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3,071,683

LUMINAIRE

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2 Sheets-Sheet 1

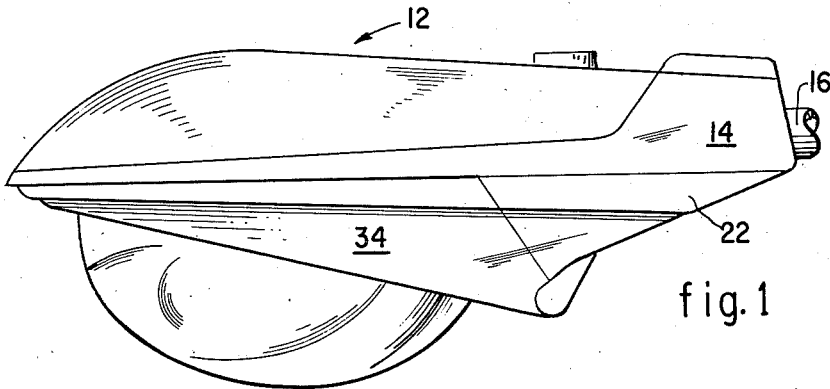


fig. 1

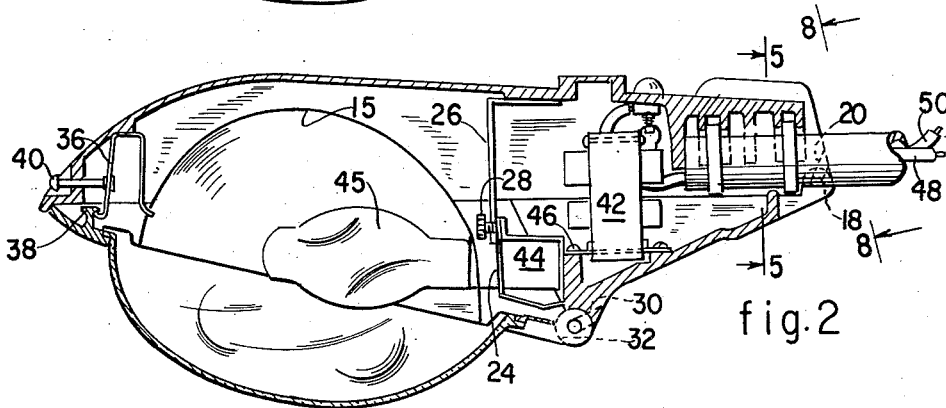


fig. 2

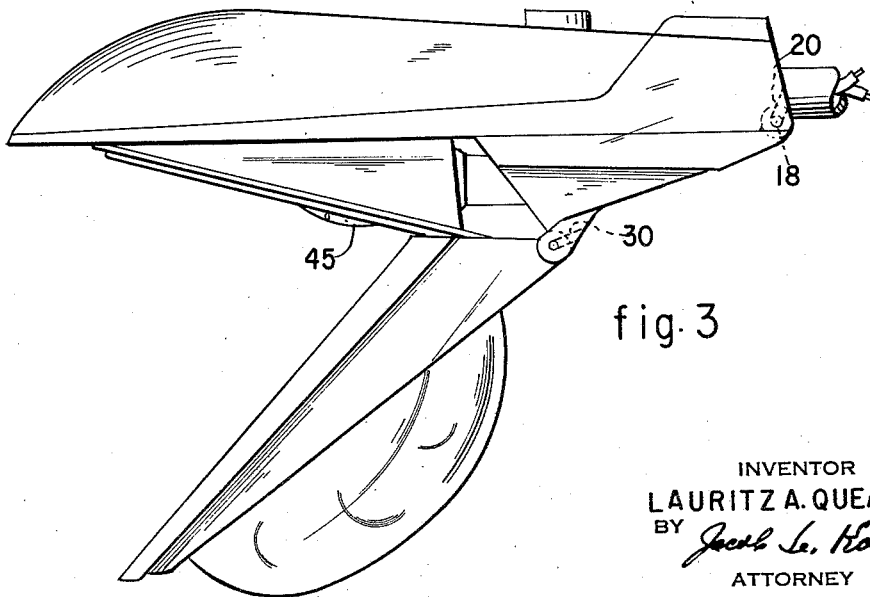


fig. 3

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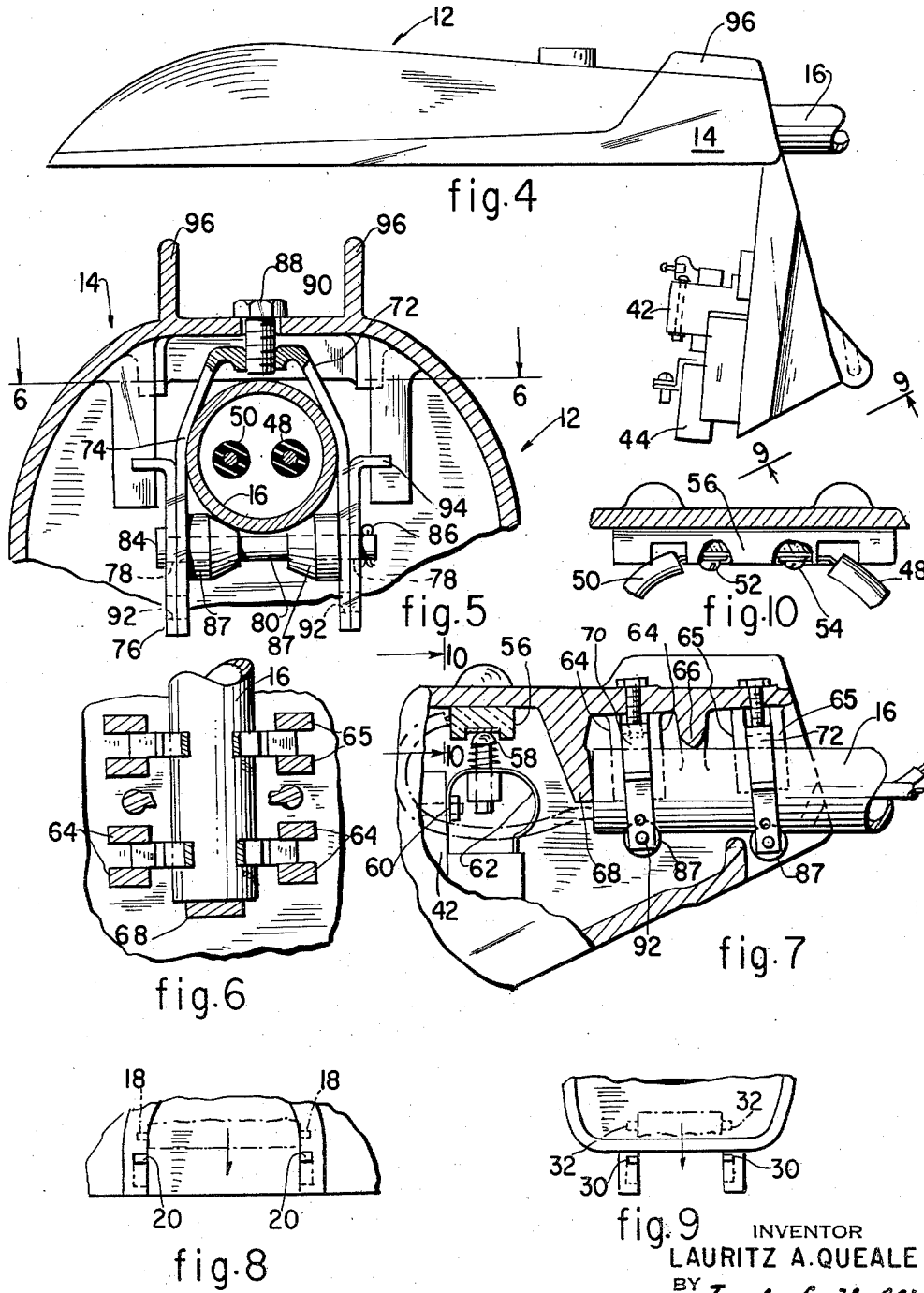
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LUMINAIRE

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This invention relates to luminaires of the mercury vapor type and more particularly to mercury vapor luminaires for the lighting of streets, highways and the like.

Luminaires of this type are usually mounted on a pole at a considerable distance from the ground.

Heretofore the installation and maintenance of such luminaires has been time-consuming and costly for a number of reasons. Mercury vapor luminaires employ a ballast means which is of considerable weight and which, when added to the luminaire housing, lens and lamp assemblies increases the total weight of the fixture to such an extent that it becomes difficult, awkward and hazardous to handle. Therefore in both installation and maintenance two linemen usually work from a ladder or the like to either install the heavy and bulky fixture or to dismount it for maintenance or service purposes.

Accordingly, it is an important object of the present invention to overcome the above and other disadvantages of known construction by providing a mercury vapor luminaire which may be quickly and inexpensively installed on a pole or on other supporting means high above the ground by one man from a ladder or the like.

Another important object of the invention is to provide a mercury vapor luminaire which consists of several disassemblable components which are in themselves lighter than the total assembly and can therefore be handled conveniently by one person.

A further object of the invention is to provide a mercury vapor luminaire comprising means for its simple and quick adjustment at a proper illuminating angle on its support.

Still another object of the invention is to provide a mercury vapor luminaire including means for automatically disconnecting the electric current supplied thereto while it is being serviced, thereby saving time heretofore required for manual disconnection, while eliminating the hazard of accidental electric shock.

Yet another object of the invention is to provide a mercury vapor luminaire which may be installed and serviced with a minimum of tools.

A further object of the invention is to provide a method of mounting and servicing a mercury vapor luminaire on a pole or other support, by consecutively securing or dismantling the luminaire's components in a predetermined sequence.

A further object of the invention is to provide a mercury vapor luminaire which is simple in construction, pleasant in appearance and which may be manufactured in quantity at a relatively inexpensive cost.

These and other important objects of the invention will become apparent from the following specification when read in connection with the appended drawings illustrating a preferred embodiment of the invention.

It is to be understood, however, that both the description and illustration of this preferred embodiment are given by way of illustration of the invention and not by way of limitation, and that various changes in the arrangement and details of the parts thereof may be made without departing from the invention's scope.

In the drawings:

FIG. 1 is a side view of the mercury vapor luminaire, in normal closed position;

FIG. 2 is a partial longitudinal cross-section of the luminaire and of the pipe on which it is mounted;

FIG. 3 is a side view of the luminaire showing the outside globe assembly in open position;

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FIG. 4 is a side view of the ballast housing unit in open position;

FIG. 5 is a cross-section taken on line 5—5 of FIG. 2;

FIG. 6 is a cross-section taken on line 6—6 of FIG. 5;

FIG. 7 is an enlarged detail, partly in section, showing the slipfitter securing device and the contact switch according to the invention;

FIG. 8 is a partial detail view in the direction of line 8—8 of FIG. 2, illustrating the means for securing the ballast housing unit to the upper housing;

FIG. 9 is a partial detail view in the direction of lines 9—9, illustrating the means and method for securing the globe assembly to the ballast housing unit, and

FIG. 10 is a partial section on line 10—10 of FIG. 7 of the switch means of FIG. 7.

Referring now to the drawings in detail, the luminaire according to the invention comprises an upper hollow housing generally indicated by the numeral 12 and formed with a slipfitter mounting means 14, adapted to receive a tubular support 16, which extends from a pole (not shown). A reflector 15 is secured to the upper housing in a known manner. Pivotaly secured to the upper housing 12, by means of pivots 18, journalled in slots 20 of the slipfitter mounting means 14, is a ballast unit housing 22 which is held in normally closed position by means of a bracket 24 secured to the housing, a bracket 26 secured to the interior of the upper housing 12 and a knurled screw 28 engaging with threaded openings in both brackets.

The ballast unit housing is in turn provided with slots 30 in its forward portion and in these are pivotaly received pivots 32 of the globe assembly 34 shown in the normally closed position in FIGS. 1 and 2.

The globe assembly is locked to the upper housing by means of retractable spring 36 and latch 38. Pressure on rod 40 releases the lock.

The ballast unit 42 and lamp socket 44 are both secured to the lower portion of ballast unit housing 22 by screws, such as are indicated by the numerals 46.

Current from an electric power source is supplied to the luminaire by means of wires 48, 50, which pass through tubular support or pipe 16 and whose ends are secured to contact plates 52, 54 embedded in recesses of ceramic block 56 secured to the top portion of the upper housing 12, as best seen in FIG. 10.

Spring-tensioned contact points 58 secured to the ballast unit 42 at 60 normally contact plates 52, 54 and complete the circuit to ballast unit 42 via conductors 62 when the ballast housing 22 is in closed position. Lamp socket 44 for lamp 45 is electrically connected to the ballast in a known manner.

The previously mentioned slipfitter mounting 14, which is integral with upper housing 12, is hood or U-shaped and is formed with inwardly projecting pairs of spaced transverse arcuate rib members 64, 65, defining a passage for the horizontal tubular mounting member or pipe 16. The passage is somewhat larger than the diameter of the largest pipe support used for luminaires. The slipfitter can thus be easily slipped over or off the pipe 16 when it is desired to mount or dismount the luminaire. A transverse stop flange 68 depending downwardly of the slipfitter and integral therewith prevents the free end of the pipe 16 from protruding too far into the slipfitter 14 and upper housing 12 to avoid damage to the operational parts. Disposed between each pair of ribs 64 and 65, respectively, are two steel yokes or clamps 70, 72 having curved portions 74 adapted to engage with the outer surface of pipe 16. The leg end portions 76 of each yoke are provided with pairs of aligned apertures 78, through which is received a rod 80 on which is borne a pair of tapered rollers 82. One end of each of the

rods is formed with a head 84 and the other end is drilled to receive a cotter pin 86 to prevent the lateral displacement of the rod. The upper portion of each of the yokes 70, 72 is provided with a threaded opening wherein are received adjusting bolts 88 which extend through the apertures 90 in the slipfitter 12. Lightening of bolts 88 causes the yoke to move upwardly, thus causing its walls and tapered rollers 82 to grip the pipe 16. To permit the use of a pipe support of a larger diameter, there are additionally provided aligned pairs of holes 92 which may be used, instead of holes 78, to receive the rod 80. In the embodiment shown and described, the yokes 72 and 74 are provided with lateral guide extensions 94 which are slidable between the rib pairs 64 and 65 and thus assist in preventing the lateral displacement of yokes 70 and 72. It will be appreciated, however, that these guide extensions may be dispensed with, without affecting the operation of the slipfitter device. Spaced between the rib pairs 64 and 65 is a pivot rib 66 which abuts the pipe 16 to permit the pivoting of the slipfitter 14 and the upper housing 12 at an angle to the horizontal, as will be explained in detail later in the specification. It will be noted that the top of the slipfitter is formed with vertical extensions 96 which hide bolts 88 from view and enhance the appearance of the luminaire.

The initial installation of the luminaire according to the invention is performed as follows:

The upper housing is mounted on the pole by sliding the slipfitter over the pipe support 16 until the free end of the pipe comes in contact with the stop flange 68. Bolts 88 are tightened to secure the upper housing 12 in an approximately horizontal position. It will be noted that the upper housing 12 as well as the lower housings are made of a light metal alloy and each can readily be handled by one man standing on a ladder or the like. The wires 48, 50 are then secured to contact plates 52, 54.

The ballast unit housing 22 is next lifted into such a position adjacent the upper housing that the pivots 18 are above the slots 20, as shown in FIG. 8. Housing 22 is next maneuvered into position by guiding bosses 18 into the slots 20 until they come to rest at the bottom portion of the latter. Housing 22 is then pivoted upwardly until its upper peripheral edge abuts the bottom edge of upper housing 12. In this position the openings in brackets 24 and 26 one of which is threaded, will be in alignment, thus permitting the brackets to be secured to one another by means of the knurled screw 28. In this closed position of the housing 22, the spring-tensioned contact points 58 will be pressed against the respective contact plates 52, 54, thus completing the circuit from the power supply source through the ballast unit 42.

The lamp 45 is next inserted into lamp socket 44. The globe assembly 34 is next lifted into a position similar to that described in connection with the ballast housing 22. The pivots 32 of the globe assembly are guided downwardly into slots 30, as shown in FIG. 9, until the globe assembly is pivotally suspended from ballast housing 22. The globe assembly is next pivoted into closed position in which it is secured by means of spring 36 and latch 38.

To adjust the luminaire at a desired angle with respect to the horizontal, the bolts 88 in the slipfitter 14 are loosened sufficiently to permit the slipfitter, and with it the entire luminaire to pivot by means of pivot rib 66 on pipe support 16. The luminaire can thus be adjusted in a vertical plane by tilting it in either direction while tightening or loosening either of the bolts 88. At the same time, if need be, the luminaire may be rotated about pipe support 16 for further adjustment. When the desired position of the luminaire is established the bolts 88 are given an additional partial turn to make certain that the luminaire is securely mounted on the pipe support.

To disassemble the luminaire for maintenance or repairs such, for example, as replacing the ballast unit 42,

the globe assembly 34 is removed by depressing the spring 36 by means of rod 40, thereby unlocking this assembly and after swinging it downwardly, guiding the pivots 32 outwardly of the slots 30. The brackets are disengaged by unscrewing knurled screw 28, thus enabling the ballast unit housing 22 to swing downwardly as in the case of the globe assembly 34. Lamp 45 is next removed from lamp socket 44. Housing 22 is then disengaged from the upper housing 12 by guiding pivots 18 outwardly of slots 20 in the slipfitter 14 until it is free.

In order to reduce the interruption of light service to a minimum, it may be desirable for the lineman to have a spare ballast housing unit ready on the ladder so that he may use it to replace a similar damaged unit. Other spare components such as a globe assembly and the like may be carried up on the ladder by the lineman for convenient replacement.

It will thus be seen that both the installation and maintenance of the luminaire can be effected in a substantially shortened time by a single lineman instead of two such men as has been the practice heretofore, while at the same time reducing the attendant hazards.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States is:

1. In a luminaire, in combination, an upper housing open at the bottom thereof, a slipfitter mounting integral with said housing for adjustably securing said housing on a supporting member, a removable lower housing open at the top thereof and enclosing part of the opening at the bottom of said upper housing, means for pivoting said lower housing to said upper housing, means for detachably securing said lower housing to said upper housing, a removable globe assembly pivotally secured to said lower housing and enclosing the rest of the opening of said upper housing, locking means for detachably securing said globe assembly to said upper housing, a ballast unit mounted in said lower housing, a lamp socket mounted in said lower housing and electrically connected to said ballast unit, automatically separable electrical contact means for disconnecting said ballast unit from a source of electric power upon said lower housing being pivoted downwardly, and a reflector removably secured in said upper housing.

2. In a luminaire, in combination, an elongated longitudinally recessed upper housing, a lower removable inverted bowl shaped housing having an open end, said lower housing having a closed end pivotable to one end of said upper housing and adapted to enclose part of the latter's recess means for detachably securing said lower housing to said upper housing, a ballast unit mounted in said lower housing, a lamp socket mounted in said lower housing and electrically connected to said ballast unit, automatically separable electrical contact means for automatically disconnecting said ballast unit from a source of electric power upon said lower housing being pivoted downwardly, a removable globe assembly pivotally secured to said lower housing and enclosing the rest of the upper housing's recess, means for securing said globe assembly to said upper housing in closed position and means for securing said upper housing to a support.

3. In a luminaire, an elongated, longitudinally recessed upper housing, and open at the bottom thereof, a lower removable housing hingedly secured to said upper housing and enclosing a part of the bottom of said upper housing, a ballast unit mounted in said lower housing, a lamp socket mounted in said lower housing and electrically connected to said ballast unit, contact means connecting said ballast unit to a source of electrical power when said lower housing is in closed position, said contact means being operable to disconnect said ballast means when said lower housing is swung downwardly, a removable globe assembly pivotally secured to said lower housing, a reflector secured to said upper housing and a slipfitter integral with said upper housing for securing the luminaire to a support, said slipfitter comprising a

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hood shaped member adapted to receive a longitudinally extending support, a pivot element extending downwardly into said housing a pair of vertically displaceable clamp members spaced on either side of said pivot element, positioned in said housing transversely to the longitudinal axis of the luminaire and adapted to receive a longitudinally extending support in clamping engagement, means for tightening each of said respective clamp members, whereby the slipfitter may be adjusted relative to the horizontal by pivoting said slipfitter on said pivot element and by alternately adjusting the tightening means of said clamp members.

4. The luminaire according to claim 3, wherein there is further provided a stop member integral with said hood,

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for limiting the insertion of a longitudinal support member.

5. The luminaire according to claim 4, wherein said clamp members are of an inverted U-shape and are provided with aligned apertures in their free end portions, a rod extending through said apertures and a pair of rollers mounted on said rod, said rollers being formed with inwardly directed tapers.

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