H. W. LAKIN.

NON-GLARING HEADLIGHT.

APPLICATION FILED FEB. 19, 1916.

1,205,361. Patented Nov. 21, 1916.

FIG. 1.

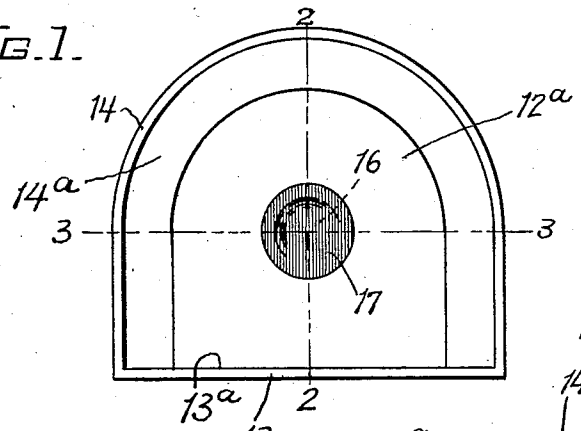


FIG. 2.

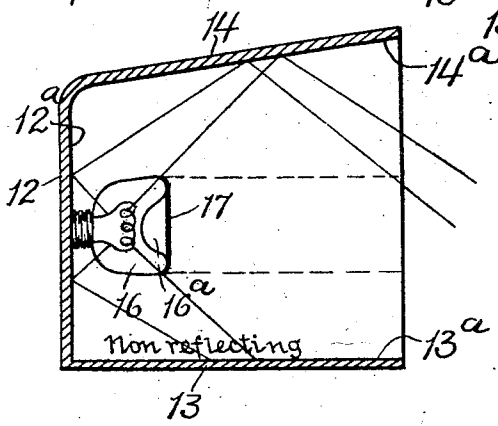


FIG. 3.

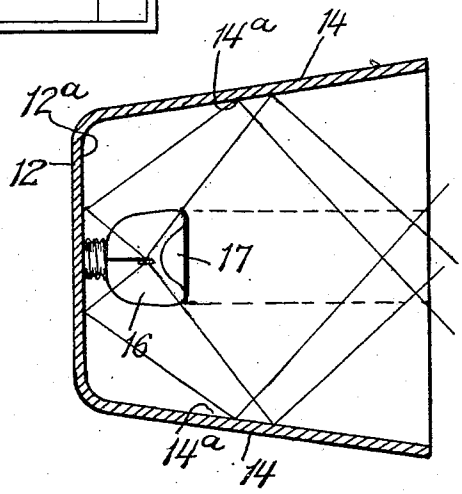


FIG. 4.

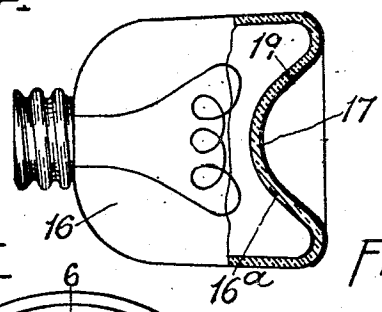


FIG. 4a.

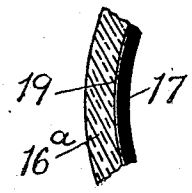


FIG. 5.

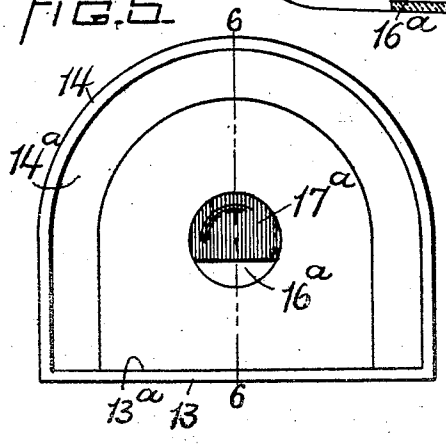
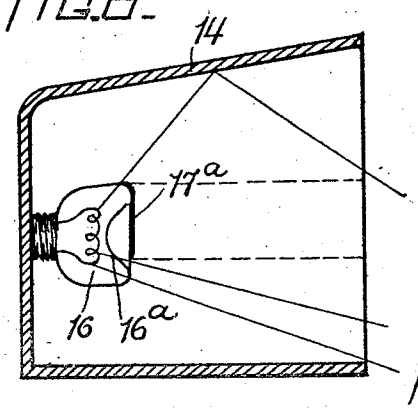


FIG. 6.



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HARRY W. LAKIN, OF MEDFORD, MASSACHUSETTS.

NON-GLARING HEADLIGHT.

1,205,361. Specification of Letters Patent. Patented Nov. 21, 1916.

Application filed February 19, 1916. Serial No. 79,312.

To all whom it may concern:

Be it known that I, HARRY W. LAKIN, a citizen of the United States, residing at Medford, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Non-Glaring Headlights, of which the following is a specification.

This invention relates particularly to headlights for motor vehicles such as automobiles and street railway cars, and its object is to prevent the emission of glaring rays from the source of light in a forward and upward direction, and thereby prevent the temporarily blinding effect of direct rays thrown into the eyes of pedestrians and occupants of vehicles.

I accomplish this result and at the same time provide for a sufficient illumination of the track ahead of the vehicle carrying the headlight, by the improved construction hereinafter described and claimed.

Of the accompanying drawings forming a part of this specification, Figure 1 represents a front end elevation of a headlight embodying my invention; Fig. 2 represents a vertical section on line 2—2 of Fig. 1; Fig. 3 represents a horizontal section on line 3—3 of Fig. 1; Fig. 4 represents a side view partly in section of the illuminator shown in the preceding figures; Fig. 4ª represents an enlargement of a portion of Fig. 4; Fig. 5 represents a view similar to Fig. 1, showing an embodiment of the invention differing from that shown by the preceding figures as to the shield hereinafter described; Fig. 6 represents a section on line 6—6 of Fig. 5.

The same reference characters indicate the same or similar parts in all the views.

The hood of my improved reflector comprises a closed inner end wall or head 12, and a body portion composed of a bottom 13, preferably flat and horizontal, and an arched portion 14 which is substantially of an inverted U-shape in cross section. The said arched portion flares from the inner end wall to the light-emitting outer end of the hood, so that the size of its cross section gradually increases from the inner end outwardly, the top of the arched portion being inclined upwardly from the inner end, as shown by Fig. 2, while the sides of the arched portion are oblique and diverge from each other from the inner end outwardly, as shown by Fig. 3.

The bottom 13 has a non-reflecting upper surface 13ª which may be provided by coating said surface with a light-absorbing substance, or in any suitable way which will prevent light rays from being reflected upwardly through the light-emitting end of the hood.

The inner end wall 12 has a light-reflecting front surface 12ª, and the arched portion 14 has a light-reflecting inner surface 14ª, and said surfaces may be provided by any well known method. The illuminator, which is preferably an incandescent electric lamp 16, is located at the inner portion of the space inclosed by the hood, and much nearer the reflecting surface 12ª than the light-emitting end of the hood.

A light-intercepting screen 17 is interposed between the source of light and the light-emitting end of the hood and is formed and arranged to prevent the emission of glaring rays in an upward and forward direction, so that glaring rays cannot be projected forward above the level of the highest part of the hood, the relative arrangement of the source of light, the screen 17, and the reflecting surface 14ª being such that direct rays projected against the rear reflecting surface 12ª are reflected against the internal surfaces of the body portion, while direct and reflected rays, projected forward and upward, are reflected downward by the top portion of the surface 14ª, as shown by Fig. 2, and direct rays projected laterally are reflected forward obliquely by the side portions of the surface 14ª, as shown by Fig. 3, the downwardly and obliquely reflected rays being so projected as to illuminate a wide portion of the track and the atmosphere immediately above the same.

The screen 17 is preferably supported by the glass bulb of the lamp 16 and is formed as follows: The outer end of the lamp bulb is indented to form a reversed boss 16ª of concavo-convex form, the convex side facing inwardly. The outer concave side of the boss is surfaced with a layer of opaque material, which may be in the form of a thin metal shell cemented or otherwise secured in place, or of a coating of suitably refractory material applied when plastic to the boss and subsequently allowed to solidify. Said layer constitutes a screen the diameter of which may be equal to the maximum diameter of the bulb, as indicated by Figs. 1 and 4, although if desired a truncated screen 17ª may be provided, as shown by Figs. 5

and 6, said screen exposing the lower portion of the boss and permitting glaring light rays to be projected forward and downward upon the track. The upper portion of the screen is in all cases formed and arranged to prevent the forward and upward emission of glaring light rays.

19 represents a convex reflecting surface located forward of the source of light and facing rearwardly, said surface reflecting light rays in various directions against the reflecting surfaces of the hood.

I prefer to provide the convex reflecting surface by silvering the outer surface of the boss 16^a in accordance with the method practised in making mirrors, the reflecting coating being backed and protected if desired by the shield 17.

The lamp 16 may be detachably secured to the hood by any suitable means, and when provided with a shield 17, or with the shield and the reflecting surface 19, or with either, constitutes a new article of manufacture, which forms a part of my invention.

It is obvious that the screen 17, with or without the reflecting surface 19, may be supported by means other than a lamp bulb, particularly if the source of light is the flame of a gas burner, in which case the screen would naturally be attached to any suitable part of the hood or to a fixed support such as a burner tube or pillar within the hood.

It will be seen that the only light emitted from the upper portion of the hood is reflected light, and that this light cannot be projected upwardly into eyes looking into or toward the light-emitting end of the headlight and elevated above the highest part thereof.

Having described my invention, I claim.

1. A headlight comprising an illuminator, a hood having a closed inner end provided with a forwardly facing rear reflecting surface behind the illuminator, and a body portion surrounding the illuminator and provided with a non-reflecting bottom surface and with an internal reflecting surface the top portion of which is inclined and reflects in a forward and downward direction, while its side portions are oblique and reflect in forward and substantially horizontal directions, the hood having a light-emitting front end, and a shield located between the illuminator and the said light-emitting end and formed and arranged to prevent the emission of light rays in a forward and upward direction and to permit the emission of light rays in forward, downward and oblique or lateral directions.

2. A headlight comprising an illuminator, a hood having a closed inner end provided with a forwardly facing rear reflecting surface behind the illuminator, and a body portion surrounding the illuminator and provided with a non-reflecting bottom surface and with an internal reflecting surface the top portion of which is inclined and reflects in a forward and downward direction, while its side portions are oblique and reflect in forward and substantially horizontal directions, the hood having a light-emitting front end, and a shield located between the illuminator and the said light-emitting end and formed and arranged to prevent the emission of light rays in a forward and upward direction and to permit the emission of light rays in forward, downward and oblique or lateral directions, said shield being also formed and arranged to permit the emission of glaring rays in a forward and downward direction.

3. A headlight comprising an illuminator, a hood having a closed inner end provided with a forwardly facing rear reflecting surface behind the illuminator, and a body portion surrounding the illuminator and provided with a non-reflecting bottom surface and with an internal reflecting surface the top portion of which is inclined and reflects in a forward and downward direction, while its side portions are oblique and reflect in forward and substantially horizontal directions, the hood having a light-emitting front end, a shield located between the illuminator and the said light-emitting end, and formed and arranged to prevent the emission of light rays in a forward and upward direction and to permit the emission of light rays in forward, downward and oblique or lateral directions, and an inwardly facing convex reflecting surface in front of the illuminator formed and arranged to reflect against the rear reflecting surface and radially against the reflecting surface of the body portion.

In testimony whereof I have affixed my signature.

HARRY W. LAKIN.