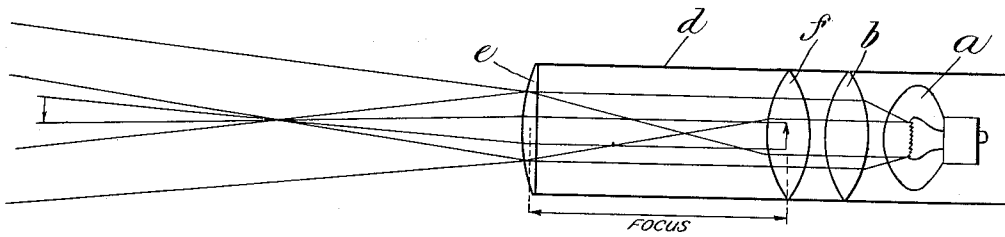
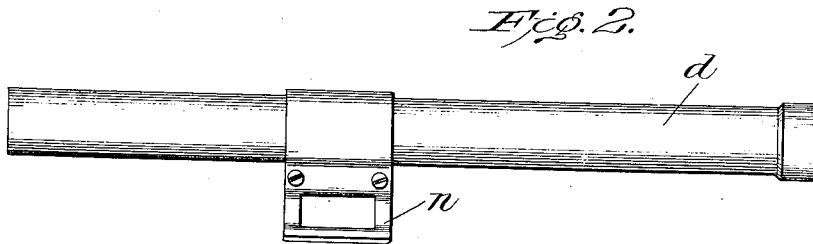
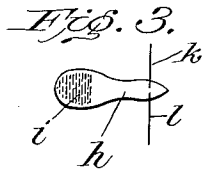
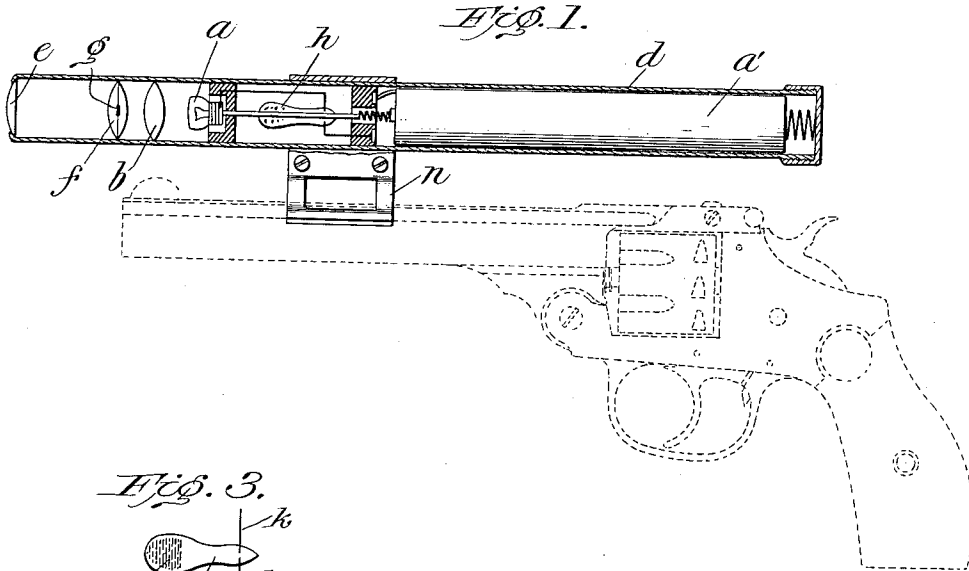


A. WEIGEL.
ATTACHMENT FOR FIREARMS.
APPLICATION FILED SEPT. 20, 1912.

1,128,739.

Patented Feb. 16, 1915.



Witnesses
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Fig. 4.

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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR FIREARMS.

1,128,739.

Specification of Letters Patent.

Patented Feb. 16, 1915.

Application filed September 20, 1912. Serial No. 721,487.

To all whom it may concern:

Be it known that I, ADOLF WEIGEL, a subject of the Emperor of Germany, residing at 18/19 Lindowerstrasse, Berlin, N., Germany, have invented certain new and useful Improvements in Attachments for Firearms, of which the following is a specification.

The present invention relates to an attachment for firearms of that class or type which are intended to permit the accurate firing of a weapon when the object aimed at is not normally visible.

Among the objects of the invention may be noted the providing of means free from objections that have been incident to devices heretofore proposed for the same purpose and the providing of a simple, durable means that can be readily applied to any firearm, by which the particular point in alignment with the axis of the barrel will be defined and which means will be rendered operative without manipulation or consideration by the user other than the movement necessarily effected to bring the weapon into position for use.

With these and other ends in view, the improved attachment comprises an electric lamp, a battery, a special form of circuit closer between the battery and lamp, a particular and novel arrangement of lenses in advance of the lamp, and a casing or shell containing all of said parts and provided with means by which it may be readily attached to a weapon.

In the accompanying drawings, Figure 1 is a longitudinal, sectional view through a device constructed in accordance with the invention showing the same applied to a revolver; Fig. 2 is an elevation; Fig. 3 is a detail of the circuit closer; Fig. 4 is a diagrammatic view.

Referring to the drawings, *d* designates the tube-like casing within which the several parts of the attachment are supported and which is provided with a clip *n* by means of which it may be readily attached to the barrel of a firearm. The casing *d* is closed at its rear end by a removable cap or end piece and at an intermediate point is provided with a suitable support for an incandescent electric lamp *a*. Between the lamp *a* and a battery *a'* is arranged a circuit closer comprising a glass tube *h* containing a body of mercury *i*. One terminal of the

battery *a'* is shown as connected with one of the terminals of the lamp *a* by a conductor *m*, the connection between the other terminal of the lamp and battery including wires *k*, *l*, the adjacent ends of which extend into the glass tube *h* and are adapted to be connected through the mercury *i* when the latter is shifted, as hereinafter described, from the position shown in Fig. 1 to the opposite end of the tube *h*. The tube *h* is of such shape and the quantity of mercury *i* so proportioned to the amount of air contained within said tube that the mercury tends to remain stationary at either end of the tube and will not flow readily therein. In order to effect illumination of the lamp *a*, therefore, it is necessary to impart a relatively sudden quick turning motion to the tube *h*, such for example as that resulting from quickly raising the muzzle of a revolver or the barrel of a gun to aiming position. In other words, the parts are so constructed and proportioned that the weapon to which the attachment is applied may be handled freely without effecting illumination of the lamp and the circuit closer is not rendered operative by such movement or vibration of the weapon or attachment as is incident to carrying it. That is, the jars or shaking movements necessarily imparted to the device attached to a revolver when carried in a holster will not light the lamp but the act of equally raising the revolver to position for use will cause the body of mercury *i* to shift from the position shown in Fig. 1 to that in which it connects the conductors *k*, *l*, thus automatically lighting the lamp, and the circuit closer will thus be maintained operative until, by a sudden downward movement of the forward end of the barrel, the body of mercury *i* is caused to return to the position shown in Fig. 1.

The rays of light from the lamp are directed through the forward end of the tube or casing *d* and into the path traversed by a bullet fired from the weapon to which the attachment is applied by a particular system of lenses including two double convex lenses *b*, *f* and a plano convex lens *e*, the latter being secured at the forward end of the tube, and the double convex lens *b* being arranged closely adjacent the lamp *a*. The intermediate lens *f* is provided with an "aiming mark" *g* which is arranged substantially at the focal point of the lens *e*. This "aim-

ing mark" may be formed in various ways. It may consist of a dark point provided in the lens f , a depression or an elevation of the lens, a special lens, or a slight thickening of the glass composing said lens, or the latter may be specially ground or otherwise caused to provide at the focal point of the lens e a spot which will be projected as a clear and distinct mark within the circular area illuminated by the rays passing from the lens e . It will be seen that by the construction and arrangement of lenses referred to the rays of light from the lamp a will be projected from the tube d in the form of a cone having its apex at the end of the tube and including at its base, in axial alinement with the barrel of the weapon to which the attachment is applied, a distinct and sharply defined projection of the "aiming mark" g .

The manner of using and the advantages of an attachment constructed as hereinbefore described will be readily understood and appreciated. It will be particularly noted that all of the parts of the apparatus are contained within the tube or casing d and that the closing and opening of the lamp circuit is automatically effected without requiring any particular attention on the part of the user of the weapon to which the attachment is applied. Heretofore it has been proposed to provide firearms with means for illuminating the path of a bullet discharged by the weapon, but such devices have required the actuation of a switch, such as a push button, or special trigger, thus interfering with the free manipulation of a revolver, for example, in the ordinary manner and the employment of exposed wires or other parts of the circuit. Further, the particular form of circuit closer employed with the present invention overcomes any possibility of the lamp being accidentally lighted and the battery exhausted so that a relatively small cell a' only is required.

The particular lens system described results in a clear, sharp projection of the "aiming mark" while affording a maximum amount of illumination of the surface immediately surrounding said mark which has not been possible of attainment with the constructions previously proposed. The manner of forming the "aiming mark" is also of great importance as it avoids the danger or liability of said mark being disarranged or rendered inoperative by the use of the weapon or the shaking and jars to which such an attachment must necessarily be subjected.

By employing a lens system as described, the projection of the lamp's rays is so controlled that the desired illumination of the object at which a weapon provided with the attachment is aimed is effected regardless of the distance separating said object and the

muzzle of the weapon. Previous devices of this general character have required adjustment or manipulation to secure the intended results at different ranges but such necessity renders the device unsuitable for many uses. For instance, as applied to a revolver or pistol it is, of course, impracticable to effect any such adjustment.

The present invention provides means by which a revolver or pistol having a lighting attachment applied thereto can be used as freely and with as much accuracy and readiness as one not provided with such attachment.

Fig. 4 illustrates diagrammatically the general direction of several rays of light from the lamp through the particular arrangement, or system, of lenses employed in the embodiment of the invention hereinbefore specifically described according to the best information available at this time. Extensive practical use of various embodiments of the invention has shown that essentially this feature includes arranging a lens intermediate of the lamp and the forward lens e and in such position that it will include the focal point of said lens e .

Having thus described the invention what is claimed and desired to be secured by Letters Patent is:

1. An attachment for firearms comprising an electric lamp, a casing for the lamp adapted to be secured to a weapon so that the rays of light from the lamp are directed into the path traveled by a bullet fired from the weapon, a battery, and means for making and breaking a circuit including the lamp and battery adapted to be operated solely by a sudden movement of the firearm.

2. An attachment for firearms comprising an electric lamp, a casing for the lamp adapted to be secured to a weapon so that the rays of light from the lamp are directed into the path traveled by a bullet fired from the weapon, a battery, means within the casing for producing within the area illuminated by the lamp a representation of an aiming mark, and means for making and breaking a circuit including the lamp and battery adapted to be operated solely by a sudden movement of the firearm.

3. An attachment for firearms comprising an electric lamp, a casing for the lamp adapted to be secured to a weapon so that the rays of light from the lamp are directed into the path traveled by a bullet fired from the weapon, a battery within said casing, means within the casing for producing within the area illuminated by the lamp a representation of an aiming mark, and means within the casing for making and breaking a circuit including the lamp and battery and adapted to be operated solely by a sudden movement of the firearm.

4. An attachment for firearms comprising

an electric lamp, a casing for the lamp adapted to be secured to a weapon in position to direct rays of light from the lamp forward in the path of travel of a bullet fired from the weapon, a lens arranged at the forward end of the casing, another lens within the casing in advance of the lamp and having, substantially at the focal point of the forward lens, an aiming mark, whereby the rays of light from the lamp projected from the casing will illuminate a certain area surrounding a small clearly defined representation of said aiming mark, and means for supplying current to the lamp.

5. An attachment for firearms comprising an electric lamp, a casing for the lamp adapted to be secured to a weapon in position to direct rays of light from the lamp forward in the direction of length of the barrel, a lens within the casing adjacent the lamp, a second lens at the forward end of the casing, an intermediate lens having, substantially at the focal point of the forward lens, an aiming mark, whereby the rays of light from the lamp projected from the casing will illuminate a certain area surrounding a clearly defined representation of said aiming mark positioned in alinement with the axis of the barrel of the weapon, and means for supplying current to the lamp.

6. An attachment for firearms comprising an electric lamp, a casing for the lamp adapted to be secured to a weapon in position to direct rays of light from the lamp forward in the direction of length of the barrel, a lens within the casing adjacent the lamp, a second lens at the forward end of the casing, an intermediate lens having, substantially at the focal point of the forward lens, an aiming mark, whereby the rays of light from the lamp projected from the casing will illuminate a certain area surrounding a clearly defined representation of said aiming mark positioned in alinement with the axis of the barrel of the weapon, and means within the casing, for making and breaking a circuit including the battery and

lamp, adapted to be operated solely by a sudden movement of the weapon.

7. An attachment for firearms comprising 50
an electric lamp, a casing for the lamp adapted to be secured to a weapon so that the rays of light from the lamp are directed into the path traveled by a bullet fired from the weapon, a battery, an electric circuit including the lamp, battery and two normally 55
separated contact points, and a movable element adapted to electrically connect said contact points when the weapon is suddenly moved in one direction and to break the connection between said points if the weapon is 60
similarly moved in the opposite direction.

8. An attachment for firearms comprising an electric lamp, a casing for the lamp adapted to be secured to a weapon so that 65
the rays of light from the lamp are directed into the path traveled by a bullet fired from the weapon, a battery, an electric circuit including the lamp, battery and two normally 70
separated contact points, and a fluid circuit closer adapted to be displaced and caused to electrically connect said contacts when the 75
weapon is suddenly moved in one direction and to break the electrical connection between said contacts when the weapon is similarly moved in the opposite direction.

9. An attachment for firearms comprising an electric lamp, a casing for the lamp adapted to be secured to a weapon so that 80
the rays of light therefrom will be directed into the path traveled by a bullet fired from the weapon, a battery, and means for automatically closing a circuit including the lamp and battery when the weapon is suddenly moved to firing position and opening 85
said circuit during a similar reverse movement of the weapon.

In testimony whereof I have affixed my signature in presence of two witnesses.

ADOLF WEIGEL.

Witnesses:

HENRY HASPER,
ARTHUR SCHROEDER.