July 23, 1957 R. N. FALGE 2,800,578

RESILIENT LAMP MOUNTING

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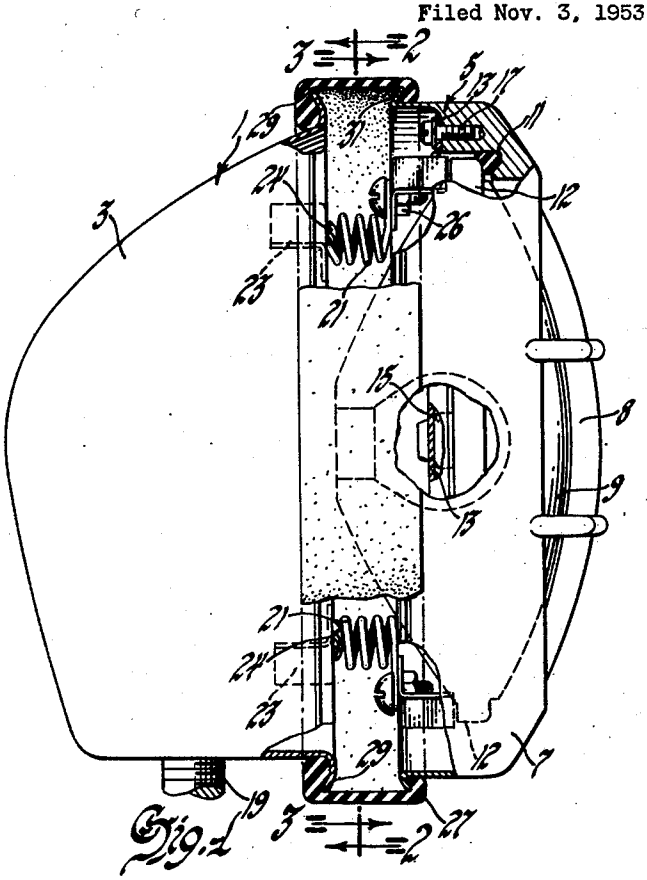


Fig. 2

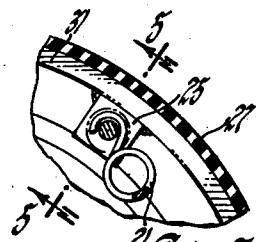


Fig. 3

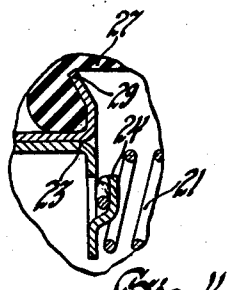


Fig. 4

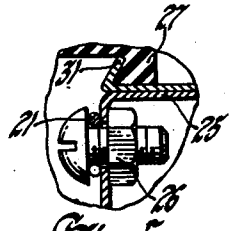


Fig. 5

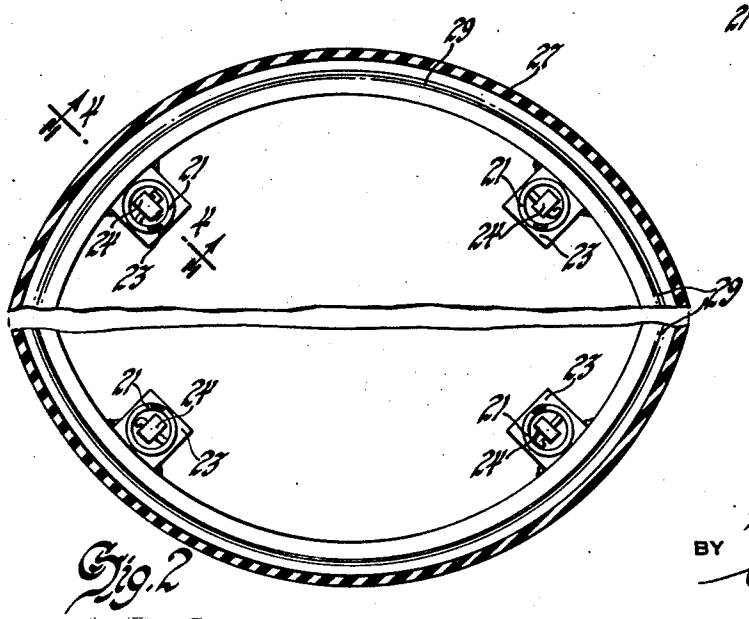


Fig. 2

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RESILIENT LAMP MOUNTING

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This invention relates to resilient lamp mountings and more particularly to shock absorbing mountings for use with lamps on vehicles normally subjected to extreme shock and jarring action under conditions of normal usage.

It has always been a difficult problem to so mount a lighting unit on vehicles such as tractors and on marine, military and construction equipment as to isolate the bulb filaments from the extreme vibrational stress to which the vehicle is subjected and at the same time obtain a lamp which was simple, rugged and inexpensive.

Numerous attempts have been made in the past to solve this problem. Such attempts are typified by the use of rubber or rubber-like cushioning members between the vehicle and the lamp casing, reliance being placed on the natural resilience of the member to absorb the vibrations. However, this expedient has been found to be generally unsatisfactory with resultant frequent filament failures because of shear stresses set up in the mounting bolts and cushioning members where the mounting bolt is positioned in a plane other than vertical. Further, the cushioning member has serious limitations in that its shock absorption characteristics vary with the frequency of the vibrations to which it is subjected.

It is therefore an object of my invention to provide a simple, rugged and inexpensive lamp mounting adapted to minimize or substantially eliminate bulb filament breakage due to vibrational stress.

It is another object of my invention to provide a resilient lamp mounting construction for isolating the lighting unit from vibrational stress.

It is another object of my invention to provide a lighting unit mounted resiliently within a casing or support.

To attain these objects, I provide a plurality of spaced resilient supporting members between the lamp casing and the lighting unit, the lighting unit having no other connection with the casing than through the resilient supporting members.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing, wherein a preferred form of the invention is clearly shown.

In the drawing:

Figure 1 is a side elevational view with parts broken away of the improved lamp mounting of my invention.

Figure 2 is a view of the lamp mounting taken on line 2—2 of Figure 1.

Figure 3 is a partial view of the lamp mounting taken on line 3—3 of Figure 1.

Figure 4 is an enlarged view of the detail of mounting the spring to the lamp casing.

Figure 5 is an enlarged view of the detail of mounting the spring to the lighting subassembly.

Referring now to the drawing and more particularly to Figure 1 there is shown a lamp 1 consisting of a casing 3 having an aperture in which the lighting subassembly 5 is positioned. The lighting subassembly consists of a door

7 having a protective lattice 8 formed integral therewith over its open front face and having a lighting unit 9 positioned therein adjacent the lattice 8. Though, as shown in Figure 1, the lighting unit is of the sealed beam type, this is by no means essential to my invention.

The lighting unit 9 is securely mounted within the door 7, a sealing gasket 11 being positioned between the lighting unit flange 12 and the front inner portion of the door 7 to seal the front portion of the lamp. An annular plate 13 is positioned in abutting relationship with the spacer lugs 15 formed on the inner surface of flange 12 and is securely attached at a plurality of spaced points to the door 7 thus clamping the lighting unit 9 therebetween and forming an integral subassembly 5. The lamp 1 is adapted to be secured to the vehicle by the provision of bolt 19 having rigid attachment with the casing 3.

Whereas it is the practice in the art to isolate the lamp from vibrational stress in the vehicle by utilizing a rubber-like "Lord"-type mount having sleeved relationship with the attaching bolt between the casing and the vehicle, I am able to substantially eliminate vibrational stress in the lighting unit by resiliently securing the lighting unit to the lamp casing. As is shown in Figures 1 and 2, the lighting subassembly 5 is securely attached to the lamp casing 3 by means of a plurality of equally spaced horizontally disposed coil springs 21, the springs being heavy enough to support the subassembly in alignment with the open face of the casing 3 and in spaced relationship thereto. Though I show a plurality of coil springs 21 as the preferred embodiment, it is to be understood that other suitable resilient supporting elements such as a plurality of spring steel members may be used to accomplish the same purpose and are within the intended scope of my invention.

One end of each coil spring 21 is securely attached to the casing 3 by means of a bracket 23. As is clearly shown in Figures 2 and 4, the casing end of the spring 21 is securely clamped to the bracket 23 by means of a tang 24 punched out of the bracket and bent around the spring end. The other end of each spring 21 is removably secured to a bracket 25. The brackets 23 and 25 are securely attached by any suitable means such as welding or brazing to the casing 3 and lamp door 7, respectively. As is clearly shown in Figures 3 and 5, the door end of the spring 21 is looped around the shank of a screw 26 and is securely clamped between the head of the screw and the seating portion of the bracket 25.

The opening between the door 7 of the casing 3 is weathersealed by means of a ring-like resilient gasket 27 having bead-like end portions cooperating with outwardly turned flanges 29 and 31 formed respectively on the casing 3 and door 7. Gasket 27 is of such thin wall construction that vehicle shocks are not transmitted to the subassembly 5. It should be understood that other forms of construction than that shown on the drawing, i. e., a bellows type sealing member, may be used.

It is apparent from the above description that the lighting unit and bulb filaments are supported on the lamp casing and vehicle structure solely by means of support springs 21 which springs are inherently suited to absorb vibrational stress of a wide range of frequencies. It should be noted that the springs 21 are mounted on the lamp with their longitudinal axis substantially parallel to the axis of the lighting unit 9 and thus act as cantilever support members. When subjected to vibratory action springs 21 each react in the same manner and direction thus tending to minimize the amount of "whip" or tendency to oscillate. It is likewise to be understood that the design of the spring will vary with the particular application in mind.

While the form of embodiment of the invention as here-

in disclosed constitutes a preferred form, it is to be understood that other forms might be adopted as may come within the scope of the claims which follow.

I claim:

1. In a vehicle lamp, a casing having an aperture, a lighting unit, a lamp door, means clamping said unit in said door to constitute a lighting subassembly, a plurality of spaced resilient support members each connected at one end to said casing and at the other end to said subassembly and acting to resiliently support said subassembly in spaced relationship to said casing, and a resilient sealing gasket extending between said casing and said door, said members being so positioned as to act as cantilever type support elements holding said subassembly in spaced relationship to and out of direct vibration transmitting contact with said casing.

2. In a vehicle lamp, a casing having an aperture, a lighting unit, a lamp door, means clamping said unit in sealed relationship with said door to constitute a lighting subassembly, a plurality of spaced resilient support members each connected at one end to said casing and at the other end to said door and acting to resiliently support said subassembly in alignment with and in spaced relationship to and out of direct vibration transmitting contact with said casing, the longitudinal axis of said members being substantially parallel to the axis of said lighting unit.

3. A vehicle lamp comprising a casing having an aperture, a lighting subassembly aligned with said aperture, said subassembly comprising a lighting unit, a lamp door, and means clamping said unit in said door, and a plurality of spaced springs each connected at one end to said casing and at the other end to said subassembly and acting to resiliently support said subassembly in spaced relationship to and out of direct vibration transmitting contact with said casing, the longitudinal axis of said springs being substantially parallel to the axis of said lighting unit.

4. A vehicle lamp comprising a casing having an aperture, a flange formed on the peripheral edge of said casing around said aperture, a lighting subassembly aligned with said aperture, said subassembly comprising a lighting unit, a lamp door having a flange formed on its rear peripheral edge, and an annular plate clamping said unit in said door, a plurality of equally spaced coil springs each connected at one end to said casing and at the other end to said subassembly and acting to resiliently support said subassembly in spaced relationship to and out of direct vibration transmitting contact with said casing, and a resilient sealing gasket extending between said casing flange and said door flange to weatherseal said lamp, said springs being so positioned as to act as cantilever type support elements.

5. A vehicle lamp comprising a casing having an aperture, an outwardly turned flange formed on the peripheral edge of said casing around said aperture, a lighting subassembly aligned with said aperture, said subassembly comprising a lighting unit, a lamp door having an outwardly turned flange on its rear peripheral edge, and an annular plate clamping said unit in sealed relationship with said door, a plurality of equally spaced coil springs each connected at one end to said casing and at the other end to said door and acting to resiliently support said subassembly in spaced relationship to and out of direct vibration transmitting contact with said casing, and a resilient sealing gasket extending between said casing flange and said door flange to weatherseal said lamp, the longitudinal axis of said springs being substantially parallel to the axis of said lighting unit.

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