

July 30, 1940.

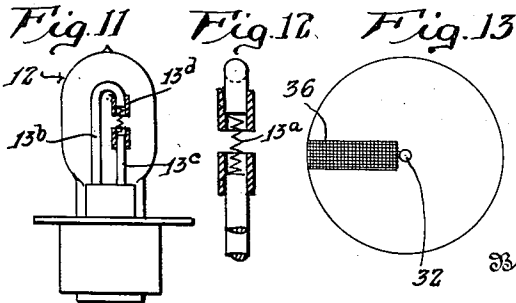
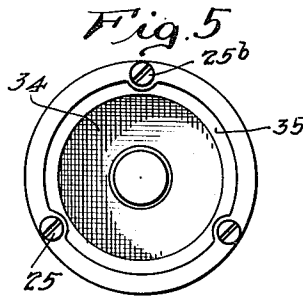
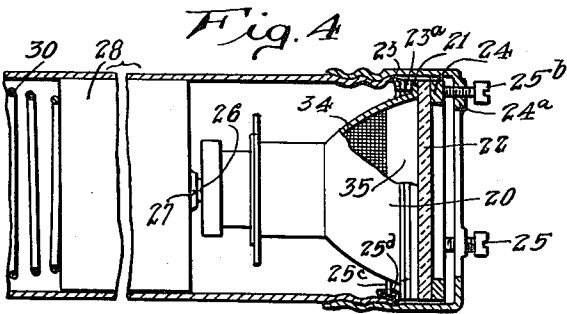
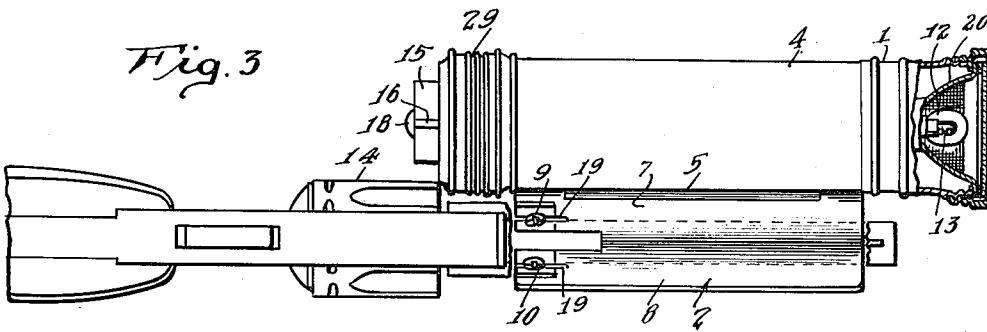
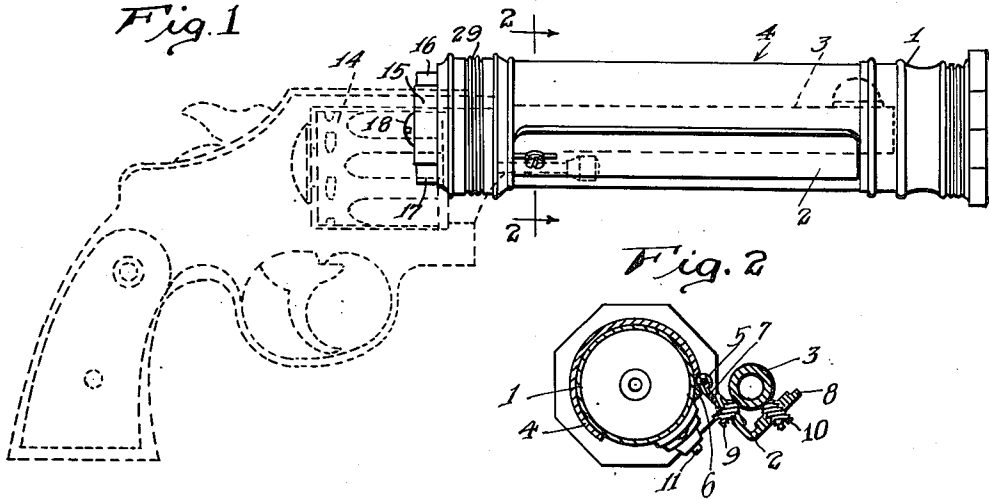
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2,209,524

NIGHT SIGHTING DEVICE FOR FIREARMS

Filed Feb. 23, 1938

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 6

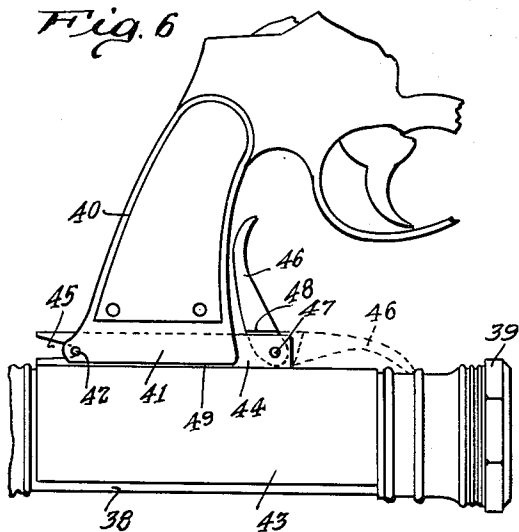


Fig. 7

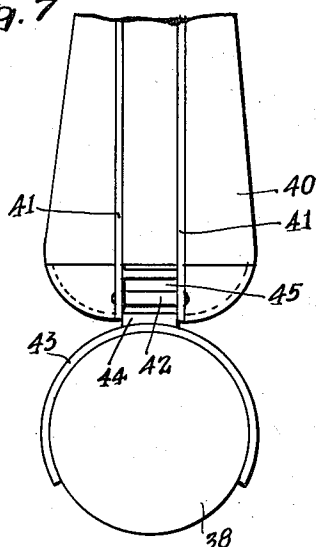


Fig. 8

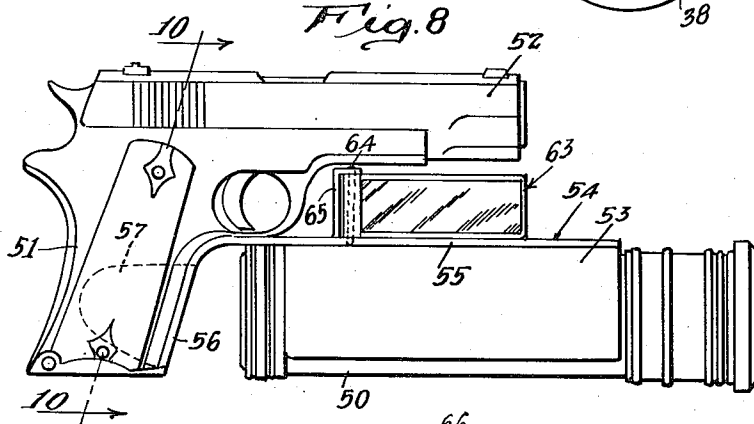


Fig. 9

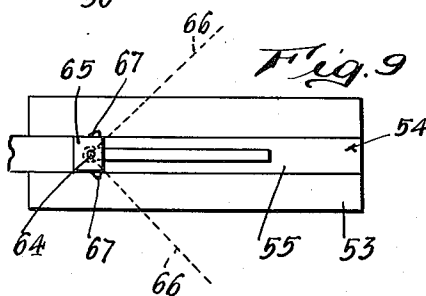
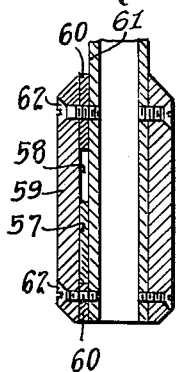


Fig. 10



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UNITED STATES PATENT OFFICE

2,209,524

NIGHT SIGHTING DEVICE FOR FIREARMS

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2 Claims. (Cl. 240—6.41)

This invention relates to a night sighting device for sighting a firearm, of the general type of the invention covered by my prior patent entitled "Night sight for firearm" granted to me October 6, 1931, Patent No. 1,826,004. It is found in practice, that a night sighting device of this character, should include a lamp with means for readily aligning the same with the pistol barrel, and constructed so that the lamp will occupy little space so that it can be carried independently of the pistol, but so that when desired for use, the pistol can be quickly placed in the rest for immediate use. When the lamp is in place its beam should be nearly parallel with the axis of the pistol barrel.

One of the objects of this invention is to provide a night sighting device which will meet these requirements, and which will be provided with simple means for holding the lamp in a definite relation with respect to the axis of the pistol barrel, and at the same time to provide simple means for adjusting the angular relation of the barrel and the axis of the beam projected from the lamp, to insure that the beam will be disposed at the proper angle, and nearly parallel to the axis of the barrel. In this way a spot of light can be projected from the lamp upon the target, and will indicate substantially the spot where the bullet will strike the target.

A further object of the invention is to provide a construction for the device, which will not be perfectly rigid but which will enable the lamp to be partially supported by the pistol and partially by the hand of the person using the firearm. This permits recoil of the pistol without imparting a shock to the lamp filament.

A further object of the invention is to provide the lamp with means for effecting adjustments in the angle of the beam by controlling the position of the reflector for the beam.

A further object of the invention is to provide a device of this kind with means for enabling the target to be seen by the person using the firearm, with the eye of the observer located in a laterally displaced position and out of line with the axis of the barrel. This enables the firearm to be fired "around a corner," as it were, by a person whose body is concealed, but whose hand carrying the firearm or pistol, is projected outwardly; in other words, to provide a device of this kind with a reflecting mirror, giving a periscope effect.

The device may be employed with a pistol of the type known as a revolver, which is provided with a revolving magazine carrying the cartridges.

In this type of pistol there is a tendency for burning powder or gases of combustion to escape laterally at the forward end of the revolving magazine. One of the objects of this invention is to provide the device with means for guarding the hand using the firearm, from being burnt in this way.

Further objects of the invention will appear hereinafter.

The invention consists in the novel parts and combination of parts to be described hereinafter, all of which contribute to produce an efficient night sighting device for firearm.

A preferred embodiment of the invention is described in the following specification, while the scope of the invention is pointed out in the appended claims.

In the drawings:

Fig. 1 is a side elevation of the sighting device and indicating its relation to a revolver type of pistol indicated in dotted lines.

Fig. 2 is a vertical cross-section taken on the line 2—2 of Fig. 1, but with the barrel of the pistol shown in full lines. This view particularly illustrates adjusting means for adjusting the axis of the lamp with respect to the axis of the pistol barrel.

Fig. 3 is a plan of the parts indicated in Fig. 1, with the forward end of the lamp casing broken away to show the lamp and reflector and adjacent parts in cross-section. This view shows the forward end of the pistol barrel in full lines, but the remainder of the barrel indicated in dotted lines.

Fig. 4 is a horizontal section showing the sectioned part of Fig. 3 upon an enlarged scale, but in this view portions of the reflector and glass are shown in elevation, and portions in cross-section.

Fig. 5 is a front elevation of the forward end of the lamp casing shown in Fig. 4.

Fig. 6 is a side elevation illustrating an adaptation of the device to enable it to be seated against the bottom face of the pistol grip or handle, and held in place by the hand holding the pistol grip.

Fig. 7 is a rear elevation of the device illustrated in Fig. 6, but upon an enlarged scale, a portion of the pistol grip being shown broken away above.

Fig. 8 is a side elevation illustrating an embodiment of the invention in which the device is adapted to seat against the forward side of the pistol grip, and this view illustrates the reflecting mirror that may be employed with the device to give a periscope effect when using the firearm.

Fig. 9 is a diagrammatic plan indicating in

dotted lines the positions to which the reflecting mirror illustrated in Fig. 8 may be moved; in this view the bracket carried by the lamp casing for seating the device on the pistol, is broken away.

Fig. 10 is a vertical section taken about on the line 10-10 of Fig. 8, and particularly illustrating the preferred construction of the pistol grip to enable it to cooperate with the bracket to assist in holding the device adjacent to the pistol. The upper portion of the pistol handle or grip, is broken away.

Fig. 11 is a side elevation illustrating a type of lamp bulb I may employ for producing a substantially radial shadow on the illuminated spot to indicate the geometrical center of the illuminated spot that is cast upon the target.

Fig. 12 is a detail further illustrating the filament, and its relation of the shadow casting means.

Fig. 13 is an elevation illustrating the character of the illuminated spot which is formed in using the device with a lamp bulb as illustrated in Fig. 11, and indicating the position of a radial shadow that indicates the geometrical center of the illuminated spot.

In practicing the invention, it should be stated that I provide a lamp and pistol with interengaging means so that when they are placed together the lamp will be held in a definite relation to the pistol, and in this relation the axis of the beam cast from the lamp is nearly parallel with the axis of the barrel. In accordance with my invention, I provide means for adjusting the relation of the lamp to the pistol barrel so as to bring the same into true parallelism.

The invention provides for effecting a lateral or general horizontal adjustment of the lamp casing, and also a general vertical adjustment of the same to control the degree of relation of the axes of the beam and the barrel, including the raising or lowering of the lighted spot with respect to the axis of the barrel. In addition to this, my invention provides means associated with the reflector of the lamp and with the lens, for enabling the axis of the reflector to be tilted more or less to regulate the direction of the beam of light projected from the lamp. The invention provides different embodiments of means for holding the lamp and the pistol in a definite relation to each other.

In the embodiment of the invention illustrated in Figs. 1-3 inclusive, the device comprises a lamp casing 1, which is preferably of the usual cylindrical form, and this casing is provided with a rest 2 preferably located on its side to receive the pistol barrel 3. If desired, this rest can be secured directly to the wall of the casing 1, but in the present instance it is secured to a split shell or clasp 4 of resilient material, that can be slipped laterally over the casing 1, and which is friction-tight on the casing. The rest 2 may be made integral with the clasp 4, but is preferably connected to the same by a friction-tight hinge joint 5. Adjacent the hinge joint 5 a slight projection or stop 6 is provided (see Fig. 2) that limits the outward swinging movement of the rest. By reason of the hinge joint it will be evident that the rest can be folded over against the clasp 4 so as to occupy little space when the device is not in use.

The rest 2 is preferably of channel-form, comprising two narrow plates 7 and 8, which form an angle with each other; for example, 90°, as indicated in Fig. 3. This channel forms a socket for

the pistol barrel, and when the barrel is in place, the longitudinal axis of the lamp casing 1 and the axis of the barrel, should be substantially parallel with each other.

The rest 2 is preferably provided with means for adjusting the same in a lateral or general horizontal direction, and in a vertical direction, for which purpose I prefer to provide two small set screws 9 and 10, which are mounted in the plates or leaves 7 and 8 of the rest. The axes of these screws are substantially radial from the axis of the pistol barrel. With this construction it will be evident that by slightly unscrewing one of these set screws and slightly advancing the other set screw, a lateral adjustment can be obtained without raising the barrel in the vicinity of the set screws. Of course, by screwing both of these set screws 9 and 10 further in, an equal amount, a substantially vertical adjustment can be obtained. Evidently by advancing both screws, the rear end of the barrel would be raised, which would have the effect of elevating the relative position of the spot cast by the lamp on the target, and vice versa. The side of the lamp casing 1 may be provided with one or more push buttons such as the push button 11, which may be depressed to close a circuit through the source of illumination of the lamp; and in the present instance, this is in the form of a bulb 12 having an incandescent filament 13 within the same.

As illustrated in Fig. 1, the pistol may be of the revolver type involving the use of a rotary magazine 14 carrying the cartridges, which are aligned in the usual manner in succession, with the barrel. In a pistol of this type there is a tendency for burning powder or gases of combustion from the barrel to escape laterally, and this might accidentally burn the left hand of the marksman who would be holding the casing 1 in his left hand while holding the revolver handle, or grip, in his right hand. In order to prevent this, I prefer to provide the butt end of the casing 1 with a guard 15, which may be of cylindrical form, and it projects out from the rear end of the casing. If desired, this guard 15 may include two radial fins 16 and 17, which project respectively upwardly and downwardly from the body of the guard. If desired, this guard may be made adjustable on its horizontal axis and about the axis of the clamping screw 18. By loosening this screw, the guard can be rotated on its axis and reclamped in any adjusted position desired.

Although the set screws 9 and 10, if desired, may be mounted in ordinary threaded openings, in order to make them friction-tight and prevent them from being turned too easily, I prefer to form their threaded openings in slots 19 extending in from the adjacent end of the wings, or plates, 7 and 8. These slots give the metal a chance to expand at the threaded openings. By making the diameters of the set screws slightly oversize, they can be made reasonably tight in their openings.

In addition to the adjustment just described, I prefer to provide an additional adjustment for the beam of light that is projected from the lamp. In the present construction the bulb 12 is located at the forward end of the lamp casing 1, and is provided with a reflector 20 of shell-form (see Fig. 4) which is preferably formed at its forward end with an outwardly projecting rudimentary flange 21. The forward face of this flange seats against the rear side of a plate of glass 22. The rear side of the flange 21 lies adjacent to the end face 23 of the casing with a spring washer 23a

between it and the end face 23. The forward side of glass 22 may seat against a ring 24 that is mounted in the outer end of the cap nut 24a. The inner end of this nut is threaded to be received on corresponding threads on the forward end of the casing. Set screws 25 mounted in the end of the nut, thrust against the ring 24, and by tightening up the set screws and particularly the set screw 25b, the reflector can be tilted forward or back on the side located toward the pistol. Means such as a dowel pin 25c projecting from the reflector, is received in a perforation 25d in the lamp casing, to prevent the reflector from rotating. The terminal 26 of the lamp seats against a terminal 27 of a dry cell 28, which slides into the casing from its rear end, being held in position by a removable screw cap 29. Back of the cell 28 a light coil spring 30 is provided (see Fig. 4) that exerts a thrust against the terminal 26 and causes the forward face of the flange 21 to maintain itself seated against the rear face of the lens or glass 22. With this arrangement it will be evident that the central axis of the reflector 20 can be adjusted so as to swing toward or from the pistol barrel to adjust its axis into near parallelism with the axis of the pistol barrel.

In Fig. 13 I illustrate diagrammatically the character of the spot that will be cast by this projecting apparatus onto the target. This spot has a relatively large outer area which is illuminated, but not with the same intensity as the highly illuminated center 32. This effect may be attained by employing a nearly parabolic reflector with the filament 13 located substantially at the focal point.

The central portion of an ordinary parabolic reflector causes considerable dispersion, giving an indefinite border for the light spot.

In order to reduce the illumination of the outer portion of the lighted spot, and form a spot with a more definite outline, I prefer to eliminate the reflection at the central zone 34 of the reflector. This may be accomplished by covering the same with a non-reflecting deposit, or by painting the same black; or not polishing the surface. This leaves an annular zone 35 from which the rays are reflected. In this way, by reducing the degree of illumination in the outer area of the spot, the position of the center is rendered more visible to the eye. If desired, however, the position of this center can be indicated by any suitable means, which will cause a shadow 36 to be cast upon the light spot. This shadow is preferably radially disposed, and terminates at the highly illuminated center spot 32. In order to attain this shadow effect, the lamp bulb may be provided with a screen within the bulb. This screen may be of round wire, but may be also formed of a flat piece of metal. This screen may be disposed alongside the filament, and would cause the development of a shadow such as the shadow 36. I prefer to mount the filament 13a so as to attain this effect (see Fig. 11) by providing a long post 13b with a goose-neck, and connect the filament between the goose-neck and another post 13c. The opposed ends of the post are provided with small metal sleeves 13d that project out to envelop the adjacent ends of the filament. This insures the development of high incandescence in the filament. The post 13b will produce the shadow 36.

In Fig. 6 I illustrate another embodiment of the interengaging means between the pistol and the lamp. There is, however, no adjustment of

the inner engaging means to regulate the axis of the lamp casing 38 with respect to the barrel of the pistol. However, the cap nut 39 at the forward end of the casing would retain a reflector and glass similar to that illustrated in Fig. 4. As illustrated in Fig. 6, the lamp casing 38 is not on the level of the pistol barrel, but is set under the bottom of the pistol grip or handle 40. In order to accomplish this, the pistol grip is formed with two downwardly projecting side plates or fins 41 which, at the rear end, are provided with a transverse pin 42. The lamp casing is held in a clasp 43 which, on its upper side, is formed with a bar 44 received between the plates 41. At the rear end a V-shaped notch 45 is formed which engages the body of the pin. A small lever or dog 46 is provided, which is pivoted at 47 in a recess formed in the bar 44. When shooting with a pistol, this lever 46 is held upwardly adjacent to the forward side of the pistol grip by the fingers of the hand grasping the pistol. When not in use, this lever 46 may be folded down as indicated by the dotted lines in Fig. 6. The lever 46 is preferably formed with a shoulder 48 at each side, that engages the upper face of the bar 44 to limit the rearward movement of the lever. The advantage of this is that the lever is not permitted to come against the handle 40, and hence when the pistol is discharged, the pistol simply rotates back relatively on the pin 42. It would be evident that the grip of the hand on the pistol handle 40 would hold the upper side of the clasp 43 against the bottom face 49 of the pistol handle 40.

In the embodiment of the invention illustrated in Fig. 8, the lamp casing 50 is held forward of the pistol grip 51 and at about the same level as the pistol grip. In other words, it is located forwardly and under the barrel 52 of the pistol. In this construction the lamp casing 50 is held in a clasp 53, which is rigid with a bracket 54 in the form of a bent plate having a horizontal extension 55, and having a rear inclined extension 56 that seats against the forward side of the pistol grip 51. This extension 56 is formed with an integral tongue 57 that extends rearwardly and is received in a narrow socket or slot 58, which is formed in the pistol handle by removing its face plate 59 and placing distance plates 60 between the same and the inner plate 61 of the pistol handle, the said plates being held in position by long shank screws 62. It will be evident that when the grip of the hand is tightened around the pistol handle 51, the bracket 54 will be held firmly in position.

If desired, this embodiment of the invention may include a reflecting mirror 63, which is preferably mounted to rotate friction-tight on a vertical pivot 64, said pivot being held in a bracket extension 65 that projects up from the horizontal extension 55 of the bracket 54. This reflecting mirror is double-sided, and may be swung out to an open position at about 45° in either direction, as indicated by the dotted lines 66 in Fig. 9. In these 45° positions the mirror should seat against a stop 67 at either side.

Many other embodiments of this invention may be resorted to without departing from the spirit of the invention.

What I claim is:

1. In a night sighting device, the combination of a pistol having a grip and a trigger guard disposed forwardly of the grip, said grip having a side plate secured on the side thereof with spacing means for maintaining the side plate in

a position to form a slot in the grip opening forwardly, and a bracket of angular form having a substantially horizontal extension to engage under the trigger guard and having a downward extension at its rear end to fit against the forward edge of the grip, and having a tongue to fit into said slot, and fill the space between said side plate and said grip, and a lamp carried by said substantially horizontal extension for projecting a spot of light upon the target, said tongue operating to maintain the bracket in front-and-rear alignment.

2. In a night sighting device, the combination of a pistol having a grip and a trigger guard disposed forwardly of the grip, said grip having a side plate secured on the side thereof with spacing means for maintaining the side plate in a position to form a slot in the grip opening forwardly, a bracket of angular form having a substantially horizontal extension to engage un-

der the trigger guard and having a downward extension at its rear end to fit against the forward edge of the grip, and having a tongue in the form of a plate to fit into said slot, a lamp carried by the under side of said substantially horizontal extension for projecting a spot of light upon the target, and a mirror pivotally mounted on the upper side of the horizontal extension of the bracket and between the same and the pistol barrel, said mirror capable of assuming an inclined position to reflect an image of the target in a lateral direction, and enabling a person firing the pistol to aim the same on a target seen in the mirror, with the hand supporting the pistol and lamp projecting from a corner behind which the body of the person firing the pistol would be concealed from the view of a person located at the target.

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