April 14, 1925. 1,533,615

H. W. SCHWARTZ

HEADLIGHT

Filed Aug. 2, 1923

Fig. 1.

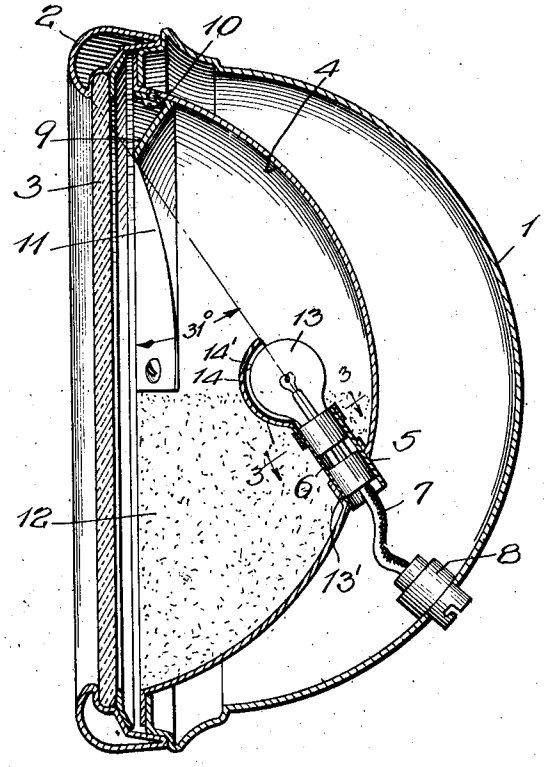


Fig. 3.

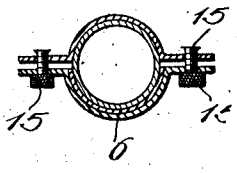
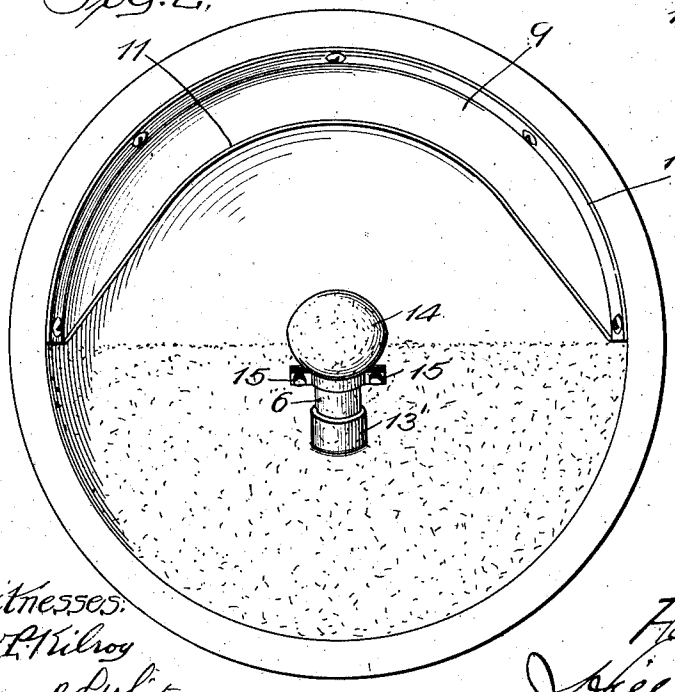


Fig. 2.



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UNITED STATES PATENT OFFICE.

HERBERT W. SCHWARTZ, OF CHICAGO, ILLINOIS.

HEADLIGHT.

Application filed August 2, 1923. Serial No. 655,281.

To all whom it may concern:

Be it known that I, HERBERT W. SCHWARTZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Headlights, of which the following is a description.

My invention relates to improvements in head lights, and more particularly to a means for cutting off the sidewardly projected rays and also for preventing that glare due to the rays of light projected upwardly of the reflector.

One of the objects of my invention is to absorb the upwardly directed rays so that only those rays of light that are parallel to the principal axis and those that are reflected downwardly relative thereto will be projected outwardly of the light, along the roadway.

Another object of my invention is to provide an improved auxiliary reflector having a blue enamel reflecting surface, whereby the light reflected thereby will be increased in brilliancy and will be more nearly white than with the usual form of reflector surface.

The invention has among its further objects the production of a device of the kind described, which is simple, convenient, durable, reliable, efficient and satisfactory for use wherever found applicable.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosures herein given.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a vertical section taken through my improved form of device;

Fig. 2 is a front elevation of the same; and

Fig. 3 is a section taken substantially on line 3—3 of Fig. 1.

In the drawings, wherein I have illustrated the preferred embodiment of my invention, 1 indicates the outer casing or shell of a head light, said shell being adapted to detachably receive a lens holder 2 carrying a lens 3. The shell, lens and holder may be of any suitable size, shape or design, the specific construction as such, not forming a part of my invention. Interiorly of the shell 1 is a mirror or reflector 4, said reflector being generally in the form of a concave and preferably parabolic member having a mirrored or polished surface. Downwardly of and offset from the center or the axis of the reflector, I have provided an aperture 5 through the reflector and into which may be arranged a socket 6 for carrying a lamp 13. It will be noted that the socket is arranged at an inclined angle, preferably at an angle of between 25–35 degrees to the vertical and extends forwardly and upwardly of the reflector. In order to more accurately position the socket a flange 13′ is struck up or otherwise provided at said aperture 5, as shown.

An electrical conductor 7 is connected to a terminal 8 extending through the casing, as shown, whereby it may be detachably connected to a suitable cooperating electrical conductor leading from any suitable source of energy, such as a generator, storage battery, or the like.

Ordinarily, the light rays from a lamp positioned within the reflector at the focus or near it, will be reflected so that a glare will be produced, due to the upwardly directed rays, which "blinds" and is dangerous to persons coming from the opposite direction or toward the light. In my improved head light I provide a means for restricting the direction of the reflected rays so that substantially none of them are reflected upwardly or sidewardly and hence a glare is not produced.

An opaque substantially semi-circular cover or shield 9, which I have termed a visor, having an annular flange 10 adapted to bear against the annular flange of the reflector 4, is positioned within the reflector, and has the ends thereof terminating substantially at the center of the open side of the reflector. The visor extends outwardly of the upper half of the reflector and downwardly thereof from a point within the open end of the reflector and has its lower free edge 11 arcuate or curved upwardly from both its ends toward its center, and cuts off the rays of light projected from the extreme sides of the reflector.

The lower half of the reflector 4 is covered, as at 12, with suitable non-reflective

means that will absorb any rays of light directed thereon. Therefore, the only rays of light that will be projected outwardly of the reflector will be those rays of light which are reflected from the upper half of the reflector between the upper edge of the absorbing surface and the inner side of the visor.

As has been previously described, the visor may or may not be blackened to provide a non-reflecting surface, just as desired, the non-reflecting surface being usually desirable, for it is preferably made of an opaque material so as to cut off all rays of light thrown against its inner surfaces, so that all of the rays of light directed onto the uncovered polished surface of the reflector 4 will be reflected therefrom along lines parallel to the principal axis of the mirror and also along lines lying in vertical planes and directed downwardly of the principal axis.

A lamp 13 is arranged within the socket 6 so that its axis and the axis of the socket are coincident and preferably intersect substantially the center of the line of the intersection of the plane of the front edge of the reflector and the inner surface of the visor, as shown in Fig. 1. With a parabolic reflector the angle of vertical inclination of the lamp will be approximately 31 degrees. In this position the lamp will be positioned so that its filament will throw more light onto the reflecting surface 4 than in any other position, as it is well known that a lamp when viewed from its side will appear brighter than viewed from its end.

An auxiliary reflector 14, preferably having its reflecting surface coated or covered with royal-blue heat-resisting enamel, 14′ is removably secured to the socket 6 by means of a collar having thumb screws 15, or the like, enlarged at their ends 15′ to prevent loss, the collar arranged to clamp the reflector in place. The reflector 14 surrounds or encloses the front half of the lamp and has the plane of its upper edge substantially in registry with the axis of the lamp, as shown, so that it will not interfere with the lighting qualities of the lamp.

The purpose of making the reflecting surface of the auxiliary reflector of a blue enamel is because of the well-known fact that light reflected from a blue reflecting surface will appear whiter and more brilliant than when reflected from a surface of any other color. By adjusting the sub-reflector 14 rotationally of the lamp, the rays from the head light may be thrown farther to one side of the center of the light than to the other to light up ditches or the like at the side of the road.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. In a head light of the kind described and in combination, a concave reflector, means for absorbing the rays of light directed onto the lower half of said reflector, a visor arranged transversely of said reflector at its upper portion, said reflector having an aperture therethrough below the center thereof, and a lamp arranged at said aperture so that the longitudinal axis through said lamp intersects the intersection of the plane of the front edge of said reflector and the center of the inner surface of the lower edge of said visor.

2. In a head light of the kind described and in combination, a parabolic reflector, means for absorbing the rays of light directed onto the lower half of said reflector below the center axis thereof, an arcuate visor arranged transversely of said reflector at its upper front portion from a point within said reflector and extending outwardly and downwardly therefrom, said reflector having an aperture therethrough below the center axis thereof, and a lamp extending from said aperture to the center of the axis of the reflector and so that the longitudinal axis through said lamp is inclined upwardly at an angle of between 25 and 35 degrees from the vertical and intersects the visor at the upwardly extending edge portion thereof.

3. In a head light of the kind described and in combination, a concave reflector having an aperture therethrough below the center thereof, a lamp socket arranged at said aperture to extend at an inclined angle to said reflector surface, a lamp arranged in said socket, means for absorbing the rays of light directed onto the lower half of said reflector, a visor arranged transversely of said reflector at its upper portion from a point within said reflector and extending outwardly and downwardly therefrom and having its lower free edge curved upwardly from its ends, and an auxiliary reflector enclosing the front of said lamp and secured to said socket and having its reflecting surface of a blue heat-resisting enamel.

4. In a head light of the kind described and in combination, a concave reflector having an aperture therethrough below the center thereof, a lamp socket arranged at said aperture to extend at an inclined angle to said reflector surface, a lamp arranged in said socket, means for absorbing the rays of light onto the lower half of said reflector, a visor arranged transversely of said reflector at its upper portion, and an auxiliary reflector adjustably secured to said socket.

and enclosing the front of said lamp, the reflecting surface of said auxiliary reflector being of a blue heat-resisting enamel.

5. In a head light of the kind described and in combination, a concave reflector having an aperture therethrough below the center thereof, non-reflecting means on the lower half of said reflector, a visor arranged transversely of said reflector at its upper portion from a point within said reflector and extending outwardly and downwardly therefrom, a lamp socket in the aperture through said reflector, a lamp in said socket in alignment therewith and having its axis intersecting the front edge of said reflector and the center of the inner surface of said visor, and an auxiliary reflector adjustably secured to said socket and having its reflecting surface covered with a blue heat-resisting enamel and enclosing the front half of said lamp.

6. In a head light of the kind described and in combination, a concave reflector having an aperture therethrough below the center thereof, light absorbing means on the lower half of said reflector, a visor arranged transversely of said reflector at its upper portion and extending outwardly and downwardly therefrom, a lamp socket in said aperture, a lamp in said socket in alignment with the axis thereof and having its axis intersecting the plane of the front of said reflector at the center of the line of intersection of said plane with the inner surface of said visor, and an auxiliary reflector having its reflecting surface covered with a blue heat-resisting enamel and enclosing the front half of said lamp and removably secured to said socket.

7. In a head light of the kind described and in combination, a concave reflector having an aperture therethrough below its center, the lower half of said reflector covered with a light absorbing means, a visor arranged transversely of said reflector at its upper portion from a point within said reflector and extending outwardly and downwardly therefrom and having its lower free edge curved upwardly from both ends to its center, a socket arranged in the aperture through said reflector, a lamp arranged in said socket with its filament intersecting the principal axis of said reflector, the axes of said lamp and socket arranged to intersect the center of the line of intersection of the plane of the front edge of said reflector and the inner surface of the visor, and an auxiliary reflector surrounding the front half of said lamp and adjustably and removably secured to said socket, the top edge of said auxiliary reflector being in registry with the axis of said lamp and socket, and said auxiliary reflector having its reflecting surface coated with blue heat-resisting enamel.

8. In a head light, a concave parabolic reflector having an aperture therethrough below the center thereof, a collar on said reflector about said aperture and having its axis arranged at an angle of substantially 31 degrees, downwardly from the vertical, non-reflecting means covering the surface of the lower half of said reflector, a visor arranged transversely of said reflector at its upper portion and extending downwardly, a lamp carried by said collar and having its axis coincident therewith, and an auxiliary reflector about said lamp and enclosing the front half thereof.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

HERBERT W. SCHWARTZ.

Witnesses:
ROY W. HILL,
RUTH M. EPHRAIM.