March 31, 1964 W. L. MAPPES 3,127,117

STOP AND REAR LAMP ASSEMBLY

Filed Feb. 5, 1962 2 Sheets-Sheet 1

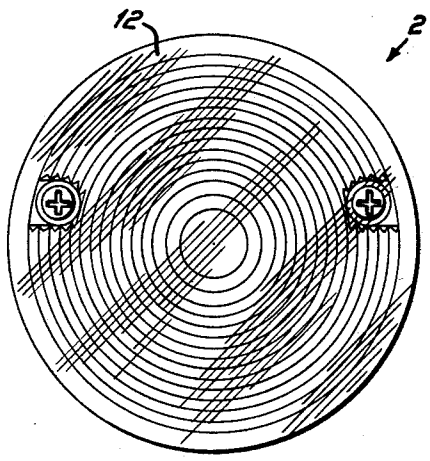


Fig. 1

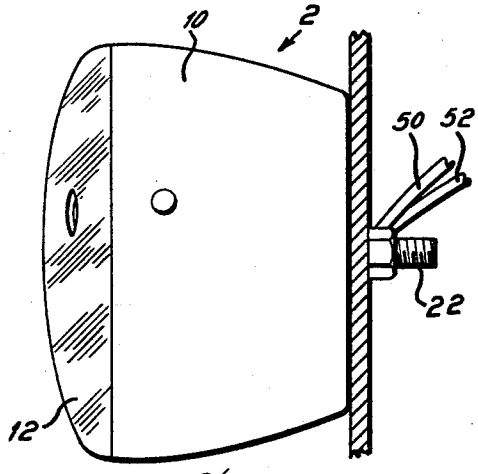


Fig. 2

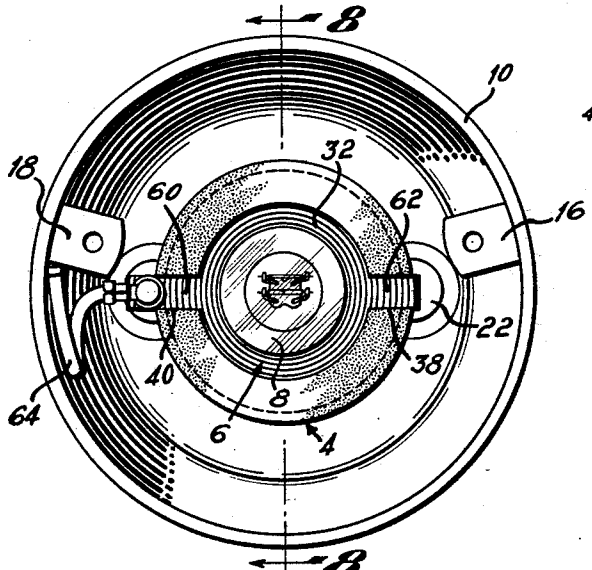


Fig. 3

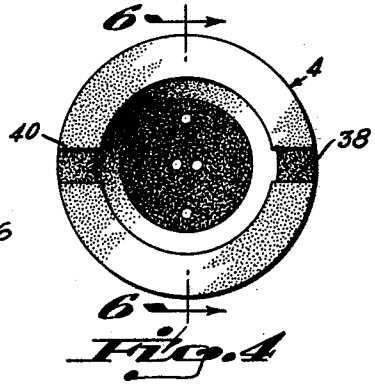


Fig. 4

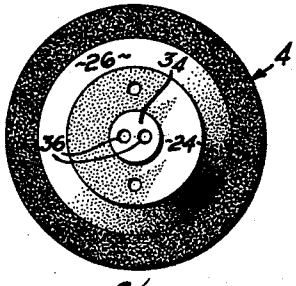


Fig. 5

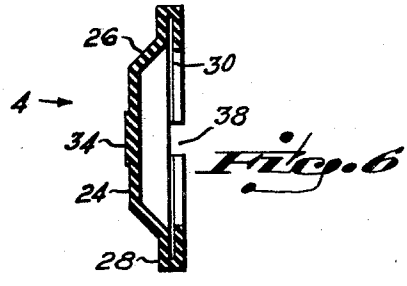


Fig. 6

INVENTOR.
William L. Mappes
BY
Word, Herron & Evans
ATTORNEYS.

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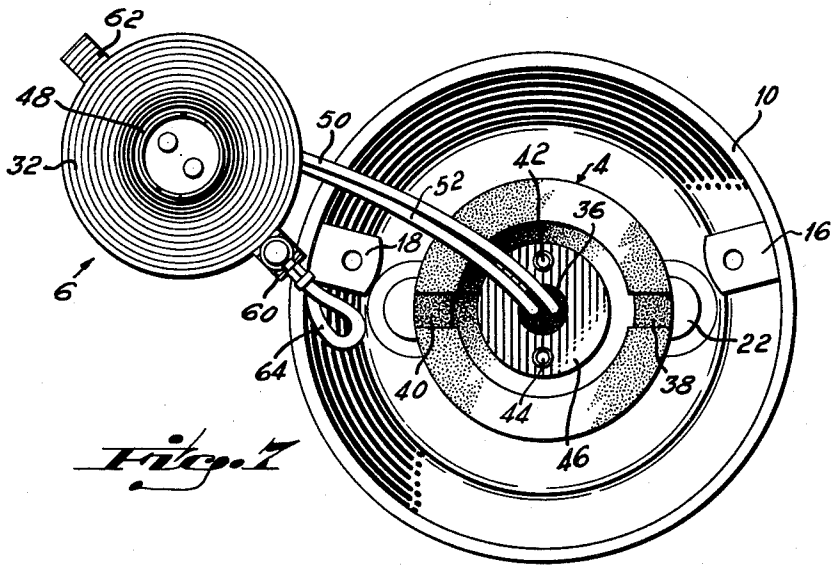


Fig. 7

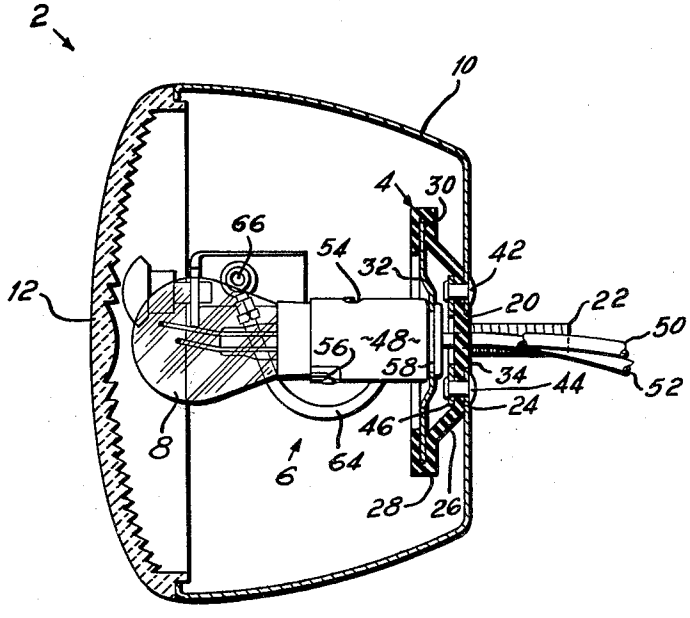


Fig. 8

INVENTOR.
William L. Mappes.
BY
Wood, Herron & Evans.
ATTORNEYS.

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STOP AND REAR LAMP ASSEMBLY

William L. Mappes, Cincinnati, Ohio, assignor to Duplan Corporation, Winston-Salem, N.C., a corporation of Delaware

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3 Claims. (Cl. 240—8.3)

This invention relates to vehicle lights and is particularly directed to a stop and rear lamp assembly including resilient shock absorbing means for mounting the lamp bulb within the housing. The invention is particularly applicable to stop and rear lights for trucks, tractors, busses, trailers and other commercial vehicles.

While in recent years many characteristics of vehicle lamps such as their ability to project optimum light patterns have been improved, little has been done to correct the problem of premature bulb failure due to vibrations. The excessive maintenance costs which result from these bulb failures has made it highly desirable to reduce bulb failures as much as possible. Accordingly, one object of this invention is to provide a stop and rear lamp assembly in which the light bulb is resiliently mounted upon a shock absorber inserted between the light bulb and the housing of the lamp assembly.

Another objective of this invention has been to provide a tail and stop light assembly which insures that the light bulb filaments are always properly located relative to the lens of the lamp assembly.

More specifically, the lamp bulb of a vehicle stop light includes two parallel filaments. One filament is the normal light filament and the second filament is a so-called "braking" filament which is illuminated when the vehicle's brakes are applied. The lenses with which these bulbs are used are carefully designed to provide certain desired light patterns. However, in order to secure these patterns the light bulb must be accurately located relative to the lens. For example, with one type of lens it is necessary that the light bulb be mounted with its filaments in a horizontal plane. The "braking" filament is disposed in alignment with the horizontal diameter of the lens, while the primary light filament is disposed above this horizontal diameter.

Since conventional tail lights are fitted into bayonet sockets, the position of the bayonet socket is effective to control the position of the lamp bulb. Accordingly, it is one object of the present invention to provide means for mounting and locating a bayonet lamp socket within the lamp housing so that it is impossible for even the most unskilled workman to mount the socket in any position other than the correct position.

More particularly one preferred embodiment of a stop and rear light assembly embodying the present invention includes a housing in the form of a cup-shaped member with a lens cover mounted over the top open face of the base. The rear of the housing member has a central lead in wire aperture therein. A dish-shaped resilient mounting includes a circular base attached to the inside of the housing with a cylindrical protruding portion extending into the housing aperture. The socket unit of the lamp assembly is carried in slots formed in the periphery of the free standing wall of the resilient mounting member. The two positive lead wires from the brake switch and from the tail light switch extend through openings in the protruding portion of the shock absorber which acts as a seal and as a grommet to prevent excessive wear of the lead-in wires against the metal surface of the base of the housing. The socket unit has a locating ear on each side thereof. These ears are received within cooperating horizontally aligned slots in the resilient mount and serve to properly locate the bayonet socket within the lamp

housing in such a manner that the bulb filaments will always be in a horizontal plane.

In accordance with the present invention the ground wire is utilized to insure that the socket cannot be inserted "upside down" during assembly of the lamp. Specifically, the ground wire is connected to a selected one of the locating ears. The other end of the ground wire is secured to a terminal fixed on the housing. The ground wire is of such a length that the light unit can be mounted within the housing in only one position, i.e. with the socket "right side up" so that the light filaments are properly located with respect to the lens of the lamp.

An advantage of this construction is that the resilient mount, which is constructed of a rubber or elastomeric material, not only serves as a shock absorber for the light bulb but in addition, functions as a seal around the lead-in wires and as a grommet to prevent excessive wear of the lead-in wires around the edge of the housing.

Another advantage of this construction is that the light unit which includes the light bulb, is mounted on top of a resilient shock absorber in such a manner that the light bulb is free to oscillate to a limited extent on the shock absorber and thus dissipate vibration, shock, concussion or jolting movement of the housing to the bulb so that the light bulb will have a substantially increased life.

A still further advantage of the present invention is that the shock adsorber provides means for orienting the bulb with its filaments in a horizontal position. Also, in combination the shock absorber and ground wire provide means for insuring that the "braking" filament and primary lamp filament are disposed in the correct vertical relationship.

Yet another advantage of the present invention is that the shock absorber can be economically produced and the lamp readily assembled even by relatively unskilled personnel.

These and other objects and advantages of the invention will be apparent to those skilled in the art from the following detailed description of the drawings illustrating a preferred embodiment of the invention.

In the drawings:

FIGURE 1 is a front elevational view of the lamp assembly,

FIGURE 2 is a side elevational view of the lamp assembly,

FIGURE 3 is a front elevational view of the lamp assembly with the lens cover removed,

FIGURE 4 is a front elevational view of the shock mount,

FIGURE 5 is a bottom plan view of the shock mount,

FIGURE 6 is a cross-sectional view of the shock mount taken along the line 6—6 of FIGURE 4,

FIGURE 7 is a front elevational view of the lamp assembly with the lens cover removed and the light bulb mounting bracket withdrawn from the shock mount,

FIGURE 8 is a cross-sectional view taken along the line 8—8 of FIGURE 3.

The lamp assembly of this invention comprises three basic components; a lamp housing 2, a resilient mounting member, or shock absorber 4, and a light unit 6 which includes a bayonet type socket and a lamp bulb 8 having a conventional rear light filament and stop or brake light filament.

The lamp housing assembly comprises a cup-shaped member 10 and a Lucite plastic lens 12 which covers the entire open face of the housing. The lens is connected to the housing by two screws which pass through apertures in the lens and are threaded into apertures in two mounting brackets 16, 18 fixedly connected to the side walls of the housing. A central aperture 20 extends through the rear portion of the housing member to provide an

opening for the lead-in wires from a brake light switch and a rear light switch (not shown).

The rear portion of the housing member **10** has two bolts **22** extending therethrough by means of which it is adapted to be connected to a vehicle body in a conventional manner.

The light unit assembly **6** of this invention is mounted upon a rubber or elastomeric shock absorber **4** which permits the light unit to oscillate or rock upon its mounting so as to lessen the effect of vibration or shock upon the light bulb and thus to lengthen the life of the light bulb. The resilient shock absorber is dish-shaped and has a flat circular base portion **24**, an upwardly and outwardly tapered side wall portion **26** and a radially outwardly extending top flange portion **28**. The top flange portion **28** of the resilient mounting is of approximately twice the thickness of the other portions and has a radially extending mounting groove **30** around the inner surface within which is mounted a circular sheet metal light unit mounting plate **32**.

The flat bottom portion **24** of the resilient shock absorber has a central cylindrical protrusion **34** thereon which fits within the aperture **20** in the rear of the housing. The protruding section **34** has two small holes **36** therein through which pass the two lead-in wires to the light bulb. In this manner the resilient shock absorber serves the additional purpose of acting as a seal around the lead-in wires to the light unit and acts as a grommet between the wires and the base of the housing to prevent excessive wear of the wires.

The top flange portion **28** of the shock absorber has two slots **38, 40** therein at diametrically opposite locations on the top portion. These slots extend into the top portion for approximately half the thickness of this portion so as to connect with the circular radially extending slot **30**. The slots **38** and **40** serve to permit the flap formed by the slot **30** in the upper portion **28** to be easily folded outwardly so as to permit the plate **32** to be fitted within the slot **30**. Additionally, these slots **38, 40** serve as locating slots for the circular plate **32** as will be more fully explained hereinafter.

The resilient shock mount is connected to the inside rear surface of the housing by means of two rivets **42, 44** and an annular washer **46**. The rivets **42, 44** pass through aligned apertures in the housing, the bottom portion **24** of the shock mount and the annular washer so as to sandwich the resilient shock mount between the washer and housing and securely hold it thereon.

The light bulb mounting socket **48** is a conventional bayonet type lamp socket which has the conventional two terminals therein, respectively connected to a brake light switch and a rear light switch by leads **50, 52**. Socket **48** also has long and short J shaped bayonet slots **54, 56** therein which receive lugs on the light bulb and hold the light bulb in the sleeve. The locating lugs on the light bulb are on diametrically opposite sides of the bulb and are axially offset from one another to the extent of the difference in the depth of the bayonet slots. With this construction, which is conventional in tail and stop light asemblies, the light bulb can only be mounted within the socket **48** in one position and it is impossible to reverse the bulb 180° within the socket.

Referring to FIGURE 8, it will be seen that the socket **48** has an annular groove **58** in the periphery thereof near the bottom. Mounting plate **32** fits within groove **58** and the overturned bottom portion of the socket tightly clamps the socket to the mounting plate.

Mounting plate **32** has two diametrically opposed ears extending outwardly from its periphery which serve to locate the mounting plate within the resilient shock mount. When mounting plate **32** is fitted within annular groove **30** the resilient shock absorber, locating ears **60—62** fit within the radial slots **38—40** with the ends of the ears extending beyond the peripheral limit of the resilient shock absorber. Thus it will be seen that the ears on the mounting plate and slots **38—40** serve to locate and hold the mounting plate and hence socket **48** in a predetermined position in the shock absorber and prevent it from rotating therein. The socket is originally oriented relative to plate **32** so that when the plate is mounted in slots **38—40**, the socket supports bulb **8** with its filaments in a horizontal plane.

Referring to FIGURES 3, 7 and 8, it will be seen that the ear **60** of the mounting plate has one terminal of a ground wire **64** connected thereto with the opposite terminal of the ground wire connected to the side wall of the housing **10** adjacent slot **40** by means of a rivet **66** or other securing means. The ground wire is of sufficient length to permit ear **60** to be inserted in slot **40**. However, the ground wire is so short as to prevent the plate **32** from being assembled with ear **60** in the opposite slot **38**. Thus it is impossible to insert mounting plate **32** and socket **48** in shock absorber **4** in such a position that the socket would be 180° out of its correct position, and the breaking filament would be above the primary filament.

It will be understood that the above detailed description is made by way of illustration and not limitation, it being contemplated that any modification in the details of the invention may be made without departing from the scope of the appended claims.

I claim:

1. A stop and rear lamp assembly comprising a housing, a lens mounted on said housing, an elastomeric shock absorber having a base portion and an upstanding side wall portion, said base portion being mounted upon said housing, said upstanding side wall portion having a socket unit mounting groove on the inner surface thereof, and a socket unit including a light bulb mounted on said shock absorber with a section of said socket unit extending into said groove whereby said socket unit is free for limited movement on said shock absorber, said shock absorber having a recess in the top surface thereof communicating with said groove and said light unit having a protrusion thereon seated within said recess to locate and hold the socket unit into a selected angular position within said housing.

2. A lamp stop and rear assembly comprising a housing, a lens mounted on said housing, an elastomeric shock absorber having a base portion and an upstanding side wall portion, said base portion being mounted upon said housing, said upstanding side wall portion of said shock absorber having a groove on the inner surface thereof, and a socket unit mounted on said shock absorber with a section of said socket unit extending into said groove whereby said socket unit is free for limited movement on said shock absorber, said shock absorber having two recesses in the top surface thereof at opposite locations in said side wall communicating with said groove, and said light unit having two protrusions seated within said recesses to locate and hold the light unit in a selected angular position within said housing.

3. A lamp stop and rear assembly comprising a housing, a lens mounted on said housing, an elastomeric shock absorber having a base portion and an upstanding side wall portion, said base portion being mounted upon said housing, said upstanding side wall portion of said shock absorber having a groove on the inner surface thereof, and a socket unit mounted on said shock absorber with a section of said socket unit extending into said groove whereby said socket unit is free for limited movement on said shock absorber, said shock absorber having two recesses in the top surface thereof at opposite locations in said side wall communicating with said groove, and said light unit having two protrusions seated within said recesses to locate and hold the light unit in a selected angular position within said housing, a ground wire extending between one of said protrusions and said housing so as to electrically connect said protrusion to said housing, the length of the ground wire being suffi-

cient to allow said protrusions to be inserted in one of said grooves, but being of insufficient length to permit said protrusion to be inserted in the other of said recesses.

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