ADAPTER FOR MARKER LIGHT

Inventor: George W. Carr, Cincinnati, Ohio

Assignee: Pullman Incorporated, Chicago, Ill.

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Primary Examiner—Samuel S. Matthews
Assistant Examiner—E. M. Bero
Attorney—Hilmond O. Vogel et al.

ABSTRACT

An adapter for attaching any vehicle marker light to the side of the vehicle provided with a groove in which is carried an electrical conductor where the adapter includes a lead connection with the grounded marker light and a conductor piercing screw carried in a guide bushing held against the side of the vehicle by an adapter receptacle provided with a slit in its top to have access to the piercing screw and which is held by an adapter retainer ring structure to hold the receptacle tightly against the side of the vehicle and the conductor, the receptacle having a drainway for allowing condensation or moisture to escape from the receptacle.

19 Claims, 9 Drawing Figures
ADAPTER FOR MARKER LIGHT

BACKGROUND OF THE INVENTION

1. Field of the Invention
This invention relates to marker light mounting arrangement for vehicles and particularly relates to an adapter arrangement for mounting any type of marker light to the vehicle provided with recessed electrical conductor means. The invention has particular use to the mounting of marker lights to the upper quarter panel of a highway trailer.

2. Description of the Prior Art
The prior art, as, for instance, U. S. Pat. No. 3,087,051, provides for the mounting of such marker lights over the recessed electrical cable or hot wire mounted in a groove in the upper quarter panel of the trailer vehicle. However, there are many different types of marker lights which can be purchased and mounted on the vehicle where the quarter panel is not provided with a recessed cable which carries the electrical conductor for lighting the light. It is, therefore, desirable to provide for an adapter which can be mounted on the top of the assembly. The top of the adapter is provided with a self-sealing slit through which the bit of a screwdriver can be inserted to secure the bit of the screwdriver.

FIG. 1 is a phantom or schematic view of a trailer employing the novel marker light and adapter arrangement;
FIG. 2 is an enlarged close view of the light and its adapter;
FIG. 3 is a top plan view of the adapter receptacle;
FIG. 4 is a side elevational view of the adapter receptacle;
FIG. 5 is a bottom plan view of the adapter receptacle;
FIG. 6 is a sectional view taken along line 6—6 of FIG. 5;
FIG. 7 is an end elevational view of the adapter receptacle;
FIG. 8 is a cross sectional view of the adapter mounted on the quarter panel of a trailer vehicle; and
FIG. 9 is a longitudinal sectional view of the adapter mounted on the side or quarter panel of the trailer.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The invention will be described herein with particular reference to the installation of the marker light and its adapter in the upper quarter panel of a semi-trailer-type roadway vehicle. The upper quarter panel is that structural section which extends along the upper edge corner of the cargo body.

As shown in FIGS. 1 and 2, the cargo body 2 for a semi-trailer 4, or the like, has an upper quarter panel 6 on which marker lights 8 and marker light adapters 10 are mounted. In the embodiment shown, the marker lights each have a light bulb 12 which is on socket and vehicle mounting device 14 which is secured to the quarter panel by ground screws 16.

With reference now to FIGS. 3-9, extending from each marker light is a marker light electrical lead or wire 18 which extends into the tubular opening 20 of the adapter receptacle 22 of its associated adapter 10. The wire 18 has its marker light connector 24 coupling with the adapter connector 26 which at its inner end has an apertured flange 28 through which extends the piercing screw 30. The screw 30 is threaded into the nylon leader bushing or guide 32 that is surrounded by the very soft or rubber-like plastic adapter receptacle 22. The opening 20 permits plugging of the marker light connector 24 into the connector 26 with the tubular opening 20 tightly encasing the connector 18 to provide for water-tight connection. The top 34 is provided with a self-sealing slit 36 through which the bit of the screwdriver can be inserted in order to operate the piercing screw.

These and other advantages and objects of the invention will become apparent from reference to the following description, attached drawings and appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a phantom or schematic view of a trailer employing the novel marker light and adapter arrangement;
FIG. 2 is an enlarged close view of the light and its adapter;
FIG. 3 is a top plan view of the adapter receptacle;
FIG. 4 is a side elevational view of the adapter receptacle;
FIG. 5 is a bottom plan view of the adapter receptacle;
3,783,265

3. The raised inner ring section 50 and the lower outer ring portion 52 form a stepped rim.

The outer ring portion 52 is provided with a cutout or annular drainway 54 (see FIG. 5) which communicates with a lower discharge passage or undercut 56 for draining any moisture or condensation outwardly of the receptacle. The outer flange or ring 52 of the receptacle that is provided with the drain passage 54 defines a series of four downwardly extending receptacle leg portions 58, 60, 62 and 64 each of which is provided with, in its outer surface, a grooved or cutout portion 66 which allows for the bottom of the receptacle to partially encase the insulated conductor or cable or hot wire 68 that is stored in the longitudinally extending quarter panel groove 70. The bushing 32 is also provided in its bottom with a groove 33 (see FIG. 9) to cooperate with the grooves 66 in receiving the electrical conductor 68. The arcuate cutouts 66 in the legs 58, 60, 62 and 64 of the receptacle 22 and arcuate cutout of the bushing 32 are pressed about the cable by the clamp 16, which is in the shape of an annular stepped rim structure having a central opening or bore 74 and an upper inner ring portion 76 and a lower or recessed outer ring portion 78 having an outer upturned annular flange 80. The inner ring 76 rests on the inner shoulder or central ring portion 50 and the outer ring 78 seats on the outer ring portion 52 of the receptacle. The screws 82 and 84 extending through the openings 87 (see FIG. 8) in the retainer 72 and the openings 86 and 88 (see FIG. 5) in the receptacle provide for clamping of the more rigid or stiff retainer against the more flexible receptacle 22. The center ring 76 of the retainer 72 provides the holding force for the leader bushing 32 and the outer ring 78 of the retainer 72 assures watertightness of the assembly.

With reference to FIGS. 5-7, it will be seen that the rings or mounting faces 90 and 92 which define drain area 54 (see FIG. 5) depend from the underside 91 of the receptacle 22 on either side of the drain passage 54. The outer mounting face 90 surrounds the receptacle outer periphery and the inner mounting face area 92 surrounds the counter-bore 40. These mountings faces 90 and 92 are ribbed, as are the annular flanges 94 and 96 (that depend from the receptacle underside 91) that define the openings 88 and 86 due to the formation of ribs or projections 98 because of cutouts 100 formed therebetween. This combination of ribs 98 and cutouts 100 provide for a mounting face area that is designed for water-tightness and at the same time, maximize the adherence force, because the contact area is reduced to a minimum while the undercut 56 at the bottom 102 (see FIG. 5) allows for drainage.

This adapter 10 is designed to enable one to install any type of marker clearance light on the quarter panel 6 which is provided with a groove 104 (see FIG. 8) in which sits the bottom 47 of the bushing 32. The quarter panel 6 is further provided with an annular or circular groove 106 which carries the cable 68 and communicates by passage 108 with the panel groove 104. At the time of light installation without using an adapter, the cable or wire on the quarter panel is pierced by screwing in the piercing screw of the marker light, which screw punctures the insulation 110 of the electrical conductor 68 and penetrates into the strands of the electrical current conducting wire 112. In order to install a different marker light, as exemplified in FIG. 2 by marker light 8, the adapter 10 with its own piercing screw 30 is used as a means of connection between the marker light 8 and the recessed wire 112. The body of the van 4 acts as an electrical ground and completes the circuit to the battery 114 shown schematically (see FIG. 1). The adapter connector 26 provides a socket for a common bullet-type plug at the end of the marker light electrical connector 18. This connector 26 then becomes rigidly fastened to the receptacle by tightening the piercing screw 30 in the bushing 32. At the same time, the screw 30 becomes the natural conductor between the pierced wire 112 and the bullet-type plug of the electrical connector 18. The adapter 10 may be placed at the front or at the rear of a marker light 8. For mounting on the trailer, the adapter is delivered as a unit which is assembled as shown in FIG. 9. The piercing screw 30 should be unscrewed to the point that the tip of it will not touch the quarter panel wire 112. Orientate the adapter assembly 10 so that the undercut 56 is downward or at the bottom which provides for drainage of moisture or leakage. The adapter is mounted with the two screws 82 and 84, one at the bottom and one at the top. A screwdriver is inserted through the slit 36 and the piercing screw 30 is tightened such that the wire 112 is pierced by the tip of the screw and the connector of the adapter is rigidly fastened in place. In completing the wiring, the marker light connector is plugged into the receptacle 22.

The foregoing description and drawings merely explain and illustrate the invention and the invention is not limited thereto, except insofar as the appended claims are so limited, as those skilled in the art who have the disclosure before them will be able to make modifications and variations therein without departing from the scope of the invention. What is claimed is:

1. In a highway vehicle, a source of electrical power, a cargo body having an electrical ground connected with the source of power, said cargo body having an upper quarter panel having a cable receiving groove, a marker light grounded on said cargo body, an adapter for the marker light being mounted on the upper quarter panel, an electrical cable within the groove in the quarter panel connected with the source of power, an electrical lead connected between the marker light and the adapter, said adapter comprising a receptacle including an opening receiving the marker light lead and an adapter screw in the receptacle connected with the marker light lead, a bushing guide within the receptacle and said screw extending through said bushing guide and piercing in electrical connection with said electrical cable, and a retainer extending over the receptacle and clamping the receptacle against the bushing guide for holding the bushing and the screw against the cable for good electrical contact.

2. The invention according to claim 1, and said receptacle being provided with a inner upper ring and a lower outer ring connecting with said inner ring to provide for a stepped bottom panel engaging mounting rim, said stepped rim internally defining a bushing guide receiving bore having a shoulder.
said bushing guide being within said bore and having shoulder surfaces complementally engaging the shoulder of the rim,
said receptacle outer ring having outwardly extending lug means having grooved bottom surface means for complemental engagement with the cable and for retaining said bushing guide within the receptacle,
said bushing guide having bottom curved surfaces engageable with said cable in cooperation with the curved surfaces of said lugs, and
said retainer including a ring portion to define a stepped retainer design being complementally engageable over and with the stepped bottom rim, and
fastening means coupling the retainer against the receptacle rim for pressing of the receptacle lugs and the bushing guide against the cable.
3. The invention according to claim 1, and said receptacle having an under mounting surface being provided with inner and outer annular ribbed structures to present engaging inner and outer ridges with the surfaces of the panel to provide for water-tight sealing relation between the receptacle and the panel.
4. The invention according to claim 3, and said inner and outer annular ridges defining an annular drain passage therebetween and said receptacle bottom having a lower under cutout area communicating with said drain passage and the exterior of the receptacle for removal of moisture from the interior of the receptacle.
5. The invention according to claim 1, and said receptacle having a top with a self-sealing slit therein through which a screwdriver may be passed for engagement with the piercing screw for turning same within the threaded bushing guide.
6. The invention according to claim 1, and said receptacle being provided with a rim, said rim having cable engaging lugs and a bushing guide receiving bore, said bushing guide being within the bore and having a cable engaging lug, said rim lugs and said guide lug having surfaces embracingly engaged with said guide, said retainer being disposed over the rim, and fastening means coupling the retainer against the rim for pressing the rim against the bushing guide.
7. The invention according to claim 1, and said receptacle being provided with a rim having a guide bore, said guide being within the bore, said rim and said guide having surfaces engageable with the cable, said retainer being disposed over the rim, and fastening means coupling the retainer against the rim and pressing the rim against the bushing guide.
8. In a grooved quarter panel of a vehicle, an adapter for a marker light electrically grounded on the panel, comprising:
a receptacle having a lead receiving opening, a bushing guide housed in the receptacle and having a curved portion extending out of the receptacle and adapted to extend about a powdered electrical cable in a cable groove in the panel, a marker light connecting electrical lead extending in the opening,
within the guide and extending therefrom for cable piercing, and
said receptacle having a bottom ring flange with
mounting and sealing undersurfaces for engagement with the panel,
a rigid receptacle retainer mounted on the receptacle
and adapted to be attached to the panel wedging
the receptacle between the retainer and the guide
on the panel and placing the mounting and sealing
surfaces of the receptacle bottom ring flange against the panel in water-tight relation.

15. The invention according to claim 14, and
said sealing and mounting surfaces being defined by
a pair of inner and outer raised circular concentric
portions, each raised portion being defined by a
plurality of ridges between a groove,
the concentric raised surfaces defining between them
an annular drainage passage communicating with the
interior of the receptacle, and
an undercut communicating at the lower part of the
receptacle on the bottom thereof communicating
the drainage passage with the exterior of the recep-
tacle for draining of moisture and the like there-
from.

16. The invention according to claim 14, and
said receptacle having a top with a self-sealing slit
therein through which a screwdriver may be passed
for engagement with the piercing element for turn-
ing same within the guide.

17. The invention according to claim 14, and
said receptacle being provided with a rim,
said rim having cable engaging lugs and a bushing
guide receiving bore,
a bushing guide being within the bore and having a
cable engaging lug,
said rim lugs and said guide lug having surfaces em-
braceably engageable with said cable,
said retainer being disposed over the rim, and
fastening means coupling the retainer against the rim
for pressing the rim against the bushing guide.

18. The invention according to claim 14, and
said receptacle being provided with a rim having a
guide bore,
a bushing guide within said bore,
said rim and said bushing guide having surfaces en-
gageable with the cable,
said retainer being disposed over the rim, and
fastening means coupling the retainer against the rim
and pressing the rim against the guide.

19. The invention according to claim 14, and
said sealing and mounting surfaces being defined by
a pair of inner and outer raised annular concentric
grooved portions defining a drainage area therebe-
etween.

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