

Jan. 17, 1967

A. M. BJONTEGARD
LUMINAIRE SOCKET SUPPORT

3,299,263

Filed July 7, 1964

3 Sheets-Sheet 1

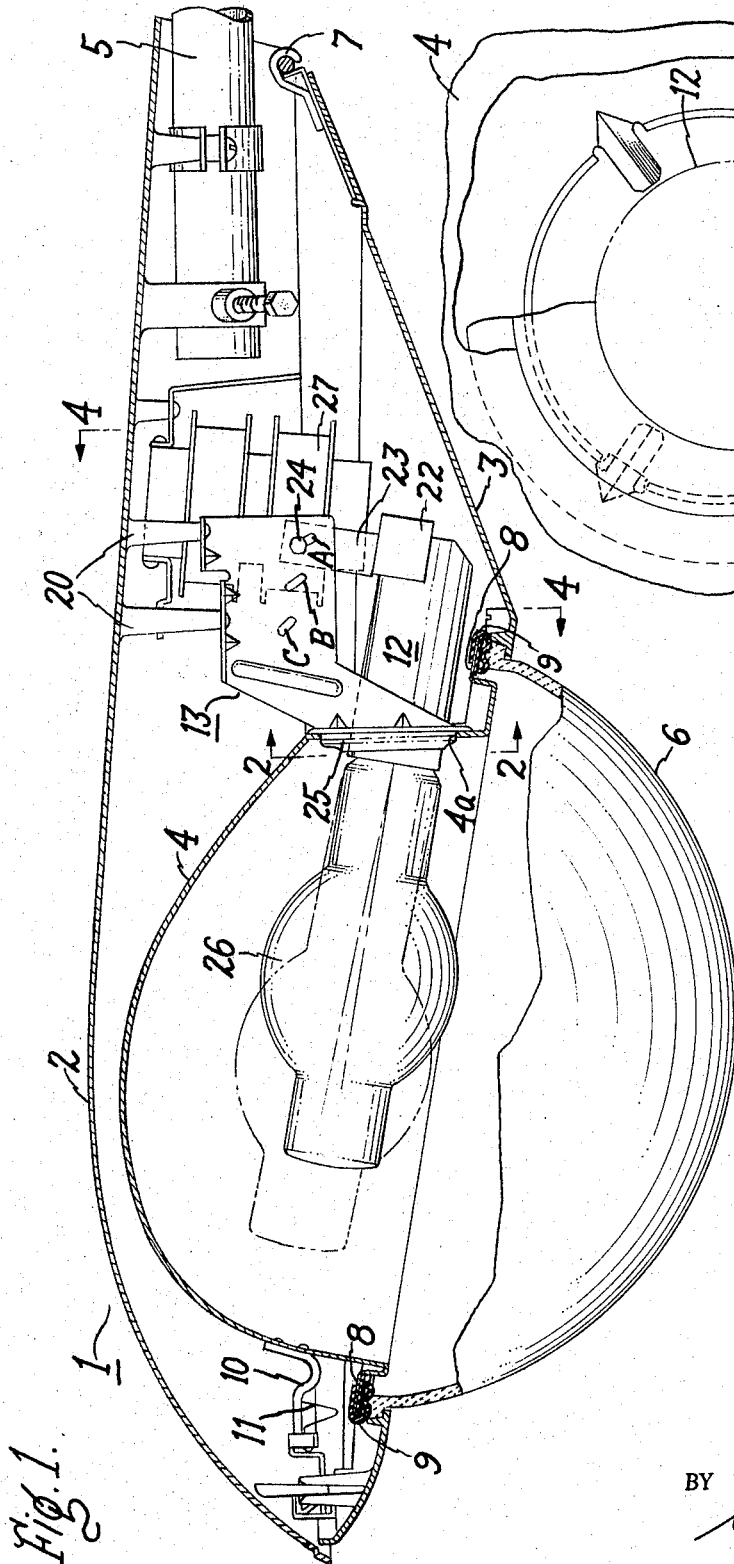


Fig. 1.

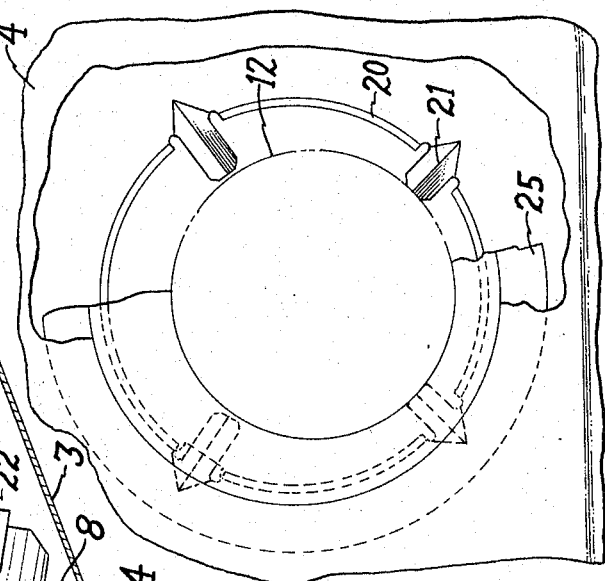


Fig. 2.

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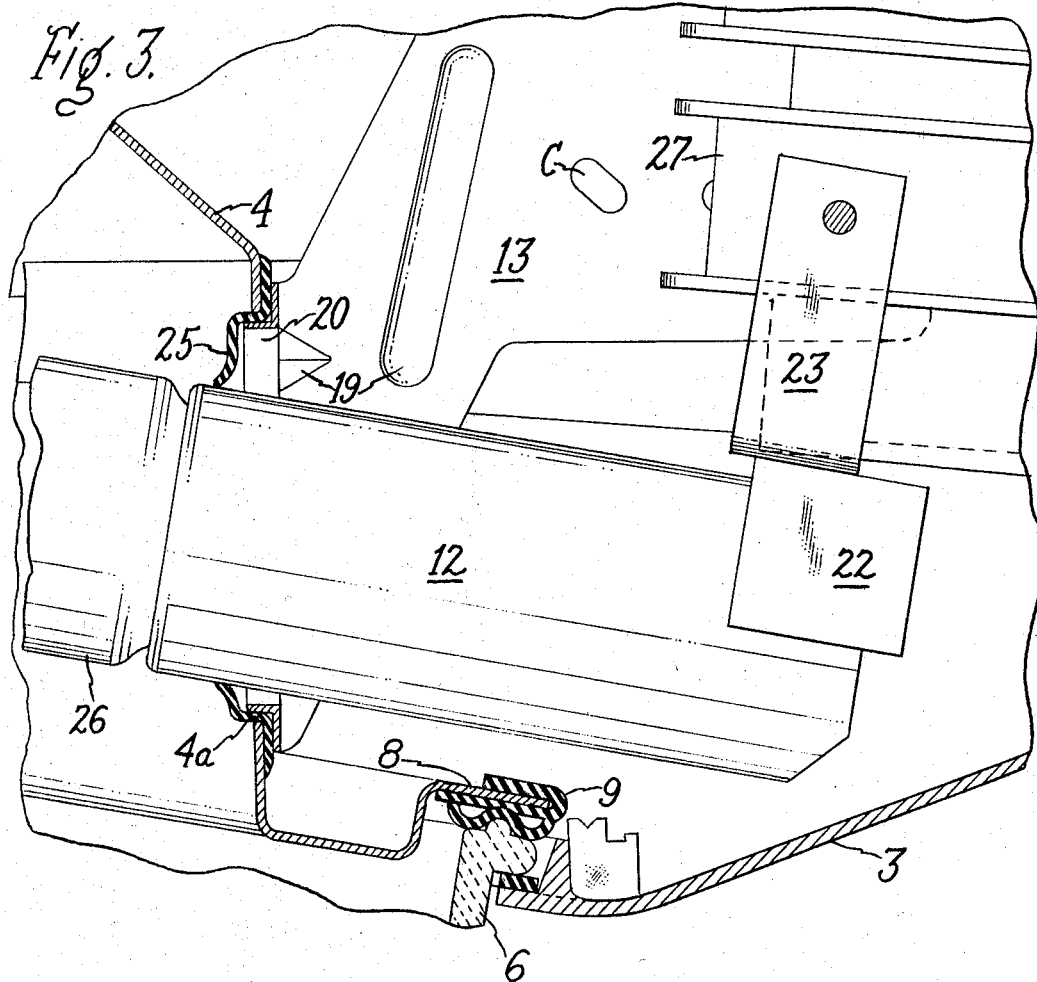
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Fig. 3.



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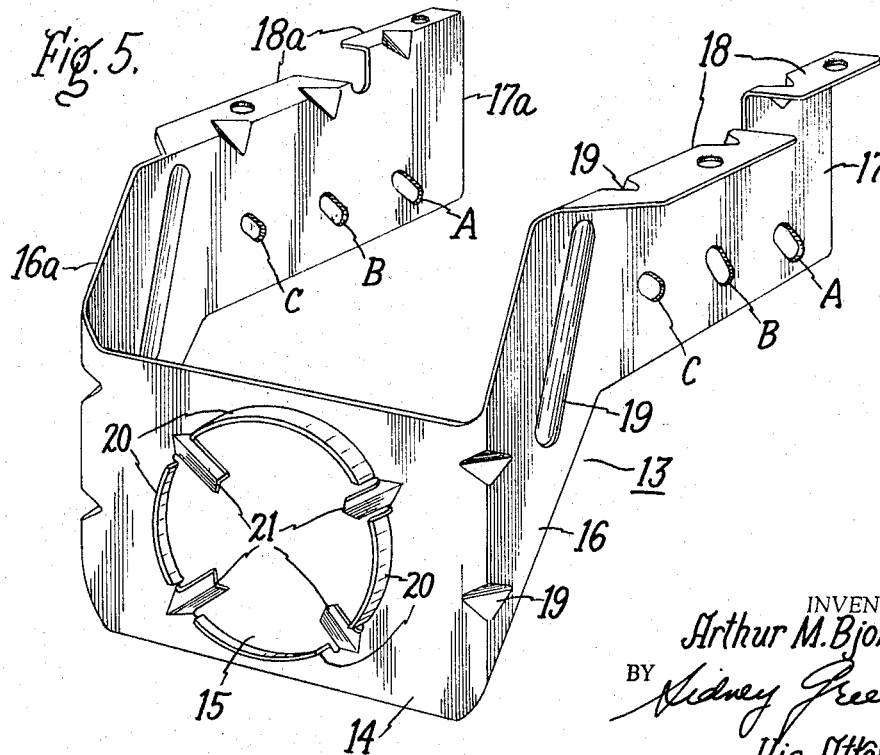
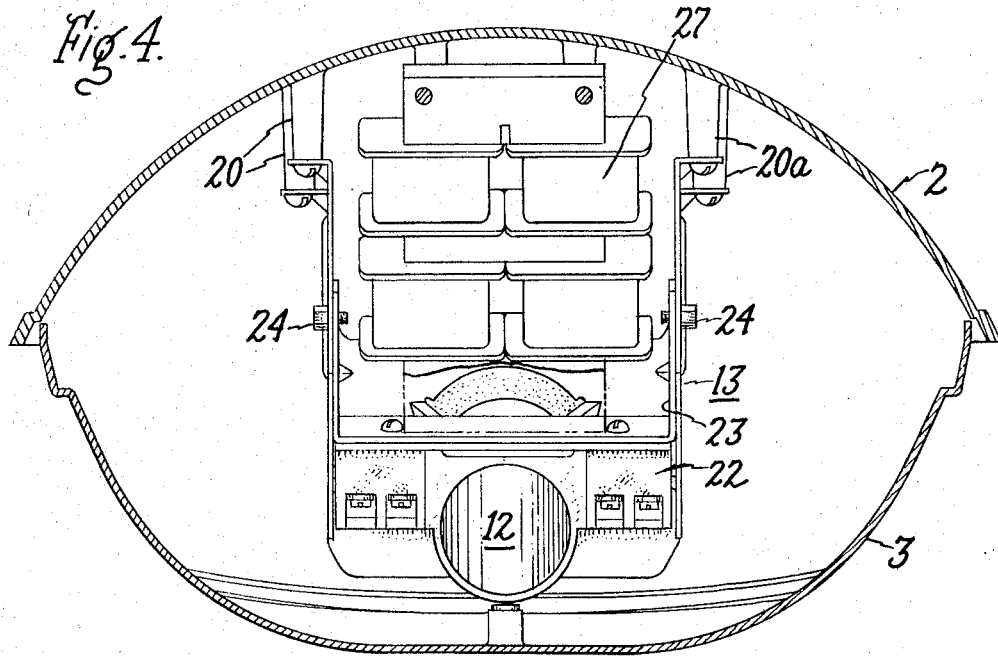
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LUMINAIRE SOCKET SUPPORT

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General Electric Company, a corporation of New York
Filed July 7, 1964, Ser. No. 380,826
10 Claims. (Cl. 240-25)

The present invention relates to lighting fixtures and particularly to lamp socket 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 luminaire lamp support which is easily and economically manufactured and readily assembled in the luminaire, and which enables adjustment of the lamp to provide light distribution extending at different transverse distances across the roadway and at different longitudinal distances along the roadway.

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 housing having an opening, a concave reflector in the housing facing its opening, a lampholder in the housing adapted to support a lamp within the concave reflector, and bracket means in the housing adjustably holding the lampholder for movement of the lamp relative to the reflector for varying light distribution patterns emanating from the luminaire, the bracket means having a construction as more fully described hereinafter.

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 of a luminaire, partly in section, embodying the lamp support of the invention;

FIGURE 2 is a view of the front end of the lampholder in the luminaire taken along the line 2-2 in FIGURE 1;

FIGURE 3 is an enlarged side view, partly in section, of the lampholder shown held in position by the lamp support of the invention;

FIGURE 4 is a cross-sectional view of the luminaire taken along the line 4-4 of FIGURE 1; and

FIGURE 5 is an enlarged perspective view of the lamp support member constructed in accordance with the invention.

Referring now to the drawings, and particularly to FIGURE 1, there is shown a street lighting luminaire 1 comprising a top housing 2, a bottom housing 3, a concave reflector 4 contained within the housing parts, and a luminaire support 5, such as a pipe, by means of which luminaire 1 is mounted on a pole or the like in position above a street or roadway.

Reflector 4 is typically ovate in shape and is closed at its bottom opening by a correspondingly shaped transparent refractor 6 which is mounted in an aperture in the front end of bottom housing 3, the latter thus serving as a combined refractor holder and closure for the top housing 2.

Bottom housing 3 is provided at its rearmost end with a hinge 7 of suitable construction to provide for its pivoting about the rear end of top housing 2 when it is swung downwardly to expose the reflector 4 and the interior compartment of top housing 2 to the rear thereof. At its front end bottom housing 3 is detachably secured to top housing 2 by any suitable latching means.

Reflector 4 is formed with a flange 8 extending around the periphery of its opening and a resilient gasket 9 is provided around flange 8 as shown to form a weatherproof

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seal between it and refractor 6 when bottom housing 3 is in its closed position. At its front end, reflector 4 is provided with a latching device including an arm 10 fixed to the reflector and a spring latch 11 secured to arm 10 for detachably holding the front end of the reflector to the top housing 2. This latching device is more fully disclosed in co-pending application Serial No. 380,827 filed on July 7, 1964 in the name of S. L. Baldwin and assigned to the same assignee as the present invention.

At its rearward end, reflector 4 has a flattened back wall portion and is formed therein with an aperture 4a to enable it to be slipped over lampholder 12 and placed in position on the lampholder support bracket 13, as more fully disclosed hereinafter.

Lampholder support bracket 13, having a form shown most clearly in FIGURE 5, has a somewhat U-shaped configuration when viewed from the top and comprises a front web portion 14 formed with a lampholder-receiving aperture 15, intermediate arm portions 16, 16a sloping upwardly and rearwardly from front portion 14, and upper arm portions 17, 17a extending rearwardly from the intermediate arm portions and offset upwardly from the axis of aperture 15 in the front web portion 14. Mounting flanges 18, 18a are provided along the upper edges of arms 17, 17a. Reinforcing ribs or indentations 19 are preferably provided in various locations on bracket 13 as shown.

Around aperture 15 in front bracket portion 14 there are formed forwardly projecting circumferential flanges 20 and circumferentially spaced fingers 21 which extend radially inwardly, the latter fingers being so dimensioned that their inner ends contact lampholder 12 around its outer surface with a sliding fit.

In assembly in the luminaire, support bracket 13 is secured to top housing 2 by means of screws passing through holes in flanges 18, 18a of the bracket and into cored bosses 20, 20a projecting down from the top housing (see FIGURE 4). Lampholder 12 is formed integrally at its rear end with a transversely extending terminal board 22, and is adjustably secured to support bracket 13 by means of U-shaped hanger 23 attached at its lower web portion to terminal board 22 and at the upper ends of its arms to bracket 13. Rear portions 17, 17a of bracket 13 are formed with corresponding pairs of slots designated A, B and C to which the arms of hanger 23 may be selectively attached by screws 24 (see FIGURE 4) which are threaded into an aperture in the hanger arms, such that the screw-heads engage the surface of bracket 13 adjacent the respective slots. In each of the positions A, B or C, lampholder 12 projects into the interior of reflector 4 and rests on projecting fingers 21 at its forward portion.

Gasket 25 of resilient material is arranged on the front side of bracket 13 extending around and in contact with lampholder 12 and circumferential flanges 20 of bracket 13. As seen more clearly in FIGURE 3, reflector 4 is supported at its rear apertured end on flanges 20 with gasket 25 therebetween providing a seal between the reflector 4, lampholder 12, and bracket 13 where these parts meet.

Lamp 26, which is typically of the mercury vapor type, is normally of elongated form as shown in FIGURE 1 and is threadably mounted at its base end in a threaded socket (not shown) fixed within tubular lampholder 12. The lamp is operated by a ballast circuit including, among other components, a ballast transformer 27 arranged in the rear compartment of the luminaire between the rearwardly extending arms of lampholder bracket 13.

To position lamp 26 in different positions along the principal axis of the luminaire, screws 24 are removed,

lampholder 12 (together with lamp 26 and hanger 23 which are attached thereto) is slid axially to the desired position such that the holes in the arms of hanger 23 are aligned with the selected bracket slot A, B or C, and the screws 24 are then assembled to firmly attach hanger 23 to bracket 13, thus securing lampholder 12 and lamp 26 in the new position.

The elongated form of slots A, B and C also permits adjustment of the rear end of the lampholder up or down after screws 24 are loosened. Downward movement of the rear end of lampholder 12 by such adjustment results in upward movement of the front end of lampholder 12 due to its pivoting on fingers 21 of bracket 13. Each slot thus provides for a number of different vertical positionings of lamp 26 while the latter is in one of the axial positions corresponding to the respective slot.

The effect of moving lamp 26 upwardly in the reflector 4 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 above the cutoff 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 the lamp 26 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.

The adjustment of the lamp thus made possible by the invention avoids the necessity for using different reflectors or different refractors to obtain the desired variation in light distribution patterns.

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

1. A luminaire comprising, in combination, elongated housing means having an opening, a concave reflector in said housing means facing said opening, said reflector being elongated along the elongate axis of said housing means and having front and rear ends, elongated lamp support means arranged in said housing means rearward of and projecting through the rear end of said reflector and adapted to support a lamp within said concave reflector, and bracket means fixed to said housing means and adjustably holding said lamp support means for movement of the lamp along the elongate axis of the reflector and toward and away from the mouth of the reflector for varying light distribution patterns emanating from the luminaire, the rear end of said reflector being supported by said bracket means spaced from said lamp support means.

2. A luminaire comprising, in combination, elongated housing means having an opening, a concave reflector in said housing means facing said opening, said reflector being elongated along the elongate axis of said housing means and having front and rear ends, elongated lamp support means arranged in said housing means rearward of and projecting through the rear end of said reflector and adapted to support a lamp within said concave re-

lector, and stationary bracket means in said housing means adjustably holding said lamp support means for movement of the lamp along the elongate axis of the reflector and toward and away from the mouth of the reflector for varying light distribution patterns emanating from the luminaire, said bracket means comprising a strip-shaped member arranged rearwardly adjacent said reflector and having a front web portion and spaced arm portions extending rearwardly therefrom and fixed to said housing means, said front web portion being formed with an opening for receiving and slidably holding said lamp support means near the front end thereof, said lamp support means near the rear end thereof being adjustably attached to said spaced arm portions for sliding movement along and pivotal movement about said front web portion.

3. A luminaire comprising, in combination, elongated housing means having an opening, a concave reflector in said housing means facing said opening, said reflector being elongated along the elongate axis of said housing means and having front and rear ends and formed with an opening at the rear end thereof, elongated lamp support means arranged in said housing means rearward of said reflector and projecting through the opening therein and adapted to support a lamp within said concave reflector, and stationary bracket means in said housing means adjustably holding said lamp support means for movement of the lamp along the elongate axis of the reflector and toward and away from the mouth of the reflector for varying light distribution patterns emanating from the luminaire, said bracket means comprising a strip-shaped member arranged rearwardly adjacent said reflector and having a front web portion and spaced arm portions extending rearwardly therefrom and fixed to said housing means, said front web portion being formed with an opening for receiving and slidably holding said lamp support means near the front end thereof, said lamp support means near the rear end thereof being adjustably attached to said spaced arm portions for slidable movement along and pivotal movement about said front web portion, said front web portion being formed around said opening therein with forwardly projecting flange means, said reflector resting at the rear opening thereof on said flange means.

4. A luminaire comprising, in combination, elongated housing means having an opening, a concave reflector in said housing means facing said opening, said reflector being elongated along the elongate axis of said housing means and having front and rear ends and formed with an opening at the rear end thereof, elongated lamp support means arranged in said housing means rearward of said reflector and projecting through the opening therein and adapted to support a lamp within said concave reflector, stationary bracket means in said housing means adjustably holding said lamp support means for movement of the lamp along the elongate axis of the reflector and toward and away from the mouth of the reflector for varying light distribution patterns emanating from the luminaire, said bracket means comprising a strip-shaped member arranged rearwardly adjacent said reflector end having a front web portion and spaced arm portions extending rearwardly therefrom and fixed to said housing means, said front web portion being formed with an opening for receiving and slidably holding said lamp support means near the front end thereof, said lamp support means near the rear end thereof being adjustably attached to said spaced arm portions for slidable movement along and pivotal movement about said front web portion, said front web portion being formed around said opening therein with forwardly projecting flange means, said reflector resting at the rear opening thereof on said flange means, and gasket means arranged between said flange means and said reflector and in sealing contact around said lamp support means.

5. A luminaire comprising, in combination, elongated housing means having an opening, a concave reflector in

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said housing means facing said opening, said reflector being elongated along the elongate axis of said housing means and having front and rear ends, elongated lamp support means arranged in said housing means rearward of and projecting through the rear end of said reflector and adapted to support a lamp within said concave reflector, and stationary bracket means in said housing means adjustably holding said lamp support means for movement of the lamp along the elongate axis of the reflector and toward and away from the mouth of the reflector for varying light distribution patterns emanating from the luminaire, said bracket means comprising a strip-shaped member arranged rearwardly adjacent said reflector and having a front web portion and spaced arm portions extending rearwardly therefrom and fixed to said housing means, said front web portion extending transverse said housing means and being formed with an opening and circumferentially spaced projections extending radially into said opening for receiving and slidably holding said lamp support means near the front end thereof, said lamp support means near the rear end thereof being adjustably attached to said spaced arm portions for slidable movement on and pivotal movement about said projections of said front web portion.

6. In a luminaire having a reflector and lampholder means projecting into the reflector for positioning a lamp therein, a supporting device for adjustably mounting the lampholder means comprising bracket means for adjustably holding the lampholder means for movement of the lamp relative to the reflector for varying light distribution patterns emanating from the luminaire, said stationary bracket means comprising a strip-shaped member arranged rearwardly adjacent the reflector and having a front web portion and spaced arm portions extending rearwardly therefrom and fixed to said housing means, said front web portion being formed with an opening for receiving and slidably holding the lampholder means, and means for adjustably attaching the lampholder means to said spaced arm portions for slidable movement on and pivotal movement about said front portion.

7. In a luminaire having housing means, a reflector and lampholder means projecting into the reflector for positioning a lamp therein, a supporting device for adjustably mounting the lampholder means comprising stationary bracket means for adjustably holding the lampholder means for movement of the lamp relative to the reflector for varying light distribution patterns emanating from the luminaire, said bracket means comprising a strip-shaped member arranged rearwardly adjacent the reflector and having a front web portion and spaced arm portions extending rearwardly therefrom and fixed to said housing means, said front web portion being formed with an opening for receiving and slidably holding the lampholder means, and means for adjustably attaching the lampholder means to said spaced arm portions for slidable movement on and pivotal movement about said front portion, said front web portion being formed about said opening therein with forwardly projecting flange means on which the reflector is adapted to be supported.

8. In a luminaire having housing means, a reflector and lampholder means projecting into the reflector for positioning a lamp therein, a supporting device for adjustably mounting the lampholder means comprising stationary bracket means for adjustably holding the lampholder means for movement of the lamp relative to the reflector for varying light distribution patterns emanating

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from the luminaire, said bracket means comprising a strip-shaped member arranged rearwardly adjacent the reflector and having a front web portion and spaced arm portions extending rearwardly therefrom and fixed to said housing means, said front web portion being formed with an opening for receiving and slidably holding the lampholder means, and means for adjustably attaching the lampholder means to said spaced arm portions for slidable movement on and pivotal movement about said front portion, said front web portion being formed about said opening therein with forwardly projecting flange means on which the reflector is adapted to be supported, and gasket means arranged on said flange means for providing a seal between said flange means and the reflector adapted to rest thereon and adapted to engage the lampholder means in sealing contact therewith.

9. Support device for adjustably holding an elongated lampholder comprising a strip-shaped member having a front web portion and spaced arm portions extending rearwardly therefrom, said front web portion having an aperture for receiving and slidably holding the elongated lampholder near the front end thereof, said arm portions having a plurality of slots spaced along the length thereof, and means for selectively connecting the lampholder at its rear end to said slots, whereby the lampholder is adjustable slidably and pivotally relative to said front web portion of said member.

10. A luminaire comprising, in combination, elongated housing means having an opening, and having front and rear interior portions, a concave reflector in the front interior portion of said housing means facing said opening, said reflector being elongated along the elongate axis of said housing means and having front and rear ends, elongated lamp support means arranged in said housing means rearward of said reflector and projecting through the rear end thereof and adapted to support a lamp within said concave reflector, an electrical device in the rear interior portion of said housing means adapted to operate the lamp, and stationary bracket means in the rear interior portion of said housing means fixed thereto and adjustably holding said lamp support means for movement of the lamp relative to said reflector for varying light distribution patterns emanating from the luminaire, said bracket means comprising a strip-shaped member arranged rearwardly adjacent said reflector and having a front web portion and spaced arm portions extending rearwardly and upwardly offset therefrom and straddling said electrical device, said front web portion having an aperture for receiving and slidably holding the elongated lamp support means near the front end thereof, said arm portions having a plurality of slots spaced along the length thereof, and means for selectively connecting said lamp support means at its rear end to said slots, whereby said lamp support means is adjustable slidably and pivotally relative to said front web portion of said member.

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