LAMPSUPPORT DEVICE

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Field of Search ............................... 240/153, 68, 70, 44.2, 90

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ABSTRACT

Luminaire lamp support device for protecting lamp from vibration and breakage under service conditions comprises a pair of spring wire members secured at one end to an adjustable lamp socket bracket and encircling the stem portion of the lamp at the other end. The spring wire members maintain support of the lamp in various axial positions of the socket while permitting ready removal of the lamp for replacement.

4 Claims, 4 Drawing Figures
LAMP SUPPORT DEVICE

The present invention relates to luminaires and particularly to lamp supports for luminaires.

It is an object of the invention to provide a lamp retaining device for lighting fixtures such as outdoor luminaires, especially of street lighting type, to protect the lamp from the effects of vibration to which the fixture may be subjected under operating conditions.

It is another object of the invention to provide a lamp retaining device of the above type which provides desired support of the lamp in various positions to which the lamp socket may be adjusted in the fixture.

Still another object of the invention is to provide a lamp retaining device of the above type which enables ready removal of the lamp for replacement.

It is a further object of the invention to provide a lamp retaining device of the above type which is suitable for application to a wide variety of luminaires and lamps thereof.

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

With the above objects in view, the present invention in one of its aspects relates to a lamp retaining device comprising a lamp socket having an opening, a lamp removably mounted at its base in the socket and having a stem portion extending outwardly of the socket opening, elongated socket support means connected to the socket and extending along the same, and elongated spring means secured at one end to the elongated socket support means and extending therefrom with its other end beyond the socket opening and formed at the latter end with loop means extending around the lamp stem portion in engagement therewith for holding the lamp against vibration.

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

FIG. 1 is an elevational view of a luminaire, partly broken away, embodying the lamp retaining device of the invention;

Fig. 2 is a perspective view of the lamp retaining device;

FIG. 3 is a side elevational view of a portion of the lamp retaining device; and

FIG. 4 is a cross-sectional view of the portion of the device shown in FIG. 3 taken along the line 4 — 4.

Referring now to the drawing, and particularly to FIG. 1, there is shown a street lighting luminaire of a type adapted to be mounted over a street, a bridge or the like, for illuminating the area in the vicinity, and which embodies a vibration-resistant lamp mounting in accordance with the invention to protect the lamp from breakage due to vibration resulting from traffic, wind, or other causes. The luminaire comprises a reflector 1 having a lamp 2 enclosed therein, the lamp being typically of gaseous discharge type such as a mercury vapor lamp, and is removably mounted at its base in a socket 3 which is adjustably secured to the top of reflector 1 by a socket support 4. Lamp 2 is held against vibration by a pair of spring wire members 8a, 8b, encircling the lamp stem, as more fully described below.

As shown in FIG. 2, socket support 4 comprises spaced parallel elongated members 4a, 4b, of generally strip-shape and having similar structure, which will be described below in connection with one of the members 4a. Each member 4a, 4b, is formed at one end with a slotted flange 4c for securing socket support 4 to reflector 1 by means of screws or the like as shown in FIG. 1, and each is formed with an elongated slot 4d extending a substantial distance along its length. At the other end, support member 4a is formed with a flange 4e having a recess formed therein as shown. Connected to socket support members 4a, 4b, and bridging the space therebetween is socket bracket 5 to which socket 3 is fastened at its closed end (see FIG. 1). At opposite ends bracket 5 is formed with flanges 5a, 5b, from each of which a narrow tongue 5c projects and is bent so as to enter slot 4d of the socket support members 4a, 4b, along which it is slidable. Clamp 6, which is arranged with a flat portion overlying the outer slotted surface of support member 4a and a curved portion (see FIG. 4) extending around the side edge of member 4a, is secured to the latter and to flange 5a of bracket 5 by a screw 7 which passes with a loose fit through slot 4d and is in threaded engagement with bracket flange 5a. As a result, when screw 7 is loosened, clamp 6 is movable along with socket bracket 5 for movement of the attached socket 3 and lamp 2 to any desired axial position as permitted by the limits of slot 4d. Pre-selected positions of clamp 6 are indicated by indicia 4f provided on the surface of support member 4a. Tightening screw 7 results in clamp 6 and bracket flange 5a being tightly clamped in position against member 4a.

Lamp retaining means in the form of stiff springlike wire members 8a, 8b, made for example of spring wire metal such as stainless steel and having a diameter typically of 0.125 inch, are connected at one end to clamps 6 of the respective socket support members 4a, 4b, and the wire members extend forwardly therefrom with their opposite ends arranged beyond the opening of socket 3. As seen in FIG. 4, the rear end of wire member 8a passes through the curved portion of clamp 6 and is fixedly secured thereto, e.g., by welding or the like, so that with movement of clamp 6 along slot 4d, wire member 8a moves along therewith relative to fixed support member 4a. At its intermediate portion, wire member 8a passes through the slot in the forward flange 4e so as to be guided thereby during longitudinal movement, and at its front end wire member 8a is formed with an open, expandable loop which extends transverse the lamp axis and encircles the stem portion of lamp 2 in gripping engagement therewith. The corresponding looped retaining portion 8d of the other wire member 8b similarly engages lamp 2 axially adjacent to lamp retaining portion 8c. Preferably, each retaining loop 8c, 8d is covered with a sleeve 8f of thermally resistant, electrically insulating material such as fiber glass, asbestos or the like so as to reduce the possible risk of breakage of the glass or other adverse effects thereon due to a temperature differential between the spring wire loop and the lamp glass, or a difference of electrical potential between the spring wire and interior electrodes of the lamp which may be adjacent thereto. Such a sleeve or covering 8f also provides a desirable cushioning effect between the loops and the lamp.

Typically, the stem portion 2a of lamp 2 has a diameter slightly larger than that of retaining wire loops 8c, 8d, with the latter in normal unexpanded condition, and the latter members are so dimensioned that they
engage lamp stem 2a with sufficient firmness to prevent vibration of the lamp while still permitting the lamp stem 2a to be slid through the loops. As a result, lamp 2 may be unscrewed from socket 3 and removed from the lamp retaining device 4 without disassembling the latter, in the event replacement of the lamp becomes necessary.

Furthermore, the described arrangement is such that lamp socket 3, lamp 2 and wire retaining members 8a,8b are moved as a unit relative to fixed support members 4a,4b for axial adjustment of the lamp without disturbing the vibration-protective arrangement provided therefor.

There is thus provided by the invention a lamp retaining device which protects the lamp from vibration under service conditions, maintains its protective support of the lamp in various socket positions, and permits ready relamping without requiring disassembly.

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 desire to secure by Letters Patent of the United States is:

1. A lamp retaining device comprising, in combination, a lamp socket having an opening at one end, a lamp removable mounted at its base in said socket and having a stem portion extending outwardly of said socket opening, a bracket secured to and projecting laterally from said socket, elongated socket support means extending along said socket, elongated spring means arranged with one end adjacent said elongated socket support means and extending therefrom with its other end beyond said socket opening and formed at said other end with loop means extending around said lamp stem portion in engagement therewith for holding said lamp against vibration, said lamp stem portion between said loop means and said socket being slidable through said loop means to allow removal of said lamp from said socket, and clamp means adjustably connecting said elongated spring means and said bracket to said elongated support means for movement along the latter to selected positions thereon for axial adjustment of said lamp.

2. A device as defined in Claim 1, said elongated support means having slot means extending along the length thereof, said clamp means including fastening means passing through said slot means for connecting said elongated spring means to said bracket.

3. A lamp retaining device comprising, in combination, a lamp socket having an opening at one end, a lamp removably mounted at its base in said socket and having a stem portion extending outwardly of said socket opening, elongated socket support means connected to said socket and extending along the same, and elongated spring means secured at one end to said elongated socket support means and extending therefrom with its other end beyond said socket opening and formed at said other end with loop means extending around said lamp stem portion in engagement therewith for holding said lamp against vibration, said lamp stem portion between said loop means to allow removal of said lamp from said socket, said elongated socket support means being connected to said socket by a bracket projecting laterally from said socket, said bracket and said elongated spring means being connected to said elongated support means for movement together with said socket and said lamp along said support means to selected adjusted positions, clamp means adjustably connecting said elongated spring means and said bracket to said elongated support means for movement along the latter to selected positions thereon for axial adjustment of said lamp, said elongated socket support means comprising a pair of elongated members extending along opposite sides of said socket, said elongated spring wires connected respectively to said pairs of elongated members and each having a loop extending around said lamp stem portion and arranged axially adjacent one another.

4. A device as defined in Claim 3, said elongated members having first flange means at one end for securing the same to a support and having second recessed flange means at the other end for receiving and guiding said spring wires.
UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,694,649 Dated September 26, 1972

Inventor(s) Richard L. Thompson

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the Specification:
Col. 2, line 42, "8" should be - 8a -

In the Claims:
Claim 3, line 22 - after "loop means" insert - and said
socket being slidable through said
loop means -

line 36, after "spring" insert - means comprising
a pair of spring -

Signed and sealed this 6th day of March 1973.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR. ROBERT GOTTSCHALK
Attesting Officer Commissioner of Patents