Feb. 12, 1935. C. E. A. O'LOUGHLIN 1,990,666

HEADLIGHT DIMMER

Filed April 20, 1931 2 Sheets-Sheet 1

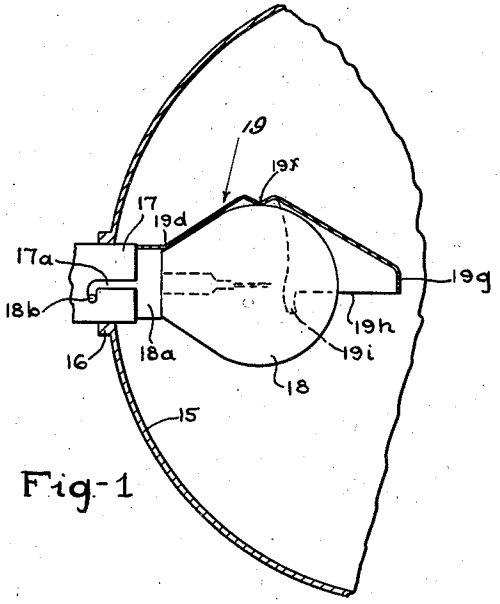

Fig-1

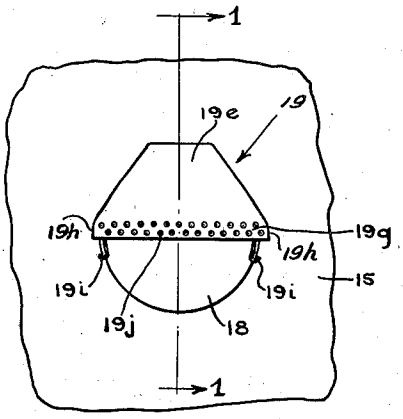

Fig-2

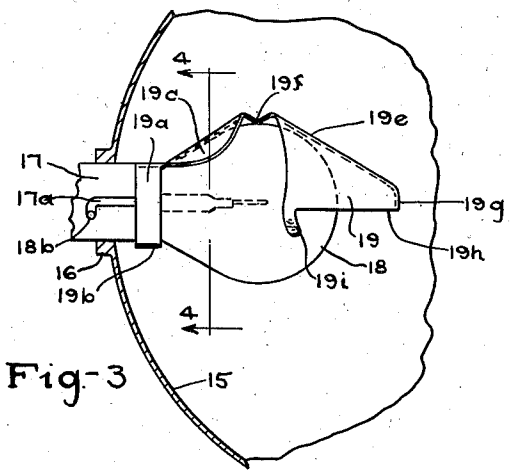

Fig-3

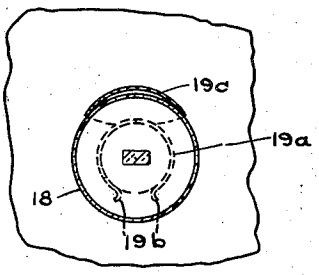

Fig-4

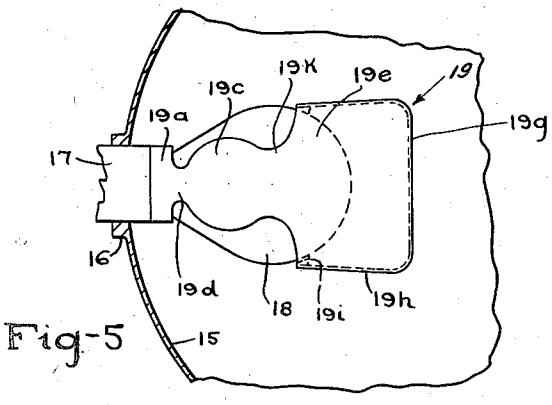

Fig-5

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HEADLIGHT DIMMER

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Fig-6.

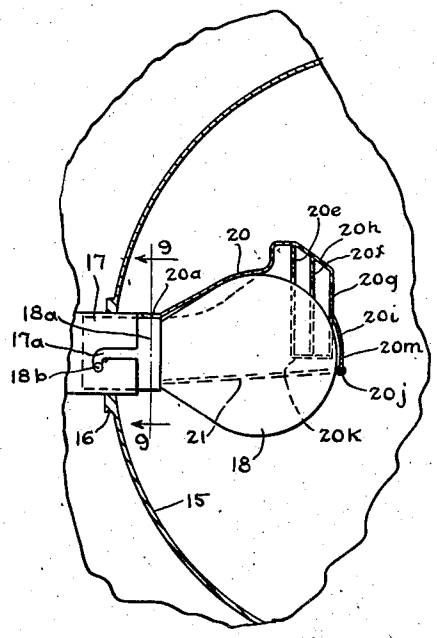
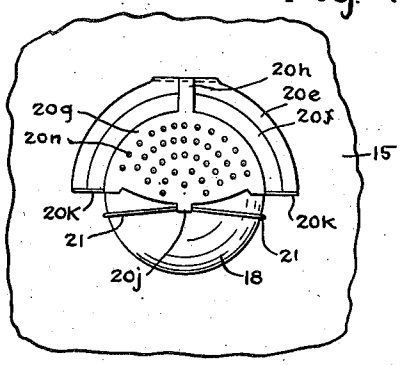


Fig-7



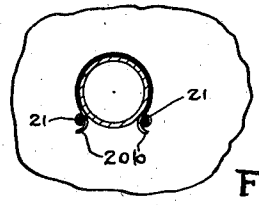
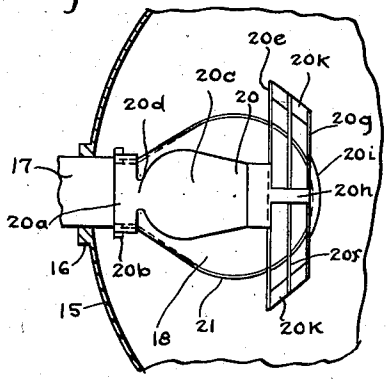


Fig-9

Fig-8



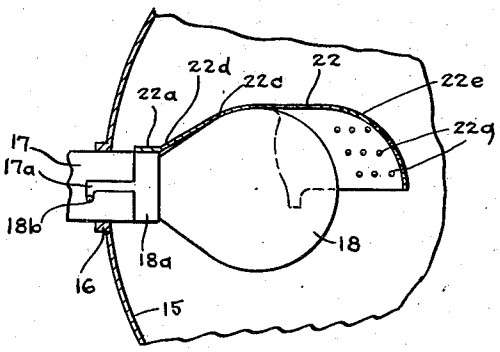


Fig-10

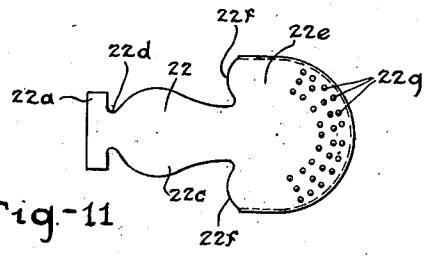


Fig-11

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UNITED STATES PATENT OFFICE

1,990,666

HEADLIGHT DIMMER

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Application April 20, 1931, Serial No. 531,421

5 Claims. (Cl. 240—48.6)

This invention relates to a dimming or non-glare device for a vehicle headlight. Headlights and other illuminating lights now carried by vehicles such as automobiles, are of considerable power, and when one vehicle approaches another, the lights often shine into the eyes of the driver so that he is practically blinded and cannot see the approaching vehicle or the road. Many accidents have occurred from such conditions.

It is an object of this invention to provide a very simple and efficient device which can be made at small expense and very easily installed on the headlights, which will effectively prevent glare into the eyes of the approaching driver and at the same time not in any way impair the lighting effect of the vehicle light.

It is a further object to provide such a device made of sheet metal which is quite small and which has means by which it can be readily placed on and held on the lamp bulb of the headlight.

It is another object of the invention to provide a dimming or non-glare device preferably made of sheet metal, which has means at one end for embracing the plug portion of the lamp bulb and has a comparatively narrow portion extending forwardly from said means over the top of the bulb, and also has a wider portion extending downwardly over the front of the bulb and having a width substantially equal to or slightly greater than the width of the bulb, with means for engaging the bulb at either side adjacent its forward portion.

It is more specifically an object of the invention to provide a non-glare device comprising a member preferably made of sheet metal, having at one end downwardly extending spaced curved resilient arms adapted to embrace the plug portion of the bulb and hold the device thereon, a narrow portion extending forwardly from said arms preferably having a rounded portion and extending forwardly of the maximum diameter of said bulb, the wider portion extending at either side of said narrow portion and downwardly and forwardly over the front portion of the bulb to aline substantially at the horizontal diameter of the bulb or slightly therebelow, said wider portion having a plurality of holes extending rearwardly therethrough and having spaced prongs engaging the sides of said bulb.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings, in which like reference characters refer to similar parts throughout the several views, and in which:—

Fig. 1 is a vertical central section through a portion of a headlight structure, taken substantially on line 1—1 of Fig. 2;

Fig. 2 is a view in front elevation of the device;

Fig. 3 is a view in side elevation of the device, certain other parts being shown in vertical section;

Fig. 4 is a vertical section taken on line 4—4 of Fig. 3;

Fig. 5 is a top plan view of the parts shown in Fig. 1, the reflector being shown in horizontal section;

Fig. 6 is a view similar to Fig. 1 showing a modified form of the device;

Fig. 7 is a view in front elevation of the parts shown in Fig. 6;

Fig. 8 is a top plan view of the portion shown in Fig. 6, the reflector being shown in horizontal section;

Fig. 9 is a vertical section taken on line 9—9 of Fig. 6;

Fig. 10 is a view similar to Fig. 1, showing a still further modified form of the device; and

Fig. 11 is a top plan view of the device shown in Fig. 10.

Referring to the drawings, particularly Figs. 1 to 5, a portion of a headlight structure is shown, comprising a reflector 15 which is substantially of semi-spherical shape, and has a central rear hub 16. A lamp socket 17 projects through the hub 16, the same being shown as having an L-shaped or bayonet slot 17*a* in its side, and this socket is adapted to receive the plug portion 18*a* of a lamp bulb 18, the glass or transparent portion of the bulb extending forwardly from the plug portion 18*a* and having its front portion of semi-spherical shape. Plug portion 18*a* has a pin 18*b* projecting from the side thereof, which is moved into and engaged in the bayonet slot 17*a* to hold the bulb 18 in place.

In accordance with the present invention, a non-glare shield 19 is provided, made of comparatively thin material, and in the embodiment of the invention illustrated, the device is shown as made from sheet metal. Said member 19 has at one end a clamping means in the form of semi-cylindrical downwardly curved resilient arms 19*a* adapted to embrace the plug portion 18*a* and tightly engage the same. Said arms 19*a* are shown as having their lower ends 19*b* reversely curved. Member 19 has a narrow portion 19*c* extending forwardly from the arms 19*a*,

said portion 19c extending forwardly over the top of bulb 18 and being shown as having a partly circular portion connected to the arm 19c by a narrow tongue 19d. The portion 19c extends forwardly over the top of bulb 18 to a point adjacent or a short distance beyond the center of the bulb or the portion of greatest diameter. While portion 19c might be variously formed, in the embodiment of the invention illustrated in Figs. 1 to 4 it is shown as having a V-shaped depression 19f formed therein over the top central portion of the bulb, thus forming a rib engaging the top of the bulb as shown in Figs. 1, 3 and 5. A wider portion 19e extends outwardly from either side of portion 19c at its forward end, the same being shown as connected by the curved portions or fillets 19k. Portion 19e is of a width substantially the same or slightly greater than the width of the bulb 18, and said portion extends downwardly and forwardly over the bulb, having its lower edge disposed for the most part in a plane adjacent the horizontal central plane of the bulb 18 or slightly therebelow. As shown in Figs. 1, 3 and 5, the top part of portion 19e is substantially flat and its front portion 19g is substantially vertical, while substantially vertical side portions 19h extend downward at either side. At the rear of portions 19h are formed downwardly and outwardly curved prongs 19i which will be resilient and will engage the bulb 18 at opposite sides. Portion 19c is provided with a multiplicity of small holes 19j which extend horizontally from front to rear thereof.

In operation of the device shown in Figs. 1 to 5, the same is placed on the lamp bulb as illustrated, and when said bulb is illuminated, the light is prevented from passing upwardly and forwardly from the top side of the bulb by the portion 19e. The portion 19c extending forwardly over the top of the bulb also prevents a glare being reflected from the reflector 15. The under surface of member 19 will be of high reflecting quality, and the light from bulb 18 will therefore be directed downwardly so that a wide band of light is projected by said bulb from the lower half thereof. The light is thus directed downwardly onto the road and the efficiency of the light in lighting up the road is not impaired. Some light can pass out forwardly through the holes 19j, but this light cannot be given an upward direction to shine into the eyes of an approaching driver. The sides of the bulb 18 are not obstructed and the full portion of the reflected light is thus obtained. The effect of member 19 when the headlight is viewed from the front, is that there is a diverging area or wide band of light passing forwardly from the headlight, and this is of greater dimension the greater distance the observer is from the light. A very efficient lighting effect is maintained, and yet, as above stated, it is impossible for the light to shine upwardly into the eyes of an approaching driver. The member 19 is designed to be positioned on the bulb without touching the same over any great area. It will be seen from Fig. 4 that the side edges of the circular part in portion 19c engage the top of the bulb and the bulb is not engaged by this circular part within said edges. The apex of the rib or ridge formed by groove 19f engages the top of the bulb at one point, while the prongs 19i also engage the bulb at spaced points. The bulb engaging portion 19f and resilient prongs 19i thus form a three-point contact with the bulb forwardly of the resilient arms 19a. The prongs 19i being below the center of the bulb have a good gripping effect and the shield is held effectively in place. The member 19 thus not engaging the bulb over any great area, is not heated to a large extent by the heat of the bulb. As stated the portion 19e prevents light showing upwardly and forwardly directly from the bulb. Light, however, can pass upwardly and outwardly at either side of the narrow portion 19c and this light maintains a wide beam from the headlight. Some light from the bulb filament is also reflected by the under surface of the portion 19e downwardly to the lower front portion of the reflector. This light, of course, is not reflected upwardly at any large angle.

In Figs. 6, 7 and 8 a modified construction of the device is shown, the reflector 15, socket 17 and bulb 18 being the same as shown in Figs. 1 to 5. A member 20 illustrated as formed of sheet material, is provided, and the same has at its rear end downwardly extending curved resilient arms 20a similar to the arms 19a already described. The arms 20a have their lower ends reversely curved as shown at 20b. A narrow portion 20c extends forwardly from the arms 20a, this narrow portion also having a partly cylindrical area connected to the arms 20a by the narrow portion 20d. Portion 20c extends forwardly to a point or line some distance beyond the vertical center of bulb 18 or the plane of greatest diameter, and said portion at its front end is bent upwardly and then horizontally as seen in Fig. 6, the same being then bent downwardly and disposed in a vertical plane and formed of semi-annular shape as shown at 20e. Another similar semi-annular plate 20f is disposed in a vertical plane some distance in front of portion 20e and another plate 20g has a semi-annular portion disposed in a vertical plane some distance in front of plate 20f. The portions 20e, 20f and 20g are connected by a central strip 20h. The plate 20g has a central somewhat semi-spherical portion 20i extending across and around the front of bulb 18 at its central front portion, the lower edge of portion 20i being formed on a convex curve and the central portion thereof having a downwardly extending and rearwardly bent eyelet 20j formed therein. A rather stiff resilient wire 21 is secured in the eyelet 20j and extends rearwardly, the same being shaped substantially to follow the outline of bulb 18 and the rear ends of wire 21 are secured to the ends 20b of the arms 20a. The lower edges of plates 20e, 20f and 20g are connected at the bottom portions by strips 20k which may be formed integral with plate 20e. The front portion of plate 20g is provided with a multiplicity of small rearwardly extending holes 20n.

In operation of the device shown in Figs. 6, 7 and 8, the same will be placed on the lamp bulb with the arms 20a embracing the plug portion of the bulb. The device can be pressed downwardly over the top portion of the bulb and the ends of arms 20a will diverge to permit the same to pass over the plug portion of the lamp bulb and wire 21 will at the same time be expanded so that it will pass over the glass portion of the bulb. When the arms 20a approach each other to grip the plug portion of the bulb, the wire 21 also contracts so that it engages the sides of the bulb 18 at the glass portion. The device is thus held firmly on the lamp bulb. The light from the bulb cannot shine upwardly and forwardly so as to glare into the eyes of an approaching driver. This is prevented by the plates 20e, 20f and 20g. Some light

can pass upwardly between said plates, the same being reflected from the inner sides thereof and some light can pass out through the holes 20*n*. This light, however, cannot cause any glare. The top portion 20*c* also prevents light passing upwardly from the top portion of the bulb so as to be reflected forwardly and upwardly. Sufficient light shines from the headlight to light the road in front and at either side, and only the light causing the glare is intercepted. The inner side of member 20 will have high reflecting qualities, so that the light shining thereagainst will not be absorbed. The device acts very efficiently to prevent glare without reducing the necessary light to any substantial degree.

In Figs. 10 and 11 a further modification of the device is shown, which is somewhat similar to that shown in Figs. 1 to 5. A member 22 of sheet material such as metal, is provided, and this has a rear portion comprising downwardly extending curved arms 22*a* similar to the arms 19*a* and 20*a* already described. The member also comprises a narrow intermediate portion 22*c* having a partly circular area and being connected at its rear side by a tongue 22*d* to the arms 22*a*. Portion 22*c* extends upwardly along the rear side of the glass portion of the bulb and then extends horizontally. A wider portion 22*e* extends at either side of the portion 22*c* and this portion extends from a line somewhat forwardly of the central portion of the bulb to a point some distance in front of the bulb, said portion 22*e* terminating in a semi-spherical surface. The rear portion 22*e* is formed on convex curves 22*f* as shown in Fig. 11. The front part of portion 22*e* has formed therein a multiplicity of small holes 22*g*.

The operation of the device shown in Figs. 10 and 11 is substantially the same as that for the device already described. The portion 22*e* extending down over the front of the bulb prevents any light shining upwardly and forwardly, and thus prevents glare in the eyes of an approaching driver. The portion 22*c* also prevents light shining vertically or vertically and rearwardly to the reflector so as to be reflected forwardly and upwardly to cause glare. The light shining forwardly from the lower portion of the bulb is not intercepted and there is plenty of light on the road. Some light also shines through the holes 22*g*. The inside of the device will be made so as to have high reflecting quality, and practically no light from the bulb 18 is entirely lost.

In practice it has been found that if the devices are colored blue with a highly reflecting enamel or coating, that very desirable results are obtained. The reflected light seems to be whiter and give improved results.

What is claimed is:—

1. A non-glare shield for a vehicle light adapted to be mounted on the lamp bulb comprising a sheet metal member having means at its rear to embrace the plug portion of said bulb, a narrow portion of appreciably less width than the bulb therebeneath extending forwardly from said means over the top of said bulb substantially to the portion of greatest diameter of said bulb and spaced therefrom throughout substantially its whole extent, and a wider portion with a flat front and flat sides extending forwardly and downwardly and laterally and downwardly respectively, to a line well in front of said bulb and substantially in line with the vertical center thereof, said side portions having resilient tongues at their rear lower ends engaging the sides of said bulb below said line whereby said shield is held resiliently at front and rear and prevents upwardly and forwardly extending direct or reflected light, but permits light to pass upwardly at either side of said narrow portion and be reflected downwardly from the under surface of said flat front of said wider portion.

2. A non-glare shield for a vehicle light adapted to be mounted on the lamp bulb comprising a sheet metal member having means at its rear to embrace the plug portion of said bulb, a narrow portion of appreciably less width than the bulb therebeneath having convex side edges extending forwardly from said means and spaced from said bulb throughout substantially its whole extent, a contracted portion in front of said portion having means pressed downwardly therefrom engaging said bulb and a wide portion of substantially the width of said bulb extending forwardly from said contracted portion and having a forwardly and downwardly extending plane surface of trapezoidal form and side portions extending downwardly and outwardly also of trapezoidal form, said front and side portions merging into a substantially vertical portion of narrow height terminating in a horizontal line substantially at the vertical center of said bulb, and resilient means at the rear corners of said side portion engaging the sides of said bulb whereby a three-point contact is had with said bulb forwardly of said plug portion.

3. A non-glare shield for a vehicle light adapted to be mounted on a lamp bulb comprising a sheet of metal having curved downwardly extending resilient arms adapted to embrace the plug portion of said bulb, a comparatively narrow portion of appreciably less width than said bulb beneath the same extending forwardly from said arms over the top of said bulb to a point adjacent the widest diameter of said bulb and merging into a wider portion forwardly of said point, said wider portion having a substantially uniform width substantially the same as the widest diameter of said bulb and extending some distance forwardly of said front end of said bulb and downwardly to a plane substantially at the vertical center of said bulb, whereby the top of said bulb is not wholly covered and light may extend upwardly and outwardly at the sides of said narrow portion to maintain a wide light beam and light may be reflected from the under surface of said wider portion downwardly, but no light can shine directly upwardly or forwardly or be reflected upwardly and forwardly at an appreciable angle.

4. The structure set forth in claim 3, said shield having a transverse V-shaped rib extending downwardly therein at the junction of said narrow portion and wider portion to engage the top of said bulb and give a three-point contact forwardly of said first mentioned resilent arms.

5. A non-glare shield for a vehicle lamp adapted to be mounted on the lamp bulb comprising a sheet metal member having resilient means at its rear end to embrace the plug portion of said bulb, a narrow portion extending forwardly from said means over the top of said bulb substantially to the point of greatest diameter of said bulb and formed to engage the top of the bulb at said point, a wider portion extending forwardly and downwardly at the front of the bulb having side portions and means at the rear part of said side portions adapted to engage the sides of the glass portion of the bulb whereby said bulb is engaged at three points and said device is held firmly in position thereon.

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