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S. F. ARBUCKLE ET AL

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LAMP SHIELD

Original Filed Jan. 28, 1924

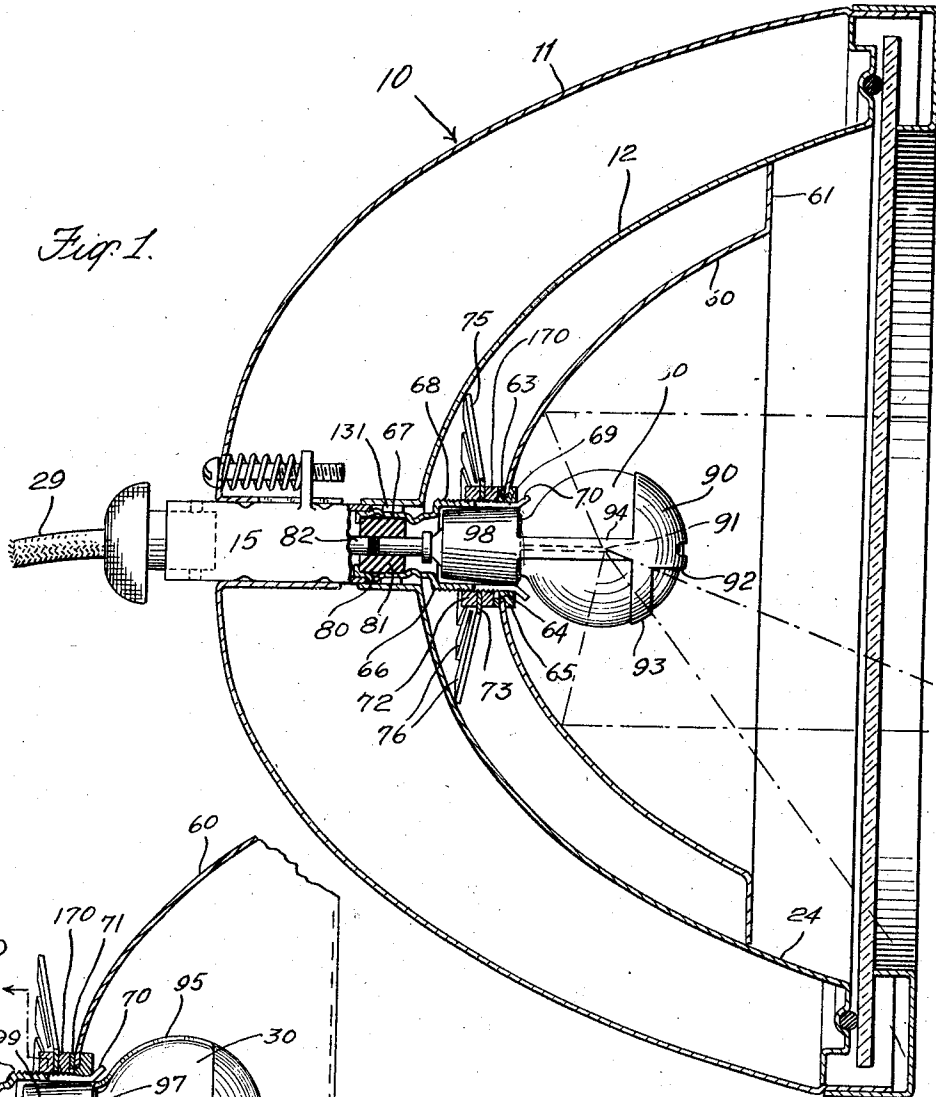


Fig. 1.

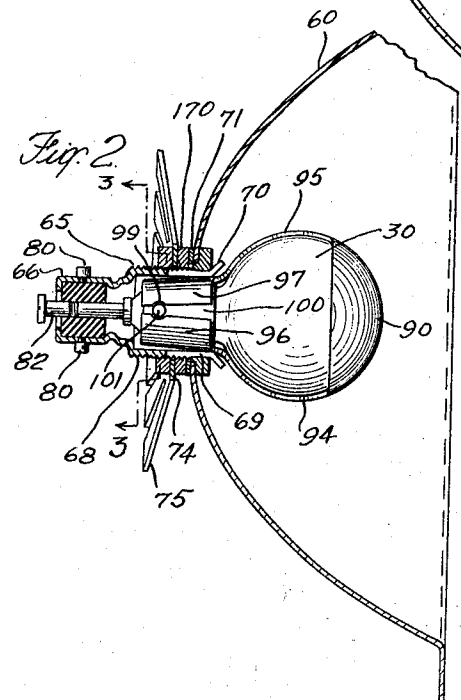


Fig. 2.

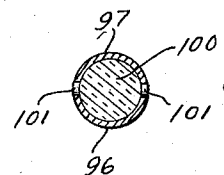


Fig. 3.

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LAMP SHIELD

Original application filed January 28, 1924, Serial No. 688,947. Divided and this application filed May 27, 1927. Serial No. 194,564.

This invention relates to automobile headlights and particularly to a shield adapted to be used in connection with a light bulb in a headlight for cutting off certain of the rays projected by said bulb. The application is a division of our copending application entitled "Headlamp replacement unit" filed January 28, 1924, Serial No. 688,947, which eventuated into Patent Number 1,704,028 on March 5, 1929.

One of the objects of the invention is to provide a shield for a headlamp bulb which may be supported upon the base of the bulb.

Another object of the invention is to provide a lamp shield which may be removably supported within the headlamp.

Another object of the invention is the provision of a shield adapted to be positioned in front of the lamp so as to cut off upwardly directed rays, a structure adapted to prevent glare in the lamp, particularly when utilized on a moving vehicle, and in such weather conditions where the presence of fog or mist makes it exceedingly difficult to operate a vehicle safely.

Other objects of the invention and objects involving the details of construction and methods of manufacture will become apparent on consideration of the specific embodiment of the invention which may be preferred and which is herein described and illustrated in the accompanying drawing in which;

Fig. 1 is a sectional elevation through a headlamp embodying the invention;

Fig. 2 is a sectional plan view of a portion of the headlight shown in Fig. 1; and

Fig. 3 is a section of the socket taken on the line 3—3 of Fig. 2.

The invention has been illustrated in connection with a headlamp 10 of a design including an outer casing 11 and a reflector 12 mounted within the same. A contact tube 15 is mounted at the center of the reflector and holds the electrical contacts which complete the circuit between the outside electrical source, to which connection is made by the cord 29 and the lamp bulb 30.

A replacement unit has also been shown as mounted in the headlamp and comprises

a reflector 60, the outer edge of which terminates in a radially extending flange 61 which is adapted to bear against the main reflector 12 in order to aid in supporting the replacement unit in the headlamp. The center of the reflector is cut to form a central aperture 63, in which is adapted to be positioned the shoulder 64 of a holding member 65. The member 65 is positioned upon a tube 66 forming a plug 67 of diminished cross section and a socket 68 of increased cross section, the ends of the socket 68 extending within the reflector as separate yielding arms 69 having outturned ends 70. The holding member 65 rests upon these socket ends 69 adjacent to the outturned portions 70. The socket adjacent the junction of the plug 67 is externally screw-threaded and is adapted to receive a nut 170 in screw-threaded engagement therewith which is designed to be moved into close engagement with a washer 71, contacting with the central outer edge of the reflector 60 and binding the reflector to the holding member 65.

It is apparent that rotation of the nut 170 in a direction to tighten the same upon the socket 66 will tend to force holding member 65 inwardly against the inclined ends 70 of the socket arms 69, this operation, as will appear from the description succeeding, binding the reflector closely to its means of support.

Similarly positioned on the screw-threaded socket is a second nut 72 which is adapted to bind against the first mentioned nut 170 through a washer 73. A central portion 74 of the washer 73 lies in a plane perpendicular to the axis of the socket 66 and an outer portion 75 lies in a surface inclined to the plane of the central portion 74. The outer portion 75 of the washer 73 is split radially to form a plurality of sectors 76 and inasmuch as the material of which the washer 73 is formed is resilient, it is obvious that the washer forms resilient holding or supporting means when applied to the reflector in which the unit is to be positioned. This is apparent from consideration of the unit as assembled in Fig. 1, the

ends of the sectors 76 contacting against the surface of the original or primary reflector 12 of the headlamp, yieldingly maintaining the tube 66 in proper relationship therewith.

The plug 67 may be provided with outstanding, oppositely positioned lugs 80, Fig. 2, or projections 80 may be stamped in the sides, as shown in Fig. 1, to enter the bayonet slots 131 formed in the ends of the movable contact tube 15, this structure being the usual headlamp construction. The socket 68 is adapted to receive the base of the lamp 30 and hold the same in proper contacting relationship with the replacement reflector 60.

In addition to serving as a connecting means between the contact tube 15 and lamp 30, the plug 67 is adapted also to hold by means of a dielectric cylinder 81, a suitable contact rod 82 movable axially therethrough and adapted to conduct the electric current to the bulb.

This form of connection intermediate the lamp bulb 30 and the replacement lamp socket 66 is shown combined with means for preventing glare from the reflector which is the subject of the present invention. From a strip of metal a stamping is made which at its central part is in the shape of a sector 90, this sector forming a shell conforming to the curvature of the lamp bulb 30 and covering a limited portion thereof, extending from a point somewhat below the axis of the reflector including the filament of the lamp, to a point in front of a plane passing transversely through the filament of the lamp and above the axis thereof. The upper boundary of the sector is adapted to lie in a surface formed by passing a plurality of lines from the focal point 91 of the reflector, at which the filament of the lamp is positioned, to the outer edge of the replacement or secondary reflector 60, or, as indicated in Fig. 1, in a plane transverse to the lamp axis and in front of the filament. In other words, the shield 90 is of such dimensions that rays of light emerging at the focus of the reflector 60 will be stopped by the shield 90 from passage to the front of the reflector above a plane including the base 92 of the shield parallel to a plane passing to the axis of the reflector. Consequently, light rays will emerge only as reflected from the surface of the reflector or such as pass out directly beneath the base 92 of the shield sector 90, these rays being inclined downwardly from the horizontal axial plane and thus not causing any glare to an observer in front of the headlamp.

Depending from the inner edge of the sector 90 and extending in a circular direction around the lamp bulb so as to join opposite sides of the sector is a band 93, the same serving both as an auxiliary holding

means for retaining the shield 90 in position and also as a shield for preventing the passage of direct rays of the lamp filament to that portion 24 of the original or primary reflector 12 which extends beyond the outer edge of the secondary reflector plane 61. The shield 90, is held in position on the lamp bulb by means of lateral bands 94, 95, which extend toward the base of the lamp and terminate in semi-cylindrical half tubes 96 and 97, the ends of the tube adjacent the strip or band 94, having a greater diameter than the outer end 98. The two cooperating tube elements 96 and 97 are adapted to fit over the base 100, of the lamp bulb and include between their edges the projecting pins 101 formed integral with the base of the lamp. The edges 99 of the tube members 96 and 97 adjacent the pins 101 are somewhat inwardly curved to form surfaces adapted to contact with the pins 101 and thus retain the shield elements from axial movement on the lamp base. The portion of the tubes 96 and 97 adjacent the lamp bulb have a curvature less than the outer portions 98 so that when the nut 170 is rotated in such a direction as to force the holding portion 65 upon the socket 66, the fingers 69 of the socket crowd the holding tubes 96 and 97 jamming the same into contact with the lamp base and thus uniting the whole into one solid unit from which the possibility of vibration and rotation due to jar or movement of the support is entirely eliminated.

The filaments generally used are of V-formation lying in a plane, the apex of the V being toward the front of the lamp. In order to give an undistorted reflection, the V plane is horizontal and the plane including the front edge 92 of the shield should also be horizontal in order to cut off the rays of light emerging from the V filament above a plane passing therethrough.

Attention is drawn also to the utility of the shield 90 in preventing glare under varied weather conditions especially in foggy weather where the light rays emerging from the lamp are subjected to multiple reflection from the various vapor particles, causing such diffusion of illumination as to make it exceedingly difficult for the operator of the car to visualize the objects in the path of movement of the vehicle. It has been found that by eliminating the rays of light which emerge in an upward direction from the headlamp that this secondary reflection of the light beam is very largely eliminated so that much clearer vision is obtained to the operator than would be obtainable without the employment of the shield 90. The aperture bounded by the shield 90 and the band 93, however, permits the emergence of those direct rays which illuminate the

ground space directly in front of the car where illumination is essential.

Another aspect of the invention meriting attention is the combination of the shield by means of the straps 94 and 95 with the clamping shells 96 and 97, these shells being of a thickness approaching that of the pins 101. This construction permits rotation of the base of the lamp so as to place the filament in horizontal position and also in proper relationship with the replacement reflector where the reflector employed is of the flat-lite type having vertical bar sections. This adjustment may be either in rotation or in axial movement, the construction permitting either adjustment, one as readily as the other.

While we have shown the shield in connection with a replacement reflector it is to be understood that it may also be used advantageously in one of the ordinary type.

Various other modifications of the invention will become apparent to those skilled in the art and therefore it is desired to protect fully all such modifications as come within the spirit of the invention and as defined by the claims hereto appended.

Having thus described the invention, what is claimed is:

1. A glare screen comprising a body having a screen formed as a segment of a sphere and a supporting shank extended radially from the rear of said body and constructed to be interposed longitudinally between the base of a lamp bulb and its socket.

2. A glare screen comprising a body having a screen formed as a segment of a sphere and a supporting shank extended radially from the rear of said body and constructed to be interposed longitudinally between the base of a lamp bulb and its socket; and means upon said shank interlocking with cooperating means upon the lamp base to prevent relative movement of the parts.

3. In an electric lamp shield construction, a lamp socket; a lamp base inserted within said socket; a light shield of approximately semi-spherical shape positioned in front of the lamp base, said shield having a cut-away portion; and means positioned between the adjacent walls of said socket and lamp base for supporting said shield.

In testimony whereof, we affix our signatures.

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