J. H. LAIRD.

AUTOMOBILE HEADLIGHT.

APPLICATION FILED NOV. 14, 1918.

1,336,967. Patented Apr. 13, 1920.

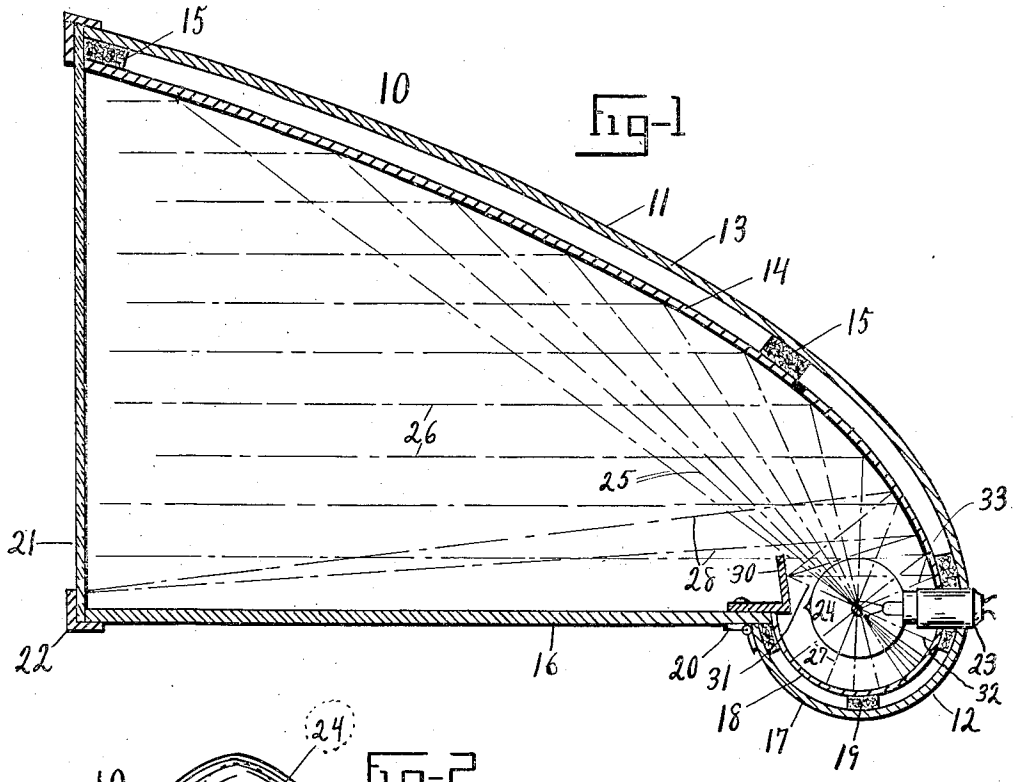


Fig-1

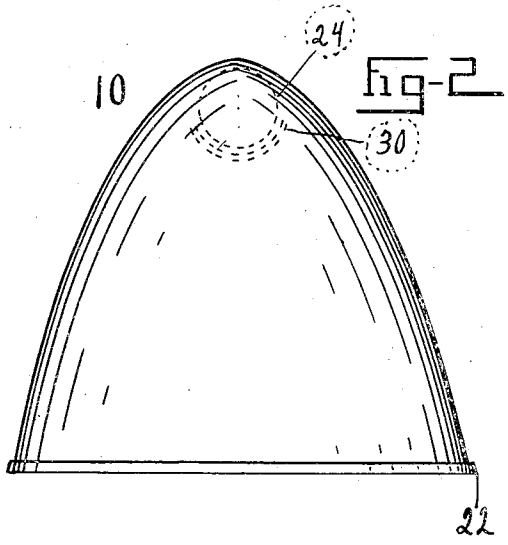


Fig-2

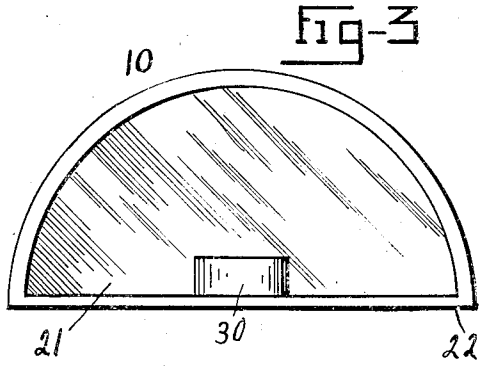


Fig-3

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AUTOMOBILE-HEADLIGHT.

1,336,967. Specification of Letters Patent. Patented Apr. 13, 1920.

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To all whom it may concern:

Be it known that I, JOHN H. LAIRD, a citizen of the United States, and residing at Louisville, county of Jefferson, and State of Kentucky, have invented certain new and useful Improvements in Automobile-Headlights, of which the following is a specification.

This invention relates to headlights adapted to be used in connection with automobiles.

Headlights in general use upon automobiles project light rays through a circular field of constantly increasing area, and the light, if bright enough to illuminate the roadway properly, is a source of danger to pedestrians and drivers of other vehicles.

Many States have passed laws regulating automobile headlights, requiring that the light shall be bright enough to suitably illuminate the road, a given distance ahead of the machine, but that the rays of light shall not rise high enough above the ground level to strike, or be bright enough to dazzle, the eyes of a pedestrian at a certain distance in advance of the vehicle.

Many devices have been provided in attempts to comply with these laws, most of which take the form of specially designed glass or lenses, the devices are known under the general term of dimmers as they reduce the illumination and consequently are unsatisfactory.

An object of this invention is to provide a headlight which will project all the rays of light emanating from a source within it, forward in parallel lines from a reflecting surface, no direct rays from the source escaping.

With the foregoing and other objects in view, the invention consists of the novel construction and arrangement of parts illustrated in the accompanying drawing, which forms a part of this specification, wherein is set forth an embodiment of the invention, but it is to be understood that such changes and modifications may be resorted to as come within the scope of the appended claims.

In the drawing wherein similar reference characters designate like parts in the several views, Figure 1, is a central vertical longitudinal section: Fig. 2, a top plan view: and Fig. 3, a front elevation.

The headlight which is designated as an entirety by the reference numeral —10— comprises two sections —11 and 12— the first of which is a semi-parabola and the second a semi-sphere, the two sections being associated in such manner that their focal points coincide. The first section consists of an outer shell —13— and an inner reflecting shell —14— which are maintained in spaced relationship by means of spacing members —15— which preferably are of resilient material such as felt. The parabola is mounted upon a plane base, or floor —16— which lies in the axis of the parabola. The semi-spherical section likewise consists of an outer shell —17— and an inner reflecting shell —18— which are separated by spacing blocks —19—. This section is connected with the base member 16, by suitable means such as a hinge —20— whereby access may be had to the light. The forward end of the headlight is closed by means of a semi-circular glass —21— which is retained by a flange —22—. An electric light socket —23— is adapted to hold an electric light —24—, the incandescent filament of which lies in the confocal point of the two reflecting surfaces. In accordance with a law of physics, rays from a focus are reflected from the surface of a parabolic mirror in lines parallel with the axis thereof. The angle of incidence and the angle of reflection are equal consequently in a headlight such as I have provided the rays —25— from the upper side of the filament will impinge upon the semi-parabolic mirror and be reflected forward in parallel rays —26—, while rays —27— from the lower side of the filament will strike upon the semi-spherical mirror at right angles to the surface thereof, and be reflected directly back across the focal point to the parabolic surface from which they will be projected forward in lines —26— parallel with the axis of the parabola. A cylindrical reflector —30— is positioned on the floor 16, just in front of the light and in such relation thereto that it will intercept any direct rays as —31—, or reflected rays —32, 33— that otherwise would pass out the front of the headlight in upwardly directed divergent lines. It is these direct divergent rays which are mostly the cause of the "road glare" which is so objectionable. The rays intercepted by the cylindrical reflector are thrown against the parabola and by it cast in a downward direction such as lines 28 and

pass out of the headlight serving to illuminate the roadway close to the car.

From the foregoing description it will be seen that all light rays leaving the headlight are reflected rays, it being impossible for any direct rays to escape, consequently it is possible to regulate the height of the rays above the roadway.

Having thus described my invention so that anyone skilled in the art pertaining thereto can make and use the same, I claim:

1. In a headlight as characterized, a non-reflecting base having an aperture at its rear end, a semi-parabolic reflector mounted upon said base, and a semicircular reflector hinged to the under side of the base and closing said aperture.

2. In combination, a base the upper surface of which is non-reflecting and which is provided with an opening at its rear end, a semi-parabolic reflector mounted upon said base, a semi-circular reflector movably positioned against the lower surface of the base concentric with said opening and a source of light located in the confocal point of said reflector.

JOHN HARVEY LAIRD.