

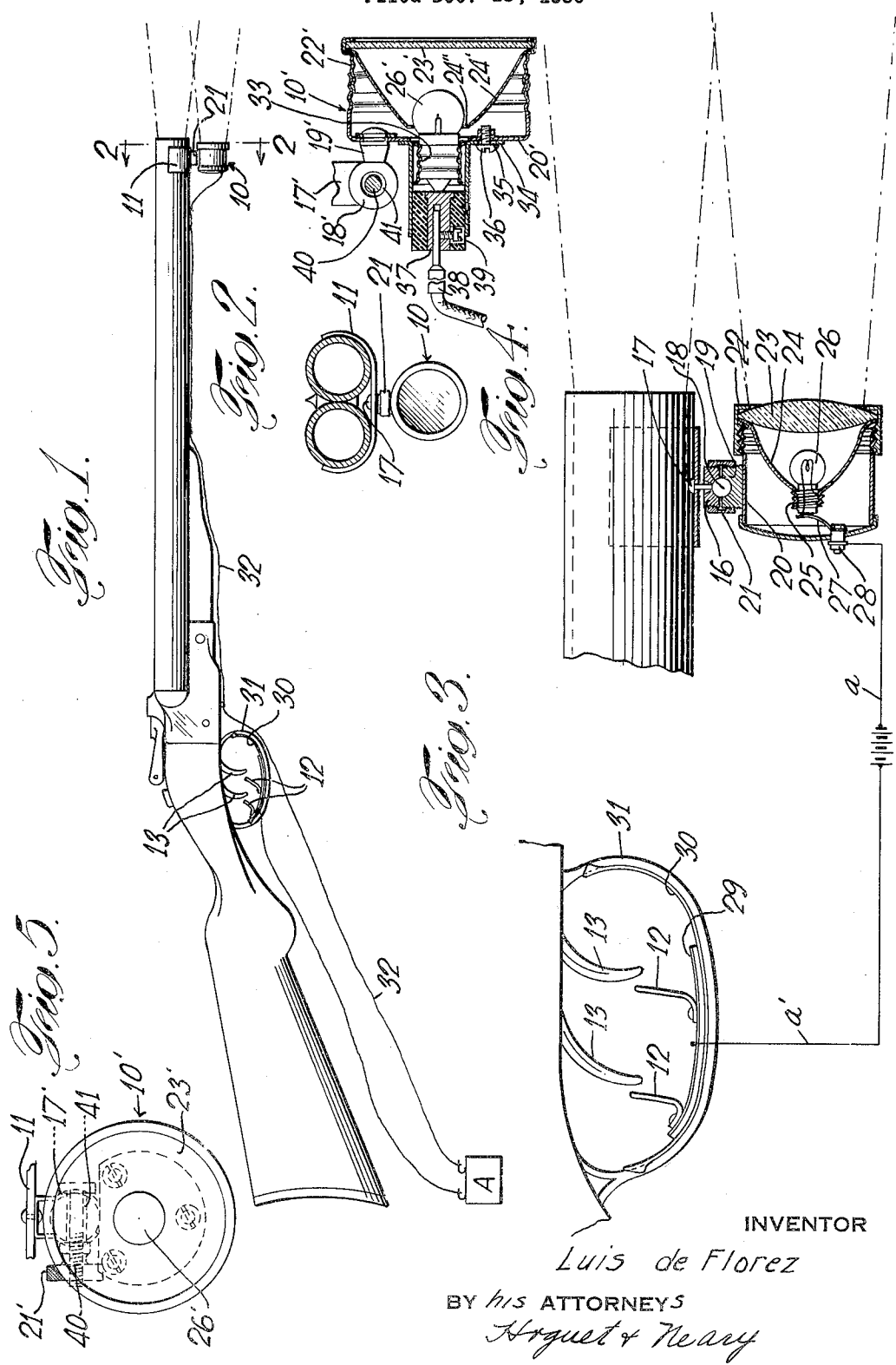
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AIM PERFECTING ATTACHMENT FOR GUNS

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AIM PERFECTING ATTACHMENT FOR GUNS

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My invention relates to improvements in an attachment for guns, more particularly shot guns, which will enable one to perfect his handling and accurate aiming of the gun without firing a charge.

The invention relates to the type of apparatus of this kind in which, instead of firing a charge when the trigger of the gun is pulled, a beam of light is projected along the path corresponding to the trajectory of the gun charge and illuminates the target if the aim is correct and, in any event, enables the one using the gun to familiarize himself with quick and accurate handling of it.

My invention, while based broadly on the foregoing theory, comprises a fuller development of it and a more practical way of carrying the theory into effect than has heretofore been obtained. Every one familiar with guns knows that to be even fairly expert as a shot requires a great deal of practice to the end that muscular and visual coordination on the part of the sportsman may be developed to the maximum. That is to say, the act of swinging the gun, the act of bringing it to correct aim, and the customary act of bringing the gun and eye into the right relation, all must coordinate to get the best result. This result can only be had by repeated practice, and if the practice is with a gun of different character or balance than the one which the sportsman will use in the field, or if the attachments are such as to distract the attention and in any way interfere with the perfectly normal free movement which he uses on his service gun, then his practice is of no appreciable value and his efforts are wasted.

My invention, therefore, comprises applying to the actual service gun which the sportsman uses an attachment which in nowise interferes with the action and in nowise unbalances it, but will respond to the normal trigger movement and pull of the gun so as to project the light beam along the trajectory which would be occupied by a charge if one were fired, and, therefore, with such an attachment, the preliminary exercise of bringing a gun to shooting position and quickly firing it will perfect his efficiency in shooting just as much as if he were using explosive charges.

Furthermore, my attachment is such that the projected light beam will have the approximate divergence of a charge of shot so that in using the gun at every pull of the trigger, the sportsman can see whether his aim is accurate or if inaccurate, to what extent, and thus by visual observation and muscular coordination he eventually arrives at his maximum of expertness besides having a grand time doing it.

Heretofore in the efforts to carry the above-mentioned theory into effect, inadequate means

have been used and in many structures employed the lighting attachment has been inserted in the barrel of a gun. Such a practice is so obviously unsatisfactory that a structure of the kind would not be used. In the first place, it is an inconvenience and nuisance to apply anything of this character to the interior of a gun barrel, and if so applied, the projected beam has no divergence and has limited throw. Moreover, to make such an attachment requires nicety of adjustment and circuit controls which render the structure impractical.

Other attachments have been externally applied to the gun or to the firearm but, when applied, the attachments have often been of such a nature as to unbalance the gun so that practice with it is of no value when the practitioner uses a different or real gun, and the attachments have frequently been of such a character as to be more or less cumbersome and to either interfere with the movement of the gun or to be so visible as to distract the attention and render the practice unsatisfactory. In some cases special guns have been used and obviously where this is the case, the practice affords very little value in perfecting the aim of the person who would apply his efforts to the handling and shooting of his service gun.

My invention is to overcome these difficulties and produce an exceedingly simple form of attachment of a nature that will not likely be disarranged and unusable and one which can be applied to one's own gun in such a way as to be essentially invisible, in nowise distract the attention, leave the top and muzzle parts of the gun unobstructed and be responsive to the normal trigger action of the gun so that the beam of light will be projected on the pressure of the trigger or as long as the trigger is pressed, and will illuminate the point at which the gun is aimed.

In its preferred form, I use a light, simple flash-light which is easily attached to the under side of the gun barrel, preferably near the muzzle, so that no part of the gun will cut the light beam and so that the light beam can be easily adjusted to respond to the trigger as would a charge if a gun were fired. The light is flashed by the trigger movement and the whole attachment is so simple and light that it can be easily applied to one's actual service gun, and will not in the least unbalance it. The user, therefore, has the advantage of using his service gun precisely as if he were in the field or at target practice, and the gun can be used in perfecting the aim exactly as if in shooting charges.

Moreover, the light can have the lens of such a character that the beam will diverge in approximately the same ratio that the charge of shot would spread, and so one gets the same

effect so far as precision is concerned as if firing shells, and it is understood, of course, that besides being expensive and the disagreeable process involving the cleaning of a gun, it is in most cases and in most localities impossible for the sportsman to get the necessary practice by actual shooting, but with my attachment, he gets substantially the same effect with the same gun and with the normal trigger pull.

Other advantages of my simple attachment are that it can be applied so as to nowise interfere with the normal gun action, that is, the breaking of the gun or the cocking and firing, and it can be used with a gun, preferably a shotgun, of any style having one or more triggers.

These and other advantages will appear more fully from the description which follows.

Reference is to be had to the accompanying drawing forming a part of this specification, in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is a side elevation of a gun with my improved attachment.

Figure 2 is a cross section on the line 2—2 of Figure 1.

Figure 3 is a detail sectional view of the flash-light and its means of suspension showing also the flash-light circuit.

Figure 4 is a vertical sectional view of the preferred form of flash-light; and

Figure 5 is a front view of the structure shown in Figure 4.

In carrying out my invention, I may employ a flash-light 10 which is small and light and can be attached to the barrel of the gun by a simple clip 11, preferably somewhat springy and easily slipped on the barrel of the gun. If it is a double barrel gun, as shown, naturally the clip would engage the two barrels, as illustrated in Figure 2.

In the circuit of the light are contacts 12 in the path of the trigger 13 so that, when the trigger is pulled, it will strike the contact 12 and close the circuit through the light. The connector for the light can lead to a small battery which can be carried conveniently in the pocket. Thus, the arrangement, as above generally described, recites that the lighting part is directly below the gun barrel and there is nothing to obscure the vision or distract the attention and the gun muzzle is left free. While it is preferred to place the lighting part directly below the barrel, it is obvious that it may be otherwise placed about the barrel without departing from my invention so long as the top and muzzle of the barrel are left free and unobstructed. Also, the attachment does not interfere with the normal freedom of use of the gun or its normal functioning.

It is quite obvious that different types of flash-lights may be used and that the details of attaching the flash-light to the gun barrel may be varied without affecting the invention, but the connection between the flash-light and the barrel should be such as to permit the flash-light to be adjusted so as to give the desired trajectory of the light beam. I have shown a simple means of getting this effect. A clip 11 can be slipped on the barrels and the ends of the clip will extend sufficiently above the transverse line of the barrels so as to prevent it from falling off.

The flash-light 10 is suspended from the clip 11 and to this end a universal joint is interposed between the light and the clip to permit the adjustment of the light so that its beam will have the desired trajectory. This can be done

by sighting the gun and noting the position of the projected beam with reference to the point aimed at, and when both coincide, the position of the flash-light may be fixed.

As shown, a threaded nipple 16 is riveted as at 17 to the clip 11 and it carries a ball 18. The ball on its under side seats against the member 19 which is fast to the casing 20 of the flash-light. A nut 21 connects with the nipple 16 and with the member 19 so that by tightening the nut, the position of the casing 20 and of the flash-light can be fixed.

The casing 20 is shown with a screw cap 22 at one end which serves to hold in place the lens 23 and the reflector 24. The reflector has at its back a threaded nipple 25 to receive the socket of the lamp bulb 26 and the connection is common to flash-lights. One end of the filament grounds on the reflector and through the connected parts on the gun barrels, and the other end of the filament contacts with the leaf 27 connected with the binding post 28.

The circuit *a a'* includes a small battery A. The wire *a'* is connected to a contact plate 29 which is insulated on the clip 30 shaped to be snapped into the trigger guard of the barrel and which carries the contacts 12, these being arranged in the path of the triggers 13. Of course, it will be understood that if it were a single barrel gun, there would be one trigger, one contact and the clip 11 would be shaped to fit the single barrel. It will be seen that when the trigger is pulled, the circuit will be closed through the lamp and the beam will be projected as long as the trigger is in contact with the member 12.

In practice, the circuit wires would be combined in a small connector 32 which would be led along the underside of the barrel and would be of sufficient length to permit the battery to be placed in the pocket and not interfere with the perfect freedom of movement of the gun.

I have described in detail one form of the flash-light, its connections and means of adjustment, but it will be understood that these details are conventional and that any approved type of light or universal joint connection between the light and the gun barrel might be substituted for the parts I have described without affecting the invention.

With the arrangement which I have shown, it will be seen that the little flash-light can be instantly slipped to place on the gun barrel and it will be understood that the lens 23 on the lamp may be of such a character as to cause a divergence of the rays of the light beam as indicated by broken lines in Figure 1 so that the divergence would approximately be that of a charge of shot fired from the same gun, and when the position of light is fixed, it may be held by tightening up the nut 21. After this is done, the user of the gun handles it precisely as if he were shooting at a stationary or moving target, and when he pulls the trigger, the light will flash and the illumination with respect to the target will show whether or not his aim has been accurate.

Whereas the type of flash-light shown in Figure 3 can be made to operate satisfactorily, I prefer to use the construction of flash-light shown in Figures 4 and 5 which will hereafter be described in detail insofar as it is different from the construction heretofore described.

The flash-light 10' is supported from the clip 11 through a universal joint which may be of the same construction as heretofore described

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and shown in Figure 3 but I prefer to employ the construction shown in Figures 4 and 5. In this preferred construction, the clip 11 has two downwardly projecting spring lugs 17' through which passes a bolt 40 having a knurled nut 21' on one end. The member 19' carries the flash-light 10' and has a ball end 18' having an enlarged hole 41 through which the bolt will pass and which allows the universal adjustment to be had. By tightening the nut 21' the spring lugs are pressed against the ball to hold the light in its adjusted position. The lamp comprises a substantially parabolic reflector 24' and a source of light 26', the source of light being preferably such as to concentrate the light as much as possible. The relation of the shape of the reflector and the position of the lamp is such that the rays issued from the lamp diverge to the same extent as the shot issuing from the barrel of the gun would if fired, so that the area of the target covered by the illumination from the lamp is substantially the area which would be covered by the shot were the gun fired.

The casing 20' is fast to the member 19' and is provided with a screw cap 22' at one end which serves to hold in place a lens 23' and the substantially parabolic reflector 24'. The lens 23' is preferably a plain flat piece of glass having no substantial effect on the light rays. The reflector 24' has an opening 24'' at its back considerably larger in diameter than the base of the lamp bulb 26' to allow of adjustment of the bulb and reflector relative to each other. The lamp bulb is carried by the socket 33 having a flange 34 provided with enlarged apertures 35 through which pass screws 36 threaded into the casing 20'. The socket 33 is provided with a metal member 37 insulated from the socket and having a hole to receive the reduced end of the jack 38 which is held in position by the set screw 39. The filament of the bulb is concentrated as shown and one end grounds on the socket and through the connected parts on the gun barrels, and the other end is connected in circuit to the jack 38.

It will be understood that, in the use of the preferred form of flash-light as above described, the direction of the beam of light is to be adjusted through the universal joint. The bulb may be adjusted relative to the reflector by means of the screws 36 and enlarged apertures 35 to center the bulb or to adjust it off center to modify the shape of the beam. The amount of divergence of the beam of light may be regulated by adjustment of the reflector relative to the bulb through the screw cap 22', the lens 23' having no effect on the divergence, and, in fact, the adjustment may be such as to cause the rays of light to converge at the target to illuminate an area corresponding to the area which would be covered by a bullet fired from a rifle where it is desired to use this type of gun. Obviously, the lens 23' may be omitted as it is provided merely to exclude dust, moisture, etc. Also, the lens 23' may be replaced by one similar to lens 23, if so desired. Thus, it will be seen that, by the above described construction, the direction, shape and rate of diffusion of the beam of light may be adjusted so that it will cover the same area at the target that a charge of shot fired from the same gun would cover.

It will be understood that one to be even fairly proficient in shooting must have a great deal of practice. Further, it will be understood that it is ordinarily impractical for him to practice with loaded shells, but that with my improvement,

the attachment can be applied to his own gun and he gets precisely the same effect as he would in actual shooting. Also dummy cartridges may be used so that the hammer may operate as usual without danger of breakage thereof.

I claim:

1. In an attachment of the kind described for guns, a flash-light comprising a bulb, a concentrated filament in the bulb, a substantially parabolic reflector, and means for adjusting the bulb relative to the center of the reflector to modify the cross-sectional shape of a beam of light reflected therefrom to correspond to the shape of the area covered by shot fired from a gun at the target.

2. In an attachment of the kind described for guns, a flash-light comprising a bulb, a concentrated filament in the bulb, a substantially parabolic reflector, means for adjusting the bulb relative to the center of the reflector to modify the shape of a beam of light projected from the flash-light and means for adjusting the reflector relative to the bulb to regulate the rate of diffusion of the said beam of light, the combination of the two before mentioned means permitting the size and shape of the area illuminated by the flash-light to be so regulated as to conform substantially to the size and shape of the area at a target which would be covered by a charge of shot fired from a gun.

3. A device adapted to be attached to a service shot gun for utilizing the same for target practice without shells, comprising a flash-light, means for supporting said flash-light on the gun barrel without obstructing the top of the barrel, means for adjusting the direction of the beam of light projected from said flash-light with respect to the gun barrel, means for adjusting the cross-sectional shape of said beam of light, means for controlling the divergence of said beam of light, whereby the area at the target covered by said beam of light may be caused to correspond to that which would be covered by a charge of shot from said gun, and means operated by the normal firing pull of the gun trigger for flashing the light, whereby the gun may be aimed at a target and the trigger pulled as in normal use and the results of the shot ascertained by the position of the light beam on the target.

4. A device adapted to be attached to a service shot gun for utilizing the same for target practice without shells, comprising a flash-light including a bulb having a concentrated filament, a substantially parabolic reflector, means for adjusting the bulb relative to the center of the reflector to modify the cross-sectional shape of the beam of light projected from the flash-light, and means for adjusting the reflector relative to the bulb to regulate the divergence of the beam of light projected from the flash-light, whereby the portion of the target covered by said beam of light corresponds substantially in shape and area to that which would be covered by normal firing of said gun, means for supporting said flash-light on the gun barrel without obstructing the top of the barrel, means for adjusting the direction of the beam of light projected from said flash-light with respect to the gun barrel, and means operated by the normal firing pull of the gun trigger for flashing the light, whereby the gun may be aimed at a target and the trigger pulled as in normal use and the results of the shot ascertained by the position of the light beam on the target.

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