Sept. 29, 1931. C. A. MICHEL 1,825,084

REFLECTOR FOR AUTOMOBILE HEADLAMPS

Filed Aug. 15, 1927

Fig. 2

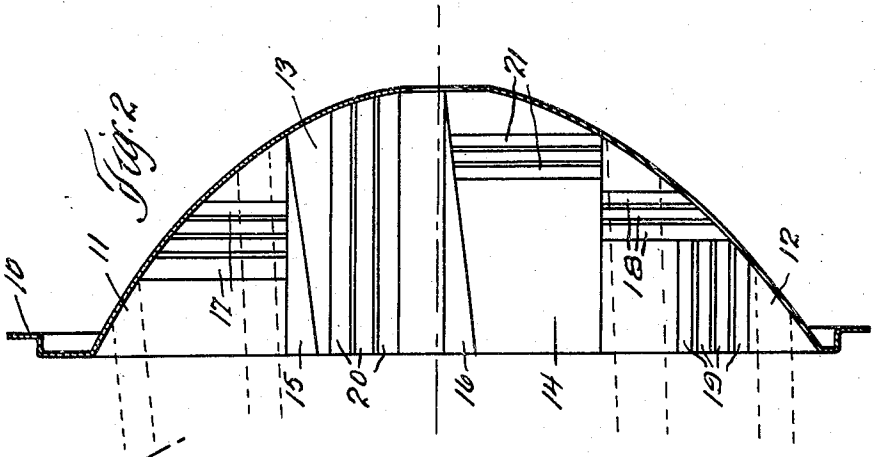


Fig. 3

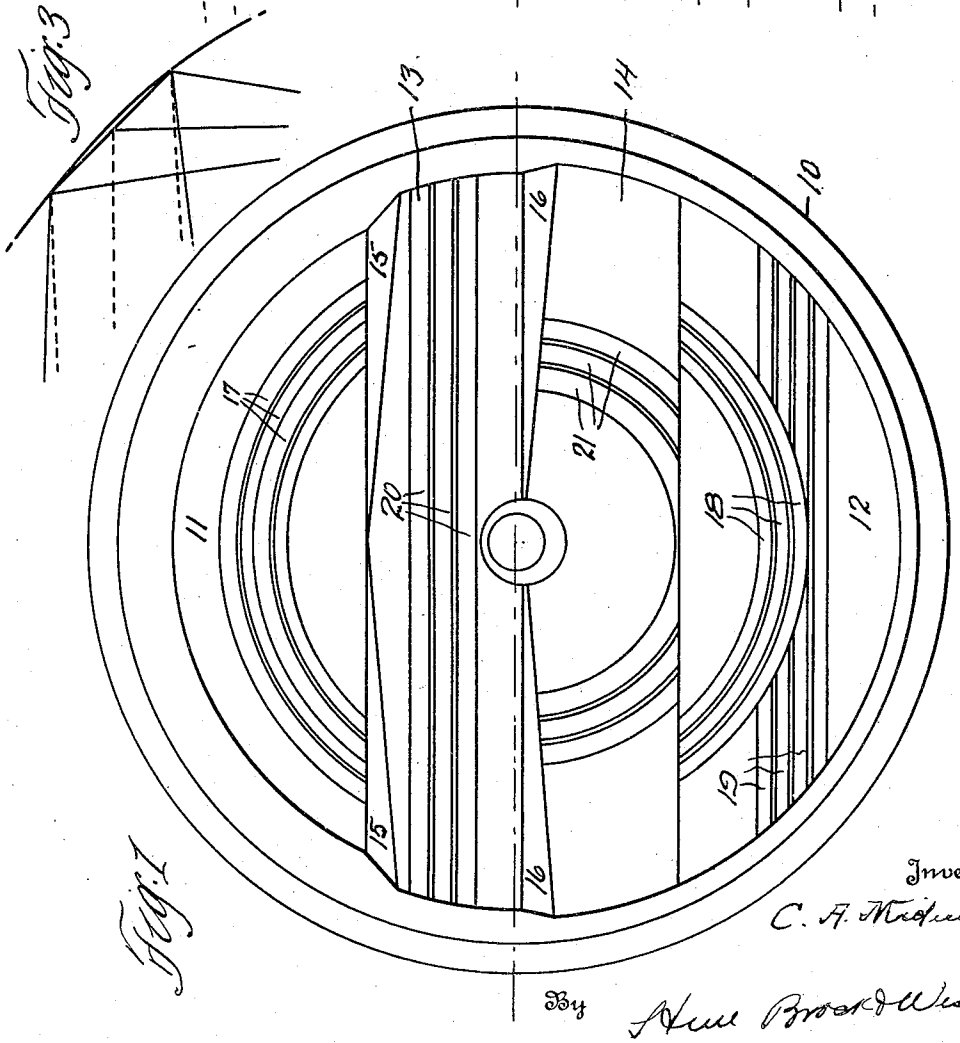


Fig. 1

Inventor

C. A. Michel

By Hull Brock & West

Attorney

Patented Sept. 29, 1931 1,825,084

UNITED STATES PATENT OFFICE

CLARENCE A. MICHEL, OF CLEVELAND, OHIO, ASSIGNOR TO DELCO REMY CORPORATION, OF DAYTON, OHIO, A CORPORATION OF DELAWARE

REFLECTOR FOR AUTOMOBILE HEADLAMPS

Application filed August 15, 1927. Serial No. 212,867.

This invention relates generally to reflectors for automobile headlamps and more particularly to one designed to eliminate striated road illumination. It is well known that a beam from a headlamp is the composite of many beams coming from various sections of the headlighting device and in order to illuminate the roadway uniformly it is necessary to have a smooth even beam, that is one which is lacking in areas of low intensity or contrasting high intensity.

In order to obtain the smooth even beam it is necessary to blend the light from the various sections of the device in such a manner that a composite beam has no appearance of being made up of beams from separate sections of the device, and completely avoids streaks or stratification upon the illuminated roadway.

In a headlamp device when the lens or reflector is divided into two or more sections, these sections should be so designed as to blend as well as possible the light coming from said sections.

In some types of reflectors this is somewhat difficult, particularly in long focal length reflectors as the beam reflected from a long focal length reflector is more concentrated, or has less angle of divergence than a beam reflected from a short focal length reflector. This is obviously true, due to the fact that in a long focal length reflector the source of light subtends at any one point of the reflector, a smaller angle than in a short focal length reflector. The need of blending the light in a long focal length reflector is accordingly greater.

It will be understood, however, that my invention is equally as applicable to a short focal length reflector as a long focal length one, and it will also be understood that although I have illustrated my invention applied to a reflector composed of four sections, that it can be used in connection with reflectors having a lesser number of sections.

With the above recited objects in view the invention consists in providing a plurality of flat flutes at definite points in the reflector whereby the beam is spread at those points providing the desired blending of the various portions of the beam and completely eliminating streaks of high and low intensity.

In the drawings I have shown one form of reflector for carrying out my invention and in which Fig. 1 is a face view of a reflector; Fig. 2 is a longitudinal sectional view of the same and Fig. 3 is a sectional detail.

Referring to the drawings 10 indicates the reflector preferably formed of a single piece and comprising the upper section 11, the lower sections 12, the intermediate sections 13 and 14 and the transition surfaces 15 and 16. This reflector is preferably a long focal length reflector and the upper and lower halves may have the same or different focal points as preferred, and furthermore the top and bottom sections may be modified from a true parabola or tilted with reference to the axis of the reflector in order that all of the rays may be reflected below the horizontal as illustrated in Fig. 2 by dotted lines.

My invention is also designed for use in connection with a fixed focus double filament lamp but it will be understood that the fundamental principle is capable of use in connection with an adjustable lamp and one having a single filament. As before stated, the invention resides in fluting the reflector at definite points, and these flutes can be either concentric or horizontal.

These flutes are formed by flattening out the surface between two parallel lines on the reflecting surface. By flattening the surface between the lines the beam coming from that particular flattened portion is spread in a vertical direction when the flute is horizontal, and in a combination of vertical and horizontal when the flutes are concentric.

By the proper selection and placement of these flutes, the light from any one section or any one portion of the reflector section can be spread out in a substantially vertical direction thereby helping to blend the light of that section with the light from other sections of the reflector.

This is particularly advantageous in a fixed focus headlamp where it is desirable

to have an overlapping or blending of the beam portions so as to minimize to all appearances the variations in beam pattern caused by variations in filament placement within the reflector inasmuch as such variations cannot be compensated for by means of a focusing mechanism.

In the section 11 the flutes 17 are concentric, and in section 12 are both concentric at 18 and horizontal at 19 while in section 13 they are horizontal as at 20 and concentric as at 21 in section 14.

In Fig. 3 I have shown how the flat flute spreads the beam, the reflected ray from the original surface being shown in dotted lines and the rays from the surface after fluting being shown in full lines.

The arrangement of flutes herein shown and described for giving a radial spread can be used in connection with a vertically fluted reflector such as disclosed in my Patents, Nos. 1,513,844 and 1,513,845.

It will also be understood that these flutes, instead of being flat can be concave or convex.

Having thus described my invention, what I claim is:—

1. A reflector for use with a plurality of separately energizable light sources to provide a high beam and a low beam, provided with top and bottom zones and a central zone extending from one side edge of the reflector to the other, said top and bottom zones having their axes downwardly inclined with respect to the central zone, one of the two zones first mentioned being provided with a horizontally extending fluted portion blending into the adjacent portion of the reflector without abrupt break in curvature and arranged to give increased vertical spread to the light reflected therefrom to smooth the beam.

2. A reflector for use with a plurality of independently energizable light sources to provide a high beam and a low beam, provided with top and bottom zones and a central zone extending from one side edge of the reflector to and other, said top and bottom zones having their axes downwardly inclined with respect to the central zone, one of the two zones first mentioned being provided with an arcuate fluted portion in the form of a conical surface substantially concentric with the reflector axis and smoothly blending with the adjacent reflecting surface for giving greater vertical and lateral spread to the light reflected therefrom to smooth up the beam.

In testimony whereof, I hereunto affix my signature.

CLARENCE A. MICHEL.