

May 22, 1928.

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L. BLACKMORE
HEAD LAMP REFLECTOR

Filed Jan. 31, 1924

2 Sheets-Sheet 1

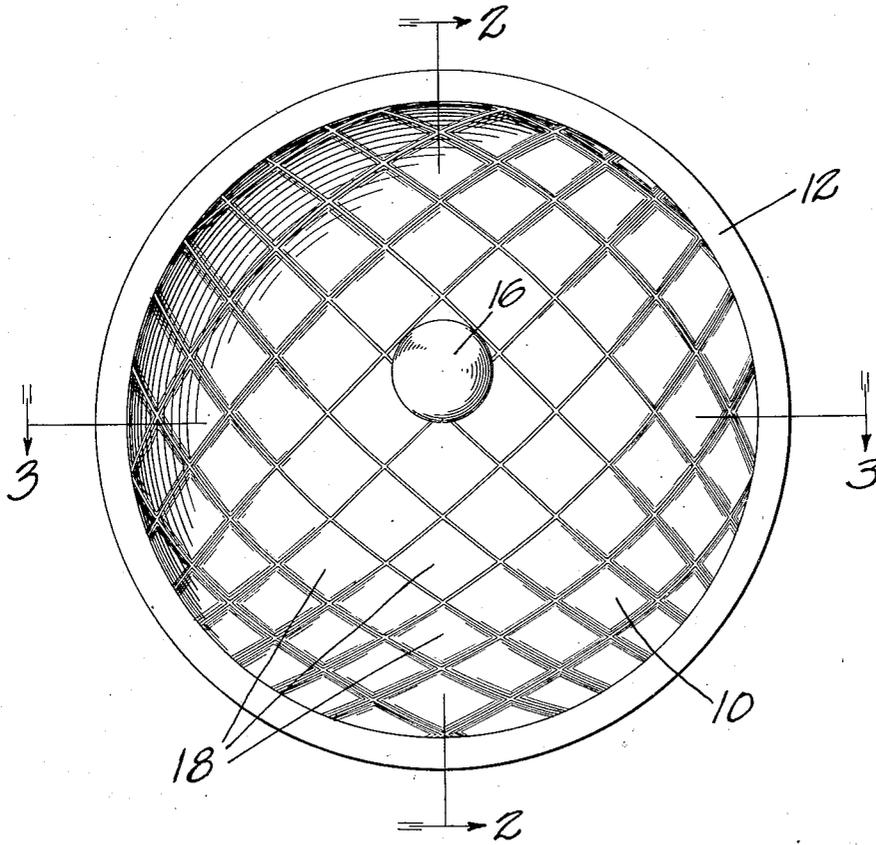


Fig. 1

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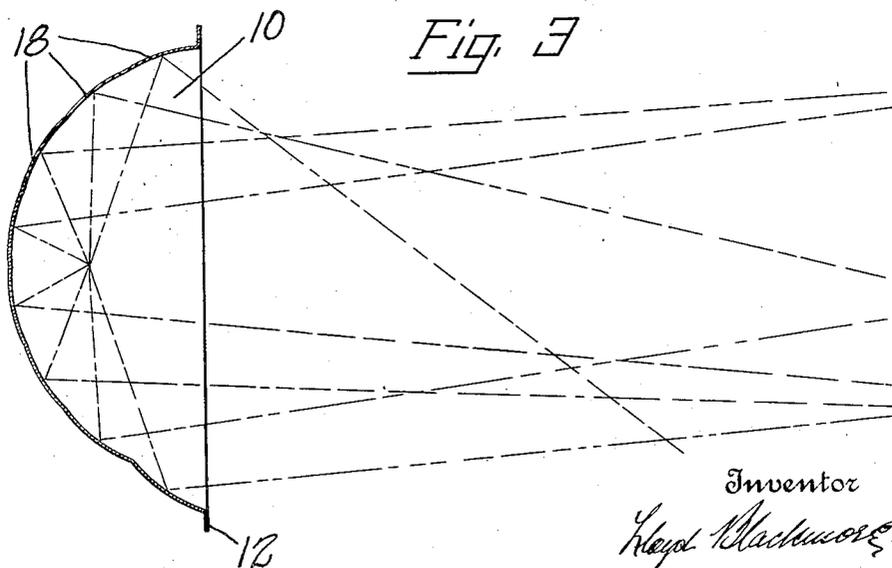
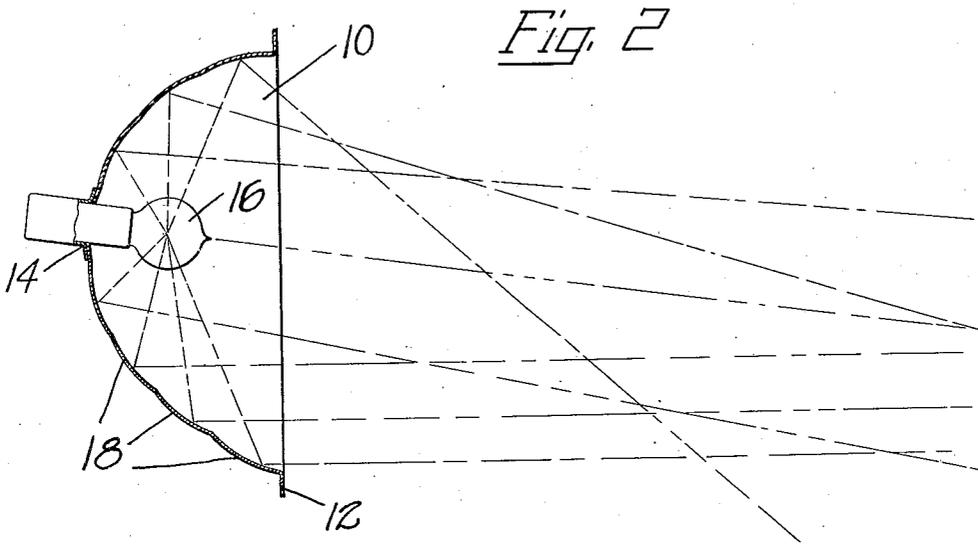
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Inventor
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UNITED STATES PATENT OFFICE.

LLOYD BLACKMORE, OF HIGHLAND PARK, MICHIGAN, ASSIGNOR TO GENERAL MOTORS CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF DELAWARE.

HEAD-LAMP REFLECTOR.

Application filed January 31, 1924. Serial No. 689,684.

This invention relates to reflectors, and is illustrated as embodied in a reflector for the headlamp of an automobile.

An object of the invention is to provide a reflector which will be efficient in directing the light where it is most needed, and which is simple in form and capable of accurate manufacture on a large scale.

Having this object in view, the direction of the reflected light is accurately controlled by providing a continuous reflecting surface which is made up of a large number of relatively small reflecting zones, preferably with plane surfaces to diffuse slightly each beam of reflected light. In the form shown in the drawings, each zone is in the form of a diamond. By suitably directing the various zones, a composite beam may be secured which is most intense along an axis directly ahead of the car and substantially parallel to the ground, and which is diffused in each direction away from the axis, but with practically no light reflected upwardly, thus minimizing glare.

Another feature of the invention relates to obviating glare in the eyes of the driver of an approaching car, by forming the reflector so that no light is reflected to the left, while at the same time there is adequate illumination forwardly and off to the right, i. e. of the ditch at the side of the road.

Other objects and features of the invention, including various desirable specific constructions, will be apparent from the following description of one illustrative embodiment shown in the accompanying drawings, in which

Fig. 1 is a front elevation of a reflector embodying my invention;

Fig. 2 is a vertical section on the line 2—2 of Fig. 1; and

Fig. 3 is a horizontal section on the line 3—3 of Fig. 1.

The invention is shown in these drawings as embodied in a reflector 10 for an automobile headlamp, with a bezel 12 and an opening 14 for an electric bulb or other source of light 16. The internal surface of the reflector is formed to provide a substantially continuous reflecting surface of general parabolic form, and which is a composite of a large number of small zones 18, each of which is shown as being of diamond shape and with a substantially plane sur-

face. By providing zones of this character, each reflecting one small and slightly diffused beam, each zone may be considered separately, and arranged to direct its beam wherever desired. Each zone meets the next at a distinct angle and the vertices of the diamond shaped zones lie in series of parallel horizontal and parallel vertical planes. This arrangement avoids any alternate light and dark rings in the composite beam.

As will be apparent from Fig. 2, I prefer to arrange the various zones asymmetrically with respect to a central horizontal plane, such as the plane on the line 3—3 of Fig. 1, so that while the top of the reflector will reflect the light downwardly ahead of the car, the bottom of the reflector will not waste the light by directing it upwardly but will instead direct it forwardly and substantially parallel to the ground. This has the advantage over a truly parabolic reflector that, instead of reflecting a single intense beam of parallel rays of light, there is a high degree of illumination along what would be the axis of such a beam, while at the same time the light is diffused and spread out so that its intensity decreases gradually away from such axis to give good illumination over a relatively large area.

According to another feature of the invention, and as best shown in Fig. 3, the zones or their equivalents are also arranged asymmetrically with respect to a central vertical plane, i. e. the plane on the line 2—2 of Fig. 1, so that while the left side of the reflector will reflect sufficient light to the right to illuminate the ditch at the side of the road, there is practically no light reflected off to the left by the right side of the reflector, this light being reflected forwardly instead. This results in greatly minimizing glare in the eyes of the driver of an approaching car, and on a road of any considerable width makes it possible to drive along without dimming the lights as cars approach.

The reflector is concavo-convex with a generally sharper curvature above the source of light whereas, below the source of light, the curvature is less pronounced or flatter. Also, the reflector has a more pronounced curvature at one side of the light source and a less pronounced or flatter curvature on the other side of the light source.

While one illustrative embodiment of my

invention has been described, it is not my intention to limit its scope to this particular embodiment, or otherwise than by the terms of the appended claims.

5 I claim:

1. A headlight reflector having a concavo-convex curvature and a source of light within the reflector, said reflector having a reflecting surface which is the composite of a series of individual substantially diamond-shaped plane reflecting zones, each zone meeting the next at a distinct angle and the vertices of said diamond shaped zones lying in series of parallel horizontal and parallel
10
15 vertical planes.

2. An automobile head light comprising a concavo convex reflector composed of a plurality of individual reflecting surfaces, said surfaces being asymmetrically grouped with respect to a horizontal plane passing through the vertex of the reflector so that all of the reflected rays will fall below a substantially horizontal plane, said surfaces being asymmetrically grouped with respect to
20
25 a central vertical plane passing through the vertex so as to cast a greater quantity of light at one side of said plane than the other

to effect better illumination of the adjacent side of the roadway.

3. A headlight reflector having a concavo-convex curvature and a source of light within the reflector, said reflector having a curvature asymmetric with respect to a central horizontal plane, the portion of the reflector below the source of light being formed to reflect the light rays in a generally forward direction and the portion of the reflector above the source of light being formed to reflect the rays in a generally downward and forward direction, said reflector also being asymmetrically curved with respect to a central vertical plane, the portion of the reflector on one side of the light source being formed to reflect the rays in a generally forward direction and the portion of the reflector at the other side of the light source being formed to reflect the rays in a direction generally forward and to one side, the surface of the reflector being a composite of a series of individual substantially plane reflecting zones, each zone meeting the next at a distinct angle.

In testimony whereof I affix my signature.
LLOYD BLACKMORE.