

Nov. 20, 1962

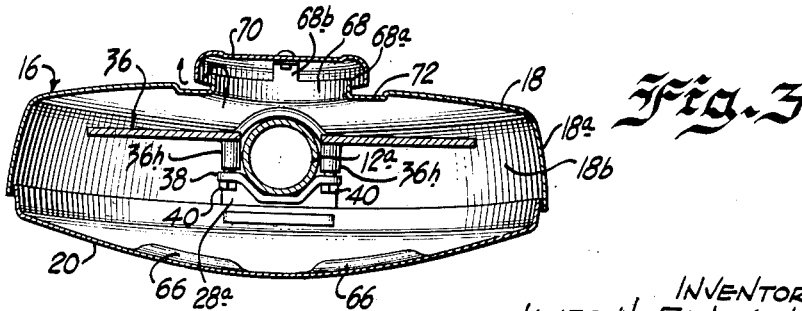
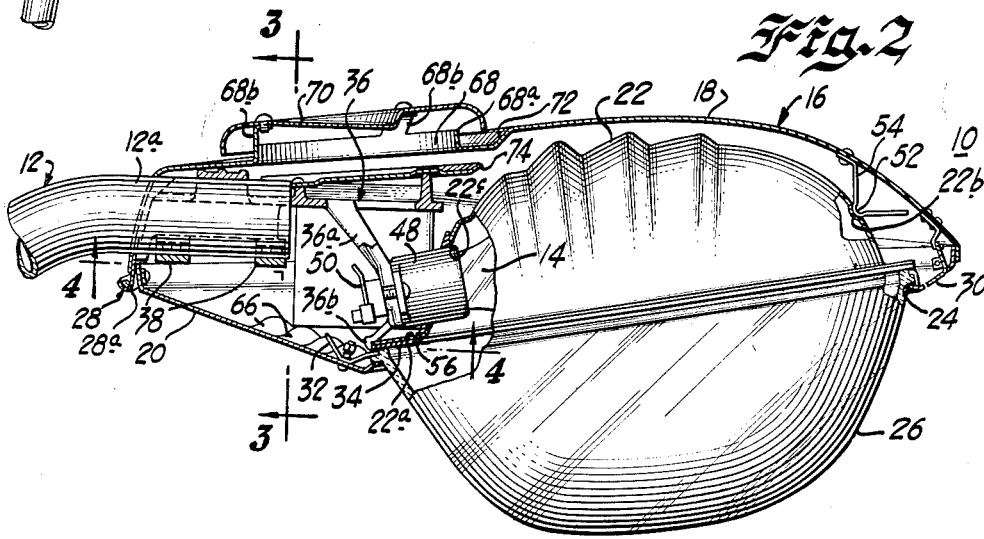
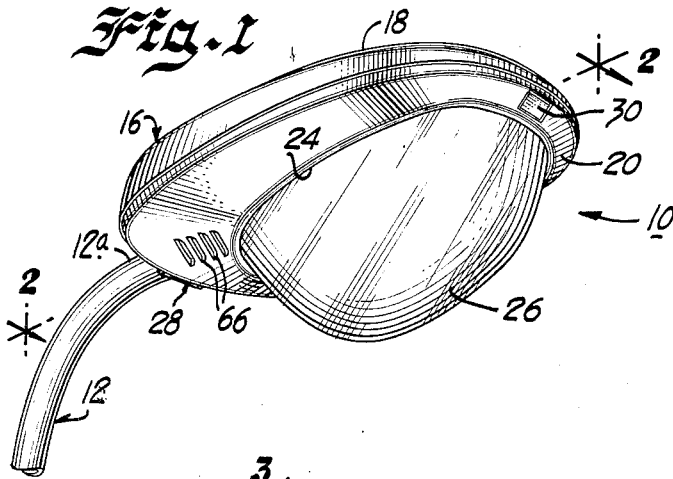
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3,065,339

LUMINAIRE

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2 Sheets-Sheet 1



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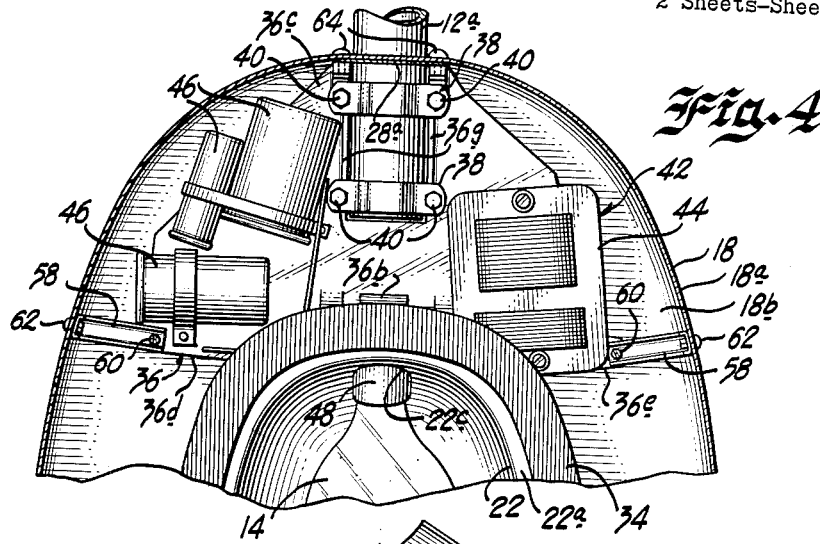


Fig. 4

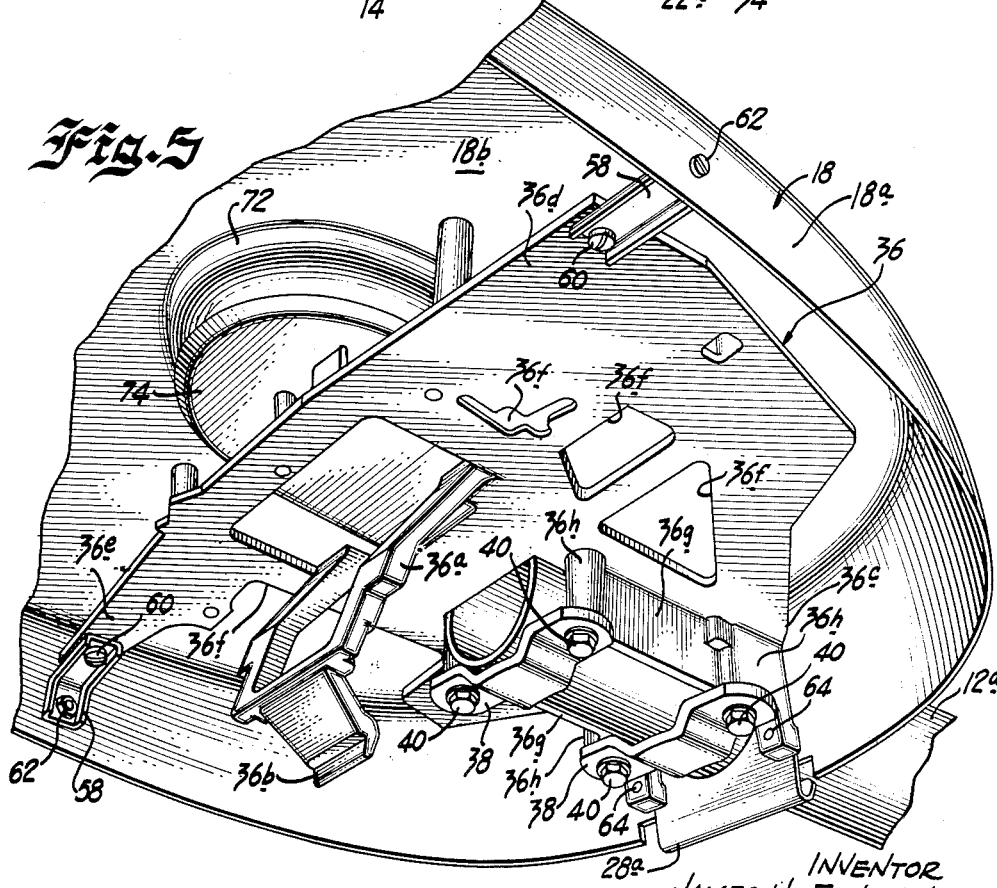


Fig. 5

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LUMINAIRE

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This invention relates to luminaires, and more particularly, to enclosed reflector type luminaires which employ a high intensity ballasted light source suitable for lighting highways, parking areas, and the like.

One known form of luminaire uses a mercury vapor lamp which requires ballasting means for operating the lamp. Such ballasting means are frequently housed within the luminaire housing and it has been customary to support the ballasting means from the housing. The ballasting means necessary to operate a large-sized mercury vapor lamp is of substantial weight and the weight of the ballasting means has therefore required that the housing be made strong enough to support the additional weight of the ballasts. It is therefore desirable to provide a lightweight, nonstructural luminaire housing so that the luminaire may be economically manufactured and conveniently installed. Moreover, considerable heat is produced during the operation of the ballasting means and therefore when the ballasting means are enclosed within the housing it is desirable that cooling means be provided for the ballasting means.

It is therefore an object of the present invention to provide an improved mercury vapor luminaire which overcomes the aforementioned difficulties.

A further object of the present invention is to provide an improved mercury vapor luminaire of the type adapted to house a ballast assembly.

A further object of the present invention is to provide a mercury vapor luminaire wherein the ballast assembly is supported directly to a bracket secured to the supporting pole and the housing of the luminaire is of lightweight nonstructural construction.

A further object of the present invention is to provide a mercury vapor luminaire with improved ventilating means for the ballast assembly.

Further objects and advantages of the invention will become apparent as the following description proceeds and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming a part of the specification.

Briefly stated, in accordance with the present invention, the ballast assembly is enclosed within a mercury vapor luminaire housing and is supported on a bracket secured directly to the supporting pole of the luminaire. The bracket additionally supports the electric lamp socket and the electric lamp, and additionally aids in positioning a lightweight reflector within the housing and in supporting at least part of the weight of the reflector. The housing of the luminaire therefore is nonstructural resulting in a lightweight housing which may be economically manufactured and which may be conveniently installed.

According to a further feature of the present invention, the housing of the luminaire is provided with venting means aligned to provide ventilation around at least the ballast assembly.

The nature of the invention will best be understood when described in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of an improved luminaire according to the present invention;

FIG. 2 is a side view, partly in section, shown to a larger scale, of the improved luminaire according to the present invention;

FIG. 3 is a sectional end view of the luminaire of FIG. 2 taken along line 3-3 of FIG. 2;

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FIG. 4 is a sectional bottom view of the luminaire of FIG. 2 taken along line 4-4 of FIG. 2; and

FIG. 5 is a bottom perspective view illustrating certain details of the improved luminaire according to the present invention and illustrated with parts of the luminaire removed.

Referring now to the drawings, there is illustrated an improved mercury vapor luminaire illustrated generally at 10 and mounted in a generally horizontal direction from a generally horizontally extending end portion 12a of a supporting pole 12. The luminaire 10 is of the type housing a mercury vapor lamp 14 (FIGS. 2 and 4) in a generally enclosed nonstructural lightweight outer housing, shown generally at 16. The housing 16 includes an upper, shallow elongated reflector housing or holder 18 hydraulically formed of sheet aluminum or other lightweight material, and a lower refractor holder 20 similarly formed of aluminum or other lightweight material and forming a door for the reflector housing 18. The reflector housing 18 is of generally inverted dish shape having a downwardly extending flange 18a forming a downward opening 18b, and houses a lightweight, polished refractor 22. The refractor holder 20 is of shallow, elongated form, complementary to the opening 18b of the reflector housing being provided with a refractor opening 24 and a refractor 26 positioned in the opening 24. The refractor holder 20 is hingedly connected relative to the reflector housing 18 by a hinge assembly 28 and is supported at its forward end by a latch assembly 30 so that the housing assembly 16 comprising the reflector housing 18, the refractor holder 20, and the refractor 26 form a generally enclosed housing assembly enclosing the ballast assembly, lamp socket, electric lamp, and other electrical components. The hinge assembly 28 is separable so that the refractor holder 20 may be separated from the housing assembly 16 by releasing the latch assembly 30 and swinging the refractor holder 20 clockwise as viewed in FIG. 2 beyond its free opening position to separate the hinge assembly 28. The refractor 26 is held in the opening 24 by a plurality of refractor clip assemblies 32 (FIG. 2). Additionally, a sealing gasket 34 is positioned between the reflector 22 and the refractor 26 so that the reflector 22 and the refractor 26 form a substantially sealed inner envelope for housing the lamp 14.

In order to support the luminaire 10 on the horizontally extending end 12a of the support pipe 12, there is provided a sturdy saddle or bracket 36 of lightweight die cast or similarly formed metal. The bracket 36 is of generally triangular shape with an apex or first corner 36c thereof clamped to the pipe 12, and second and third corners 36d and 36e thereof intermediate the length of the housing 16 and remote from the pipe 12. Additionally, the body of the bracket 36 is provided with a plurality of cut-outs or openings 36f to provide for the mounting of electrical components. The bracket 36 near its apex 36c is provided with a pair of downwardly extending walls 36g and a pair of downwardly extending internally threaded bosses 36h. The bracket 36 is attached directly to the end of the pipe 12 by a pair of U-clamps 38 which encircle the pipe end 12a and which are bolted directly into the threaded bosses 36h through a plurality of bolts 40. The saddle 36 carries a ballast assembly 42 (FIG. 4) which may include a ballasting transformer 44 and a plurality of capacitors 46 connected in electrical circuits with a lamp socket 48 as is well known, and additionally connected to a terminal board 50, which terminal board 50 is further adapted to be connected to a source of electrical power. The saddle 36 is provided with a downwardly extending arm 36a which supports the lamp socket 48 and the terminal board 50 so that the weight of the lamp socket 48 and the lamp 14 is carried by the bracket 36 through the arm 36a and is transmitted directly to the supporting pipe 12.

In order to position the reflector 22 within the housing 16, the reflector 22 is provided with an outwardly extending flange portion 22a which is received within a reflector groove 36b at the end of the arm 36a, and the reflector 22 is provided near its other end with a dimple 22b (FIG. 2) adapted to be engaged by a detent 52 on a reflector support 54 secured to the forward end of the reflector housing 18. In this manner, the reflector 22 is interfitted between the bracket 38 and the forward end of the reflector housing 18. The reflector 22 is of lightweight construction and is positioned by the reflector housing 18.

In order to provide an inner envelope between the reflector 22 and the refractor 26 to enclose the lamp 14, the reflector 22 is provided with an aperture 22c through which extends the lamp socket 48. A gasket 56 seals the junction of the socket and the reflector so that the reflector 22 and the refractor 26, along with the gaskets 56 and 34, form a substantially airtight inner envelope for enclosing the lamp 14.

In order to support the housing 16 from the bracket 36, there is provided a pair of channel-shaped angle members 58 having a horizontal leg thereof bolted or otherwise secured to the bracket 36 near the corners 36d and 36e thereof by bolts 60 or other fastening means, and having a vertical leg secured to the side of the reflector housing 18 through the flange 18a thereof by a plurality of bolt 62 or other fastening means. Additionally the housing 18 is secured to the bracket 36 near the corner 36c thereof by a plurality of screws 64 or other fastening means. The reflector housing 18 is therefore supported adjacent all three corners 36c, 36d, and 36e of the bracket 36 to secure the housing 18 to the bracket 36. Additionally, the screws 64 connect one portion 28a of the hinge assembly 28 directly to the bracket 36 so that at least part of the weight of the refractor holder 20 and refractor 26 is transmitted directly to the bracket 36 through the portion 28a of the hinge assembly 28.

It will be seen, according to one important aspect of the invention, that all of the heavy components within the housing 16 are supported directly by the saddle 36 which, in turn, is secured to the pole 12; specifically, the ballast assembly 42, the lamp socket 48, the terminal board 50, and the lamp 14 are all carried by the bracket 36. Moreover, one end of the refractor holder 20 and at least part of the weight of the refractor 26 is carried by the bracket 36 without going through the reflector housing 18. Additionally, one end of the lightweight reflector 22 is carried by the groove 36b of the bracket 36, the other end of the reflector 22 is, of course, supported from the reflector housing 18 through engagement with the detent 52 in the dimple 22b. Since the reflector 22 is relatively light, the housing 16 may be nonstructural and is therefore formed of thin sheet material affording economy in manufacture and easy installation.

According to a further feature of the present invention, a ventilating path may be provided around at least the ballast assembly 42. In order to provide the ventilating means around the ballast assembly 42, the refractor holder 20 is provided with a plurality of louvres 66 positioned generally below the components of the ballast assembly 42, and additionally the reflector housing 18 is provided with a vent opening 68 located generally above the components of the ballast assembly 42. The reflector housing 18 is provided with an upturned flange 68a (FIGS. 2 and 3) around the opening 68 and a plurality of supports 68b extend upwardly from the flange 68a. A rain cover 70 of inverted dish shape is positioned over the opening 68 but is spaced from the flange 68a thereof thereby providing a ventilating opening between the flange 68a and the cover 70 as indicated by the arrows in FIG. 3. A drainage channel 72 is preferably formed around the flange 68a to direct rain water away from the opening 68. Additionally, a drip pan 74 (FIGS. 2 and 3) is carried by the bracket 36 and is positioned below and

spaced from the opening 68 thereby to collect any water which may enter through the opening 68 and to direct the water away from the components forming the ballast assembly 42. The opening 68 and the removable cover 70, in addition to providing venting means for the ballast assembly 42, serves to provide means for connecting a photoelectric control unit to the luminaire 10 where such control is desired.

While a preferred embodiment of the invention has been illustrated, many modifications will occur to those skilled in the art. It is, therefore, intended in the appended claims to cover all such modifications as fall within the true spirit and scope of the invention.

What is claimed as new and sought to be secured by Letters Patent of the United States is:

1. A luminaire adapted to be mounted from the generally horizontally extending end of a support member, said luminaire comprising a sturdy saddle bracket adapted to be secured to said member, a relatively heavy ballast assembly supported entirely by said bracket, a lamp socket supported entirely directly by said bracket electrically connected to said ballast assembly and adapted to receive and entirely support an electric lamp, a lightweight housing supported from said bracket and enclosing said bracket, ballast assembly, and lamp socket without carrying any load from said ballast and lamp socket and including a shallow, elongated reflector holder and a refractor holder provided with a refractor opening, hinge means interconnecting said bracket and said refractor holder, a refractor received in said opening, at least one of said holders being provided with latch means for securing said holders together to form an enclosed housing and a lightweight reflector interfitted between said bracket and said refractor holder, said holders being provided with venting means aligned to provide ventilating means around at least said ballast assembly.

2. A luminaire adapted to be mounted from the generally horizontally extending end of a supporting member, said luminaire comprising a sturdy saddle bracket adapted to be secured directly to said member, a relatively heavy ballast assembly supported entirely by said bracket, a lamp socket supported entirely directly by said bracket electrically connected to said ballast assembly and adapted to receive and entirely support an electric lamp, a lightweight housing supported from said bracket and enclosing said bracket, ballast assembly, and lamp socket without carrying any load from said ballast and lamp socket and including a shallow, elongated reflector holder and a refractor holder hinged relative to said reflector holder and provided with a refractor, at least one of said holders being provided with latch means for securing said holders together to form an enclosed housing and a lightweight reflector interfitted between said bracket and said reflector holder.

3. A luminaire of the type adapted to house a relatively heavy ballast assembly and additionally adapted to be mounted from the end of a horizontally extending supporting pole portion, said luminaire comprising a sturdy saddle bracket adapted to be secured directly to said pole portion and adapted to support entirely a ballast assembly; a lamp socket carried entirely directly by said bracket and adapted to receive an electric lamp and to be electrically connected to said ballast assembly; a lightweight housing supported from said bracket for enclosing said bracket, ballast assembly, and lamp socket without carrying any load from said ballast and lamp socket and including a shallow, elongated reflector holder opening at the bottom and a refractor holder hinged relative to said reflector holder and provided with a refractor opening, a refractor received in said opening, at least one of said holders being provided with latch means for securing said holders together to form an enclosed housing and a lightweight reflector interfitted between said bracket and said reflector holder, said holders being

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provided with venting means aligned to provide ventilating means around at least said ballast assembly.

4. A luminaire as set forth in claim 1 above wherein said housing is formed from sheet aluminum.

5. A luminaire as set forth in claim 1 above wherein said electric lamp is a mercury vapor lamp having a socket at one end only.

6. A luminaire, as set forth in claim 1 above, wherein said hinge means is positioned to transmit the load of the refractor holder directly to said bracket.

7. In combination, support means for a luminaire, including a generally horizontally extending end portion; and a luminaire mounted from said end portion, said luminaire, including a sturdy saddle bracket secured directly to said end portion, a relatively heavy ballast assembly supported entirely by said bracket, a lamp socket supported by said bracket electrically connected to said ballast assembly, an electric lamp entirely supported by

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said socket, a light weight housing supported from said bracket and enclosing said bracket, ballast assembly, lamp socket, and lamp, without carrying any load from said ballast, lamp socket and lamp, and including a shallow, elongated reflector holder and a refractor holder hinged relative to said reflector holder and provided with a refractor, at least one of said holders being provided with latch means for securing said holders together to form an enclosed housing and a lightweight reflector interfitted between said bracket and said reflector holder.

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