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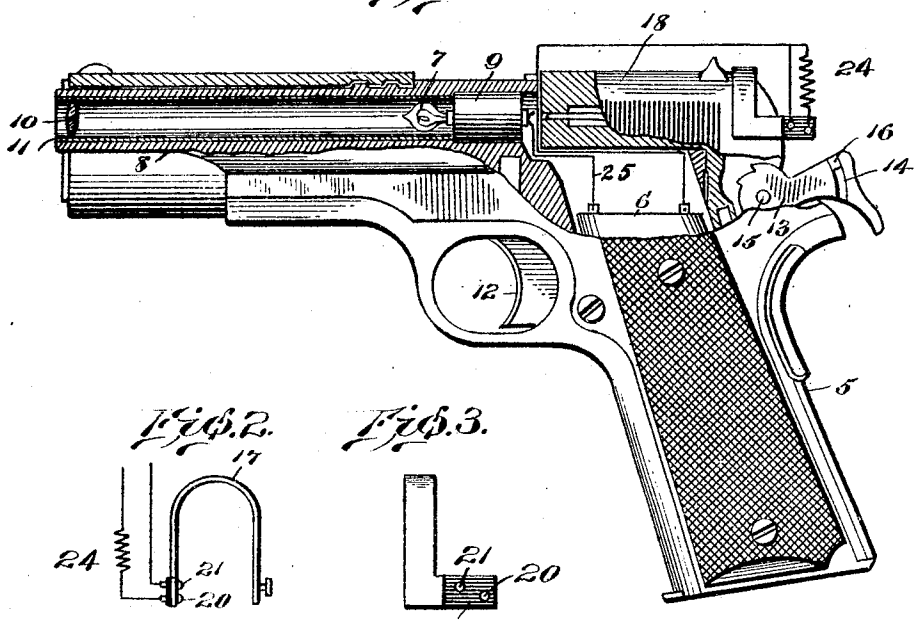
April 15, 1924. 1,490,272

H. M. HICKAM

AIM INDICATOR

Filed Feb. 2, 1923

Fig. 1.

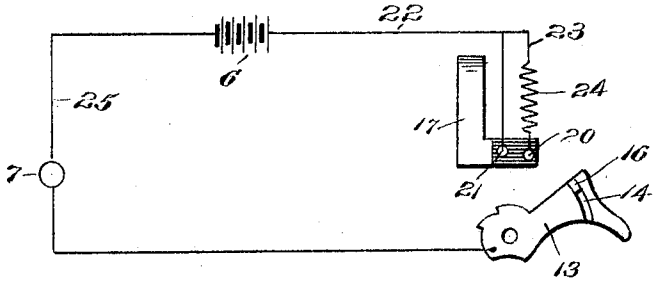


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Fig. 2.

Fig. 3.

Fig. 4.



Inventor

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Patented Apr. 15, 1924. 1,490,272

UNITED STATES PATENT OFFICE.

HORACE M. HICKAM, OF WASHINGTON, DISTRICT OF COLUMBIA.

AIM INDICATOR.

Application filed February 2, 1923. Serial No. 616,628.

To all whom it may concern:

Be it known that I, HORACE M. HICKAM, citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Aim Indicators, of which the following is a specification.

This invention relates to aim indicators of the type in which an electric lamp is used upon a fire arm of any kind and usually combined with a lens and switch of such character that when the trigger of the fire arm is operated a beam of light is thrown upon a target, thereby indicating whether the aim is true or not.

The main object of the present invention is to provide apparatus of the character above referred to which is adapted to be applied to or used in conjunction with a standard fire arm so that troops may be trained in the aiming and use of the particular standard fire arm used in actual warfare.

Another object of the invention is to provide simple apparatus of the character referred to, operable by the trigger of the fire arm to first conduct a portion of the electric current to the filament of the electric lamp for heating said filament, then conducting the whole current to the lamp for producing the maximum light, and then cutting off the current just prior to the completion of the firing stroke of the hammer of the fire arm. The cutting off of the current however, does not impair the brightness of the lamp, the spot of light projected from the lamp being visible on the target at the moment that the hammer finishes its firing stroke.

The source of electric energy for the lamp is shown as consisting of a battery in compact form which is inserted in the hand grip of the fire arm in the place usually occupied by the magazine. Therefore, the aim indicating apparatus does not materially alter the appearance, weight or other characteristics of the fire arm in conjunction with which the indicating apparatus is used.

The invention consists in the novel arrangement herein fully described, illustrated and claimed. In the accompanying drawings:

Figure 1 is a view partly in side elevation and partly in section of a fire arm to which the aim indicating apparatus is shown applied, said view also showing diagrammatically the wiring system.

Figure 2 is a detailed elevation of the contact clip.

Figure 3 is a side elevation of the same.

Figure 4 is a diagram of the wiring system.

The aim indicating apparatus is for convenience shown applied to a pistol but it will be apparent as the description proceeds, that the apparatus may be applied to or used in conjunction with any type of fire arm. The apparatus is so designed that it may be applied to any standard fire arm as this will conduce to the proper and more accurate training of troops.

In carrying out the present invention, the usual cartridge magazine is removed from the hand grip 5 of the fire arm and a battery 6 is inserted in the magazine chamber of the hand grip in lieu of the magazine as illustrated in Figure 1. An electric lamp 7 is inserted in the breech of the barrel 8 of the fire arm and into an electric lamp socket 9 which is in contact with the inside of the barrel 8. The lens 10 is inserted in a tube or liner 11 which fits into the barrel 8 and is highly polished on its inside. The lens 10 is of the concentrating type so as to bring the rays of the lamp 7 into parallelism, thereby causing the single concentrated beam of light to be projected from the fire arm upon a suitable target which thereby displays a single brilliant spot of light at the moment of firing.

In conjunction with the battery and lamp herein above described, a switch mechanism is employed operable by the trigger 12 of the fire arm. The switch mechanism is formed in part by the hammer 13 of the fire arm which for the purpose of carrying out the invention is formed in one of the side walls thereof with a curved groove or depression 14, the curve of said groove being described on the arc of the circle of which the pivot 15 of the hammer 13 is the center. Situated in the groove 14 and occupying a portion thereof is a contact 16 the operation of which will presently appear.

An inverted U-shaped contact clip 17 is placed over the rear end portion of the frame 18 of the fire arm as shown in Figure 1, said clip being best illustrated in the detailed views Figures 2 and 3 wherein it will be observed that one branch of the clip is formed with a rearwardly extending arm 19 having contacts 20 and 21 exposed on

the inner face thereof for cooperation with the contact 16 of the hammer 13 herein above described. The contacts 20 and 21 are arranged in the paths of the contact 16 so that as the hammer of the fire arm moves along its firing stroke the contact 16 first rides against the contact 20 and thereafter against the contact 21 and finally the contact 16 passes beyond both of the contacts 20 and 21 which then lie opposite or project partially into the groove 14 of the hammer.

From the battery 6 a wire 22 extends to the contact 21 of the clip 17 while branch 23 of said wire passes through a resistance 24 and then connects to the contact 20 as shown in Figure 4. The current flows from the battery 6 thru a wire 25 to the lamp 7 and then passes thru the frame of the fire arm to the hammer 13.

From the foregoing description taken in connection with the accompanying drawings the operation of the aim indicating apparatus will now be understood. The operator takes aim with the fire arm and then pulls the trigger 12 thereby releasing the hammer 13 which starts on its firing stroke. When the contact 16 touches the contact 20, the current flows thru the resistance 24 and therefore only a portion of the whole current is conducted to the lamp 7, a sufficient part of the current however passing to the lamp to heat the filament thereof. Upon further movement of the hammer 13 the contact 16 touches the contact 21 and thereupon the entire current passes from the battery to the lamp. Upon a still further movement of the hammer 13 in the firing stroke thereof, the contact 16 passes beyond both of the contacts 20 and 21 and the current is automatically cut off just prior to the completion of the firing movement of the hammer. The interval between the moment that the contact 16 passes beyond the contact 21 and the moment the hammer finds its seat is however so brief that the beam of light from the lamp is still on the target at the very moment the hammer completes its firing stroke or in other words, at the very moment the cartridge would be fired were the fire arm loaded. This enables the aim of the operator to be trained with the utmost accuracy and while using the standard fire arm adopted by the Government for war time use.

It will also be seen that the apparatus is well adapted to be used in conjunction with a standard fire arm that it may be easily applied thereto and that it will not materially alter the appearance, weight or other characteristics of the fire arm.

I claim:

1. In an aim indicator embodying a fire arm and an electric lamp for luminously spotting the aim taken, switch mechanism operable by the fire arm trigger to first throw the lamp into a low power circuit, then into a high power circuit and finally shut off the current prior to completion of the firing movement of the hammer of the fire arm.

2. In an aim indicator embodying a fire arm and an electric lamp for luminously spotting the aim taken a battery for energizing the lamp, a resistance, and switch mechanism operable by the fire arm trigger to first include the resistance in the lamp circuit, then transmit the full current to the lamp and finally shut off the current prior to completion of the firing movement of the hammer of the fire arm.

3. In an aim indicator embodying a fire arm and an electric lamp for luminously spotting the aim taken, switch mechanism operable by the fire arm trigger and embodying contact means on the hammer of the fire arm and other contact means on the frame of the fire arm, the two contact means being so related that in the firing movement of the hammer, first only a portion of the current is conducted to the lamp, then the full current and finally the current is cut off prior to completion of the firing movement of the hammer.

4. In an aim indicator embodying a fire arm and an electric lamp for luminously spotting the aim taken, switch mechanism operable by the fire arm trigger and embodying a contact carried by the hammer of the fire arm, and a clip fastened to the frame of the fire arm and having a contact arranged in the path of the first named contact, said contacts being adapted to close and break the lamp circuit during the firing movement of the hammer.

5. In an aim indicator embodying a fire arm and an electric lamp for luminously spotting the aim taken, a resistance, and switch mechanism embodying contact means on the frame of the fire arm and on the hammer thereof so arranged and related that during the firing movement of the hammer, the resistance is first included in the lamp circuit, then the full current and finally the current is cut off prior to completion of the hammer movement.

In testimony whereof I affix my signature.

HORACE M. HICKAM.