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J. S. FRANKLIN ET AL

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ADJUSTABLE LUMINAIRE LAMP SUPPORT

Filed Feb. 25, 1966

2 Sheets-Sheet 2

Fig. 3.

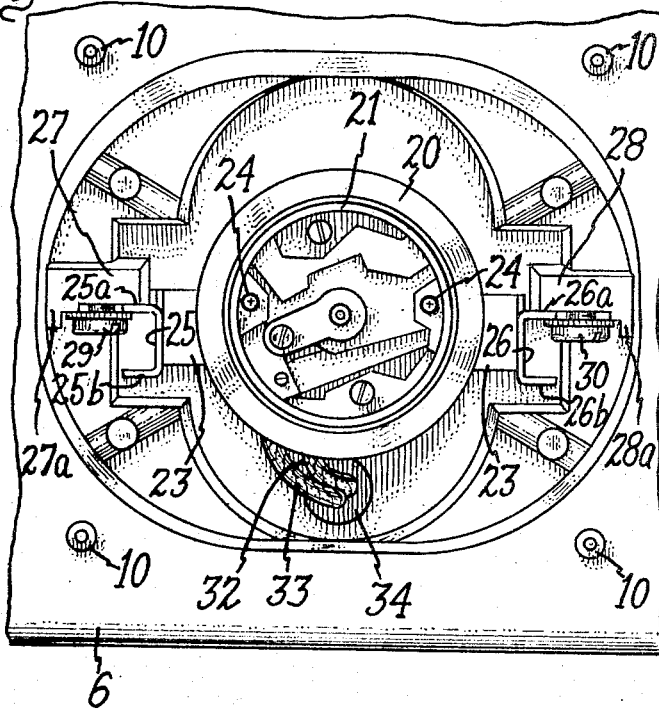


Fig. 3a.

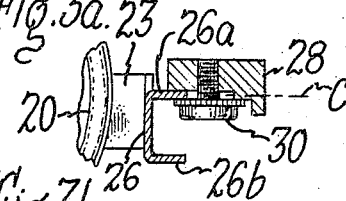


Fig. 3b.

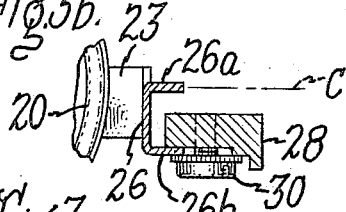


Fig. 3c.

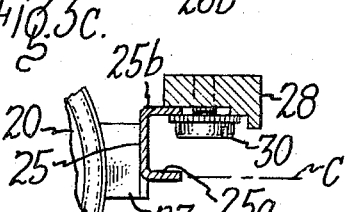


Fig. 3d.

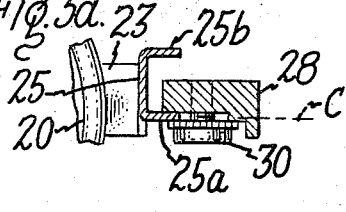
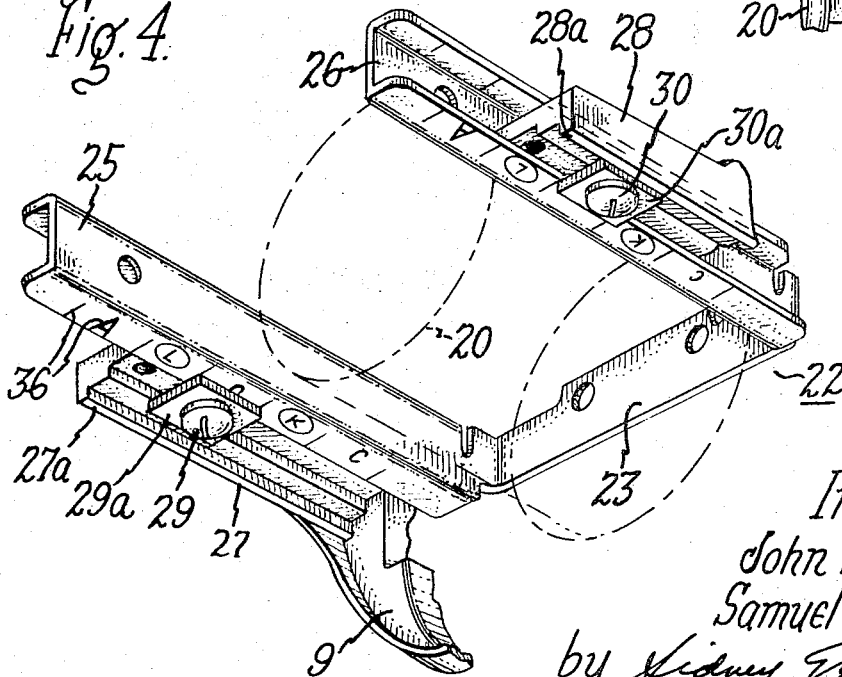


Fig. 4.



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**ADJUSTABLE LUMINAIRE LAMP SUPPORT**

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7 Claims. (Cl. 240-25)

**ABSTRACT OF THE DISCLOSURE**

Adjustable lamp support for luminaires for adjusting a lamp along two transverse axes relative to the luminaire reflector includes channel members fixed to the lamp socket which are slidable along parallel rail members fixed relative to the reflector, the channel members also being positionable on the rail members to different upper and lower positions for adjusting the lamp toward and away from the reflector.

The present invention relates to lighting fixtures and more particularly to lamp supports for street lighting luminaires.

It is an object of the invention to provide a luminaire lamp support which is adjustable to provide a variety of light distribution patterns emitted by the luminaire.

It is a particular object of the invention to provide an adjustable lamp support in a roadway lighting luminaire which enables the lamp to be readily adjusted relative to the luminaire reflector in a number of positions along a generally horizontal axis and along a generally vertical axis to provide light distribution extending at different transverse distances across the roadway and at different longitudinal distances along the roadway.

It is another object of the invention to provide an adjustable lamp support of the above type in a luminaire having an optical system which, in operating assembly, is sealed except for passage of purified air through an air-permeable filter.

Other objects and advantages will become apparent from the following description and the appended claims.

With the above objects in view, the present invention relates to a luminaire comprising a reflector, and adjustable lamp support means for supporting the lamp adjacent the reflector and moving the lamp along first and second axes transverse to each other for selectively positioning the lamp relative to the reflector, the lamp support means comprising first supporting means fixed relative to the reflector, lampholder means, second supporting means fixed to the lampholder means, the first and second supporting means being slidable relative to one another along the first axis and being attachable to one another in different positions along the second axis, and securing means for releasably attaching the first and second supporting means in selected positions relative to each other.

In a preferred embodiment of the invention, the reflector forms a closed optical system with a refractor, and the first supporting means is associated with a housing which opens into the reflector and in which the lampholder means is received, the housing having an air filter in the wall thereof, whereby air has access to the closed optical system only through the air purifying filter.

The invention will be better understood from the following description taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a side view, partly broken away, of a luminaire embodying the present invention;

FIGURE 2 is an enlarged side view, partly in sec-

tion, of the lampholder and adjustable support means constructed in accordance with the invention;

FIGURE 3 is a front view of the lampholder and adjustable support means as viewed from the left side of FIGURE 2;

FIGURES 3a, 3b, 3c and 3d are views in cross-section of a portion of the adjustable support means in various adjusted positions; and

FIGURE 4 is a perspective view of the underside of the adjustable support means.

Referring now to the drawings, and particularly to FIGURE 1, there is shown a street lighting luminaire comprising an upper housing 1 closed at its bottom by refractor retaining frame 2 holding transparent refractor 3, and by rear door 4. Frame 2 and rear door 4 are respectively hingedly connected at their rear ends to housing 1 by means not shown, so as to swing open when unlatched at their front ends. These hinge and latch means are shown in detail, for example, in co-pending application Ser. No. 530,214, filed in the name of P. R. Milroy on Feb. 25, 1966. However, it will be understood that the adjustable lampholder device of the invention may be embodied in luminaires or lighting fixtures having other forms of construction. The luminaire is mounted on a horizontal elongated support 5, such as a pipe, which enters an opening in the rear end of housing 1 and by means of which the luminaire is secured to a vertical pole or the like for positioning above a roadway. Secured within housing 1 is concave reflector 6 in which is located lamp 7, such as a mercury or sodium vapor lamp or other type of lamp, which is movable to various positions relative to reflector 6 by virtue of the adjustable lampholder 8 of the invention in which the lamp is mounted. As shown, reflector 6 and lamp 7 therein are tilted upwardly somewhat at an angle to the axis of pipe support 5. Lampholder 8 is received in cylindrical housing or enclosure 9 which opens into the interior of reflector 6, extends rearwardly from an opening in the rear wall of reflector 6, and is secured to the reflector by rivets 10 or the like. As more fully disclosed in the aforesaid co-pending application, reflector 6 and refractor 3 are sealed together in air-tight relation when frame 2 is in closed position, and lampholder housing 9 is air tightly sealed to the rear wall of reflector 6 by means of gasket 11 (see FIGURE 2). Air is thus permitted to enter the closed optical system only through an air-purifying filter 15 which is removably mounted in an aperture in the rear wall of lampholder housing 9.

Adjustable lampholder 8, in accordance with the invention, comprises a cylindrical insulating socket 20, made, for example, of porcelain or other suitable electrical insulating material, which is closed at its rear end and has secured therein a threaded metal insert 21 (see FIGURE 3) for receiving the threaded base of lamp 7. Secured to socket 20 is a U-shaped bracket 22 (see FIGURE 4) which is formed of a cross-piece 23, fastened to the rear of socket 20 by means of screws 24 or the like, and parallel arms 25, 26 in the form of channels which extend forwardly from cross-piece 23 along the sides of socket 20. Channels 25, 26 are slidably engageable with parallel rails 27, 28 which are formed integrally along the interior surfaces of housing 9 and project forwardly therefrom into the interior of reflector 6, and on which channels 25, 26 are adjustably held in selected position by screws 29, 30 and square washers 29a 30a (see FIGURE 4) which clamp the parts together. Lampholder socket 20 with lamp 7 mounted therein may thus be moved along rails 27, 28 to any desired position for adjustably positioning lamp 7 substantially along a generally horizontal axis relative to reflector 6 as indicated by the interrupted line in FIGURE 1. Such infinite adjust-

ability of the lamp along the longitudinal or principal axis of the luminaire enables a wide variation in the pattern of light distribution along that axis. Suitable index markings 36 (see FIGURE 4) are advantageously provided on the upper and lower surfaces of the channel flanges to indicate, with reference to the sides of square washers 29a 30a, the position to which socket 20 has been moved along rails 27, 28, and hence the particular light distribution pattern resulting therefrom. Bottom edge portions 27a, 28a of the respective rails serve to retain the proper orientation of washers 29a 30a by preventing their rotation during turning of screws 29, 30.

The described construction also provides for adjusting socket 20 with lamp 7 to different positions generally vertically relative to reflector 6 as indicated by the interrupted lines in FIGURE 2. As will be seen from FIGURES 3a-3d, the channel arms of bracket 23 may be inserted in different positions on rails 27, 28 with the effect of raising or lowering socket 20 (and hence lamp 7) to different vertical positions. In the particular arrangement shown in the drawings, one flange of each channel 25, 26 (shown as the uppermost flanges in FIGURES 2 and 3) is substantially aligned with the horizontal center line across socket 20. The position of socket 20 as shown in FIGURE 3 relative to rails 27, 28 corresponds to that of FIGURE 3a, in which flange 26a of channel 26 is shown substantially aligned with center line C across socket 20. FIGURE 3b shows the raised position of socket 20 which is obtained by inserting flange 26b of channel 26 between the washer-screw clamp 30 and the underside of rail 28, flange 25b of opposite channel 25 being, of course, placed in the corresponding position relative to rail 27. This provides for the maximum raised position of lamp 7.

FIGURE 3c shows the lowered position of socket 20 relative to rail 28 which is obtained by rotating socket 20 180° about its axis together with its attached bracket 22, and inserting flange 25b of channel 25 between washer-screw clamp 30 and the underside of rail 28 (with corresponding positioning of flange 26b relative to rail 27). This provides for the lowest position of lamp 7.

The remaining vertical position in which bracket 22 can be placed relative to the supporting rails 27, 28 is shown in FIGURE 3d, in which flange 25a is placed in slidable engagement with rail 28. It will be seen that since flange 25a is aligned with center line C of socket 20, the level of the axis of socket 20 (and hence the level of lamp 7) is substantially the same as that obtained with the arrangement shown in FIGURE 3a. Thus, lamp 7 is adjustable to only three vertical levels with the particular arrangement shown in the drawings. To obtain four vertical levels of adjustment, it is necessary only to provide for flanges 25a, 26a to be displaced somewhat from center line C of socket 20, in which case the vertical levels obtained for the bracket positions shown in FIGURES 3a and 3d will be different.

The sliding movement of socket 20 rearwardly into housing 9 is limited by stop member 31 projecting forwardly from the rear wall of housing 9. Conducting leads 32, 33 connected to socket 20 pass outwardly of housing 9 through resilient sealing grommet 34 which air-tightly engages the leads and the wall of housing 9.

The rear end of reflector 6 is supported within housing 1 by tab means 35, as more fully disclosed in the aforementioned co-pending application.

The effect of moving lamp 7 upwardly in the reflector 6 is to lower the vertical angles at which the light beams emanate from the luminaire. As will be understood, the higher the position of the lamp within the reflector, the narrower the light beam which is projected downwardly below the reflector. Such higher lamp positions would be employed, for example, to increase the lighting level or to decrease glare from the light at high vertical angles below the cut-off angles of automobile windshields. On

the other hand, by moving the lamp downward in the reflector, the vertical angles of light emanating therefrom are increased, and such adjustment would be employed, for example, where it is desirable or necessary to space the luminaires or their supporting poles wider apart.

Adjustment of lamp 7 along the principal axis of the luminaire as previously described permits the beams of light emanating transversely of the luminaire (i.e., along the roadway) to be expanded or narrowed transversely to the roadway. In this way, the luminaire is adapted to provide adequate light distribution for different roadway widths as are encountered in service.

While the present invention has been described with reference to particular embodiments thereof, it will be understood that numerous modifications may be made by those skilled in the art without actually departing from the scope of the invention. Therefore, the appended claims are intended to cover all such equivalent variations as come within the true spirit and scope of the invention.

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

1. A luminaire comprising, in combination, a reflector, and adjustable lamp support means for supporting a lamp adjacent said reflector and for moving the lamp along a first axis and a second axis transverse to each other for selectively positioning the lamp relative to said reflector, said second axis intersecting said reflector, said lamp support means comprising first supporting means fixed relative to said reflector, lampholder means, second supporting means fixed to said lampholder means, said first and second supporting means being slidable relative to one another along said first axis and being attachable to one another in different positions along a direction substantially parallel to said second axis, and securing means for releasably attaching said first and second supporting means in selected positions relative to each other.

2. A luminaire as defined in claim 1, said reflector being concave, said first supporting means being elongated along said first axis and projecting into the interior of said reflector.

3. A luminaire as defined in claim 2, said second supporting means comprising a plurality of slide portions spaced along said second axis and selectively attachable in slidable engagement with said first supporting means.

4. A luminaire as defined in claim 2, said second supporting means comprising a channel member having upper and lower flanges, said flanges being selectively attachable to said first supporting means in slidable engagement therewith.

5. A luminaire as defined in claim 1, said first supporting means comprising spaced parallel rails arranged on opposite sides of said lampholder means and extending along said first axis, said second supporting means comprising elongated channel members extending along opposite sides of said lampholder means each having upper and lower flanges selectively attachable in slidable engagement with the rails of said first supporting means adjacent thereto for arranging said lampholder means in different positions along said second axis, said lampholder means together with said channel means being removable from said rails and rotatable relative thereto for bringing the channel members on opposite sides thereof into engagement with different ones of said rails for changing the position of said lampholder means relative to said rails along said second axis.

6. A luminaire as defined in claim 1, said reflector being concave, a light transmitting closure in releasable air-tight engagement with said reflector, said first supporting means comprising a housing opening into the interior of said reflector through a wall thereof and having bearing means on which said second supporting means is slidable, said housing having air-filter means in a wall thereof for purifying air passing therethrough, said housing, said reflector and said light transmitting closure form-

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ing an enclosed optical system to which air is accessible only through said air-filter means.

7. A luminaire as defined in claim 6, said bearing means comprising spaced parallel rails on the interior walls of said housing extending along said first axis and projecting into the interior of said reflector, said lampholder means being arranged between said rails, said second supporting means comprising elongated channel members extending along opposite sides of said lampholder means each having upper and lower flanges selectively attachable in slidable engagement with the rails of said first supporting means adjacent thereto for arranging said lampholder means in different positions along said second axis, said lampholder means together with said channel members being removable from said rails and rotatable relative

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thereto for bringing the channel members on opposite sides thereof into engagement with different ones of said rails for changing the position of said lampholder means relative to said rails along said second axis.

#### References Cited

##### UNITED STATES PATENTS

3,218,450	11/1965	Husby	-----	240—25
3,219,812	11/1965	Turner	-----	240—25
3,299,263	1/1967	Bjontegard	-----	240—25

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