

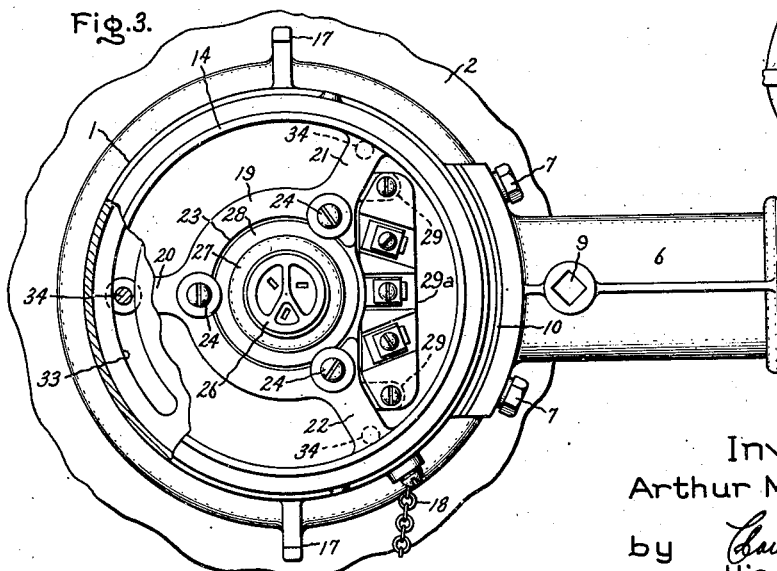
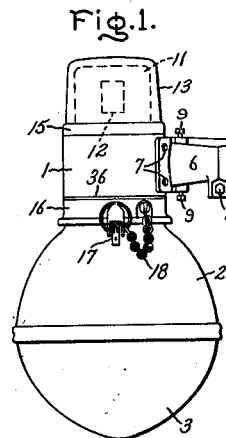
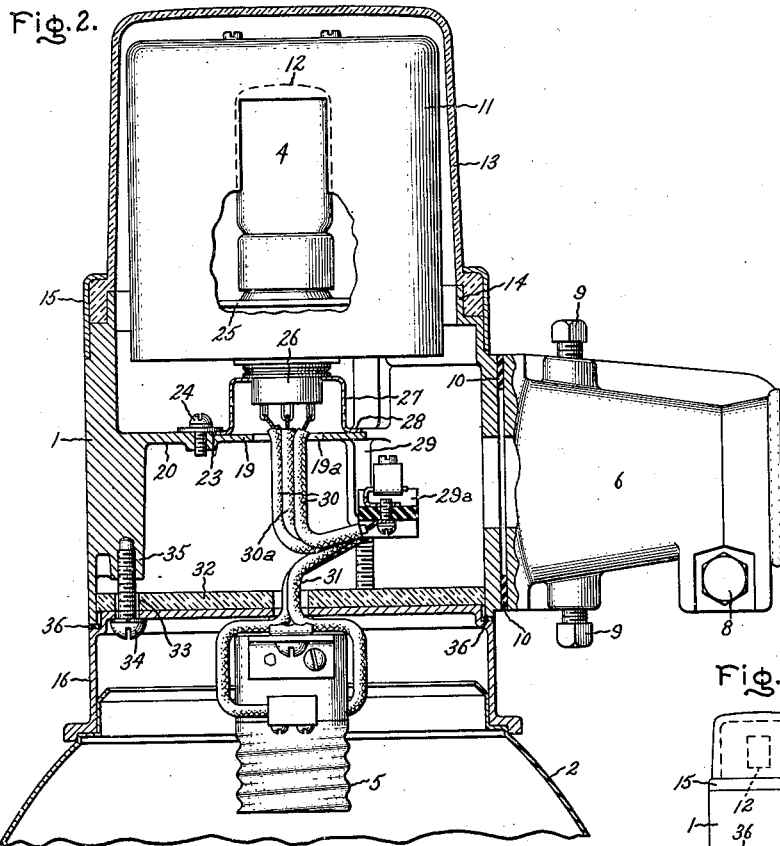
Nov. 22, 1949

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2,489,076

PHOTOELECTRIC CONTROLLED LUMINAIRE

Filed Nov. 12, 1948



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UNITED STATES PATENT OFFICE

2,489,076

PHOTOELECTRIC CONTROLLED LUMINAIRE

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Application November 12, 1948, Serial No. 59,555

6 Claims. (Cl. 250-239)

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My invention relates to lighting units, and more particularly to a new and improved street or roadway luminaire including a light sensitive control unit.

The invention has for a principal object thereof the provision of new and improved adjustable mounting means for a luminaire combining in integral fashion a lighting unit and a control unit therefor.

For a better understanding of my invention, together with other and further objects thereof, reference is had to the following description taken in connection with the accompanying drawing, and the scope of my invention will be pointed out in the appended claims.

In the accompanying drawing, Fig. 1 is a side view of a complete luminaire embodying my invention; Fig. 2 is a cross sectional view of a portion of the luminaire; and Fig. 3 is an elevational view of the luminaire. Identical identifying numerals have been given to like parts in each figure.

Referring to the accompanying drawing, Figs. 1 and 2 illustrate a luminaire comprising a base member 1 shown as a vertical disposed tubular hood, supporting from its lower side a lighting unit including a reflector 2 and a globe 3, and having mounted upon the upper side thereof a control unit including a light sensitive cell 4. The lighting unit includes a suitable lamp source, such as an incandescent lamp (not shown), mounted in socket 5 which, in turn, is mounted upon base 1 and within the reflector 2.

The luminaire is attached to a suitable pipe support (not shown) by means of a suitable sleeve or slip-fitter 6 which is attached to base member 1 by bolts 7. Bolt 8 secures the attachment of the sleeve to the pipe support, and bolts 9 are provided to level the luminaire to correct for the rake of said support. A gasket 10 insures a weatherproof connection between sleeve 6 and the luminaire.

The control unit is encased in an opaque shield or casing 11 having a light transmitting aperture or window 12 which permits light from one direction to fall upon the light sensitive cell 4. Opaque casing 11, in turn, is enclosed in a transparent weather-resistant housing 13 which fits upon a circular ledge 14 on the upper side of base unit 1. A ring 15, suitably designed to slip over the transparent unit housing 13, holds said housing in place on the ledge 14 atop base unit 1.

The lighting unit is mounted on the lower side of base 1 by an adapter collar 16 which attaches

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to a flange (not shown) at the upper end of reflector 2. Collar 16 and the lighting unit are securely fastened together by latches 17 and chain 18. Chain 18 attaches on respective ends to collar 16 and to reflector 2 so that on disassembly and release of latches 17, said reflector and said globe can be conveniently suspended without falling. It is to be understood that collar 16 may be spun onto reflector 2, if other means of entry into globe 3 is provided as by a latch between globe 3 and reflector 2.

Referring in detail to Figs. 2 and 3, a shelf 19 supported by three arms 20, 21 and 22 and having a centrally located aperture 19a therein is approximately centrally located within the hood or base member 1. Shelf 19 is horizontally disposed and is approximately equidistant from each end of vertically disposed cylindrical hood 1. In addition, shelf 19 has a circular recess at the extension of said arms leaving an annular shoulder 23. Suitable bolts, or bolts and washers 24, are designed to bolt onto shelf 19 and to extend over the edge of shoulder 23 at the extension of each of said arms.

The control unit, including the light sensitive cell 4, is mounted on a sub-base member 25 shown as a platform or flat plate within the opaque case 11. Light sensitive cell 4, which may be a photoelectric tube, is positioned upon sub-base member 25 to receive any light passing through aperture 12 in opaque case 11, so that when a predetermined minimum amount of light from the direction the aperture is facing strikes said tube, the tube will activate relay control means (not shown) for energizing the lighting unit. If opaque case 11 is not provided, photoelectric cell 4 itself may be opaquely coated except for a light admitting aperture, so providing sensitivity to light from only one direction.

Platform 25 supporting the control unit is mounted upon a plug socket 26 through which electrical currents are supplied to and from said control unit. Plug socket 26, in turn, is mounted on, and extends through an inverted cup 27 which rests up on the top side of shelf 19, the edges of inverted cup 27 being turned out to form a circular flange 28. This circular flange fits within the recess on shelf 19 formed by annular shoulder 23. When bolts and washers 24 are tightened, they hold flange 28 and cup 27 supporting the control unit firmly in place. Alternatively, if bolts and washers 24 are loosened, cup 27, the aperture 12 and cell 4 may be adjustably rotated integrally so that the window 12 may be faced to the north direction, and therefore the

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natural light from that direction passing through window 12 will strike light sensitive cell 4 which energizes the relay means (not shown) to control the illumination of the incandescent lamp mounted in socket 5. An arrow (not shown) may be placed on the top of opaque case 11 pointing in the same direction as window 12 for ease in adjusting to the north direction.

Extending downward from shelf 19 and attached to the arms 21 and 22 thereof, is a bracket 29 which supports a terminal board 29a. Input wires (not shown) entering through sleeve 6 are attached to said terminal board for supplying energizing electrical current to the luminaire. Also attached to board 29a are wires 30 to plug socket 20 and the control unit, and wires 31 to the lamp socket 5.

Wires 30 are continuously energized and extend from terminal board 29a through the aperture 19a in shelf 19 to connect with plug socket 26 from which current is supplied to the control unit. However, wires 31 leading to the lighting unit are normally not carrying current until the relay (not shown) included as part of the control unit closes the lighting circuit when a predetermined minimum amount of light strikes light sensitive cell 4.

A third wire 30a may be brought in through sleeve 6 and attached to said relay as a load controlling lead, so that other luminaires can be controlled by the one light sensitive control unit, the number of luminaires which can be controlled by one control unit being limited only by the electrical rating of said relay.

Attached to the lower side of shelf 19 is the adjustable adapter collar 16 which supports the lighting unit including reflector or reflector holder 2, globe 3, and lamp socket 5. A heat baffle 32 is inserted between base unit 1 and adapter collar 16 to prevent the heat from the lamp source (not shown) from entering the base unit and increasing excessively the ambient temperature to which the control unit is exposed.

Reflector 2 is designed to cast asymmetrically disposed light beams along the portion of the highway where illumination is desired. In order to provide adjustment of the beams along the highway, collar 16 is provided with elongated arcuate slots 33 through which pass screws 34 which respectively bolt into a boss 35 extending beneath arm 20 of shelf 19 and into an extension of bracket 29 beneath each of arms 21 and 22. When tightened, screws 34 firmly hold collar 16 and the lighting unit to the lower side of tubular base 1.

Since arcuate slots 33 are provided in collar 16, if bolts 34 are loosened, adapter collar 16 and the entire lighting unit may be adjustably rotated with respect to base member 1, thus permitting movement of the asymmetrically directed light beams to illuminate the portion of the highway desired to be lighted. A gasket 36 insures a tight weather-proof fit between collar 16 and base unit 1.

In addition to focusing directional light beams upon the highway, reflector 2 also prevents the light beams from being directed towards light sensitive cell 4, thereby preventing this artificial light from having any appreciable effect upon cell 4.

In the preferred embodiment of my invention, as illustrated, in order to make adjustments of the control unit, ring 15 and transparent cover 13 are removed. After bolts and washers 24 are loosened, the control unit may be adjustably

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rotated upon the upper side of shelf 19 until window 12 faces north. In this manner light sensitive cell 4 which controls the control relay is sensitive to the intensity of natural light from the northern direction. Once window 12 is faced to the north, bolts and washers 24 are tightened to hold the control unit firmly in place and cover 13 and ring 15 are replaced.

To adjust the directional light beams along the highway as desired, latch 17 is opened allowing reflector 2 and globe 3 to be suspended below collar 16 on chain 18. Screws 34 attaching said collar and lighting unit to the lower side of base member 1 are loosened and arcuate slots 33 permit collar 16 to be adjustably rotated until reflector 2 disposes the light beams in the desired pattern. When correct adjustment has been made, screws 34 are tightened, and the lighting unit is again latched fixedly into place on collar 16 by latch 17.

While I have described and illustrated a particular embodiment of my invention, it will be understood that various omissions, substitutions and changes in the forms and details of the device illustrated and in its use and operation may be made by those skilled in the art without departing from the broad spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a luminaire, the combination in an integral unit of a vertically disposed tubular base member, a lighting unit adjustably mounted below said base member, a sub-base member adjustably mounted above said base member, and light sensitive control means for energizing said lighting unit mounted on said sub-base member.

2. In a luminaire, the combination in an integral unit of a vertically disposed tubular base member, a lighting unit adjustably mounted upon the lower side of said base member, a sub-base member adjustably mounted upon the upper side of said base member, and control means including a light sensitive device mounted upon said sub-base member for energizing said lighting unit when a predetermined minimum intensity of natural light from a predetermined direction strikes said device, said light sensitive device being shielded from all natural light except from the predetermined direction.

3. In a luminaire, the combination in an integral unit of a vertically disposed tubular base member, a lighting unit including a directional reflector adjustably mounted upon the lower side of said base member, a platform adjustably mounted upon the upper side of said base member, an opaque case mounted on said platform and having a transparent aperture, said platform being adjusted so that said aperture faces a predetermined direction, and control means including a light sensitive cell positioned within said case so as to receive the natural light from said predetermined direction passing through said aperture for energizing said lighting unit when a predetermined minimum intensity of said natural light strikes said cell.

4. In a luminaire, the combination in an integral unit of a vertically disposed tubular base member having a shelf horizontally located therein approximately equidistant from each end of said base member, a lighting unit mounted on the lower side of said base member, a sub-base member adjustably mounted upon the upper side of said shelf, and control means including

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a photoelectric cell mounted upon the upper side of said sub-base member and extending above said base member for energizing said lighting unit when a predetermined minimum intensity of natural light from a predetermined direction strikes said cell, said cell being shielded from all natural light except light from the predetermined direction.

5. In a luminaire, the combination in an integral unit of a vertically disposed tubular base member having a shelf horizontally located therein approximately equidistant from each end of said base member, a lighting unit adjustably mounted upon the lower side of said base member, a sub-base member adjustably mounted upon the upper side of said shelf, an opaque case mounted upon the upper side of said sub-base member and having a transparent aperture extending above said base member, said sub-base member being adjusted so that said aperture faces a predetermined direction, and control means including a light sensitive device so positioned within said case as to receive the natural light passing through said aperture for energizing said lighting unit when a predetermined mini-

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imum intensity of said natural light from said predetermined direction strikes said device.

6. In a luminaire, the combination in an integral unit of a vertically disposed cylindrical base member having a shelf horizontally located therein approximately equidistant from each end of said base member, an adapter collar adjustably mounted upon the lower side of said base member, a lighting unit including a directional reflector removably attached to said collar, a platform adjustably mounted upon the upper side of said shelf, an opaque case mounted on said platform and having a transparent aperture extending above said base member, said platform being adjusted so that said aperture faces a predetermined direction, and control means for energizing said lighting unit including a light sensitive cell enclosed by said case and responsive to a predetermined minimum quantity of natural light passing through said aperture from said predetermined direction.

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No references cited.