Feb. 9, 1937. C. H. COATES 2,069,750

APPARATUS FOR TRAINING IN GUNFIRE

Filed Nov. 25, 1935

Fig. 1.

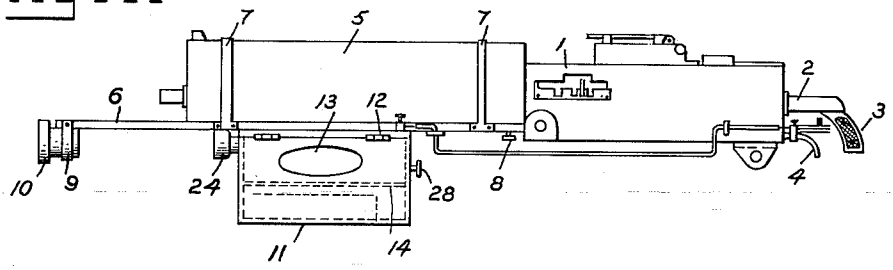


Fig. 2.

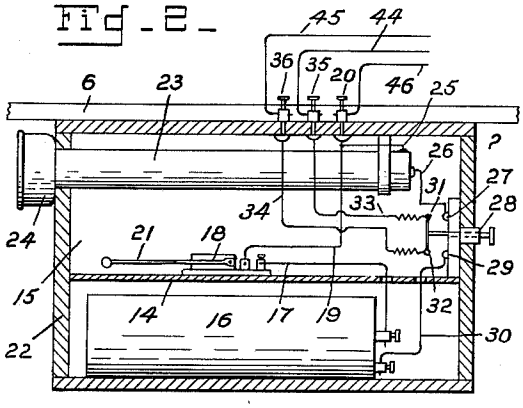


Fig. 3.

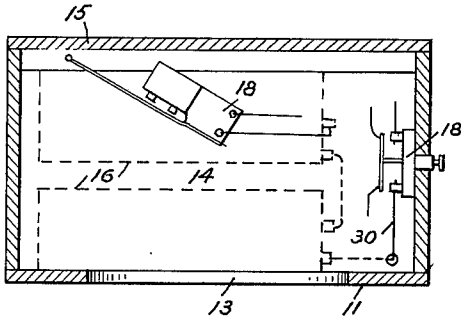


Fig. 4.

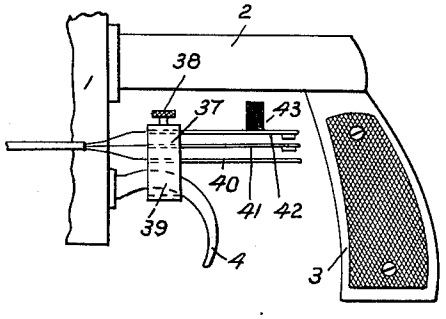
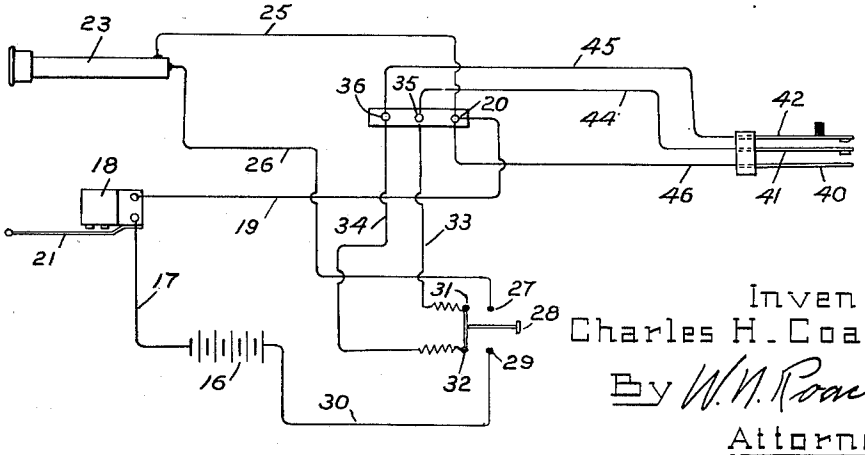


Fig. 5.



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APPARATUS FOR TRAINING IN GUNFIRE

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Application November 25, 1935, Serial No. 51,461

3 Claims. (Cl. 35—25)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

The subject of this invention is an apparatus for training in gunfire and is intended more particularly for training in machine gunfire though useful in training in any automatic gunfire.

In training men in the firing of machine guns it is necessary that they be taught to aim the gun properly; to fire proper bursts; to clear stoppages and to execute the various forms of firing carried out by machine gun crews.

The main object of the present invention is to instruct in the various subjects set forth above and this object is attained by providing means for producing a visual duplication of the cone of fire; an aural duplication of the sound of the shots fired; and means for simulating stoppages in the firing of the gun.

With the foregoing and other objects in view, the invention resides in the novel arrangement and combination of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

A practical embodiment of the invention is illustrated in the accompanying drawing, wherein:

Fig. 1 is a view in side elevation of a machine gun;

Fig. 2 is a vertical longitudinal section through the sound box;

Fig. 3 is a horizontal section of the same;

Fig. 4 is a detail view in side elevation of the spring contact fingers in place on the trigger of a machine gun; and

Fig. 5 is a wiring diagram.

Referring to the drawing by numerals of reference:

There is shown a machine gun 1 provided with the usual buffer assembly 2, hand grip 3, trigger 4 and water jacket 5. While the gun herein shown is provided with a water jacket, it is to be understood that such jacket is not essential as the device may be attached to the barrel of any type of machine gun.

A bar 6 is provided with means, as for instance the loops 7—7, for attachment to the gun preferably in such position that the bar lies below the gun barrel. A thumb screw 8 may be provided in the rear end of the bar for the purpose of bringing the longitudinal axis of the bar into parallelism with the axis of the bore of the gun barrel. Toward the forward end of the bar a strap 9 is provided for holding a lens casing 10 which may be adjusted along the bar by sliding the strap thereon until a proper focal position is reached. The lens in the casing may be subject to further minute adjustments through the micrometer adjustment usually provided on the casing.

Secured to the bar is a container 11, preferably made of light resilient wood one side of which is hinged as at 12—12 to permit access to the interior, and is provided with an opening 13 to permit egress of sound waves.

Within the container a partition 14 may be provided dividing the container into upper and lower compartments and so positioned as to be out of contact with one wall of the container, as herein shown the wall 15, so that vibration of said wall will not be dampened.

The cells 16—16 of a battery are positioned within the container, and conveniently in the lower compartment; the cells being connected in series and through the wire 17 to one terminal of an electro-magnet 18 secured to the partition 14, from the other terminal of which magnet a wire 19 leads to a binding post 20 on the top of the container. Associated with the electro-magnet 18 is a clapper 21 so positioned as to strike the wall 15 intermittently when the electro-magnet is energized.

An aperture is formed in the front wall 22 of the container, through which is inserted the frame or body portion 23 of a flash light leaving the lens portion 24 protruding so that the flash light battery may be renewed from the front end.

A lead wire 25 is secured to the frame of the flash light to form contact with the positive pole of its battery and this wire also connects with the binding post 20. From the negative pole of the flash light battery a lead wire 26 extends to one terminal 27 of a switch 28, and from another terminal 29 of said switch a conductor 30 leads to the negative pole of the battery composed of the cells 16—16. From the other terminals 31 and 32, respectively, conductors 33 and 34 lead to the respective binding posts 35 and 36 also portioned on the top of the container.

Clamped on the trigger 4, through means of a strap 37 and thumb screw 38 is an insulating block 39 carrying the spring fingers 40, 41 and 42. On the upper finger 42 is secured an insulating block 43, spaced slightly from the buffer assembly 2 so that when the trigger is operated the block will contact the assembly 2 and cause the fingers

to be brought into contact with each other. From the fingers 41 and 42 the respective conductors 44 and 45 lead to the binding posts 35 and 36, while, from the finger 40, a conductor 46 leads to the binding post 20.

The operation of the device is as follows: The lens in the casing 10 being properly focused, the gunner sights the gun on the target and pulls the trigger. When the trigger is pulled the insulating block 43 is brought into engagement with the buffer assembly 2 causing the fingers 40, 41 and 42 to contact thereby establishing a circuit through conductor 17, electro-magnet 18, conductor 19, binding post 20, conductor 46, finger 40, finger 42, conductor 45, binding post 36, conductor 34, terminals 32 and 29 (when the switch is closed), conductor 30 to battery 16; thus energizing the electro-magnet and operating the clapper to simulate the sound of firing by striking the side of the container. At the same time current flows from the search light battery through conductor 25, binding post 20, conductor 46, finger 40, finger 41, binding post 35, terminals 31 and 27 (when the switch is closed), conductor 26 to the flash light battery, thus energizing the light and projecting a cone of rays toward the target in simulation of the cone produced by the paths of bullets.

It is evident then that the device will permit the firing of bursts of long or short duration and that the instructor may, at will, produce stoppages by throwing the switch to break the circuits, thus compelling the gunner to perform the usual acts necessary to clear the customary stoppages before the gun will again fire.

I claim:

1. A training device embodying a bar, means for attaching the bar to a gun barrel, means carried by the bar and adapted for engagement with a gun to adjust the bar to bring its longitudinal axis into parallelism with the axis of the bore of the gun barrel, a loop adjustably mounted on the bar, a lens carried by the loop, a container secured to the bar, a source of light mounted in the container and in alignment with the lens, a battery within the container and connected with the source of light, a second battery within the container, an electro-magnet within the container and connected to said second battery, a clapper associated with the magnet and in position to intermittently strike a side of the container, a switch carried by the container for interrupting the circuits from the batteries to the light source and the magnet and a switch attachable to the trigger for establishing circuits through the source of light and electro-magnet when the trigger is pulled.

2. A training device embodying a bar, means for attaching the bar to a gun, means carried by the bar and engageable with the gun to adjust the bar to bring its longitudinal axis into parallelism with the axis of the bore of the gun barrel, a lens adjustably mounted on the bar, a source of light carried by the bar and in alignment with the lens, means for supplying electrical current to energize said light, means for producing an intermittent sound, a source of electric current to energize said means, a switch adapted for attachment to the trigger of a gun for closing the circuits of the light and sound producing means when the trigger is pulled, and an interrupter switch for breaking said circuits independently of the trigger switch.

3. The combination with a gun provided with a trigger, of a lens connected to the gun, a light projector connected to the gun and in alignment with the lens, a source of electrical supply to energize the light, a sound producer, a source of electrical supply to energize the sound producer, a switch connected to the trigger and closed when the trigger is pulled, a circuit from the switch to the light and its electric supply, a circuit from the switch to the sound producer and its electric supply, and an interrupter switch interposed in said circuits.

CHARLES H. COATES.