This invention relates generally to illuminating equipment and more particularly to clearance lights adapted to be utilized on van portions of trucks.

Vehicle lights conventionally utilized employ base bulbs which are received in sockets mounted on the truck. Bayonet-type or screw-type connections retain the bulb in the socket and form an appropriate electrical connection therebetween for causing the proper energization of the bulb. Trucks often travel loaded in one direction and return empty. When a truck is moving along a road at a rapid pace carrying no load, all the parts thereof are subjected to considerable vibrations. The vibrations or constant jarring causes both the bayonet and screw-type connections to come loose at critical points. It is often then necessary to remove the assembly securing the light so as to enable a person to tighten the bulb to reestablish the proper mechanical and electrical connection. Considerable time is therefore wasted in removing the fasteners, as screws, to tighten the bulbs in their sockets. Further, not only do the bulbs become loose from their sockets, but the vibrations often cause a weakening of elements and a breakdown of portions of the lighting fixtures. The vibrations often decrease the expectant life of the bulbs, thereby often requiring replacement. Aside from the cost involved in employing and replacing lighting fixtures of this type, it will be realized that unlighted trucks represent a severe safety hazard on the road.

In view of the above, it is the principal object of this invention to provide a novel truck light construction which may be installed in a truck with a minimum of effort and which may be thrown away when malfunctioning occurs. More particularly, it is an object of this invention to provide a novel truck light construction which is not subjected to the numerous breakdowns caused by vibrations in the manner of conventional lighting fixtures. By reducing the maintenance involved in assuring the proper lighting of the truck lights, a somewhat greater initial expense may be absorbed in the purchase of the truck lights.

It is a still more particular object of this invention to provide a novel truck light construction wherein an unabused bulb including an envelope and filament leads extending therefrom is secured to a reflector in proper light exposing relation by a resilient epoxy potting material which mechanically bonds the bulb to the reflector and protectively embeds the filament leads to terminals extending through the reflector. Secured to the reflector is a light transmitting cover plate which has an integral annular flange so as to provide a sealed compartment within which the bulb is accommodated.

These, together with other objects and advantages which will become subsequently apparent, reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the van portion of a truck showing relative positions in which clearance lights are generally mounted.

FIGURE 2 is an enlarged vertical sectional view taken substantially along the plane 2—2 of FIGURE 1;

FIGURE 3 is an enlarged vertical sectional view taken substantially along the plane 3—3 of FIGURE 2;

FIGURE 4 is an enlarged vertical sectional view through the lamp comprising the invention showing the manner in which the bulb is mounted on the reflector prior to the application of the potting material for mechanically and electrically securing the bulb to the reflector; and

FIGURE 5 is a perspective view illustrating how the boss mounted on the rear of the reflector is received within an opening formed in the truck body for securing the light to the body and electrically connecting supply means to the filament leads of the bulb.

With continuing reference to the drawings, the numeral 18 generally represents the van portion of a truck and illustrates the positions in which clearance lights are generally provided. The clearance lights comprising this invention are designated generally by the numeral 12 and include a reflector portion 14 and a cover plate 16 which has an annular flange 18 formed integral therewith and provided with an opening 20 for reception of the bulb. The cover plate 16 and flange 18 are preferably formed of light transmitting plastic. The reflector 14 is formed of opaque plastic, and preferably white or some other light color, so as to assure the proper reflection of light. The reflector 14 may be formed as indicated and in FIGURES 3 and 4 of concentric diverging portions so as to create a reflector focal point.

A guide assembly, generally designated by the numeral 22, is provided on reflector 14. The assembly initially includes a U-shaped portion 24 in which is defined a recess 26. Projections 28 extend from the reflector 14 and are spaced slightly from the U-shaped member 24. An unabused bulb 30 includes a glass envelope 32 having filament leads 34 and 36 extending therefrom. The envelope 32 is received between the pair of spaced projections 28 with the bottom portion of the envelope 32 extending into the recess 26. The leads 34 and 36 are folded about the projections 28 and firmly fit between the projections and the legs of the U-shaped member 24.

Terminals 38 and 40 project through the reflector 14. A boss 42 is formed on the rear surface of the reflector 14. The boss 42 is provided with diametrically opposed ears 46 and 48 which are formed with a metallic coating. The terminals 38 and 40 which extend through the reflector 14 extend through the boss 42 and are electrically connected to the metallic coating on the ears 46 and 48. It will, of course, be appreciated that the ears 46 and 48 are slightly spaced from the rear surface of the reflector 14.

With the unabused bulb 30 properly positioned by the guide assembly 22, the leads 34 and 36 are respectively soldered or welded to the contact pins 38 and 40. Thereafter a potting compound 50 is applied over the unabused bulb so as to cover the lower portion of the envelope 32 and protect the leads 34 and 36 electrically connected to the terminals 38 and 40. The potting material is preferably resilient and has the same coefficient of expansion as the glass envelope 32 of the bulb 30. Inasmuch as the potting material 50, when applied, will flow into all of the crevices defined by the guide assembly 22, the bulb 30 will be mechanically bonded to the reflector 14 and the connection between the leads 34, 36 and the terminals 38, 40 will be protected. After properly prepositioning the bulb with respect to the reflector, the mechanical bond formed by the potting material will maintain the positioning, thus assuring that the filament light reflects at its greatest efficiency by being parallel to the lens. Also, it should be pointed out that because the filament is in proper position, the lamp will be attached (or cammed) to the trailer body with the bulb always in the most advantageous position for longest fila-
ment life under rough service. Inasmuch as the closure plate flange 18 and reflector 14 form a watertight seal and inasmuch as the epoxy potting compound 59 is impervious to salt or fresh water, the light is particularly adaptable for marine and naval application. Moreover, it will be appreciated that the assembly is virtually free of exposed metal parts and inasmuch as the reflector 14 and cover plate 16 are of non-corrosive plastic, the assembly is extremely durable in both land and sea applications.

Although several means of electrically connecting a supply to the filament leads 34 and 36 are available, one of the most convenient is that which makes use of the metallic covered ears 46 and 48. Attention is called to FIGURE 5 wherein an opening 60 identical in shape to the boss 42 and ears 46 and 48 is provided in the truck body 10. The opening 60 includes recessed areas 62 and 64 which receive the ears 46 and 48. The ears 46 and 48 project behind the wall of the truck body and by twisting the assembly 12, the ears 46 and 48 are respectively brought into engagement with the contacts 66 and 68 which comprise metallic strips, each insulated from the truck body. The strips 66 and 68 may be somewhat tapered or built up so that as the assembly 12 is turned and the ears 46 and 48 engage the contact strips 66 and 68, the assembly 12 is drawn into tight mechanical engagement with the wall of the truck body. Of course, the contact strips 66 and 68 may be energized through conductors 70 and 72. It will also be appreciated that if the wall of the truck body is metallic, as is generally the case, only one of the conductors 70 and 72 need be provided inasmuch as the wall will constitute a satisfactory ground.

From the foregoing, it should be appreciated that the invention presents an advance in the illumination art inasmuch as it provides a sealed throwaway light which includes an unbiased bulb secured to a reflector by an epoxy potting compound which mechanically retains the bulb in position and reduces the undesirable vibration and relative movement between the bulb and the means upon which it is mounted. More particularly, bayonet-type and screw-type connections are eliminated so as to assure a longer and more reliable bulb life. Potting makes the bulb and reflector a unitized part, thereby eliminating the usual movement or whip of a bulb which is encountered in the J-slot socket-type holders. Moreover, the characteristics of the invention allow for it to be installed and replaced more easily though replacement will be needed less often.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. For use in combination with vehicles, an enclosed light construction comprising a reflector, an unbiased bulb including a transparent, rigid envelope having filament leads projecting therefrom, terminals extending through said reflector engaged with said leads, and a resilient potting material having substantially the same thermal expansion property as said envelope received over a base portion of said envelope and said leads and terminals securing said bulb to said reflector.

2. The combination of claim 1 including, guide means formed with said reflector for positioning said bulb envelope on said reflector in spaced relation to the outer portions of the filament leads connected to said terminals and the base portion of said envelope in embedded relation to said potting material.

3. For use in combination with vehicles, an enclosed light construction comprising a reflector, an unbiased bulb including an envelope having filament leads projecting therefrom, terminals extending through said reflector engaged with said leads, and a resilient potting material comprising epoxy potting material received over a portion of said envelope and said leads and terminals securing said bulb to said reflector, and a light transmitting cover plate having an integral annular flange fixed to said reflector sealing said bulb therewith, said cover plate and said reflector formed of non-corrosive plastic, a boss formed on the rear surface of said reflector, a pair of ears projecting from said boss, a contact secured to each of said ears, each of said contacts connected to one of said terminals, a guide assembly secured on said reflector having a recess therein for receiving a portion of said bulb, said assembly including a passage on each side of said recess, each passage receiving and retaining one of said leads.

4. A vehicle mounted illumination device comprising a reflector, a bulb device having a light producing filament enclosed within a transparent, rigid envelope having a base portion from which filament leads extend in spaced relation on opposite sides of the bulb device, guide means fixedly mounted on the reflector for positioning said base portion of the envelope on the reflector in spaced relation to the outer portions of the filament leads, terminal means projecting from the reflector on opposite sides of the bulb device for electrical contact with said filament leads positioned by the guide means, and resilient potting means having thermal expansion properties substantially equal to that of the envelope embedding the base portion of the envelope within the guide means and the filament leads in permanent contact with the terminal means to protectively secure the bulb device and filament leads to the reflector whereby the deleterious effects of vibration and atmospheric conditions are reduced and the position of the bulb device for optimum efficiency and illumination is preserved.

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