than is the upper half, i. e., the diameter of the bottom 50 of the roller is less than the diameter of the top of said roller, as clearly shown in the accompanying drawings.

Referring to the operation of my improved trigger, it will be quite obvious that 55 the provision of the roller contact piece eliminates any friction between the finger and the surface of the trigger as the finger traverses the trigger laterally to discharge the firearm, thus overcoming the tendency 60 for the muzzle of the firearm to move to the right or left. Assuming that the firearm is being discharged by the right hand, the index or "trigger" finger is drawn back to discharge the firearm. During the backward 65 movement of the finger to depress the trig-

ger, there is also a movement of the finger laterally across the trigger surface, this lateral movement, when an ordinary trigger is employed, tending to move the muzzle of the firearm to the left of the target or other 70 objective. When the roller trigger is employed, the roller takes up, or compensates for, the lateral movement of the finger by revolving or rotating about its axis, hence the muzzle is not deflected to the left of the 75 target or other objective. When the piece is being discharged from the left hand, the tendency of the muzzle to move to the right, due to the lateral movement of the "trigger" or index finger traversing the trigger 80 surface, is likewise overcome by the use of my improved roller trigger. By axially concaving the roller in the manner specified above, the weight of the muzzle is materially overcome, as the upper concaved portion of 85 the roller rests upon the top of the finger and assists in the support of the weight of the firearm, thus eliminating the tendency of the muzzle to drop below the point of aim. 90

It is to be understood that the forms of my invention herein shown and described are to be taken as preferred examples of the same, and that various changes in the shape, size, and arrangement of parts, may be resorted to without departing from the spirit 95 of my invention or scope of the subjoined claims. While I have chosen to describe my invention as used with triggers of the sliding type, it is quite obvious that the same 100 may be advantageously used with triggers of the pivoted type, and while I have shown the roller axially concaved, it is to be understood that I may employ a plain straight-sided cylinder within the scope of my invention. 105

Having thus described my invention, I claim:

1. A trigger for firearms, comprising a trigger piece having a roller mounted thereon 110 for engagement by the finger during the depressing of the trigger to discharge the firearm.

2. A trigger for firearms, comprising a trigger piece having an axially concaved 115 roller mounted at the forward end thereof for engagement by the finger.

3. A trigger for firearms, comprising a trigger piece having an axially concaved roller mounted at the forward end thereof 120 for engagement by the finger, said roller being more deeply concaved at the lower portion than at the upper portion.

4. A trigger for firearms, comprising a trigger piece, a roller associated with said 125 trigger piece for engagement by the finger when the trigger is being depressed to discharge the firearm, and means for rotatably mounting said roller on the trigger piece.

5. A trigger for firearms, comprising a 130

trigger piece having upper and lower extensions at its forward end, a roller carried by the trigger piece between said upper and lower extensions, and means for rotatably mounting said roller on the trigger piece between said extensions.

6. A trigger for firearms comprising a trigger piece having upper and lower extensions at its forward end, a roller carried by the trigger piece between said upper and lower extensions, and means engaging the roller and the said upper and lower extensions for rotatably mounting said roller on said trigger piece.

7. A trigger for firearms comprising a trigger piece having upper and lower extensions at its forward end, a roller carried by said trigger piece between said upper and lower extensions and having recesses at its upper and lower ends, and means associated with said extensions and resting within the recesses in said roller for rotatably mounting said roller on said trigger piece.

8. A trigger for firearms comprising a

trigger piece having upper and lower extensions at its forward end, a roller carried by said trigger piece between said upper and lower extensions, and ball bearing mountings within said extensions and engaging the ends of the roller for rotatably mounting said roller on said trigger piece.

9. A firearm, comprising a trigger piece having upper and lower extensions at its forward end, said extensions having openings extending therethrough; a roller carried by said trigger piece between said upper and lower extensions and having recesses at its upper and lower ends; ball bearings mounted within said openings and recesses for rotatably mounting said roller on said trigger piece; and means for permitting the removal of said ball bearings to permit the roller to be removed from the trigger piece for the purpose of replacement or repair.

In testimony whereof I hereunto affix my signature.

ERNEST L. FISHER.