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F. S. GARFORD ET AL

1,575,327

HEADLIGHT

Filed May 2, 1924

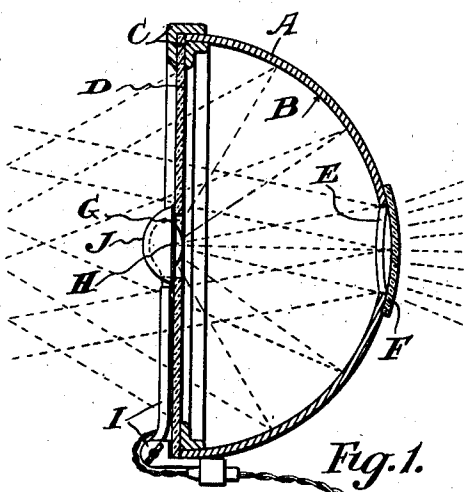


Fig. 1.

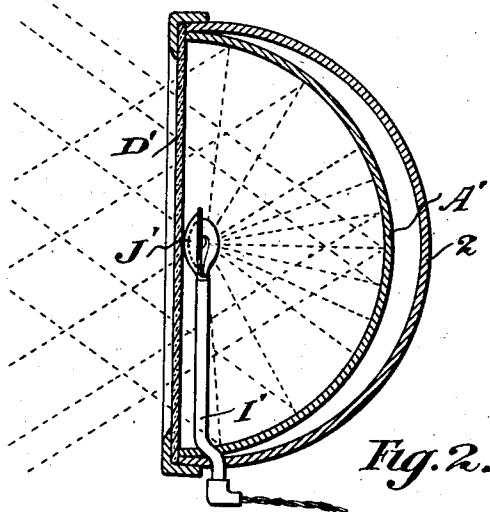


Fig. 2.

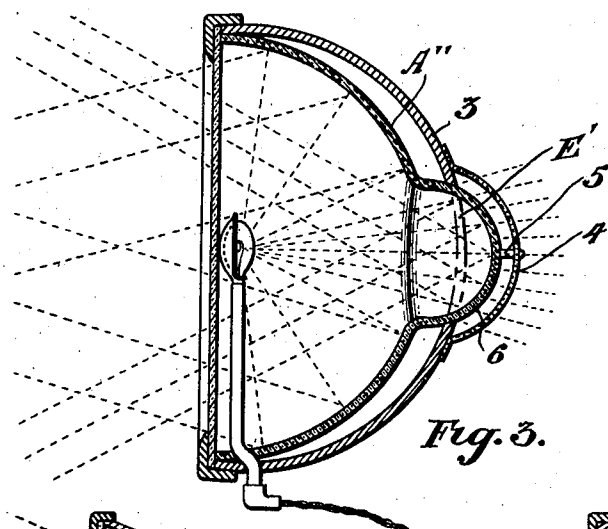


Fig. 3.

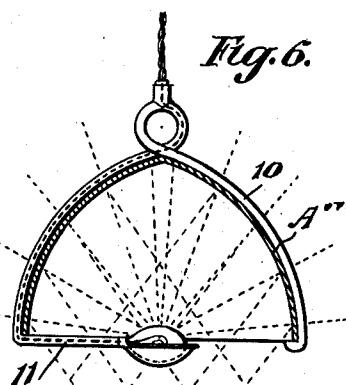


Fig. 6.

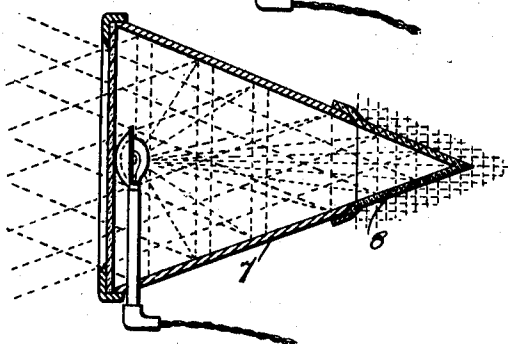


Fig. 4.

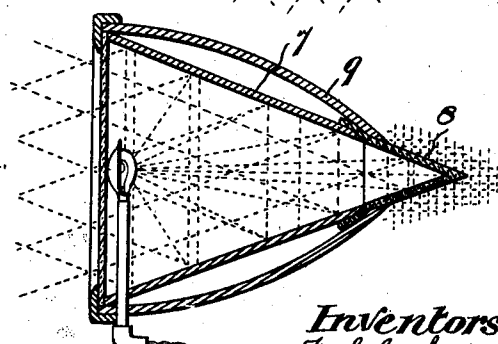


Fig. 5.

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UNITED STATES PATENT OFFICE.

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HEADLIGHT.

Application filed May 2, 1924. Serial No. 710,512.

To all whom it may concern:

Be it known that we, FRANCIS SYDNEY GARFORD and JOHN WESLEY CAUDWELL, both subjects of the King of Great Britain, and both residing in Lougheed, in the Province of Alberta, Canada, have invented certain new and useful Improvements in Headlights, of which the following is a specification.

Our invention relates to improvements in the art of illumination, and although we have specifically termed our invention as improvements in headlights, this is merely for illustrative purposes and must not be construed as limiting the application of the principle of our invention to any particular field. Obviously our invention can be used to locate landing aviation fields at night time, and in various other locations, such as headlights on locomotives, and for the illumination of areas where heavy traffic occurs at night time, whether on water or on land.

The principal object of the invention is to supersede the method now common of lighting any given area, or flashing a signal, by means of light rays reflected from bright or highly polished surfaces directly into the line of vision, by light rays reflected from any suitable non-glazed, polished, or otherwise mirror-like surface, and without the use of diffusing lenses. Another object of our invention, particularly in its application to the headlights of automobiles, is to faintly illuminate the portion of the car directly behind the headlights, and thereby assist the vision of the occupants of an approaching automobile, and in the following specification we shall describe several disclosures within our invention, and what we claim as new will be set forth in the claim forming part of this specification.

Fig. 1 is a vertical central longitudinal section through our preferred form of light projector. Fig. 2 is a vertical central longitudinal section through a modified form of our light projector: in this case the reflector is not apertured, and it is protected by a metal housing. The source of light is located within the light projector. Fig. 3 is a view similar to Fig. 2, except that the metal housing is centrally apertured, and is provided with a wire screen to cover said aperture, as well as a cupola which the reflector is provided with in this disclosure. Fig. 4 is a vertical central longitudinal sec-

tion through a further modification showing a metal reflector in the form of a frustum, the smaller end of which is apertured and closed by a conical-shaped translucent member. Fig. 5 is a view similar to Fig. 4 with the addition of a metal housing 9 for the reflector, and Fig. 6 is a vertical longitudinal section through a still further form of our light projector showing the same adapted particularly for over-head lighting.

In the drawings, like characters of reference refer to the same parts.

Several distinct advantages flow from our invention, and one of these is that since the light rays are not reflected from a surface of very high reflecting efficiency, such as that of a mirror, or a polished metal reflector, the absolute absence of any glare particularly adapts this invention for headlights on automobiles.

The reflecting surface we preferably use is flat white, and the reflector may be opaque or translucent. In any event the character of the reflector used is such that the co-action therewith of the source of light used, and the reflector in front of said source of light, of suitable size, is such that the illuminated surface of said suitable reflector will not be capable of reflecting light rays in such manner as to impair human vision.

A is any suitable metal reflector the inner surface B of which is flat white or its equivalent. This metal reflector is associated at its outer edge with a frame C, which frame supports a transparent closure member D. This closure member may be made of glass or crystal, or of celluloid, or any equivalent material. The central portion of the reflector A is provided with an opening E, and closing this opening is a translucent member F, suitably associated with the metal reflector. The rays of light pass through the translucent member F, and where this embodiment of our invention is used as a headlight for an automobile, this faint illumination will assist the vision of the occupants in an approaching motor car.

The transparent closure member D is shown as provided with an opening G there-through in alignment with the opening E, and located in front of said opening is the electric light H suitably supported by any suitable lamp bracket I. This lamp bracket, as is the case with all supporting means for the lamp within our invention, extends trans-

versely of the mouth of the various forms of reflectors, thus supporting the lamps so as to utilize a much greater area of the reflecting surface of the reflector.

5 Located to intercept the light rays from the lamp H forwardly, is a reflector. This reflector may be associated with the lamp in any manner well-known in the art: that is to say, it may be carried directly by the
10 lamp bulb, or formed separately therefrom. In the disclosures made, the reflector J is of metal, and suitably carried by the lamp bracket.

In the embodiment shown in Fig. 2, the
15 reflector A' is located within a metal housing 2, spaced apart therefrom. The transparent closure member D' houses the lamp and its bracket and reflector J' within the reflector A'. It will be observed that the lamp bracket I' passes through the housing 2 and re-
20 flector A'. The reflector A' may have a flat white reflecting surface, or it may be of flat white translucent material.

In the embodiment shown in Fig. 3 we
25 have specifically the same combination as shown in Fig. 2 except that the metal housing 3 is centrally apertured as shown at E', and over this aperture is placed a housing in the form of a wire screen 4. By means of
30 the spacing device 5 carried by said wire screen, this screen is spaced apart from the cupola 6 of the translucent white reflector A''. The lamp and its small reflector are located directly in front of the cupola 6.

35 In Figs. 4 and 5 we show metal reflectors 7 in the form of a frustum, and the reflecting surface of these reflectors is flat white or its equivalent. The rear end of

each reflector 7 is closed by a conical-shaped translucent member 8, which diffuses rays of
40 light passing therethrough.

The form shown in Fig. 5 is provided with a metal housing 9.

In Fig. 6 we show an embodiment of our invention for over-head lighting. A''' is a
45 translucent white reflector carried by any suitable frame 10 adapted to be coupled to a support. The mouth of this reflector is not closed, and the lamp is located in the correct position by an extension 11 of the
50 frame 10.

It must of course be understood that the lamps when substantially positioned as disclosed in the drawings will be properly
55 focused.

The reflector J or its equivalent is so located in respect of its associated lamp H that it is impossible to see the filament of the lamp from any angle.

What we claim is:

60 In combination a metal reflector centrally provided at its inner end with an opening; a transparent closure member at the forward end of said reflector provided centrally with an opening therethrough; an electric lamp
65 located in front of said last-mentioned central opening; a bracket for said lamp extending transversely of the mouth of said reflector, an inverted reflector supported by said bracket and in front of said electric
70 lamp, and a translucent member associated with the opening in the back of said metal reflector.

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