L. AND H. BENZER.

LENS FOR HEADLIGHTS.

APPLICATION FILED JAN. 12, 1920.

1,374,900.

Patented Apr. 19, 1921.

Fig. 1.

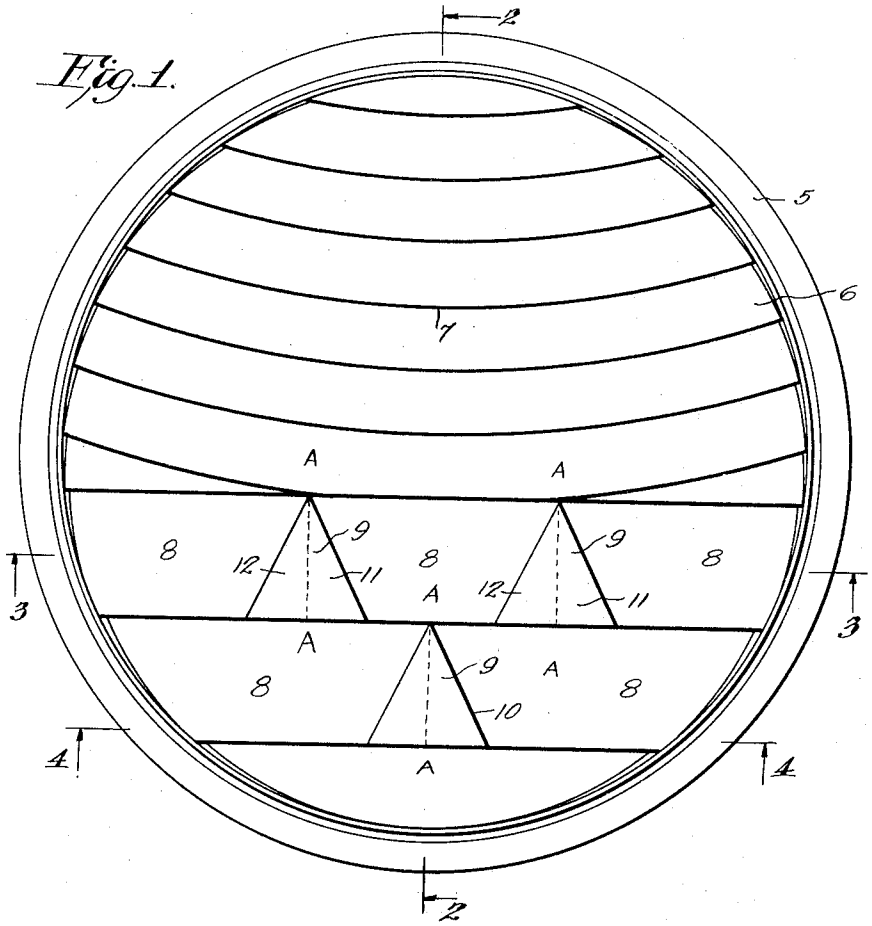


Fig. 2.

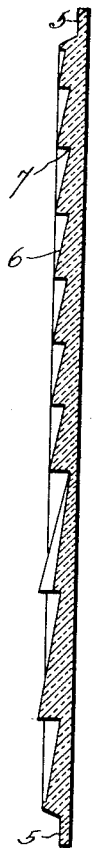


Fig. 4.

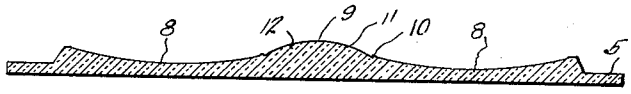
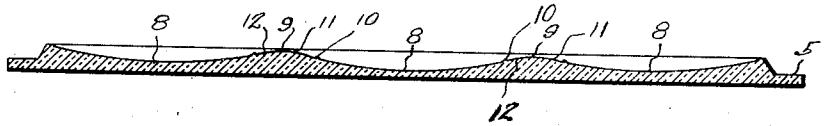


Fig. 3.



WITNESSES

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LENS FOR HEADLIGHTS.

1,374,900. Specification of Letters Patent. Patented Apr. 19, 1921.

Application filed January 12, 1920. Serial No. 350,784.

To all whom it may concern:

Be it known that we, LOUIS BENZER and HENRY BENZER, both citizens of the United States, and residents of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Lens for Headlights, of which the following is a full, clear, and exact description.

The present invention relates to new and useful improvements in lenses for projectors, and it pertains more particularly to lenses adapted for use in connection with headlights of motor vehicles, and is an improvement over the lens depicted in a previous United States Letters Patent granted to us August 26, 1919, numbered 1,314,458, to which patent cross reference is here made.

In the above-mentioned patent the lower portion of the lens was divided into a plurality of transversely concave prismatic surfaces which were spaced from one another by interposed triangular plane surfaces. In such a construction, the concave surfaces afford light beams projected transversely of the line of travel, and which are commonly known as "ditch lights." The interposed plane surfaces were provided for the purpose of segregating the transversely concave portions and spacing them from one another.

We have found by actual experiment that the illumination of the sides of the road may be greatly enhanced by slightly changing the construction of the lower part of the lens, and more particularly the structure of the triangular plane surfaces of the above-mentioned patent. It is therefore the primary object of the present invention to increase the intensity of the ditch lights provided by the transversely concave surfaces of the lens depicted in the patent.

With this and other objects in view, reference is had to the accompanying drawings, in which—

Figure 1 is a view in elevation of a lens constructed in accordance with the present invention;

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1, and

Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 1.

Referring more particularly to the drawings, the reference character 5 designates the lens, the upper portion of which is divided into a plurality of arcuate prismatic surfaces 6. These prismatic surfaces 6 are inclined or angularly disposed with respect to the plane surfaces of the lens as shown in Fig. 2, the upper edge of each prismatic surface 6 terminating at the lower edge of its next adjacent upper prismatic surface and in a plane below the lower edge thereof as indicated by the reference character 7 in Fig. 2.

The lower portion of the lens is divided into a plurality of transversely concave surfaces 8. These transversely concave surfaces 8 are also angularly disposed with respect to the plane surfaces of the lens in such a manner that their upper edge is cut deeper than their lower edge, as are the prismatic surfaces 6.

Interposed between these transversely concave surfaces 8, are triangular areas 9, and said triangular areas 9 are preferably arranged in staggered relation one to the other. By such a construction, the transversely concave surfaces 8 are likewise arranged in staggered relation each to the other.

As distinguished from the plane triangular surfaces in our former patent, the triangular areas 9 are convex, as shown in Figs. 3 and 4 of the drawings. That portion of each triangular area 9, which is positioned toward the upper portion of the lens, is in a plane below the adjacent surface of the next adjacent prismatic surface above it.

As designated by the reference character 10, it will be noted that the sides of the triangular areas 9 are defined by a positive wall at that point where they merge into the transversely concave surfaces 8. By such a construction, the triangular areas 9 are positively segregated from the concave surfaces 8, and by means of the triangular areas 9, said concave surfaces 8 are also positively segregated from one another.

This face of the lens shown in Fig. 1 is adapted to be positioned internally of the projector, and in such position it will be noted that the light passing through that portion of the concave surfaces 8 to the right of the optical axis of said surface will be projected toward the left in the said figure, and vice versa. This projection

of the rays will direct the beam toward the side of the road or transversely of the line of travel of the headlight. Inasmuch as the triangular areas 9 are convex, it will be seen that their surfaces are divided into two distinct refracting facets 11 and 12, as indicated by the dotted lines A—A in Fig. 1. By such a construction, it will be seen that the portion of the light beam projected through the portions of the triangular areas 9 on opposite sides of the center line A—A therethrough, will merge with that portion of the light beam projected through the adjacent refracting concave surfaces 8.

From the foregoing it will be apparent that the present invention provides means whereby the side or ditch lights of the lens shown in our former patent heretofore referred to, are greatly intensified, this result being obtained by the convex surfaces of the triangular areas 9 as distinguished from the plane surfaces as in the above-mentioned patent.

Claims:

1. A lens for headlights having its upper portion divided into a plurality of prismatic light refracting surfaces, a plurality of transversely concave parallel prismatic surfaces in the lower portion of said lens and triangular convex surfaces interposed between said transversely concave surfaces in the lower portion of the headlight lens, the defining edge of said triangular surfaces lying in a plane below the ends of the transversely concave surfaces to provide a vertical wall for separating the concave and triangular surfaces.

2. A headlight lens having its upper portion divided into a plurality of arcuate prismatic surfaces, a plurality of transversely concave prismatic surfaces in the lower portion of the lens, and convex triangular prismatic surfaces arranged in staggered relation in the longitudinal concave surfaces in the lower portion of the lens, said convex triangular prismatic surfaces having their defining edge terminating at a point below the adjacent ends of the concave surfaces and spaced therefrom by means of a vertically disposed wall, whereby the triangular surfaces and the concave surfaces are defined with relation to each other.

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