March 13, 1934. R. A. FORBES 1,950,918

COMBINED HEADLIGHT LENS AND REFLECTOR

Filed April 8, 1932

Fig. 1.

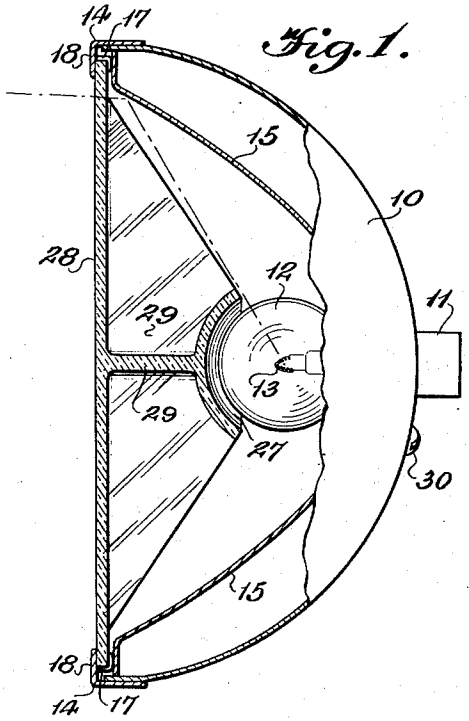
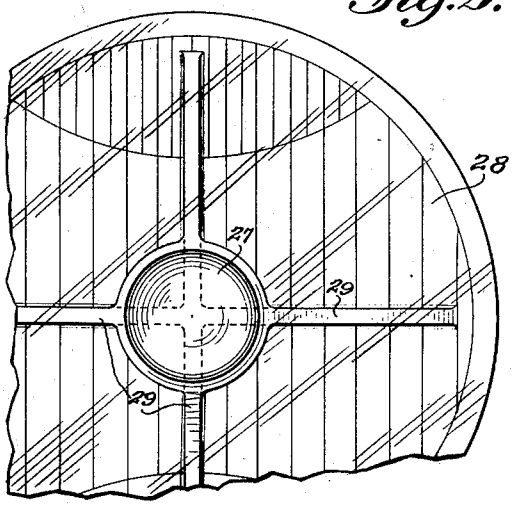


Fig. 2.



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COMBINED HEADLIGHT LENS AND REFLECTOR

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1 Claim. (Cl. 240—41.4)

The invention relates to light ray projectors, and particularly to illumination projectors adapted to street illumination, and in the specific embodiment here presented is adapted to use in headlights of motor vehicles.

It is an aim of the invention to present a novel construction of interceptor-reflector and lens refractor combined in which the practice of interposing a spherical or similar reflector between the lamp and front lens may be carried out practically, and practicably for the trade and the user.

Additional objects, advantages and features of invention reside in the construction, arrangement, and combination of parts involved in the embodiment of the invention, as will be understood from the following description and accompanying drawing, in which

Figure 1 is a vertical section through a headlight constructed and equipped in accordance with my invention.

Figure 2 is a rear view of the combined lens and reflector.

There is illustrated formally a lamp casing 10 of any approved construction, having the usual socket 11, in which there is set the familiar form of lamp or bulb 12, having the filament 13. The casing may be semispherical as shown or any other approved form with the lamp socket at its center, the front being open and provided with a lens-retaining rim 14 in which there is ordinarily set some form of plate with refracting elements integrally formed thereon and usually called a lens. A familiar form of parabolic reflector 15 is also shown having its perimetral edges terminating at the rim 14. Other forms of reflectors may be used, but the parabolic form is peculiarly coordinated with my present embodiment of the invention.

Closing the front of the headlight there is a lens plate 28 of circular form, which for the most part may conform to any approved practice in the formation of such lens plates. This plate has edge portions held in the usual clips 17 attached to the rim 14, the plate being set and held snugly against the inner face of an inwardly extending flange 18 formed on the rim 14. In Figure 1, the plate has mounted on its inner face an auxiliary spherical segment reflector 27.

It should be noted that the boundary of the reflector 27 extends across a line from the filament 13 to the extreme edge of the parabolic reflector 15, so that any rays which do not strike the reflector 15 directly, are reflected rearwardly by the reflector 27, from which they pass through the lamp 12 to the reflector 15 in a line coincident with, or so nearly coincident with the filament 13 as to be projected by the parabolic reflector forwardly to be utilized in the desired illuminating beam.

The auxiliary reflector 27 the lens plate 28 and the connecting parts 29 between the two are all cast integrally in one piece. The connecting parts 29 comprise four webs or walls intersecting on the axis of the lens and reflector 27, and radiating at right angles to each other from the common center in pyramidal form. They all extend beyond the reflector 27 but stop short of the periphery of the plate 28, and extend from the extreme edge of the reflector 27 diagonally and rectilinearly within the elements of a cone having its base on the plate 28 spaced from the reflector 15 and its apex at the filament 13.

The formation of the reflector 27 on the glass of the lens plate of the headlight and the use of the webs 29 results in conducting the heat rapidly from the auxiliary reflector to the lens plate, where it is quickly dissipated by radiation from the larger area of the lens plate, as well as transferred to the air impacting against the lens plate.

The large webs 29 serve most effectively in conducting heat from the reflector, and in addition protect the auxiliary reflector from damage by shocks in shipment and handling incident to manufacture and sale, as well as in manipulation of parts of the headlight in removal and replacement.

The proper focus and adjustment of the auxiliary reflector can also be more certainly effected than where devices are mounted on brackets or the like attached to the lamp or lamp socket for the reason that in such device the auxiliary reflector 27 functions in a definite relation to the parabolic reflector 15. In such headlights generally an adjustment 30 is provided whereby the lamp may be moved for proper focus with the parabolic reflector, and such adjustment will also bring it into proper relation to the auxiliary reflector. The reason for this is that the parabolic reflector is in abutment with the lens plate, so that its relation to the auxiliary reflector is thus assured if the distance of the auxiliary reflector from the lens plate is properly determined and fixed in manufacture. The liability of faulty adjustment by requiring manipulation of spacing of the two reflectors manually is thus obviated and a certain attainment of a predetermined result thus assured.

The device is adapted to be manufactured in one integral element by familiar practice in the

art, and the forms of Figures 1 and 2 may be economically produced by common practices in glass blowing and moulding. It may be produced very cheaply compared to separate production of lens plates and separately mounted front reflectors.

I claim:—

In a headlight, a combined lens plate and auxiliary reflector comprising a plate body adapted for engagement in headlight housings in the relation described, said plate having a plurality of integral web elements extending therefrom at the inner side, radiating from the center of the plate in pyramidal form and a coaxial reflector in the form of a segment of a hollow sphere having its bounding edge in a plane parallel to the plate body formed integrally with the webs at their inner edges spaced from the plate, and having a concave reflector surface presented away from the plate, said webs having outer edge portions extending from the periphery of said reflector within a projected cone having its base on the plate spaced from the periphery of the plate and its apex at the focal center of the reflector.

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