July 17, 1923. 1,461,924

O. G. LUYTIES

VEHICLE HEADLIGHT

Filed March 14, 1918 2 Sheets-Sheet 1

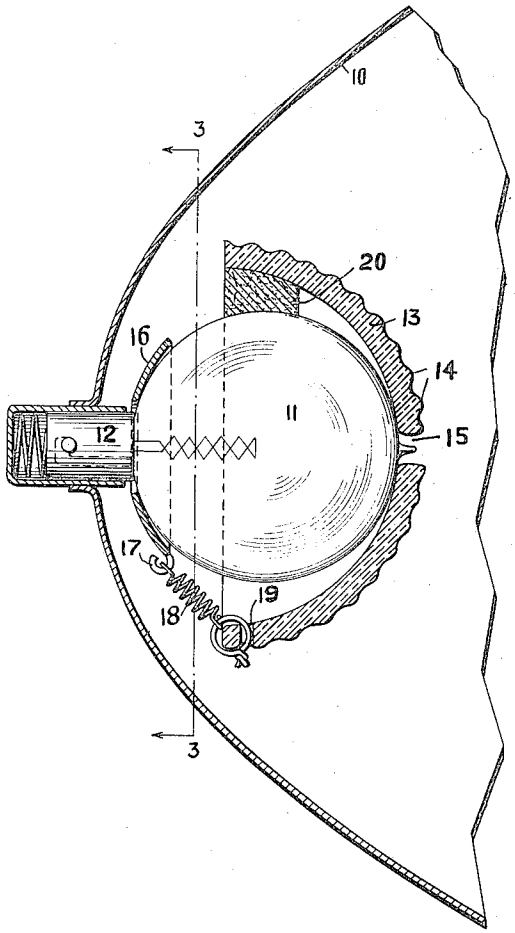
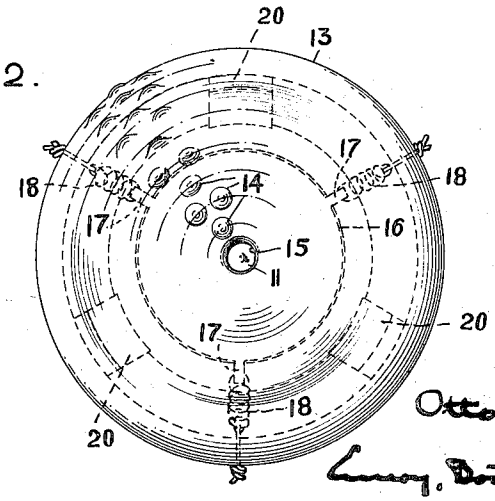


FIG. 1.

FIG. 2.



INVENTOR

Otto G. Luyties

By

Emery, Booth, Janney & Varney

ATTORNEYS

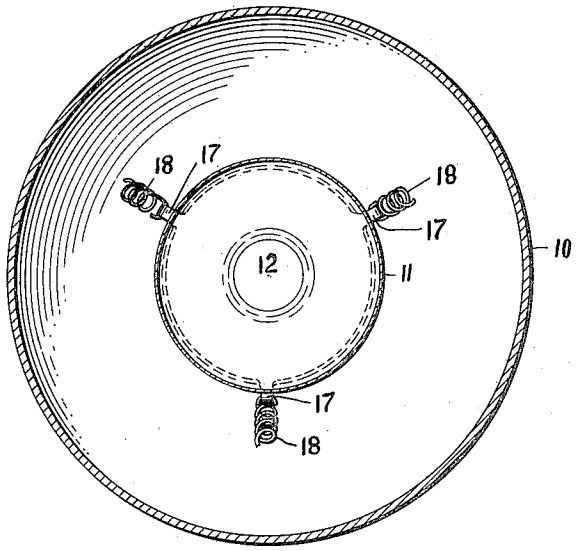
July 17, 1923. 1,461,924

O. G. LUYTIES

VEHICLE HEADLIGHT

Filed March 14, 1918 2 Sheets-Sheet 2

FIG.3.



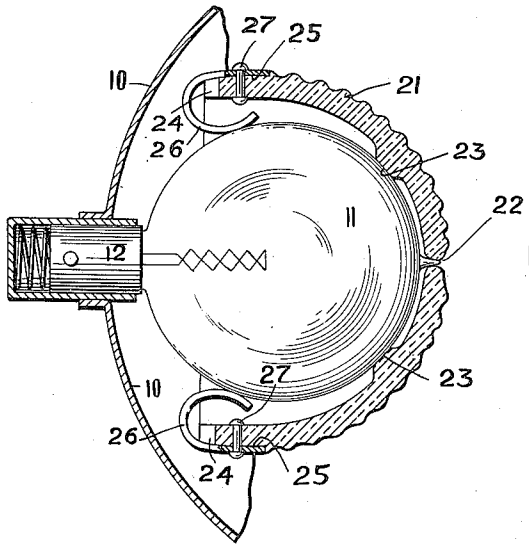


FIG.4.

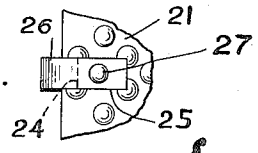


FIG.5.

INVENTOR

Otto G. Luyties

BY

Evans, Davis, Jones & Young

ATTORNEYS

Patented July 17, 1923. 1,461,924

UNITED STATES PATENT OFFICE.

OTTO G. LUYTIES, OF MOUNT VERNON, NEW YORK.

VEHICLE HEADLIGHT.

Application filed March 14, 1918. Serial No. 222,279.

To all whom it may concern:

Be it known that I, OTTO G. LUYTIES, a citizen of the United States, and a resident of Mount Vernon, in the county of Westchester and State of New York, have invented an Improvement in Vehicle Headlights, of which the following is a specification.

This invention relates to vehicle headlights and the like. One of the objects thereof is to provide a simple and efficient lamp construction in which the desired distribution of light is attained. Another object is to provide practical and inexpensive means whereby the light emitted is efficiently and economically used without an objectionable glaring effect. Another object is to provide a simple device whereby the above objects may be attained by its application to various ordinary lamps. Other objects are the provision of simple and effective means for mounting a device of the above nature. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the structure hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which are shown one or more of various possible embodiments of this invention,

Figure 1 is a central sectional elevation showing the parts in position for use;

Figure 2 is a front view;

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 1;

Figure 4 is a sectional detail view of another form of apparatus;

Figure 5 is a detail plan of a portion thereof.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to Figure 1 of the drawings, there is indicated at 10 the reflector as of an automobile headlight preferably of substantially parabolic form. Mounted in this reflector is an electric bulb 11 which may be of the usual form with its filament so shaped as to concentrate the source of light substantially at the focus of the reflector 10. This bulb is provided with the plug 12 by which it is detachably mounted in the socket of the lamp, and makes electrical connections therewith as by means of a bayonet joint.

Detachably mounted upon the bulb is a diffusing element 13 which here takes the form of a clear glass cup provided with a roughened or other suitable irregular surface 14 by which it irregularly refracts the rays passing therethrough to the surface of the reflector 10. The irregularities 14 are preferably of the substantial size shown and spaced one from another as shown, whereby the desired refracting effect is enhanced as compared with an ordinary frosted surface although many of the broader features of this invention may be embodied in apparatus having a surface of the latter form. This cup is open as at 15 and is resiliently held in position.

In the illustrative embodiment shown, there is provided a metal ring 16 through which the part 12 passes, and the outer surface of the ring is shaped to form hooks 17, it being understood that light sheet metal is well suited to form this element. From the hooks 17 which are preferably three in number and spaced at 120° about the circumference of the ring, springs 18 lead to the edge of the cup member 13 and are secured thereto as shown in the holes 19, or in any other suitable manner.

Spaced about the inner surface of the cup at its rear portion, there may be provided three or more cushions 20. It may here be noted that terms of the nature of "inward" and "outward" are used with reference to a direction respectively toward or away from the axis of the reflector. These cushions 20, which may be formed of cork or other elastic material, press against the bulb at a point to the rear of its maximum diameter, and thus in themselves tend to hold the cup in position as well as secure it against any possibility of rattling. It is to be understood however, that in so far as the broader features of this invention are concerned, these cushioning elements are not essential. However, they co-act with the spring in forming a close silent joint between the detachable device as a whole and the remaining elements of the lamp.

In the action of the device, the rays from the lamp pass to the reflector through the light-diffusing surface and are irregularly diverted from the course which they would otherwise follow. This action results in the

emission of light from the lamp as a whole in the desired general direction, that is, without waste of light, and yet prevents the formation of a solid sharply defined beam which unduly localizes the light and has the well known objectionable glaring effect as viewed from the direction which the lamp faces. It is to be understood that with this lamp an ordinary front glass of the cheap smooth clear form may be employed as the light rays are diffused adjacent the source and additional diffusion is wholly unnecessary. In this way, the specially formed member is greatly reduced in size and yet the result is even more effective than with the relatively crude expedient of using a special front glass for the lamp.

Furthermore, this device may be so shaped as to co-act with bulbs of various sizes and is independent of the size of the reflector. It is placed in position merely by removing the bulb, inserting the shank or cover of the bulb through the opening in the ring 16, the springs being suitably stretched for this purpose, and forcing the bulb into the position shown. Due to the resiliency of the parts, the size of the bulb thus does not determine the applicability of the device. With the device thus mounted, the bulb is replaced in its position in the lamp. Thus with a diffusing device of a given suitable standard size, a variety of sizes and shapes of lamps and bulbs is accommodated; also the various parts being secured one to another, there is provided a unitary device without loss of its general adaptability. It is to be especially noted moreover, that by reason of contact, and preferably cushioned contact, with a stationary member at a point outward from the plug of the lamp, the device is braced against wabbling due to shock and vibration, with a consequent tendency to break the bulb or other parts.

In the device shown in Figures 4 and 5 of the drawings, the cup 21 is of the general nature of that above described but it is to be noted that the recess or opening 22 is adapted to fit somewhat closely about the tip of the bulb. Also, this cup is preferably provided with the bearings or abutments 23 which may be formed integral, or otherwise if desired.

At the rear, the cup is provided with a number of recesses 24 in its edges and recesses 25 in its outer surface. Fitted into each of the recesses 25 is a curved spring 26 which may be interlocked therewith or riveted in position as shown at 27. A number of these springs are provided, as for example, three or four, and they not only hold the cup against shaking but snap it securely in position.

The action of this abutment is closely similar to that first herein described.

It will thus be seen that there is provided apparatus in which the objects of this invention are achieved and which is well suited to meet the requirements of hard practical use.

As various possible embodiments might be made of the above invention and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

It is also to be understood that by the term "reflector" as herein used is meant such a device as is adapted to receive light rays and project substantially all of them in a desired general direction.

I claim as my invention.

1. In a vehicle headlight, in combination, a curved rear reflector, an electric bulb mounted therein, and a unitary device comprising a light-diffusing member surrounding said bulb, cushioning means and resilient securing means, said securing means, cushioning means and light-diffusing member being connected one to another.

2. In a vehicle headlight, in combination, a member forming a curved rear reflector, an electric bulb member mounted therein, and a unitary device comprising a light-diffusing member surrounding said bulb and formed of clear glass provided with an irregular surface, resilient means interposed between said light diffusing member and said bulb member, and cushioning means engaging one of said first two members.

3. In a vehicle headlight, in combination, a member forming a curved rear reflector, an electric bulb member mounted therein, a light-diffusing member surrounding said bulb, a ring through which the plug of said bulb passes, a spring secured to said ring adapted yieldingly to hold said diffusing member in position, and cushioning means connected with said diffusing member positioned to engage one of said first two members at a point outwardly spaced from the plug of said bulb.

4. In a vehicle headlight, in combination, a member forming a curved rear reflector, an electric bulb member mounted therein, and a unitary device comprising a clear glass light-diffusing member surrounding said bulb, a spring interposed between said bulb and said light-diffusing member to hold the latter resiliently in position, and supporting means positioned to engage one of said first two members at a point outwardly spaced from the plug of said bulb.

5. In a vehicle headlight, in combination, a member forming a curved rear reflector, an electric bulb member mounted therein, a light diffusing member provided with irregularities on its surface of substantial size and pre-

determined form, resilient means interposed between said light diffusing member and said bulb, and cushioning means adapted to engage one of said first two members and aid in supporting said glass member.

6. In a vehicle headlight, in combination, a member forming a curved rear reflector, an electric bulb member mounted therein, a light-diffusing member provided with irregularities on its surface of substantial size and predetermined form, resilient means interposed between said light diffusing member and said bulb, and cushioning means adapted to engage one of said first two members and aid in supporting said glass member, said cushioning means being outwardly spaced from the plug of said bulb and said resilient means comprising a ring through which the plug of said bulb passes and a spring secured thereto.

7. In a vehicle headlight, in combination, a member forming a substantially parabolic rear reflector, an electric bulb member mounted within said reflector and with its filament substantially at the focus thereof, and a unitary device comprising a clear glass member surrounding said bulb and provided with irregularities on its surface of substantial size and predetermined form, resilient means interposed between said glass member and said bulb, comprising a ring and a spring secured thereto, and cushioning means mounted to engage one of said first two members at a point outwardly spaced from the plug of said bulb.

8. In a vehicle headlight, in combination, a reflector, an electric bulb co-acting therewith, a light transmitting device interposed between said bulb and said reflector, and adapted irregularly to refract light passing to said reflector, a ring through which the end of said bulb passes, said ring being secured to said device to hold it in position and cushioning means connected with said device and acting at points outwardly spaced from the plug of said bulb and tending to support said device against wabbling.

9. In a vehicle headlight, in combination, a curved rear reflector, an electric bulb co-acting with said reflector, a glass member provided with a surface having projections of substantial size spaced both circumferentially and in the plane of the axis of said reflector, said glass member being mounted about said bulb and interposed between said bulb and said reflector and adapted irregularly to refract light passing to said reflector, means comprising a ring through which said bulb passes, and a spring secured thereto adapted to hold said glass member in position, said ring and spring being interposed between said bulb and said glass member.

10. In a vehicle headlight, in combination, a member forming a reflector, an electric bulb member co-acting therewith, a light transmitting device interposed between said bulb and said reflector, and adapted irregularly to refract light passing to said reflector, means secured to said device at its rear end and detachably holding it in position and cushioning means positioned to engage one of said first two members and support said device against wabbling, said light-transmitting device, holding means and cushioning means being secured together to give a unitary construction.

11. In a vehicle headlight, in combination, a reflector, an electric bulb co-acting with said reflector, a light transmitting member formed of clear glass provided with an uneven surface and extending about said bulb between said bulb and said reflector, said member being spaced from said bulb, means detachably holding said member in position and cushioning means acting at points outwardly spaced from said bulb and adapted to support the same against wabbling.

12. In a vehicle headlight, in combination, a curved rear reflector, an electric bulb mounted therein substantially at its focus, a light-diffusing member fitted about said bulb provided with irregularities of predetermined form upon its surface, said member extending over the front of the bulb and thence rearwardly between the filament of the bulb and said reflector, and resilient means interposed between said member and said bulb and holding said member in position.

13. In a vehicle headlight, in combination, a member forming a curved rear reflector, an electric bulb member mounted therein, a light diffusing member mounted about said bulb, resilient means holding said light diffusing member in position, and cushioning means positioned to engage one of said first two members at points outwardly spaced from the plug of said bulb and hold the same against wabbling, said resilient means comprising a spring interposed between said diffusing member and said bulb, tending to urge said diffusing member toward said reflector.

14. In a vehicle headlight, in combination, a reflector, an electric bulb co-acting therewith, a light transmitting device interposed between said bulb and said reflector and adapted irregularly to refract light passing to said reflector, a ring through which the end of said bulb passes, said ring being secured to said device to hold it in position, and cushioning means against which said device rests.

15. In a vehicle headlight, in combination, a reflector, an electric bulb co-acting with said reflector, a light transmitting device interposed beween said bulb and said reflector and adapted irregularly to refract the light passing to said reflector, means

comprising a ring through which the bulb passes, a spring secured thereto adapted to hold said device in position, said ring and spring being interposed between said bulb and said device, and cushioning means against which said device rests.

16. In a vehicle headlight, in combination, a curved rear reflector, an electric bulb mounted therein substantially at its focus, a light-diffusing member fitted about said bulb provided with irregularities of predetermined form upon its surface, said member extending over the front of the bulb and thence rearwardly between the filament of the bulb and said reflector, and yielding means interposed between said member and said bulb at three or more spaced points and gripping said bulb to hold said member in position.

17. In a vehicle headlight, in combination, a curved rear reflector, an electric bulb mounted therein, a light-diffusing member fitted over said bulb and provided with a recess into which the tip of said bulb enters, said member extending over the front of said bulb and between said bulb and said reflector, and yielding means detachably holding said member in position.

18. In a vehicle headlight, in combination, a curved rear reflector, an electric bulb mounted therein, a light-diffusing member fitted over said bulb and provided with a recess into which the tip of said bulb enters, said member extending over the front of said bulb and between said bulb and said reflector, and means interposed between said member and said bulb and yieldingly gripping said bulb at the rear of its plane of maximum diameter to hold said member in position.

In testimony whereof, I have signed my name to this specification this 2nd day of March, 1918.

OTTO G. LUYTIES.