

July 21, 1931.

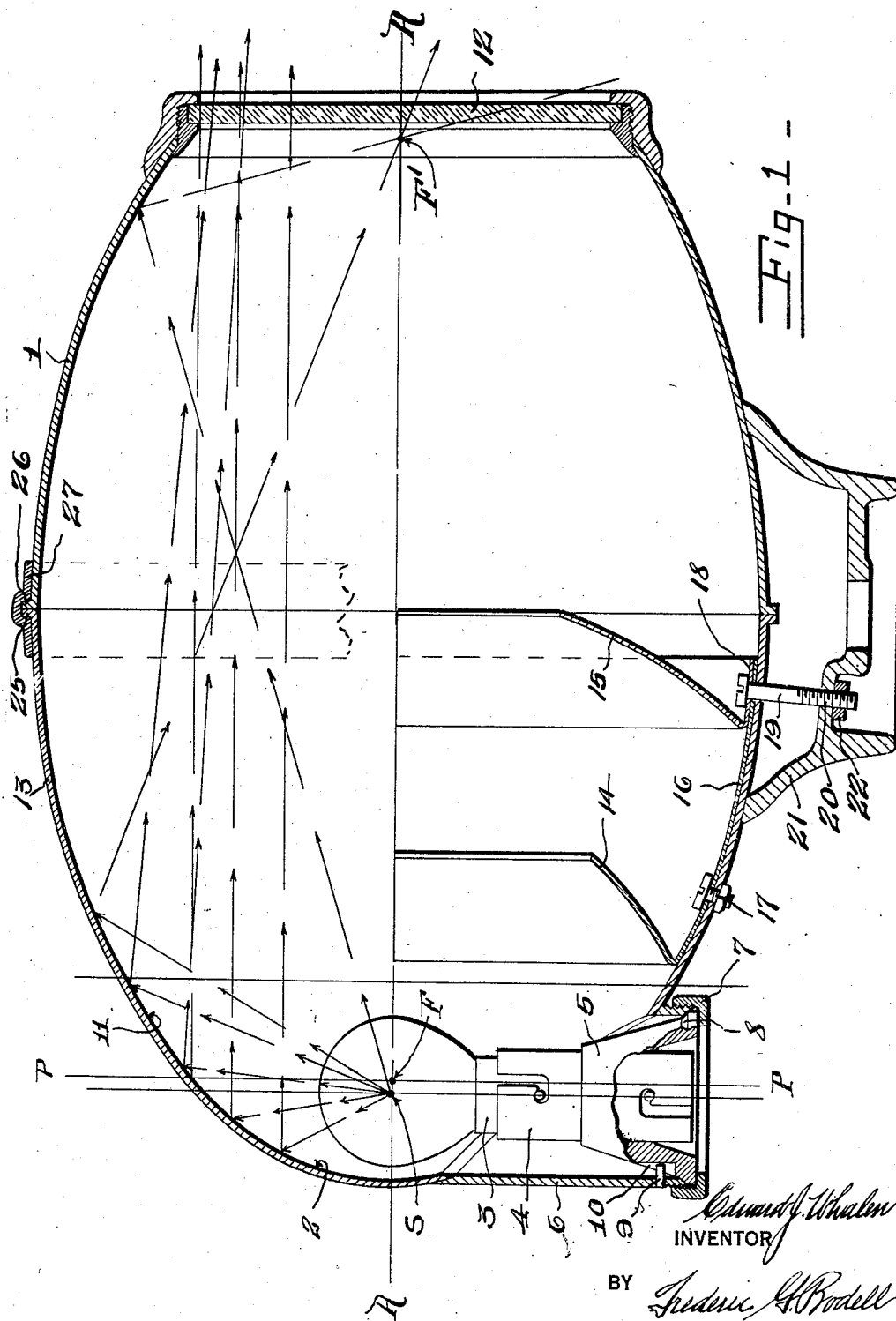
E. J. WHALEN

1,815,751

HEAD LAMP CONSTRUCTION

Filed Feb. 23, 1929

2 Sheets-Sheet 1



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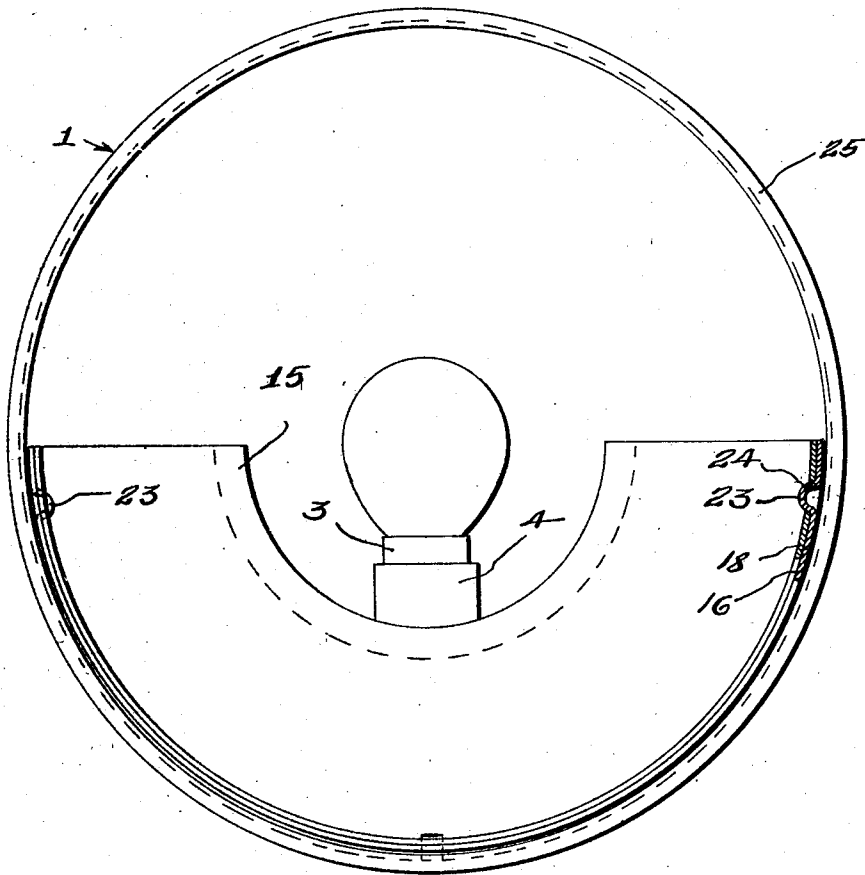


Fig - 2 -

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HEADLAMP CONSTRUCTION

Application filed February 23, 1929. Serial No. 342,139.

This invention relates to headlamps for motor vehicles and the like of the type set forth in my Patent No. 1,641,714 issued September 6, 1927 and has for its object a reflector construction for increasing the rear reflector surface from which the rays are projected in a horizontal direction and also a particularly simple and economical construction for assembling the redirecting reflectors.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a vertical sectional view of a headlamp embodying my invention.

Figure 2 is a front elevation, partly in section, of the rear section of the headlamp.

This headlamp comprises, generally, a reflector body ellipsoidal in general form with the rear end portion parabolic and also having an ellipsoidal zone directly in front of the focal plane of such curvature as to reflect the rays preferably downwardly at an incline but slightly out of the horizontal.

1 designates the body of the reflector, which is for the most part ellipsoidal in general form, the rear end portion 2 being parabolic, that is, the portion back of the focal plane P—P or a transverse radial plane passing through the focus F of the parabolic portion 2.

S designates the source of light which is the filament of an incandescent electric lamp having its base 3 located in the usual socket 4. The socket 4 is supported by a carrier 5 which is removably located in a tubular passage 6 at the rear end of the reflector body and preferably arranged at a right angle to the axis of revolution A—A of the body. The carrier 5 is held in position by a ring 7 threading on the lower end of the tube 6 and the body 1 is provided with means as a conical surface 8 coacting with an internal complementary conical wall at the lower end of the tube 6 for centering the lamp. Also, the tube 6 is provided with means as a shoulder 9 for entering a notch 10 in the carrier to locate the carrier

so that it can be placed in the tube only in one position.

The mounting of the lamp is such that the lamp has what is called a fixed focus. The mounting of the lamp and the means for locating the lamp forms no part of this invention.

11 designates a comparatively small ellipsoidal zone in front of the focal plane P—P and forms a continuation of the parabolic portion 2. The curvature of the ellipsoidal zone 11 being such that the light rays are reflected therefrom in a nearly horizontal direction through the glass 12 at the front end of the body.

The glass 12 is of such diameter that the light rays projected from the farthest portion of the parabolic portion 2 is passed horizontally through the edge portion of the glass. The curvature of the ellipsoidal zone 11 is such that the light rays reflected from the front most edge portion thereof pass through the edge portion of the glass.

13 designates the front ellipsoidal portion which constitutes the greater portion of the reflector body, this being of such curvature that the light rays reflected therefrom extend at a comparatively great inclined angle downwardly and the rays reflected from the extreme front portion thereof pass downwardly through the reflector at an incline out of the vertical so as to illuminate the road immediately in front of the vehicle and to the sides of the vehicle.

The focus F of the parabolic reflector and the rear focus of the portions, 11, 13 are substantially coincident in the point F. The front focus of the ellipsoidal zone 11 is located at a considerable distance in front of the lamp while the front focus F' of the portion 13 is located near the front end of the lamp.

The source of light is located so as to be in effect practically in the focus F so that the rays reflected from the parabolic portion 2 will be projected forwardly in nearly horizontal lines. However, as a lamp filament is a finite thing and a focus is a theoretical thing without dimension, it is impossible to locate the filament in the focus, as

most of it will always be outside of the focus.

In order that the filament lamp may be located so that the greater part of the rays therefrom will strike the reflectors as if located exactly in the focus, the filament is located slightly in the rear of the focus F. This, in effect, is a compromise in order that most of the rays from the parabolic reflector will be reflected horizontally.

In short, more rays are projected horizontally from the parabolic portion 2 and in a more nearly horizontal direction from the zone 11 than if the filament were located so that it intersects the focus F.

14 and 15 are redirecting reflectors arranged to direct the direct rays radiating from the filament downwardly below the horizontal plane of the axis of revolution A—A, rearwardly to the parabolic portion 2 through or near the focus F.

The reflector 14 is shown as formed with a forwardly projecting base flange 16 lying on and conforming to the lower portion of the reflector body and secured thereto in any suitable manner as by a fastening member 17.

The reflector 15 is formed with a similar flange 18 which conforms to and overlies the flange 16 and secured thereto by a fastening member as a screw 19 extending through the flange 18, the flange 16 and the body of the reflector extending at 20 through a hole in a saddle 21 on which the reflector body is mounted. A nut 22 threads on the screw against the saddle.

The flange 18 of the reflector 15 is also additionally secured to the flange 16 of the reflector 14 by snap catches located near the upper ends of the flange 18.

As here shown, the flange 16 near its front end is formed with internal bosses 23 struck therefrom and the flange 18 is formed with slots 24 for snapping on the bosses. The reflector portion 13 is formed with front and rear halves having outwardly extending abutting annular flanges 25, 26. These flanges are held together by a band 27, which band is also secured to the saddle.

The band or the means for securing the sections of the reflector body form no part of this invention.

The reflectors 14 and 15 are assembled in the rear edge of the reflector body while the front half is removed.

The rear reflector 14 is first inserted in the rear half of the body, and the flange 16 so formed as to accurately fit the rear half ellipsoidal portion 14. The screw 17 together with the fit between the flange 16 and the reflector body act to locate and hold the reflector 14 in position.

The reflector 14 having been located and secured, the reflector 15 is then fitted into the flange 16, the ends thereof being sprung inwardly in order to clear the bosses 23 or bring the slots 24 in alinement with the bosses

so that when the reflector 15 reacts and springs outwardly, the bosses are interlocked in the slots 24.

The screw 19 is then placed in position and additionally secures the two reflectors to the body and to the saddle 21.

The front half of the reflector body is then placed in juxtaposition to the rear half and the band 27 applied.

Owing to the parabolic portion 2 and ellipsoidal zone 11 and the reflectors 14, 15, the greater portion of the light rays are projected in a general horizontal direction for a maximum distance in front and to the side of the car giving a maximum illumination on the road.

Owing to the ellipsoidal portion 13 or the upper portion thereof, sufficient light rays are directed downwardly immediately in front and laterally of the vehicle.

What I claim is:

1. A headlamp construction comprising a reflector body which is ellipsoidal in general form, a source of light located near the rear focus of the body and a redirecting reflector located in the body below the horizontal plane of the axis of revolution and arranged to reflect the light rays rearwardly to the rear portion of the reflector, said redirecting reflector having a forwardly extending base flange lying on and conforming to the inner face of the body, a saddle on which the body is mounted and means for securing the redirecting reflector to the body including a fastening member extending through said flange and into the saddle.

2. A headlamp construction comprising a reflector body ellipsoidal in general form, a source of light located near the rear focus of the body and redirecting reflectors arranged one in advance of the other and located in the portion of the body below the horizontal plane of the axis of revolution of the body and arranged to reflect the light rays rearwardly to the rear portion of the reflector, the redirecting reflector nearest the source of light having a base flange projecting toward the front of the head lamp and lying on and conforming to the inner face of the body and the other redirecting reflector having a base flange projecting toward the front of the body and lying on and conforming to the former base flange and means for securing the flanges together and to the body, said means including a fastening member extending through said flanges and the body, and a saddle on which the body is mounted, said fastening means coacting with the saddle to secure the body to the saddle.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and in the State of New York, this 18th day of February, 1929.

EDWARD J. WHALEN.