A. A. YEATON.

FIRING MECHANISM FOR FIREARMS.

APPLICATION FILED APR. 29, 1916.

1,230,973. Patented June 26, 1917.

FIG. 1.

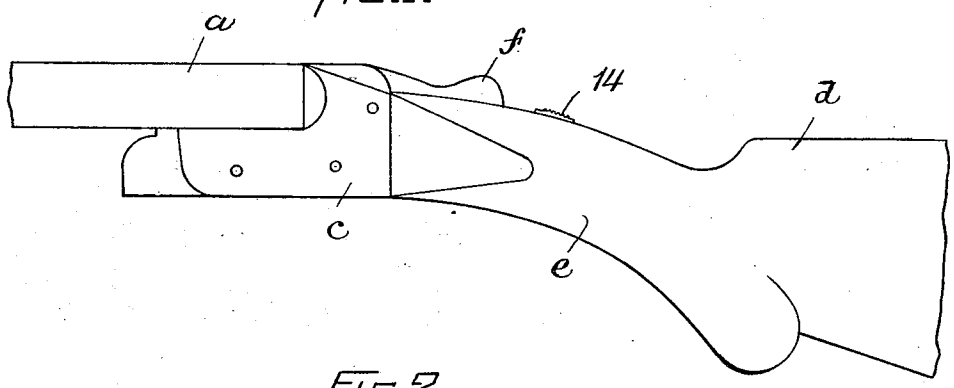


FIG. 2.

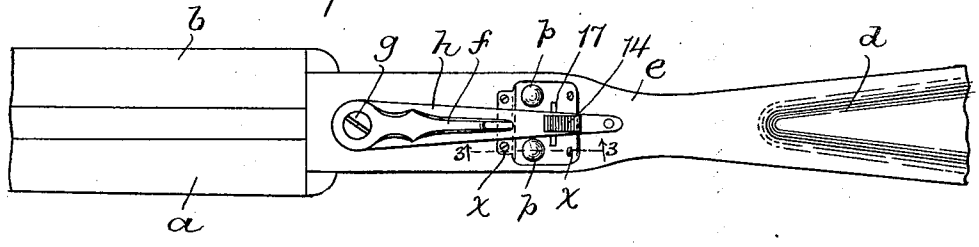


FIG. 3.

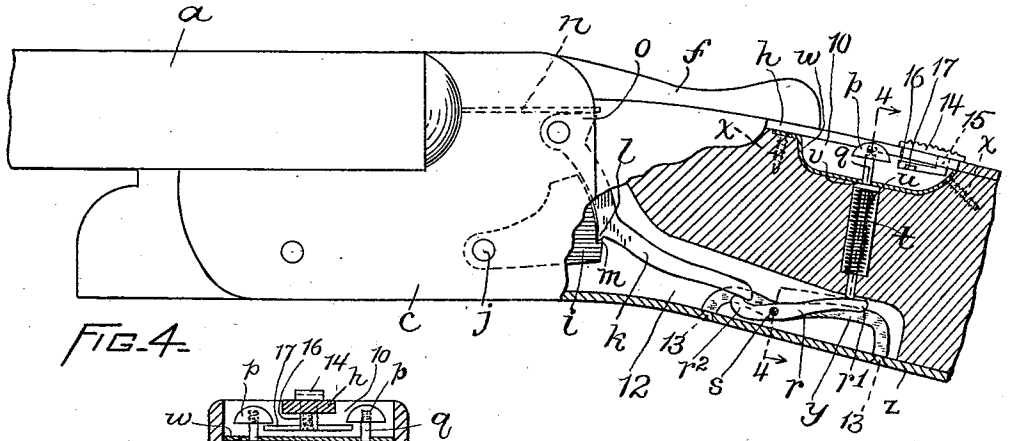
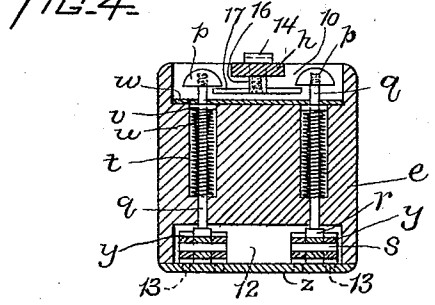


FIG. 4.



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FIRING MECHANISM FOR FIREARMS.

1,230,973. Specification of Letters Patent. Patented June 26, 1917.

Application filed April 29, 1916. Serial No. 94,347.

To all whom it may concern:

Be it known that I, ALVIN A. YEATON, a citizen of the United States, residing at Hillsboro, in the county of Hillsborough and State of New Hampshire, have invented new and useful Improvements in Firing Mechanism for Firearms, of which the following is a specification.

The present invention relates to firearms and particularly to firearms of the type which is equipped with a stock, the butt of which is adapted to be held against the shoulder of the user in firing. The object of the invention is to provide a firing mechanism for such firearms or guns to take the place of the trigger which heretofore had been commonly provided in an exposed position on the under side of the stock of the gun. A further object is to make a firing mechanism of the sort above indicated which shall be without projections beyond the gun stock which might injure the hand or face of the user by reason of the recoil of the gun. Still another object is to furnish a firing mechanism of the sort indicated so constructed and arranged that it may be applied to guns of the exposed trigger type in substitution for the trigger and its guard. The mechanism embodying my invention may be applied singly or in duplicate to a single barreled or a double barreled gun respectively, and for the purpose of illustration I have shown its application to a double barreled shot gun.

In the drawings, Figure 1 is a side elevation of the breech and part of the stock of a shoulder firearm having my invention applied thereto.

Fig. 2 is a plan view of so much of the firearm as is shown in Fig. 1.

Fig. 3 is an elevation of the same parts on a larger scale with the stock broken away sufficiently to show the firing mechanism for one of the barrels of the gun.

Fig. 4 is a detail cross section on line 4—4 of Fig. 3.

The same reference characters indicate the same parts in all the figures.

a and *b* represent the barrels of a double barreled shot gun. *c* is the breech block and *d* is the forward part of the stock, of which the portion designated *e* is the grip. The butt of the stock is broken away on account of lack of room to illustrate it on the scale chosen for these drawings, but it is to be understood that the complete butt is of a form and size adapting it to be placed against the shoulder of the user in the ordinary manner in which a gun stock is placed when held in the position for firing. While my invention is not restricted in respect to the character and form of the gun stock, I wish to emphasize the fact that the combination in which it is here shown and claimed includes a firearm of the shoulder type having a stock with a butt adapted to be placed against the user's shoulder.

f represents the lever pivoted at *g* on the stock which releases the latch holding the barrel in the position for firing, when the breech is to be opened for loading. *h* represents a plate such as is ordinarily provided in breech loading firearms to cover the cavity in the stock in which the firing mechanism is located.

The gun so illustrated is of the so-called hammerless type in which the hammer is concealed within the breech block. *i* represents the concealed hammer which is pivoted on a pin *j*, and is held in the cocked position by a sear *k*, which has a catch *l* engaging a shoulder or abutment *m* on the outer end of the hammer. I have not illustrated the mechanism for cocking the hammer or the spring for driving it when released, as such mechanisms are not my invention, and may be of any ordinary or other construction or character. *n* is a spring fixed at one end and bearing at its free end on a shoulder *o* of the sear to hold the same in engagement with the hammer abutment as illustrated in Fig. 3. All of the parts thus far described are not specifically my invention, but are found in one of the commercial models of double barreled breech-loading shot gun long in general use.

The firing or trigger mechanism in which the novel features of my invention are comprised, consists of a press button *p* on the upper end of a stem *q* which passes through the grip portion of the stock from the upper toward the under side thereof, and a transmission lever *r* pivoted on a fulcrum pin *s* and having a long arm *r'* which bears against the stem *q*, and a short arm r^2 which bears against the sear *k*. The passage in the stock which contains the stem *q* is counterbored or enlarged to provide a socket *t* in which a spring *u* is contained, such spring bearing at one end against the bottom of the socket *t* which forms an abutment, and at the other end against a flange or shoulder

v on the stem q. This spring normally holds the button p in the elevated position shown in the drawings. A plate w lines the cavity 10 in the upper side of the stock wherein the button p is located, and is secured to the stock by screws x. This plate serves the triple function of a cover for the socket t, thereby constituting a stop which overlies the flange v and retains the stem q and the spring u in the socket, of a lining to protect the wood of the stock at the bottom of the cavity from injury, and of giving a neat finish to this part of the gun.

The transmission lever r is mounted between two lugs or bridges y in which the ends of the fulcrum pin s are mounted, and which are secured on a plate z which is attached to the under side of the stock so as to cover or close in the cavity 12 within which the hammer, sear k, and transmission lever r are contained. The ends of the bridge lugs y have stud-like projections 13 which pass through holes in the plate z and are headed over at their outer ends to afford a firm anchorage in the plate.

A single trigger mechanism comprising the parts above described is adapted to serve for a single barreled gun. When the invention is applied to a double barreled gun, the trigger mechanism is duplicated, as appears clearly from Fig. 4. In this case the cavity 10 may be wide enough to contain the press buttons p of both trigger mechanisms, in which case there may be a single lining plate w having the full width of the cavity as shown in Fig. 4, but it is equally within my contemplation to provide two distinct cavities 10, each containing one of the buttons, and to provide two correspondingly narrow lining plates, one for each cavity.

I have provided a safety catch to guard against accidental operation of the trigger mechanism, such catch comprising, in the form illustrated, a plate 14 having a roughened or serrated upper surface which is adapted to slide on the plate h and has a stem 15 passing through a slot in said plate h into the cavity 10, on which there is a forwardly projecting arm 16 carrying fingers 17 projecting to opposite sides and arranged to be passed under the buttons p when the safety catch is moved forward from the position illustrated in the drawings, which is the inoperative position. In the case of a single barreled gun one of the fingers 17 of the safety catch is omitted, or both may be omitted and the arm 16 alone depended on to arrest the button of the single trigger mechanism.

Evidently the manipulation of the trigger mechanism to fire the gun involves merely applying a downward pressure on the button p, which causes the stem q to depress the arm r' of the transmission lever r and raise the arm r^2 thereof, thereby withdrawing the catch l of the sear k from the abutment m of the hammer, and allowing the latter to be propelled swiftly by its spring to strike the firing pin at the breech of the gun a sharp blow. So far as the firing function is concerned, the button p may be omitted and the pressure applied directly to the stem q, the button being provided merely for the obvious purpose of furnishing a wide, smooth surface to receive the pressure of the thumb without discomfort to the person firing the gun.

Among the features of special utility and advantage possessed by my invention are the following:

First, the press button is located conveniently to the thumb of the hand by which the user grasps the gun stock when holding the gun in position for firing. He can apply the slight pressure necessary to release the hammer without shifting his thumb from the position which it naturally assumes, and therefore without distracting his attention or otherwise disturbing his aim in the slightest. In the case of a double barreled gun the two press buttons may be located so close together that only the slightest shifting of the thumb is required for operating the second press button after the first has been pressed upon.

Second, the press button is contained in a cavity in the gun stock so that it does not project beyond the contours of the stock and is thereby so guarded that there is no danger of its striking the cheek or eye of the marksman in case the gun should be thrown upward by the recoil of the discharge. Serious injuries have occasionally occurred by reason of the hammer or some other projecting part of a firearm striking the face of the user on the recoil. There is no possibility of such an accident occurring with a gun having my improvement on account of the concealment of the trigger press button in a cavity.

Third, there is no projection on the under side of the gun stock at the grip on account of the fact that my invention enables the ordinary exposed trigger and its guard to be dispensed with. In firing a gun by means of an exposed trigger the guard lies between the first and second fingers of the user, and is liable with the recoil of a heavy charge, to strike the second finger of the user's hand more or less violently and cause great discomfort, if not actual injury. Such accidents as broken and dislocated fingers have on some occasions resulted from this cause. Evidently no such accident can occur with my improved firearm, and in addition a firmer grasp on the grip of the stock is made possible by reason of the fact that the fingers do not require to be separated.

Fourth, it is not necessary to modify the construction of the gun in order to apply

my trigger mechanism, wherefore it is possible to apply the mechanism to practically all standard makes of guns, as well as to those especially designed for such mechanism in the first instance. Fig. 3 illustrates well how the mechanism may be applied to a standard make of gun. All that is necessary for this purpose is to gouge out the cavity 10, drill the passage for the stem *q* and counterbore the socket *t*, and remove the trigger guard and trigger. The gun is then in readiness for the reception of my trigger mechanism, which is applied as shown in the drawings and already fully described. The operations required for this purpose in the stock of a gun evidently involve the removal of only a small amount of wood, which is not sufficient to weaken the stock in the slightest appreciable degree.

What I claim and desire to secure by Letters Patent is:

1. In a shoulder firearm having a stock provided with a grip portion, a lock including a concealed hammer pivoted at one of its ends near the under side of the lock and having a shoulder on its outer end, a sear pivoted in the upper portion of the lock having a part lying across the outer end of the hammer provided with a catch to engage said shoulder and hold the hammer in cocked position, the end of the sear extending into a cavity in the lower part of the grip, a plate covering said cavity, a bridge on said plate, a release lever pivoted to said bridge having an arm underlying the end of said sear and having a second arm extending to the opposite side of its pivot from the aforesaid arm, a push pin passing through the stock from the upper side thereof into engagement with the second arm of said release lever and having a head so exposed as to be engageable by a digit of the user.

2. In a shoulder firearm having a stock provided with a grip portion, a lock including a concealed hammer pivoted at one of its ends near the under side of the lock and having a shoulder on its outer end, a sear pivoted in the upper portion of the lock having a part lying across the outer end of the hammer provided with a catch to engage said shoulder and hold the hammer in cocked position, the end of the sear extending into a cavity in the lower part of the grip, a plate covering said cavity, a bridge on said plate, a release lever pivoted to said bridge having an arm underlying the end of said sear and having a second arm extending to the opposite side of its pivot from the aforesaid arm, a push pin passing through the stock from the upper side thereof into engagement with the second arm of said release lever and having a head so exposed as to be engageable by a digit of the user, the stock having a cavity wherein said head is contained, and a spring acting on said push pin tending to draw said pin away from the release lever.

3. In a shoulder firearm having a stock provided with a grip portion, a lock including a concealed hammer pivoted at one of its ends near the under side of the lock and having a shoulder on its outer end, a sear pivoted in the upper portion of the lock having a part lying across the outer end of the hammer provided with a catch to engage said shoulder and hold the hammer in cocked position, the end of the sear extending into a cavity in the lower part of the grip, a plate covering said cavity, a bridge on said plate, a release lever pivoted to said bridge having an arm underlying the end of said sear and having a second arm extending to the opposite side of its pivot from the aforesaid arm, a push pin passing through the stock from the upper side thereof into engagement with the second arm of said release lever and having a head so exposed as to be engageable by a digit of the user, the stock having a cavity wherein said head is contained, and a spring acting on said push pin tending to draw said pin away from the release lever and the push pin also having a stop to retain the same with its head within the cavity.

In testimony whereof I have affixed my signature.

ALVIN A. YEATON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."