July 11, 1961 C. MOTTER 2,992,322

VEHICLE LIGHT

Filed Jan. 16, 1958

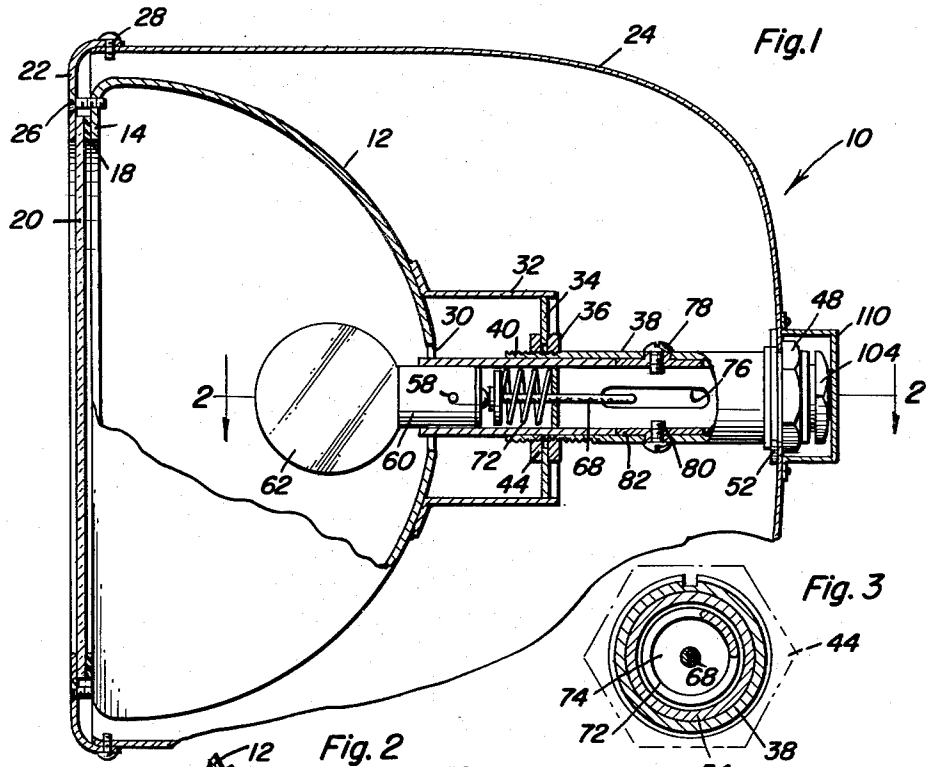


Fig. 1

Fig. 3

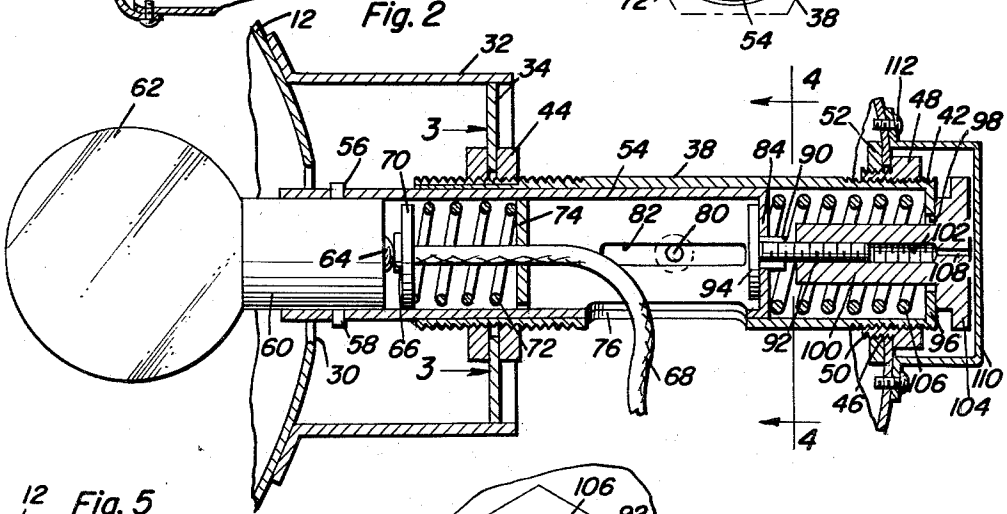


Fig. 2

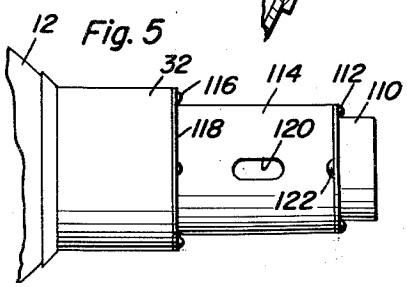


Fig. 5

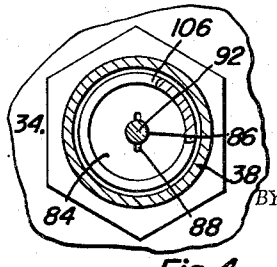


Fig. 4

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VEHICLE LIGHT

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1 Claim. (Cl. 240—44.2)

The present invention generally relates to a vehicle light and more particularly to a light in which a reflector is provided in association with a light bulb for projecting a beam of light forwardly of the vehicle.

The primary object of the present invention is to provide a vehicle light in which is incorporated structural means for varying the relationship of the light and the reflector by moving the bulb inwardly and outwardly in relation to the reflective surface of the reflector.

A further object of the present invention is to provide a vehicle light in accordance with the preceding object in which the means for adjusting the position of the bulb is readily accessible and provided with means for retaining the bulb in adjusted position.

Yet another object of the present invention is to provide a vehicle light which is extremely simple in construction, easy to adjust, well adapted for its intended purposes and relatively inexpensive to manufacture.

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 sectional view of the vehicle light of the present invention with portions thereof being shown in elevation for illustrating the relationship of the elements of the invention;

FIGURE 2 is a longitudinal sectional view taken substantially upon a plane passing along section line 2—2 of FIGURE 1 illustrating further details of the bulb adjusting and supporting mechanism;

FIGURE 3 is a detailed sectional view taken substantially upon a plane passing along section line 3—3 of FIGURE 2;

FIGURE 4 is a transverse, sectional view taken substantially upon a plane passing along section line 4—4 of FIGURE 2; and

FIGURE 5 is a fragmentary elevation of a construction used when no casing is employed.

Referring now specifically to the drawings, the numeral 10 generally designates the vehicle light of the present invention. The vehicle light includes a reflector 12 which may be of the parabolic type and provided with a reflective surface on the inner surface thereof. The reflector 12 is provided with an inturned peripheral flange 14, a sealing gasket 18 against the outer surface of the flange 14 and a lens 20 engaging the outer surface of the seal 18. A retaining ring 22 engages the outer surface of the lens 20 and the ring 22 is detachably secured to a casing or housing 24 which encloses the reflector 12 and other mechanisms described hereinafter.

Suitable fastening means 26 is provided for retaining the reflector, seal, lens and ring 22 in position and fastening means 28 is provided for retaining the flange and the other elements attached thereto in proper relationship to the casing 24.

The reflector 12 is provided with a centrally disposed opening 30 therein and secured to the rear or inner surface of the reflector 12 is a shade box 32 which may be spot welded or otherwise secured to the rear surface of the reflector 12. The shade box may be of any shape construction but is preferably cylindrical and provided with a wall 34 at the rear thereof with the wall 34 having an

aperture 36 therein. Extending through the aperture 36 is an outer sleeve or tubular member 38 that is provided with a screw threaded inner end portion 40 and a screw threaded outer end portion 42. Threaded on the screw threaded portion 40 is a pair of nuts 44 which engage opposite surfaces of the wall 34 for locking the outer sleeve 38 in longitudinally adjusted position in relation to the wall 34, the shade box 32 and the reflector 12. The casing 24 is provided with an aperture 46 which receives the rear threaded end 42 of the outer sleeve 48. A bushing type nut 48 is inserted in engagement with the threaded portion 42 and includes an internally and externally threaded portion 50 extending through the aperture 46 and receiving a clamp nut 52 in engagement with the inner surface of the casing 24 in surrounding relation to the periphery of the opening 46, thus rigidly mounting the outer sleeve 38 in longitudinally adjusted position.

Longitudinally slidably disposed in the outer sleeve 38 is an inner sleeve or tubular member 54. The inner end of the inner sleeve 54 projects through the opening 30 in the reflector 12 and is provided with a bayonet slot construction 56 for receiving diametrically opposed projecting lugs 58 on the base 60 of the light bulb 62, thus detachably mounting the base of the light bulb in the inner sleeve 54. The base of the light bulb 60 is provided with the usual central contact member 64 which is engaged with a contact member 66 connected to an electrical conductor 68. The electrical conductor 68 extends through and is carried by a movable plate 70 which engages one end of a compression coil spring 72 which has the other end thereof in abutting engagement to a stationary plate 74 in the inner tubular member 54 and which may be secured thereto as by welding or the like whereby the spring 72 will urge the contact 66 into engagement with the contact 64 for energizing the light bulb 62 when the electrical conductor 68 is connected to a source of electrical energy and the circuit is completed by a suitable switch and through the usual ground back to the vehicle body. Rearwardly of the wall 74, the inner sleeve 54 and the outer sleeve 38 both are provided with an elongated slot designated by the numeral 76 which permits passage of the electrical conductor 68 outwardly of the sleeves for attachment to a source of electrical energy. In order to retain the slot 76 in alignment and in order to prevent relative rotation between sleeves 38 and 54, a pair of diametrically opposed screws 78 are threaded into the outer sleeve 38 and are provided with reduced inner end portions 80 which are slidably received within slots 82 in the inner sleeve 54 thus guiding the sliding movement of the inner sleeve 54 and limiting the sliding movement of the inner sleeve 54 thus assuring that no shearing action will occur on the conductor 68.

The rear end of the inner sleeve 54 is provided with a wall 84 having a central aperture 86 therein with the aperture having diametrically opposed notches or slots 88 therein for receiving diametrically opposed projections 90 formed integral with an elongated externally threaded adjustment bolt 92 that is provided with a head 94 engaged against the inner surface of the wall 84 and extending through the aperture 86.

The end of the outer sleeve 38 is provided with a wall 96 having a central aperture 98 therein receiving an elongated cylindrical member 100 which is in the form of a nut and provided with an internally threaded socket 102 screw threadedly engaged with the bolt 92. The elongated cylindrical member 100 is provided with an enlarged headed end 104 in engagement with the outer surface of the wall 96. A coil compression spring 106 is disposed between the inner surface of the wall 96 and the outer surface of the wall 84 thus urging the inner sleeve 54 inwardly in relation to the outer sleeve 38. By rota-

tion of the nut or knob **104**, the inner sleeve **54** may be moved longitudinally in relation to the outer sleeve **38** thus moving the bulb **62** in relation to the reflector **12** thus varying the characteristics of the light beam provided by the reflector **12** by varying the relationship between the bulb **62** and the focal point of the reflector **12**. The knob **104** is provided with a passage **108** which may be employed for receiving oil for lubricating the threaded connection between the bolt **92** and cylindrical member **100**.

A protective cap **110** is provided in overlying and enclosing relation to the adjustment knob **104** and the cap **110** is secured to the casing **24** by suitable screw threaded fasteners **112** thus protecting the cap and preventing adjustment thereof except by authorized persons skilled in this type of adjustment. In FIGURE 5 there is illustrated a cover cup **114** which is attached to wall **34** by fasteners **116** extending through flange **118** thereby holding the flange **118** against the end of the shade box **32**. This construction is employed when the casing **24** is omitted such as when the device is used as a floodlight. The cup **114** is provided with a slot **120** for receiving wire **68** and a hole **122** on top and on bottom for receiving a supporting pipe. In this construction the fasteners **112** secure the cap **110** directly to an inturned flange on the end of the cup **114**. Lock washers may be provided where deemed desirable in connection with the clamp nuts **44** or **52** for securely retaining these elements in position and by adjusting the bulb in relation to the reflector, the light may project a dark spot on the wall and it provides a no-glare light and provides a highly novel light which may be effectively employed during foggy nights.

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:

A vehicle light comprising a reflector having a concave reflector surface and a central opening, said reflector having an inturned flange at the forward edge thereof, a transparent panel engaged with the flange in sealed relation, a hollow box mounted on the rear surface of said reflector, said box including a peripheral wall enclosing the opening in the reflector, an annular flange extending inwardly from the end of the box remote from the reflector and defining an opening in alignment with the opening in the reflector, an outer sleeve extending through the annular flange on the box, means adjustably interconnecting the outer sleeve and said flange whereby the outer sleeve will be aligned with the opening in the reflector, one end of said outer sleeve terminating within said hollow box and the other end extending remotely therefrom, an inner sleeve slidably received in the outer sleeve and having an external diameter substantially equal to the internal diameter of the outer sleeve, said inner sleeve having one end portion disposed within the opening in the reflector, the other end portion of the inner sleeve terminating within the outer sleeve intermediate the annular flange and said other end of the outer sleeve, a light bulb detachably mounted on the end portion of the inner sleeve disposed within the opening in the reflector, a casing enclosing the rear of the reflector and said box, the forward edge of said casing having a flange connected thereto, said flange engaging the outer surface of the transparent panel and being attached to the inwardly extending flange on the reflector thereby mounting the reflector in the casing, said other end of said outer sleeve extending through the casing, means adjustably interconnecting the casing and said other end of the outer sleeve, said inner sleeve having a longitudinal slot therein, said outer sleeve having an inwardly extending pin slidably received in the slot for enabling longitudinal sliding movement of the inner sleeve in relation to the outer sleeve but preventing relative rotational movement between the sleeves, the other end of said outer sleeve terminating in an inwardly extending annular flange, the end of the inner sleeve remote from the end received within the reflector opening being provided with an inwardly extending annular flange, a coil spring disposed between the flange on the inner sleeve and the flange on the outer sleeve for urging the inner sleeve longitudinally of the outer sleeve, a threaded stud rigidly connected with the flange on the inner sleeve and extending longitudinally towards the flange on the outer sleeve, an internally threaded hollow member extending through the flange on the outer sleeve and including an enlarged outer end disposed exteriorly of the flange on the outer sleeve for compressing the spring and pulling the inner sleeve away from the reflector or allowing the spring to move the inner sleeve towards the reflector thus varying the position of the light bulb in relation to the focal center of the reflector, said enlarged end on the internally threaded member being in the form of a knob for adjusting the position of the light bulb, a cap enclosing said knob and connected with the casing peripherally of the knob to prevent unauthorized adjustment of the knob and the light bulb.

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