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MECHANISM TO ENABLE FIRING OF SHOTGUN WITH ONE ARM

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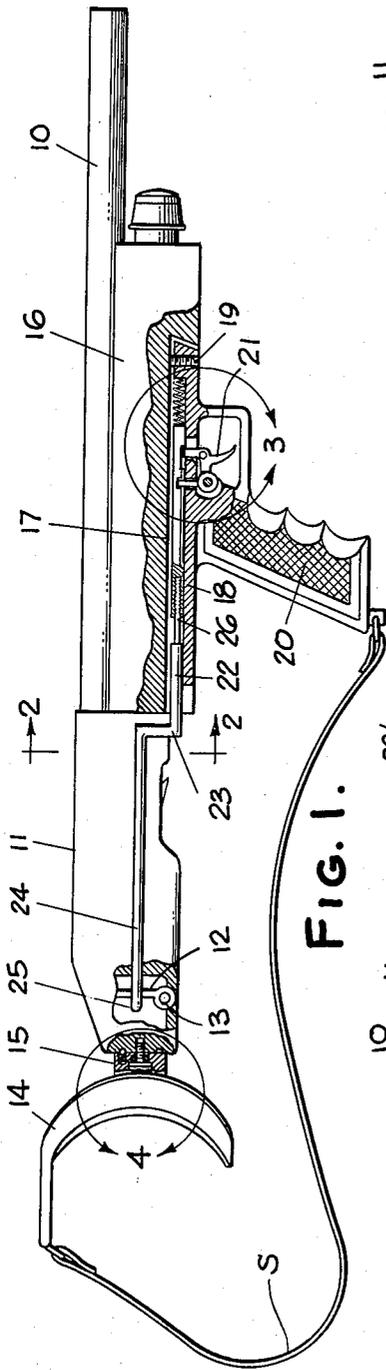


FIG. 1.

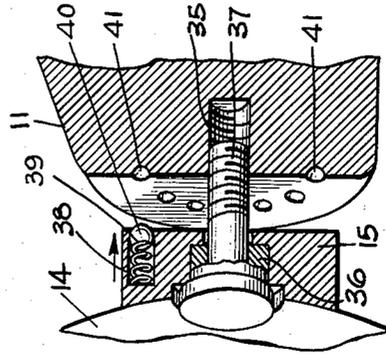


FIG. 4.

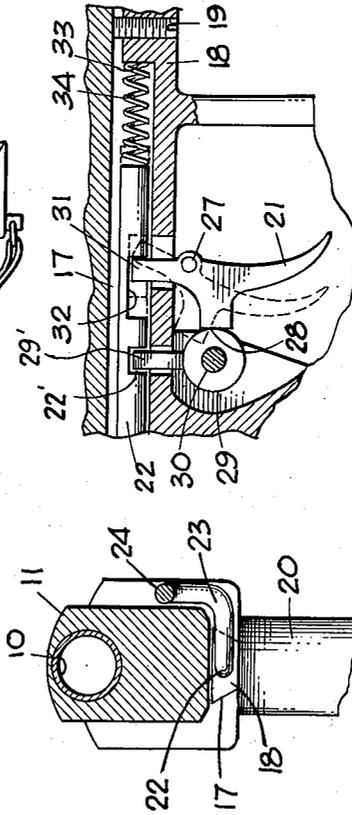


FIG. 3.

FIG. 2.

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MECHANISM TO ENABLE FIRING OF SHOTGUN  
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4 Claims. (Cl. 42—69)

This invention relates generally to firearms and more particularly to an improved shotgun, primarily for use by policemen.

Conventional shotguns include a barrel, breech mechanism, and shoulder stock all of generally an overall length corresponding to rifle-type firearms. To increase the portability of shotguns as well as the facility with which they may be fired, the conventional barrels have been sawed off. Although this expediency shortens the gun, the accuracy of the gun itself is considerably reduced. Thus the sawed off shotgun is really only useful at relatively close ranges and even with a shortened barrel, it is still relatively bulky in certain situations such as shooting from automobiles and the like.

Bearing the foregoing in mind, it is a primary object of the present invention to provide an improved shotgun in which the overall length of the gun is considerably shortened without sacrifice in accuracy to the end that it may be easily handled by one hand and carried in such a manner as to be immediately available for instant use.

A more particular object of the invention is to provide an improved shotgun which may be readily fired from the window of a speeding automobile during pursuit of outlaws.

More general objects of the invention are to provide an improved shotgun which may be manufactured without any substantial increase of cost over the manufacture of conventional shotguns or which if desired may be constructed by effecting relatively simple modifications on a conventional shotgun.

These and many other objects and advantages of this invention are attained by removing the conventional shoulder stock and substituting a yoke, preferably swivelled to the rear end of the breech mechanism of the shotgun. This operation results in a considerable shortening of the gun without any shortening of the barrel itself so that the accuracy of the gun is not impaired. The shotgun further includes a modified fore-end member cradling a portion of the underside of the barrel and including a pistol grip handle extending downwardly therefrom. In a preferred embodiment of the invention, the position of the handle may be adjusted intermediate the front end of the barrel and the breech structure. The pistol grip handle includes a trigger coupled through an actuating means to the triggering mechanism in the breech structure of the gun so that firing of the gun may be effected at the pistol grip handle.

With the foregoing modifications, the improved shotgun may be readily carried and fired by either hand of an operator or passed through an automobile window, the yoke member cradling either the inside upper arm portion of the user or the user's shoulder, and the pistol grip handle being grasped in the same manner as a conventional small sidearm.

A better understanding of the invention will be had by referring to a preferred embodiment thereof as illustrated in the accompanying drawings in which:

Figure 1 is a side elevational view partly broken away of the improved shotgun of this invention;

Figure 2 is a cross section taken in the direction of the arrows 2—2 of Figure 1;

Figure 3 is an enlarged elevational view partly in cross section of that portion of the pistol grip handle and trigger enclosed within the circular arrow 3 of Figure 1; and,

Figure 4 is another enlarged view partly cut away and partly in perspective of the yoke securing means enclosed within the circular arrow 4 of Figure 1.

Referring first to Figure 1 the improved shotgun includes a conventional barrel 10 and breech structure 11. As shown, a portion of the breech structure is broken away to reveal the conventional sear 12 pivoted at 13. In a conventional shotgun, there would extend downwardly from this lever the conventional trigger.

Rather than a conventional shoulder stock, there is provided a yoke member 14 coupled to the rear end of the breech structure 11 by a swivelling means 15. The forward portion of the barrel 10 on the other hand is cradled by a fore-end member 16 provided on its underside with a dove-tail shaped longitudinal groove 17.

As shown in both Figures 1 and 2, a similarly dove-tail shaped slidable member 18 is received within the groove 17 and includes a set screw 19 whereby the position of the slidable member 18 along the longitudinal groove 17 may be adjusted. The slidable member 18 forms the upper end of a pistol grip handle 20 provided with a trigger 21 for moving an actuating rod 22 longitudinally with respect to the slidable member 18.

The actuating rod 22 extends rearwardly from the groove 17 and curves at 23 to pass adjacent to the breech structure 11 as at 24. The end of the rod terminates in an inwardly bent engaging portion 25 for actuating the sear 12. By this arrangement, the firing mechanism within the breech structure 11 may be operated by the trigger 21 on the pistol grip handle 20.

By adjusting the longitudinal position of the handle 20 within the groove 17, the distance between the yoke member 14 and the pistol grip handle can be varied to suit the particular user of the gun. The actuating rod 22 includes an adjustable means in the form of a threaded member 26 so that the length of the rod 22 can be effectively varied in accordance with the position set for the pistol grip handle 20. A shoulder sling S may be provided extending between the handle 20 and yoke as shown.

Referring now to Figure 3, the details of the trigger 21 and the manner in which it actuates the actuating rod 22 will be described. As shown in Figure 3, the trigger 21 is pivoted for arcuate movement about a pivot point 27 and includes a rear projecting end 28 co-operating with a safety catch mechanism in the form of a compound cylindrical structure including an outer cylinder 29 having a reduced diameter cylindrical portion 30. This safety catch mechanism moves in and out of the plane of the drawing of Figure 3. When the safety catch is in its safety position, the structure is moved out of the plane of Figure 3 slightly so that the projecting end 28 of the trigger 21 engages the periphery of the outer cylinder 29. When the safety catch mechanism is moved in the other direction, that is, into the plane of the paper, the outer cylinder 29 disengages from the end 28 and the end is free to swing in a clockwise direction about the pivot point 27 upon actuation of the trigger as indicated in dotted lines.

The trigger 21 also includes an upper engaging end 31 received within a cut out portion 32 in the rod 22. By this arrangement, it will be evident that when the trigger is rotated about the pivot 27, the upper engaging end 31 will urge the actuating rod 22 to the right thereby trigger-

ing the sear 12 shown in Figure 1. The forward end of the slidable member 13 terminates in a shoulder 33 for housing a compression spring 34 between the shoulder and the extreme right hand end of the actuating rod 22 so that the rod is always biased to the left thereby normally urging the trigger 21 to its solid line position.

To prevent any inadvertent operation of the actuating rod 22 itself, the rod may include an additional cut-out 22' receiving an upwardly extending catch 29' from the outer cylinder 29 of the safety catch. This catch will be moved out of the cut-out 22' of the rod 22 when the safety catch is moved to its off position.

Figure 4 illustrates one means for mounting the yoke 14 to the rear end of the breech structure 11. As shown, the rear end of the breech structure 11 includes a central threaded bore 35. Similarly, the swivel member 15 secured to the yoke 14 includes a bore lined with a sleeve 36. A bolt 37 passes through sleeve 36 to thread into bore 35 and upon tightening will pull the swivel member 15 into engagement with the end of the breech structure 11. The member 15 and yoke 14 may thus rotate about the longitudinal axis of the gun by turning about the head of the bolt.

In addition to the foregoing structure, the outer peripheral end of the swivel mechanism 15 includes a small well 38 housing a spring 39 exerting an outward force on an indexing ball 40. The ball 40 in turn is partially receivable in any one of a series of indents 41 in the breech.

By the above arrangement, the spring 39 will urge the ball within one of the indents 41. If now it is desired to change the angle of the plane of the yoke arms with respect to the vertical, the yoke member 14 may be rotated about the longitudinal axis of the gun, the ball 40 retracting into the well 38 until it is in position to be received in another one of the indents. The yoke 14 may thus be swiveled into any of several positions depending upon how the gun is being used.

In operating the improved shotgun, the user may grip the pistol grip 20 with either his right or left hand with the yoke 14 cradled about the inside of the person's arm immediately above the elbow. In this instance, the yoke 14 will be rotated so that the plane of its arms will be substantially horizontal. The gun would then be fired from approximately a waist high position. Alternatively, the yoke member 14 may be swiveled to the position shown in Figure 1 and serve to cradle the person's shoulder. This position would be desirable when shooting the shotgun from an automobile window. Again, either the right arm or left arm may be used depending upon which side of the car the policeman is sitting.

From the foregoing description, it will be evident that the present invention has provided a greatly improved shotgun which can be manufactured for substantially no increase in price over conventional shotguns. Further, the arrangement of the component parts is such that a conventional shotgun could readily be modified or adapted by simply removing the conventional stock and substituting the yoke 14 and the new fore-end member 16 for the conventional fore-end member employed. The safety catch mechanism constituting the compound structure 29, 29' and 30, shown in Figure 3 prevents any inadvertent movement of either the trigger 21 or actuating rod 22

when in its safe position. The overall improved structure thus provide a shotgun in which accuracy is not sacrificed and yet which is of an overall length considerably shorter than conventional shotguns whereby the various advantages set forth heretofore are achieved.

Various modifications falling within the scope and spirit of this invention will occur to those skilled in the art. The improved shotgun is, therefore, not to be thought of as limited to the particular embodiment set forth merely for illustrative purposes.

What is claimed is:

1. A shotgun comprising, in combination: a barrel terminating in a breech structure at its rear end, said breech structure including a sear; a yoke member; means securing said yoke member to the end of said breech structure; a fore-end member cradling a portion of the underside of said barrel, said fore-end member having a longitudinal dove-tail shaped groove running along its underside; a pistol grip handle including an upper dove-tail shaped slidable member receivable in said groove whereby said pistol grip handle extends downwardly and is positionable along the underside of said fore-end; a trigger pivotably mounted in said handle and having an engaging end extending upwardly through said slidable member into said groove; and an actuating rod having one end portion movable within said slidable member and engaged by said engaging end of said trigger and its other end portion extending out the rear end of said groove adjacent to said breech to engage said sear, whereby actuation of said trigger moves said rod to trip said sear and enable firing of said shotgun with one arm.

2. The subject matter of claim 1, including spring means positioned between the forward end of said rod and the forward end of said slidable member to bias said rod in a rearward direction against said engaging end of said trigger.

3. The subject matter of claim 2, including means in said actuating rod for varying the length of said actuating rod.

4. The subject matter of claim 3, in which said means securing said yoke member to the end of said breech structure includes a swivel structure mounting said yoke member for rotation about the longitudinal axis of said shotgun whereby the angle of the plane including the arms of said yoke member with respect to the vertical may be varied.

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