Nov. 14, 1967 J. S. FRANKLIN ETAL 3,353,015

STREET LIGHTING LUMINAIRE

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Fig. 1.

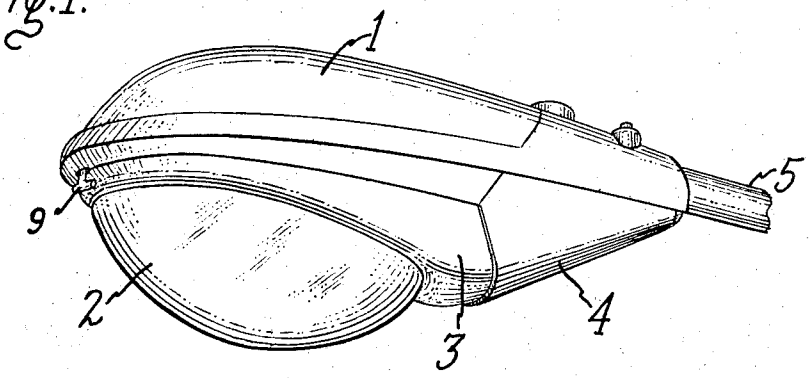
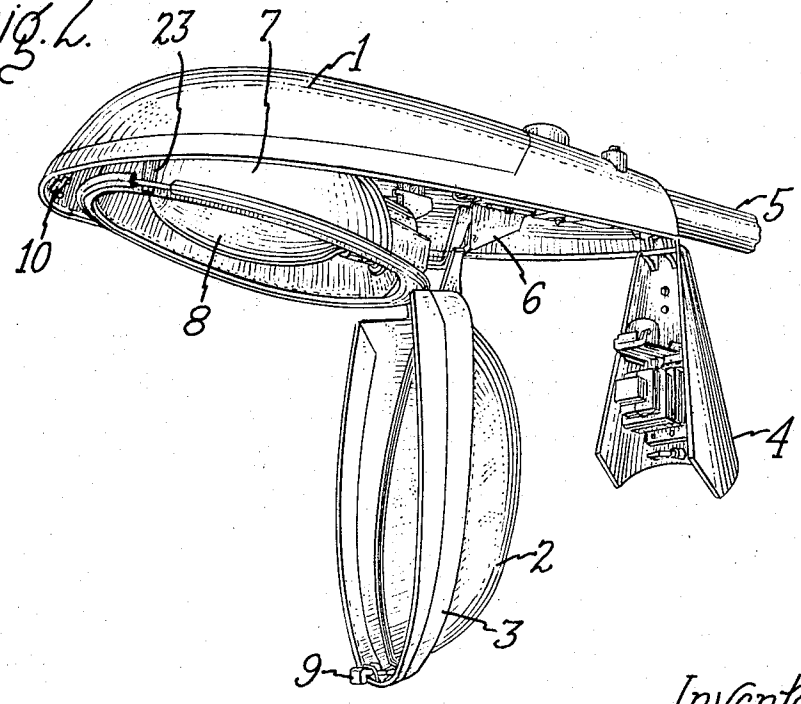



Fig. 2.




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Fig. 4.

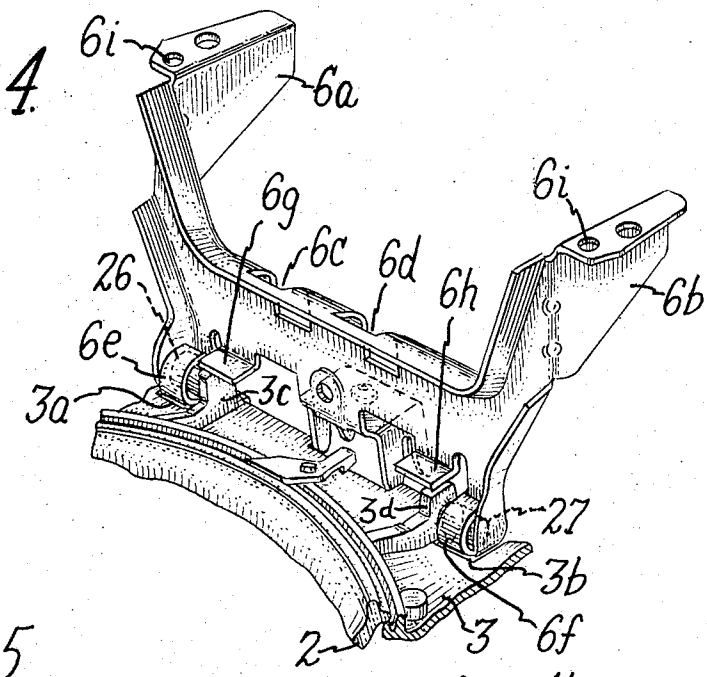
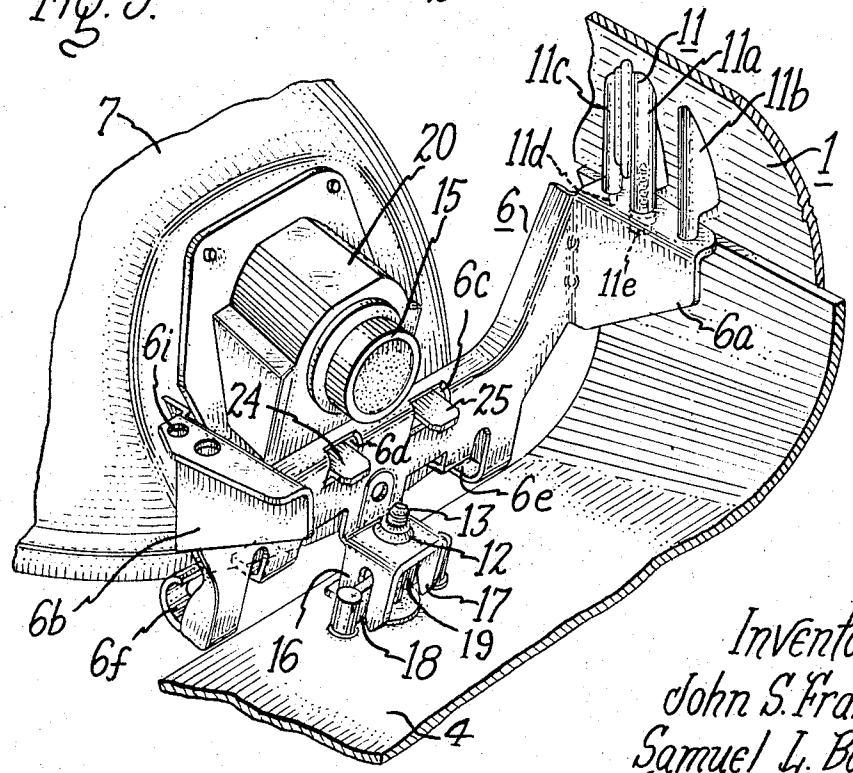



Fig. 5.




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STREET LIGHTING LUMINAIRE

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Fig. 3.

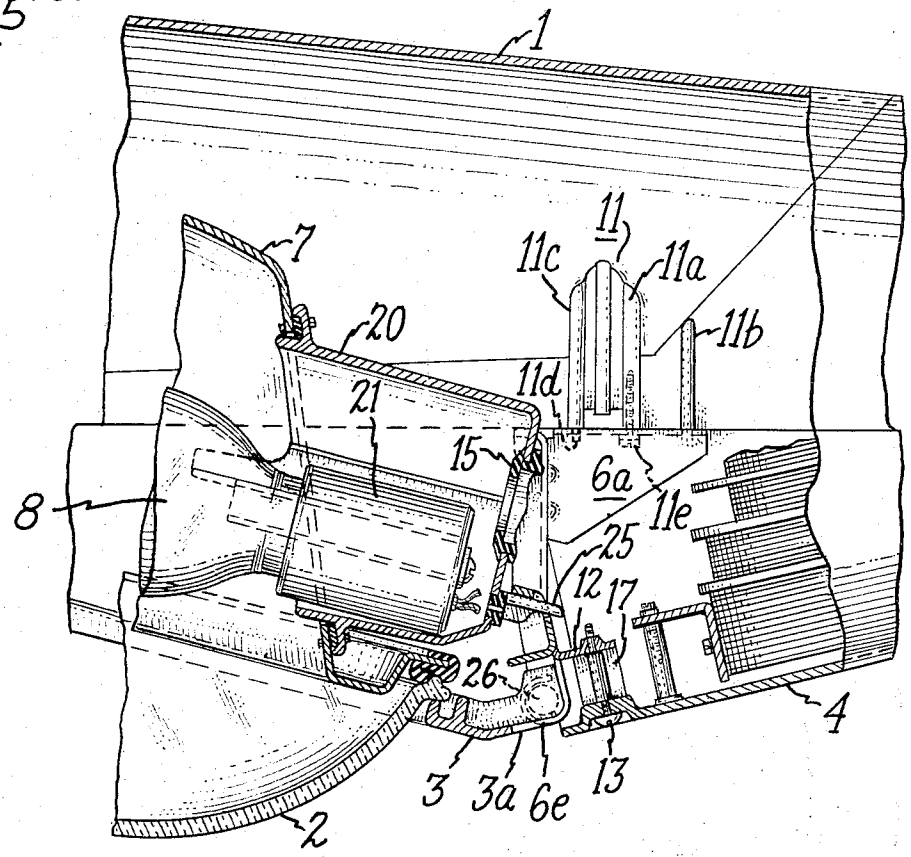
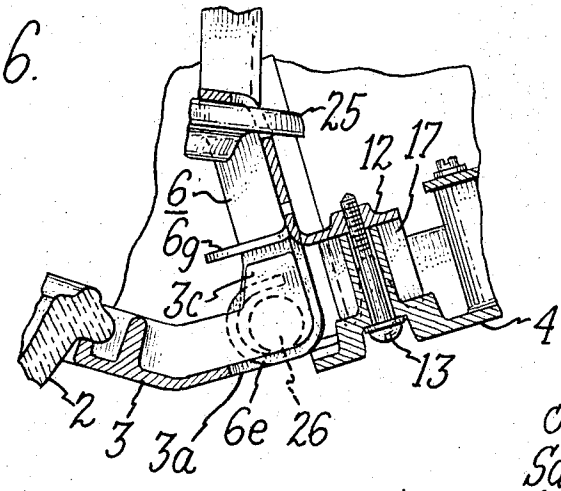



Fig. 6.




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3,353,015

# STREET LIGHTING LUMINAIRE

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10 Claims. (Cl. 240—25)

## ABSTRACT OF THE DISCLOSURE

A luminaire comprises an upper elongated concave housing open at its bottom, a supporting unitary bridge member secured within and extending transverse the housing intermediate its ends, a door member closing the rear bottom portion of the housing pivotally secured at one end to the rear of the housing and separably attached at the opposite end to the bridge member, a refractor retaining frame closing the front bottom portion of the housing pivotally secured at one end to the bridge member and releasably attached at its front end to the housing, and a reflector within the front portion of the housing separably connected at one end to the bridge member and attached at its front end to the housing.

The present invention relates to luminaires, and more particularly concerns an improved street lighting luminaire having a novel internal support arrangement.

It is an object of the invention to provide a luminaire having closure means which may be opened for providing ready access to the interior thereof for servicing of its electrical and optical components, and an improved and simplified internal support structure for holding such closure means and other luminaire parts in assembly.

It is another object of the invention to provide a luminaire of the above type wherein the aforesaid internal support structure is a single unitary member which serves a number of support and connecting functions.

It is a specific object of the invention to provide an internal integral support member of the described type in a luminaire having a reflector, a refractor retaining frame and a bottom door removably connected by the support member to the luminaire housing, and secured thereby in proper assembly with each other.

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 in a preferred embodiment to a luminaire comprising, in combination, an upper elongated concave housing open at its bottom, a supporting unitary bridge member secured within and extending transverse the housing intermediate its ends, a door member closing the rear bottom portion of the housing pivotally secured at one end to the rear of the housing and separably attached at the opposite end to the bridge member, a refractor retaining frame closing the front bottom portion of the housing pivotally secured at one end to the bridge member and releasably attached to its front end to the housin, and a reflector within the front portion of the housing separably connected at one end to the bridge member and attached at its front end to the housing.

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

FIGURE 1 is a view in perspective of a luminaire in which the invention may be embodied;

FIGURE 2 is a similar view of the FIGURE 1 luminaire with hinged parts in open position;

FIGURE 3 is a sectional view in enlarged scale of a portion of the FIGURE 1 luminaire showing the parts in operative assembly with the internal bridge support member;



FIGURE 4 is a perspective view of the front side of the internal bridge member, showing the connection of the refractor retaining frame thereto;

FIGURE 5 is a perspective view of the rear side of the internal bridge member showing the connection of the reflector and rear closure thereto; and

FIGURE 6 is an enlarged detailed view in cross-section of a portion of the structure of FIGURE 3 showing the interconnection of the luminaire parts with the internal bridge member.

Referring now to the drawnigs, and particularly to FIGURE 1, there is shown a street lightining luminaire comprising an upper elongated concave housing **1** closed at its front bottom portion by refractor or transparent globe **2** mounted in a retaining frame **3**, housing **1** being closed at its rear bottom portion by door **4**. The luminaire is adjustably mounted on a horizontal support **5** such as a pipe bracket or the like which projects into the open rear end of housing **1** and on which housing **1** is clamped by an adjustable slipfitter (not shown) in the interior of the housing.

As seen in FIGURE 2, rear door **4** is hinged at its end to the rear end of housing **1** and has mounted on the interior surface thereof a number of operating components such as an electrical ballast and a photocontrol unit, which become accessible for servicing when door **4** is swung open. Refractor retaining frame **3** is hingedly connected at its rear end to the internal bridge member **6** which extends across the interior of housing **1** and is secured at opposite ends thereto. In the open position shown, refractor retaining frame **3** permits access to reflector **7** secured in the interior of housing **1**, and to lamp **8** located within reflector **7**. Spring-biased latch lever **9** at the front end of refractor retaining frame **3** coacts with latch plate **10** on housing **1** to retain frame **3** in closed position.

FIGURE 3 shows bridge support member **6** with the adjacent portions of reflector **7**, refractor retaining frame **3**, and rear door **4** connected thereto. Bridge support member **6** (see FIGURE 4) is a generally U-shaped unitary member, typically made of a metal stamping, having a web portion and opposite arm portions from which wing portions **6***a*, **6***b* rearwardly project at its opposite ends. Wing portions **6***a*, **6***b* have horizontal flanges by means of which bridge member **6** is secured to boss structures **11** on opposite sides of the interior of housing **1**. Each boss structure **11** (see FIGURE 3) comprises a central boss **11***a* having a tapped recess extending upwardly in which screw **11***e* is threadably engaged for securing the horizontal flange at the ends of bridge member **6**. At their bottom ends bosses **11***b* and **11***c* have flat surfaces which the horizontal flanges of bridge member **6** abut, to thereby properly orient, i.e., level, the position of bridge member **6**. The bottom surface of central boss **11***a* is normally higher than those of bosses **11***b* and **11***c* so as not to interfere with the leveling function of the latter members. In addition boss **11***c* has a downwardly projecting pin portion **11***d* which seats within aperture **6***i* in the respective horizontal flanges of bridge member **6** so as to further ensure the correct placement of the latter relative to housing **1**.

The web portion of bridge member **6** is formed on its rear side with a rearwardly projecting horizontal latch plate **12** having a threaded aperture for threaded engagement with screw **13** held captive in the forward end of rear door **4**, by means of which the latter is held in closed position on housing **1**. Latch plate **12** has downwardly projecting bifurcated arms **16**, **17** on opposite sides which define tapering guide slots for receiving ridges **18**, **19** on opposite sides of screw **13**, whereby upon closing door **4**,

screw **13** is guided to the threaded aperture in latch plate **12**.

The described arrangement is such that with frame **3** and rear door **4** in their closed positions, rear door **4** slightly overlaps the rear portion of frame **3**, but these closures are nevertheless capable of being opened and closed independently of one another without interference from each other.

Reflector **7** has an aperture at its rear end which is closed by rear housing **20** riveted to the rear wall of reflector **7**. Rear housing **20** forms a supporting enclosure for lampholder or socket **21** and has an aperture at its rear end closed by an air filter device **15**, disclosed more fully in co-pending application Ser. No. 530,214, in the name of P. R. Milroy filed Feb. 25, 1966, and assigned to the same assignee as the present invention. Reflector **7** is secured at its front end by screws or the like to bosses **23** (see FIGURE 2) which depend from housing **1**, only one such boss being shown. At its rear end, reflector **7** is removably supported on bridge member **6** by means of spaced tabs **24**, **25** (see FIGURE 5) which project from the rear end of lampholder housing **20** and are inserted into spaced slots **6***c*, **6***d* in bridge member **6**. The slots **6***c* and **6***d* are so designed that they extend forward beyond the tangent point of the bend that forms the channel shape. This provides a somewhat larger opening from the direction in which tabs **24** and **25** are inserted. When reflector **7** is lifted into its normal position and fastened, the effective slot width is reduced to a close fit to the thickness of the tabs **24** and **25**, that is, the tabs substantially engage bridge member **6** at opposite ends of the slots (see FIGURE 3). This prevents unnecessary play in this assembly.

Refractor retaining frame **3** is hingedly connected to bridge member **6** by means of hinge pins **26**, **27** integrally formed at opposite sides of the rear end of frame **3**. Hinge pins **26**, **27** are received respectively in seats provided by spaced bearing portions **6***e*, **6***f* formed in the lower front side of the web portion of bridge member **6** and having end portions which curve around and retain pins **26**, **27** as shown. As seen in FIGURE 4, hinge bearings **6***e*, **6***f* fit within slots **3***a*, **3***b* formed in the rear edge of refractor retaining frame **3**, and as seen in FIGURE 3, the bottom exterior surfaces of hinge bearings **6***e*, **6***f* are flat and are flush with the outer surfaces of frame **3** so as to substantially close slots **3***a*, **3***b* and to conform to the outer contour of the luminaire in this region.

In an alternative arrangement (not shown), hinge bearings **6***e*, **6***f* may project from the opposite side of bridge member **6** so as to face rearwardly therefrom. In this case, when retaining frame **3** swings downwardly upon being opened, pressure from its pivot pins **26**, **27** is exerted against the main vertical portion of bridge member **6**, rather than against the curved ends of hinge bearings **6***e*, **6***f* as would occur in the arrangement shown in FIGURE 6.

Bridge member **6** is further provided with stop tabs **6***g*, **6***h* positioned inwardly from hinge bearings **6***e*, **6***f* and projecting over raised bosses **3***c*, **3***d* spaced on refractor frame **3** and from which pivot pins **26**, **27** project laterally toward opposite sides. Stop tabs **6***g*, **6***h* serve to aid in retaining pins **26**, **27** in their respective hinge bearing seats by virtue of the outermost corners of bosses **3***c*, **3***d* coming into contact with the bottoms of these tabs when frame **3** swings open in a counter clockwise movement as viewed in FIGURE 6.

If desired or necessary, the free ends of hinge bearings **6***e*, **6***f* may be only partially curved in a somewhat J-shape about pins **26**, **27** so as to permit removal of frame **3** from the assembly by swinging it open to an angle (e.g., about 30°–40° to the vertical) at which bosses **3***c*, **3***d* clear stop tabs **6***g*, **6***h* and pivot pins **26**, **27** may then be moved out of bearing seats **6***e*, **6***f* to free frame **3** from bridge member **6**. In all other angular positions of frame **3** it would be held captive in bearing seats **6***e*, **6***f* by stop tabs **6***g*, **6***h* and the cam action of bosses **3***c*, **3***d* relative thereto.

If found necessary or desirable, the rear and front compartments of the luminaire housing defined by bridge member **6** may be fully closed off from one another by suitably shaped barrier panels (not shown) which are disposed to occupy the spaces between bridge member **6** and the inner surfaces of housing **1** and refractor frame **3**.

The described internal bridge member **6** thus serves as a unitary, multi-purpose support having hinging, connecting and latching functions, which holds in proper operative assembly with housing **1** the refractor retaining frame **3**, reflector **7** and rear door **4**, and which also imparts strength and rigidity to the luminaire as a whole. By properly aligning the parts in closed assembly, bridge member **6** provides proper fitting between the reflector **7** and refractor frame **3** and thereby assures tight and reliable sealing by the interposed gasket. Bridge member **6** is furthermore relatively easy and economical to manufacture and install.

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, an upper housing open at its bottom, first and second closure means in conjunction closing the open bottom of said upper housing, said first and second closure means being separate from each other and operating independently of each other, transverse support means within and extending across the interior of said housing at adjacent portions of said first and second closure means, said first and second closure means being movably secured to said support means at their adjacent portions, a reflector within said housing having opposite ends, said reflector at one end being secured to said housing and at its opposite end being removably supported by said transverse support means, said first closure means including light transmitting means, said reflector and said first closure means being arranged in the front portion of said housing with said first closure means closing the front portion of said housing, said second closure means closing the rear portion of said housing, said transverse support means comprising a generally U-shaped unitary cross member having a web portion and opposite arm portions and being secured at said arm portions to opposite sides of said housing with said web portion depending therefrom, said web portion having means for releasably securing said reflector and said first and second closure means thereto in operative assembly.

**2.** A luminaire as defined in claim **1**, said web portion having hinge means on one side for hingedly connecting said first closure means at one end thereof, said first closure means being releasably attachable at the opposite end thereof to said housing.

**3.** A luminaire as defined in claim **2**, said first closure means comprising a retaining frame having an opening therein and a transparent globe fitting in and retained in said opening, said frame at its rear end adjacent to said web portion of said cross member having spaced pivot pins and spaced recesses adjacent thereto, said hinge means of said web portion comprising spaced projecting hinge bearings for receiving said spaced pivot pins, said hinge bearings being received in said spaced recesses of said frame.

**4.** A luminaire as defined in claim **3**, said hinge bearings substantially closing said recesses when said frame is in closed position.

**5.** A luminaire as defined in claim **3**, said frame at said rear end having at least one boss projecting from the surface thereof, said cross member having at least

one stop member projecting from one side thereof, said stop member overlying said boss and co-acting therewith for retaining said pivot pins in said hinge bearings in predetermined positions of said frame during pivoting movement thereof relative to said cross member.

6. A luminaire as defined in claim 2, said reflector having at its end thereof adjacent said cross member rearwardly extending projection means, the web portion of said cross member being formed with recess means for receiving said reflector projection means for supporting said adjacent end of said reflector, said reflector being secured at its opposite end to said housing.

7. A luminaire as defined in claim 2, said web portion having latch means at its rear side for releasably attaching one end of said second closure means thereto, said second closure means being hingedly attached at its opposite end to said housing.

8. A luminaire as defined in claim 7, said latch means being formed with guide means for aligning said closure means with the remaining luminaire assembly when said second closure means is brought into closed position.

9. A luminaire as defined in claim 1, wherein said housing adjacent said arm portions is provided with position orienting means, said arm portions co-acting with said position orienting means for arranging said cross member in a predetermined position relative to said housing.



10. A luminaire as defined in claim 6, wherein said recess means comprises slot means in said web portion of said cross member, said projection means of said reflector being freely insertable into said slot means during assembly with said cross member, and being in close fitting engagement with said cross member at said slot means when said reflector is secured in operating position in said housing.


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