July 11, 1933. E. S. TIMMONS 1,917,560

VEHICLE LIGHT DIRECTOR

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Fig. 1

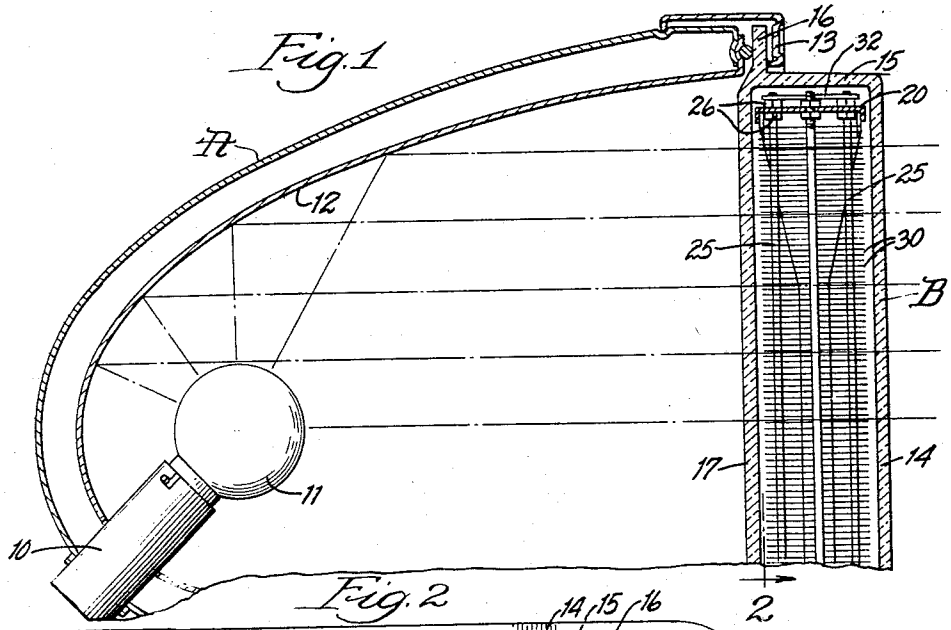
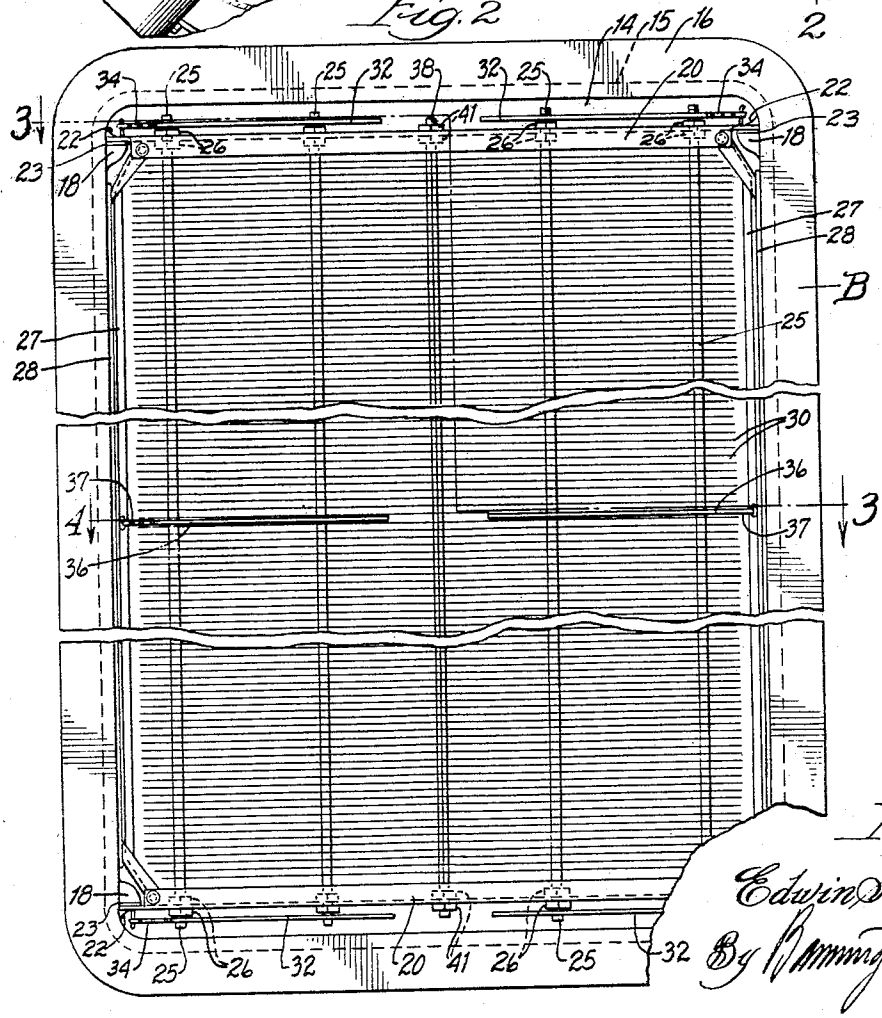


Fig. 2



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Fig. 3

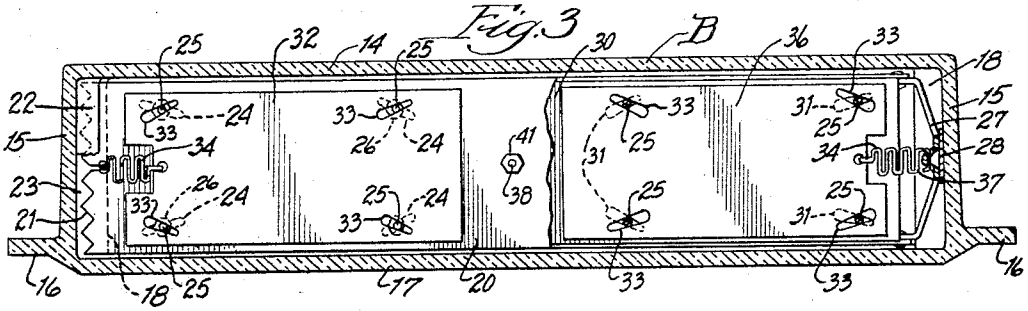


Fig. 4

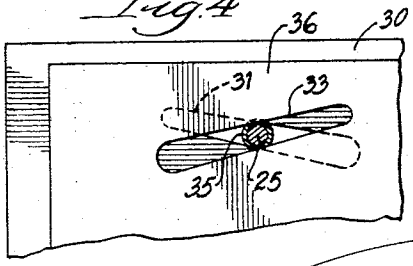


Fig. 5

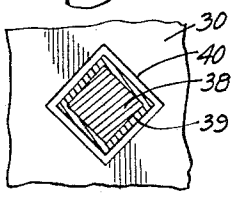


Fig. 6

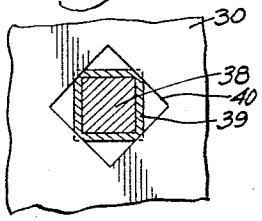


Fig. 7

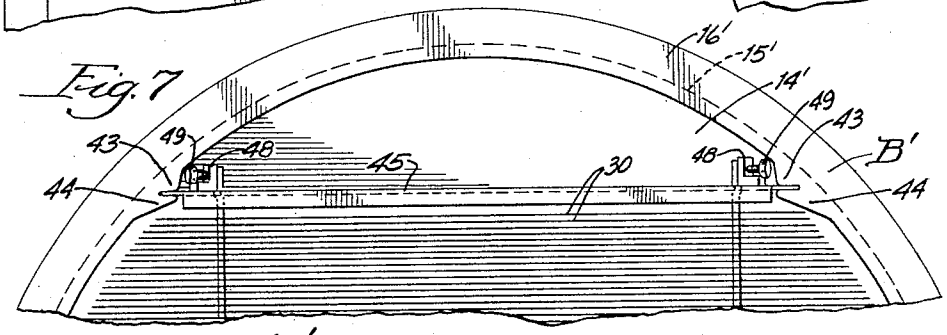


Fig. 8

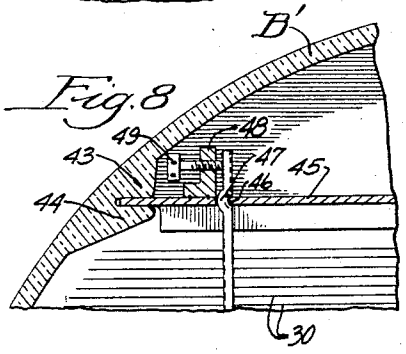


Fig. 9

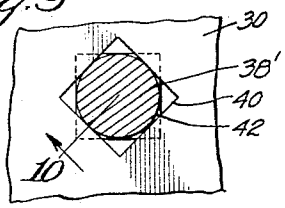
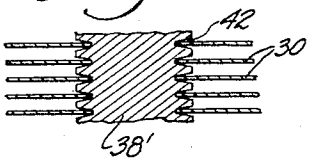


Fig. 10



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UNITED STATES PATENT OFFICE

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VEHICLE LIGHT DIRECTOR

Application filed November 30, 1931. Serial No. 577,945.

This invention which relates to vehicle light directors is concerned particularly with means for positioning and supporting parallel vanes which confine the rays below the line of vision in a path parallel with the axis of the headlight reflector, the headlight being tilted downward so that the vanes intercept the higher light rays that would have a blinding effect upon an approaching driver or person in front of the headlight, at the same time lighting up the roadway at the proper distance ahead of the car.

The particular features are to provide means for supporting the vanes with the minimum of interference with the light rays; to support the vanes in substantial parallelism without undue strain at any one point in the vane; and to provide means for preventing the vanes from shifting as a unit when the vehicle suddenly swerves from the line of travel.

As an exemplification of my invention, reference is made to the accompanying drawings, in which—

Figure 1 is a fragmentary view in section of a headlight having my improved lens assembled therein, the vanes being shown diagrammatically;

Fig. 2 is a broken view in elevation with the cover removed, and viewed in the direction of the line 2 of Fig. 1, the vanes being shown diagrammatically;

Fig. 3 is a transverse sectional view, slightly enlarged, taken as indicated by the line 3—3 of Fig. 2;

Fig. 4 is a greatly enlarged plan view of one corner of a vane showing a supporting rod in position in one of the slots, and taken as indicated by the line 4 of Fig. 2;

Fig. 5 is a greatly enlarged plan view of the vane showing the central supporting rod in section being inserted through the opening in the vane;

Fig. 6 is a view similar to Fig. 5 showing the supporting rod turned to a position to lock the vane in position on the supporting rod;

Fig. 7 is a fragmentary view of a modified form of vane support mounted in a round lens, the vanes being shown diagrammatically;

Fig. 8 is an enlarged fragmentary view in section of the device shown in Fig. 7;

Fig. 9 is a view similar to Fig. 5 showing a slightly modified form of supporting rod; and

Fig. 10 is a vertical sectional view taken on the line 10 of Fig. 9.

Referring to the drawings, A designates a headlight shell supporting a socket 10 in which is mounted a light bulb 11 in the usual manner. A reflector 12 is located within the shell to reflect the light rays from the bulb in a generally forward direction. A clamping ring 13 is adapted to hold a bowl-shaped lens B against the open end of the reflector.

The lens comprises a transparent front plate 14 having a peripheral wall 15 extending rearwardly from the edge thereof, and a rim 16 secured to the peripheral wall and extending in a plane parallel with the front plate. While I have shown the lens generally square in shape, it may be round, or otherwise shaped to fit any particular headlight. Within the bowl-shaped lens I mount a vane assembly after which a transparent cover 17 is secured to the rim by fusing or cementing to enclose the vane assembly and protect the same. Formed integrally with the peripheral wall are bosses 18 for supporting the vane assembly within the lens.

Cross bars 20 are placed upon the bosses at the top and bottom of the lens, both cross bars being identical and arranged opposite to each other. The cross bar ends are notched at 21 (Fig. 3) so that cement 22 may be placed between the notches to secure the cross bars against shifting movement. Preferably, a resilient pad 23 is interposed between the bosses 18 and the cross bars 20. The cross bars are each provided with a series of elongated slots 24 arranged angularly to the edges, as shown in dotted lines in Fig. 3. Fitted in these slots are supporting rods 25 which extend between the two cross bars and are held within the slots by nuts 26 in threaded connection therewith. The cross bars may be connected together by members 27, the purpose of which will presently be described. These connect-

ing members may lay adjacent the peripheral wall being separated therefrom by a resilient cushion 28.

Vanes 30 are mounted between the cross bars in a plane parallel with the axis of the headlight, and spaced apart at a distance which may vary between one sixty-fourth and one-quarter of an inch. The vanes are preferably made of very thin metal, between .001″ and .003″. Each vane is provided with a plurality of tapered and angularly disposed slots 31, the slots extending outwardly toward the vane ends. By means, not shown, the vanes are correctly spaced, after which the supporting rods are inserted in the large end of the slots 31 of the vanes and slots 33 of the plates 36, whereupon the inside nuts 26 are threaded upon the rod ends. The supporting rod ends are then placed in the slots 24 of the cross bars, after which the outside nuts 26 are threaded upon the rod ends. Plates 32 having slots 33 oppositely arranged to those in the vanes are placed over the rod ends and urged outwardly by a spring 34 to force the supporting rods near the small end of the vane slots. The supporting rods may have a resilient covering 35, such as rubber, which is indented or cut by the slot edge to hold the vanes in spaced relation to each other.

While I have shown four pairs of supporting rods obviously any number may be employed. It will be seen that when the plates are moved lengthwise in opposite directions, the slots 33 tend to spread each pair of supporting rods to hold the vanes taut, and further, the supporting rods are pulled in pairs toward the ends of the vanes to pull the vanes taut lengthwise.

The centers of the rods are similarly provided with plates 36 and springs 37 which are identical to the plates 32 and springs 34. The springs 37 may be connected to the members 27 in the manner shown on the right of Fig. 3. These central springs have a twofold purpose. They tend to secure the center of the supporting rods in the vane slots, and also tend to prevent excessive horizontal thrust of the entire block of vanes.

In ordinary use the headlight is subjected to severe jolting, and for this reason I prefer to support the vanes centrally of the supporting rods. This may be accomplished by inserting one or more square rods 38 having a resilient coating 39, through a square opening 40 in each vane, and then turning the rod 45° so that the coating on the corners of the rod engage the edges of the openings 40 in the manner shown in Fig. 6. The rod may be secured in this position by lock nuts 41 which engage the cross bars.

This central supporting rod may also be constructed as shown in Figs. 9 and 10, wherein the rod 38′ may be provided with a plurality of spaced annular notches 42 which are aligned with the vanes, after which the rod is turned 45° so that the root of the groove binds against the edge of the opening 40 and finally locked in this position. Preferably, the annular notches are beveled, as shown in Fig. 10, to facilitate the alignment of the notches with the vanes.

Figs. 7 and 8 illustrate a modified form of vane suspension, and is shown in connection with a round bowl-shaped lens B′ having a lens 14′, a peripheral wall 15′, and a rim 16′. Extending inwardly and opposite to each other are pairs of bosses 43 and 44 spaced apart sufficiently to receive the ends of a cross bar 45. The vanes are the same as previously described, but the cross bars to which the supporting rods are secured are provided with openings 46 to receive the supporting rods which are provided with an offset 47 to engage the cross bar preventing longitudinal movement. Adjacent the openings 46 are secured blocks 48, the blocks having screws 49 in threaded connection therewith and adapted to bear against the supporting rod ends. Due to the limited working space within the lens, each screw head is provided with several radial openings or slots to facilitate the tightening of the screw. Tightening the screws will tend to bow the rod outward at its center, as suggested in dotted lines, to force the supporting rod toward the smaller end of the vane slot. While I have shown two sets of supporting rods in this modified form, a greater number may be used, and further, a central supporting rod may likewise be used.

The present device is advantageous in that the vanes may be made of very thin material, which are supported in a manner to hold them securely against sudden shocks or thrusts. The parts are easily assembled and constructed, being made principally by punchings, and thus it is adapted for production in large quantities.

I claim:

1. In a light director, the combination with a bowl-shaped lens, a plurality of vanes disposed within the lens and parallel to the axis thereof, rods for supporting the vanes within the confines of the bowl-shaped lens, and opposed springs attached to the centers of the supporting rods whereby the vanes are resiliently held against excessive horizontal thrust.

2. In a device of the character described, the combination of a lens having a peripheral wall, bosses extending inwardly from the peripheral wall, cross bars abutting the bosses and held apart thereby, supporting rods extending between the cross bars, and parallel vanes between the cross bars secured to the supporting rods.

3. In a device of the character described, the combination of a bowl-shaped lens, cross bars secured within the lens, a plurality of

vanes having tapered slots therein disposed parallel with the axis of the lens, supporting rods extending through the tapered slots and secured to the cross bars, and means for holding the supporting rods in wedged relation to the slot edges which indent the rods whereby the vanes are held against movement longitudinally of the rods.

4. In a device of the character described, the combination of a bowl-shaped lens, cross bars secured within the lens, a plurality of vanes having tapered slots therein disposed parallel with the axis of the lens, supporting rods extending through the tapered slots and secured to the cross bars, and a spring for holding the supporting rods in wedged relation to the slot edges which indent the rods whereby the vanes are held against movement longitudinally of the rods.

5. In a device of the character described, the combination with a bowl-shaped lens, cross bars secured within the lens, a plurality of vanes disposed between the cross bars, rods for supporting the vanes extending through the cross bars, nuts on the ends of the supporting rods for holding the vanes between the cross bars, and tension means forcing the supporting rods laterally whereby the vanes are held taut.

6. In a device of the character described, the combination of a lens having a peripheral wall, a plurality of vanes disposed parallel to the axis of the lens and within the peripheral wall, the vanes being provided with tapered slots, supporting rods extending through the slots, a covering on the rods, and tension means tending to pull each supporting rod toward the small end of the slot in the vane whereby the vane is forced into the covering on the rod to prevent movement of the vane longitudinally of the rod.

7. In a device of the character described, the combination with a bowl-shaped lens, cross bars secured within the lens, a plurality of vanes disposed parallel to the axis of the lens mounted between the cross bars, each vane having a square central opening, supporting rods secured to the ends of the vanes and to the cross bars, and a square supporting rod having a resilient covering supported by the cross bars and extending through the square openings in the vanes and adapted to be turned about it axis whereby the corners of the resilient covering on the supporting rod are indented by the edges of the square openings to secure the vanes in spaced relation.

8. In a device of the character described, the combination with a bowl-shaped lens, cross bars having slots secured within the lens, a plurality of vanes disposed parallel to the axis of the lens mounted between the cross bars, there being tapered slots in each end of the vanes, the small end of each slot pointing away from the center line of the vanes, supporting rods having a resilient covering extending through the slots in the vanes and the cross bars and slidably secured in the latter, and tension means tending to pull the supporting rods laterally toward the small end of the slots in the vanes whereby each vane cuts into the covering on the rods to prevent movement of the vanes relative to the rods.

9. In a device of the character described, comprising a bowl-shaped lens, bosses extending inwardly on opposite sides thereof, cross bars extending across the interior of the lens and abutting the bosses, supporting rods extending between the cross bars and slidably secured thereto, parallel vanes between the cross bars each having tapered angularly disposed slots extending outwardly toward the vane ends, the slots being adapted to receive the supporting rods, and means for moving the supporting rods lengthwise of the tapered slots and toward the small end thereof indenting the rods to prevent movement of the vanes longitudinally of the rods.

10. In a device of the character described, comprising a bowl-shaped lens, spaced cross bars within the lens, means for holding the cross bars against moving relative to the lens, a plurality of parallel vanes disposed between the cross bars having polygonal openings therein, supporting rods polygonal in cross section extending through the openings in the vanes and adapted when rotated to engage the edges of the opening whereby the vanes and rods are securely engaged, and means for securing the supporting rods in said rotated position.

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