

O. PLACE.

APPARATUS FOR TRAINING TROOPS IN THE POINTING OF GUNS.

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1,376,357.

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Fig. 1.

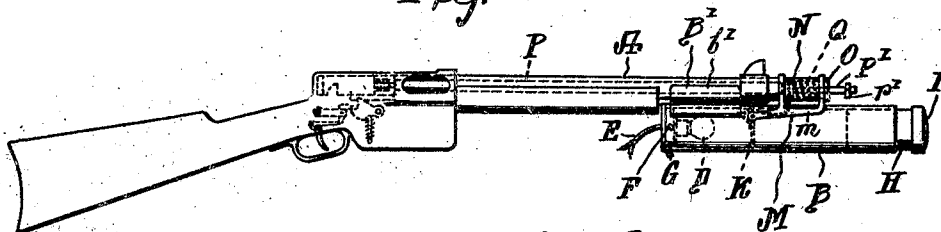


Fig. 2.

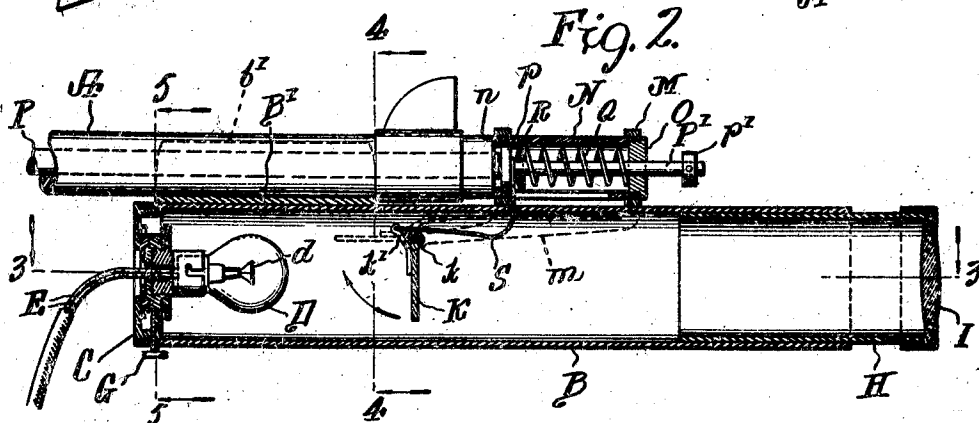


Fig. 3.

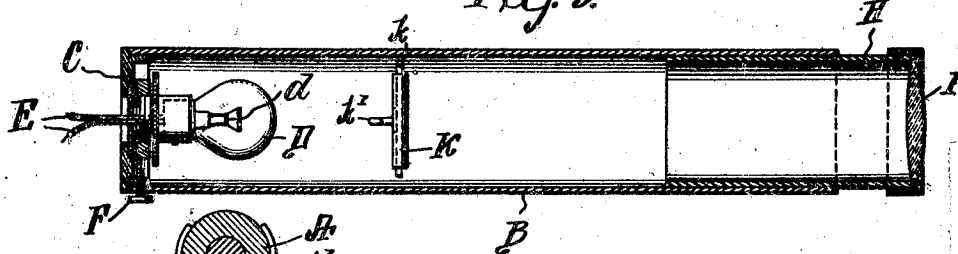


Fig. 4.

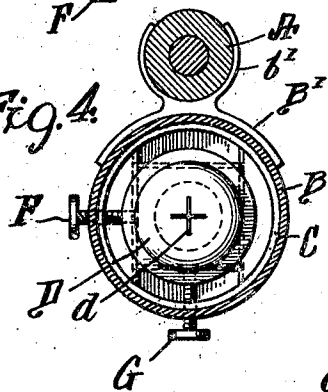


Fig. 6.

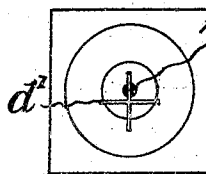
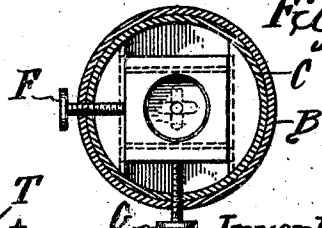


Fig. 5.



Inventor:
Olney Place.
by Wilkinson & Grist,
Attorneys.

UNITED STATES PATENT OFFICE.

OLNEY PLACE, OF THE UNITED STATES ARMY.

APPARATUS FOR TRAINING TROOPS IN THE POINTING OF GUNS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, OLNEY PLACE, Lieut. Col., U. S. Infantry, a citizen of the United States, stationed at Austin, in the county of Travis and State of Texas, have invented certain new and useful Improvements in Apparatus for Training Troops in the Pointing of Guns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in apparatus to aid in training troops in the pointing of rifles, machine guns, pistols, artillery or ordnance.

The apparatus comprises a tube, preferably about the size of an ordinary hand electric torch, which is provided with suitable attachments for attaching same either to a rifle, a pistol, machine gun or heavy ordnance.

In the tube near its rear end is an electric lamp with filaments in same representing a cross or other suitable design. This lamp is made adjustable so it may be moved either vertically or laterally, or both. The lamp socket itself is preferably movable around its longitudinal axis so as to place the cross filaments in a desired position. The front end of the tube is provided with a telescopic tube carrying a suitable lens, and between the lamp and the lens I provide a shutter adapted to be operated simultaneously with the pulling of the trigger, or operating the other firing device which normally controls the firing of the piece.

This shutter may be arranged so as to remain open only for a brief instant, or the shutter operating mechanism may be so arranged that the shutter may remain open when moved from the closed position until restored to the closed position; thus it may be desirable in rifle, pistol or ordnance practice to open the shutter for a brief interval only, while for machine gun practice it may be desirable to keep the shutter open for several seconds.

The invention is intended to be used in connection with a suitable dummy target, such, for instance, as the ordinary target used indoors, or in camp in training recruits, which is ordinarily located a few yards only away from the piece.

My invention will be more fully understood after reference to the accompanying

drawings, in which like parts are indicated by similar reference symbols throughout the several views, and in which:—

Figure 1 shows the device as applied to an ordinary service rifle.

Fig. 2 shows the muzzle of the piece in elevation, and the sighting attachment in section, the parts being shown on a larger scale than in Fig. 1.

Fig. 3 shows a section along the line 3—3 of Fig. 2, and looking down.

Fig. 4 shows a section through the barrel of the piece, and the attachment along the line 4—4 of Fig. 2, and looking in the direction of the arrows.

Fig. 5 shows a section through the tube along the line 5—5 of Fig. 2, and looking in the direction of the arrows; and

Fig. 6 is a diagram showing the target with the light from the filaments indicated thereon.

A represents the piece, which may be a rifle as shown, a pistol, machine gun, field artillery or heavy ordnance.

B represents a tube having a screw cap C close to one end thereof, in which screw cap an electric lamp D is revolvably mounted, connected in the usual way to the leading-in wires E. The lamp is so arranged that it may be moved laterally by the thumb screw F and vertically by the thumb screw G, and its filament *d*, shown in the form of a cross as in Fig. 4, may be turned with its members vertical and horizontal by simply turning the lamp about its axis.

Mounted in the forward end of the tube B is a telescopic tube H, having the lens I whereby the image of the filament may be focused on the target. Either the lens I or the lamp bulb D may be colored red, or any suitable color, if desired, so that a colored image of the filament will be thrown on the target as illustrated at *d'* in Fig. 6.

If the filament is made in the form of a cross as shown, or other symmetrical shape, it will be immaterial that the lens I will invert the image of the filament on the target.

Located in front of the lamp and between it and the lens I the shutter K is preferably pivoted in the tube as at *k*. This shutter is moved when the operator goes through the motion of firing the piece. Various means for accomplishing this result may be provided, one of which is shown in Figs. 1 and 2 of the drawings, in which the device is shown as applied to a small arm.

The tube B may be fastened to the piece in any convenient way, as by means of the clip B' fast to the tube, and having the resilient arms b' adapted to engage the barrel of the piece. The tube B also carries a bracket M having its heel m forming a journal bearing for the pivot k of the shutter K. Carried by this bracket M is the tubular head N having its front end closed by the screw cap O, and its rear end shouldered internally, as at n, to engage the collar p on the rod P'.

The front end of this rod slides freely through the cap O, and is provided with a set collar p' to prevent the accidental displacement of the rod. This rod P' is pressed toward the muzzle of the piece by means of the spring Q bearing upon the loose washer R.

P represents a plunger rod which slides freely in the bore of the piece and is of such length as to have its rear end bear against the front face of the breech block and cover the hole therein for the firing pin point, while the front end of said rod projects beyond the muzzle of the piece and engages the rear end of the short rod P'.

S represents a wire or cord connected to the arm k' carried by the back of the shutter. It will be seen that if the piece be cocked and the trigger pulled, the firing pin, not shown, will strike the plunger rod P and will throw the same forward against the action of the spring Q, causing the wire S to trip the shutter K.

As the firing pin returns to the initial position, the spring Q will restore the plunger rod P to the initial position shown in Fig. 2, and the shutter will drop to the vertical or closed position as shown in said figure.

The shutter may be caused to close by gravity, or it may be positively operated by a suitable spring if desired.

The operation of the device is as follows:—

Electric current being continuously turned on to the lamp during the training operations, the image of the filament will be screened by the shutter, but when the operation of firing the piece is gone through with, the shutter will be swung up so as to expose the filament to the lens I. This lens will throw an inverted image of the filament, preferably colored as described, onto the target T; the location of the image of the filament being shown at d' in Fig. 6, relative to the position of the bull's-eye t of the dummy target used.

The operator who endeavors to keep the line of sight directed on the bull's-eye and to keep the piece steady when the trigger is squeezed, can note visually whether the center of the image is on the bull's-eye of the target, and can determine whether his

piece would remain properly directed incident to the act of firing; or if not so directed, he can by practice secure the desired result.

When firing at point blank range the position of the lamp would be normally in the axis of the tube which corresponds with the center of the lens I; but to compensate for changes in the elevation of the piece, errors due to drift, force and direction of the wind, etc., it will be desirable to move the lamp both vertically and laterally, which may be accomplished by moving the thumb screws E and F.

In setting the attachment, the piece of whatever kind used is first sighted at the desired aiming point. If a pistol or small arm be used it may be found in a vise if necessary and the light is then adjusted for position with relation to the line of sight. It may be adjusted to show where the center of the top of the front sight rests on the target, or to represent the point where the bullet would strike if the same had been used; or for purposes of adjusting sights the image of the filament may be caused to lie at any other desired position on the target.

While I have shown a shutter arrangement as positively actuated by a rod controlled by pulling the trigger, I do not mean to limit the invention to this special arrangement, as it will be obvious that various modifications might be made in the herein described construction, and in the combination and arrangement of parts which could be used without departing from the spirit of the invention, and I do not mean to limit the invention to such details except as particularly pointed out in the claims.

Having thus described my invention what I claim and desire to secure by Letters Patent of the United States is:—

1. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof, a lens mounted near the opposite end of said tube, a shutter normally interposed between said lamp and said lens, and means for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

2. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof and provided with crossed filaments, a lens mounted near the opposite end of said tube, a shutter normally interposed between said lamp and said lens, and means for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

3. Apparatus for use in training in the pointing of guns, comprising a tube, and

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means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof, a telescopic tube carrying a lens mounted in the opposite end of said tube, a shutter normally interposed between said lamp and said lens, and means for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

- 10 4. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof and provided with crossed filaments, a telescopic tube carrying a lens mounted in the opposite end of said tube, a shutter normally interposed between said lamp and said lens, and means for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

- 15 5. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof, means for moving said lamp vertically and laterally in said tube, a lens mounted near the opposite end of said tube, a shutter normally interposed between said lamp and said lens, and means for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

- 20 6. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof and provided with crossed filaments, means for moving said lamp vertically and laterally in said tube, a lens mounted near the opposite end of said tube, a shutter normally interposed between said lamp and said lens, and means for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

- 25 7. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof, means for moving said lamp vertically and laterally in said tube, a telescopic tube carrying a lens mounted in the opposite end of said tube, a shutter normally interposed between said lamp and said lens, and means for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

- 30 8. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof and provided with crossed filaments, means for moving said lamp vertically and laterally in said tube, a tele-

scopic tube carrying a lens mounted in the opposite end of said tube, a shutter normally interposed between said lamp and said lens, and means for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

9. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof, a telescopic tube carrying a lens mounted in the opposite end of said tube, a shutter normally interposed between said lamp and said lens, a plunger rod extending through the bore of the piece and having its rear end adapted to be struck by the firing pin, and means controlled by the movement of said plunger rod for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

10. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof and provided with crossed filaments, a telescopic tube carrying a lens mounted in the opposite end of said tube, a shutter normally interposed between said lamp and said lens, a plunger rod extending through the bore of the piece and having its rear end adapted to be struck by the firing pin, and means controlled by the movement of said plunger rod for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

11. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof, means for moving said lamp vertically and laterally in said tube, a lens mounted near the opposite end of said tube, a shutter normally interposed between said lamp and said lens, a plunger rod extending through the bore of the piece and having its rear end adapted to be struck by the firing pin, and means controlled by the movement of said plunger rod for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

12. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, an electric lamp mounted in said tube near one end thereof and provided with crossed filaments, means for moving said lamp vertically and laterally in said tube, a lens mounted near the opposite end of said tube, a shutter normally interposed between said lamp and said lens, a plunger rod extending through the bore of the piece and having

→ its rear end adapted to be struck by the firing pin, and means controlled by the movement of said plunger rod for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

13. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, 10 an electric lamp mounted in said tube near one end thereof, means for moving said lamp vertically and laterally in said tube, a telescopic tube carrying a lens mounted in the opposite end of said tube, a shutter nor- 15 mally interposed between said lamp and said lens, a plunger rod extending through the bore of the piece and having its rear end adapted to be struck by the firing pin, and means controlled by the movement of 20 said plunger rod for quickly moving said

shutter incident to the normal action of operating the firing mechanism of the piece.

14. Apparatus for use in training in the pointing of guns, comprising a tube, and means for connecting the same to the gun, 25 an electric lamp mounted in said tube near one end thereof, and provided with crossed filaments, means for moving said lamp vertically and laterally in said tube, a telescopic tube carrying a lens mounted in the opposite 30 end of said tube, a shutter normally interposed between said lamp and said lens, a plunger rod extending through the bore of the piece and having its rear end adapted to be struck by the firing pin, and means 35 controlled by the movement of said plunger rod for quickly moving said shutter incident to the normal action of operating the firing mechanism of the piece.

OLNEY PLACE.