United States Patent [19]

Davis

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[54] **ADJUSTABLE FLUORESCENT LAMP MOUNTING MEANS**

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[73] Assignee: **Sola Basic Industries, Inc.,** St. Louis, Mo.

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[52] **U.S. Cl.**..... **240/51.12,** 240/51.11 R, 339/50, 339/119 L

[51] **Int. Cl.** **H05b 33/02**

[58] **Field of Search**..... 240/51.12, 52.1, 240/52 R, 51.11 R; 339/50, 57, 125 R, 126 R, 119 L, 51, 52, 53, 54, 55, 56

[56] **References Cited**

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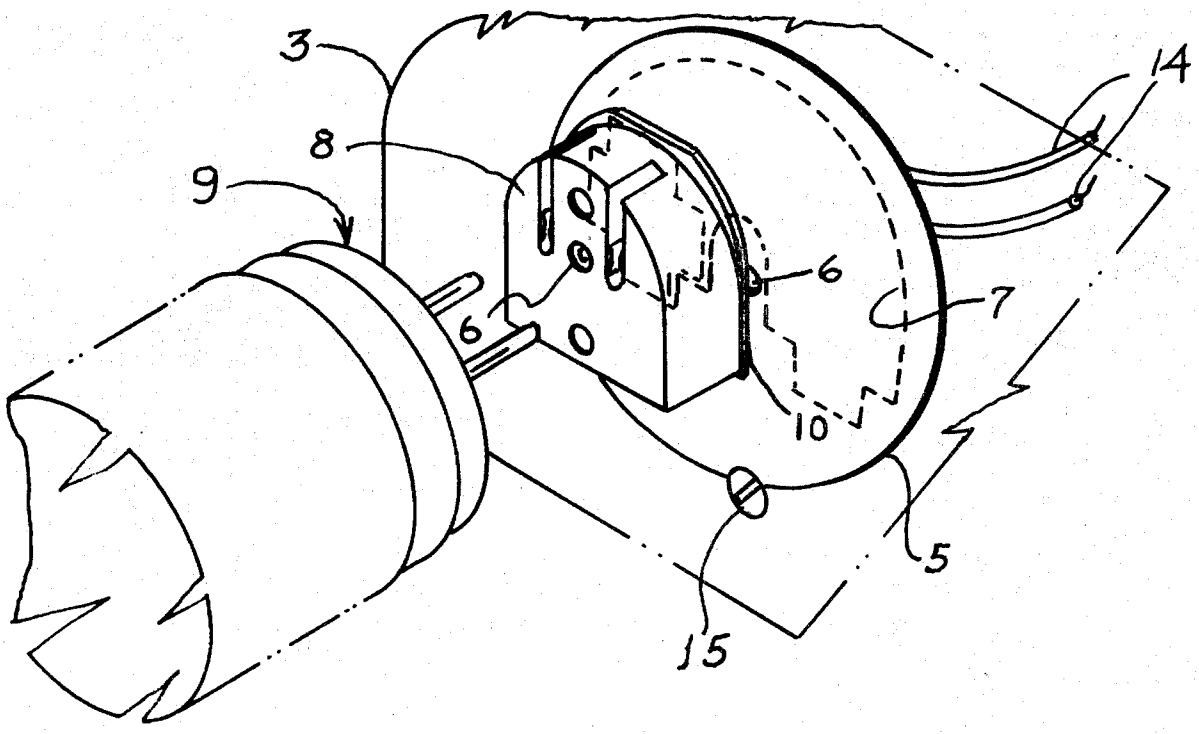
Primary Examiner—Richard L. Moses

Attorney—Paul M. Denk

[57] **ABSTRACT**

In an adjustable fluorescent lamp holder for use in a lighting fixture, a plate member(s) pivotally mounts to an end panel of the fixture and said plate removably supports a lamp socket for accommodating this type of a lamp, and particularly a fluorescent lamp of the U-shaped variety. The plate is pivotal in its mounting to the panel, and a locking means is provided for fixing said plate to the same as when it has been adjusted for positioning of its attaching socket at an approximate location for mounting of a U-lamp of a particular size, in said plate, upon loosening of said locking means, capable of being pivoted for repositioning of said socket to dispose it for accommodating a U-lamp of differing size.

12 Claims, 13 Drawing Figures



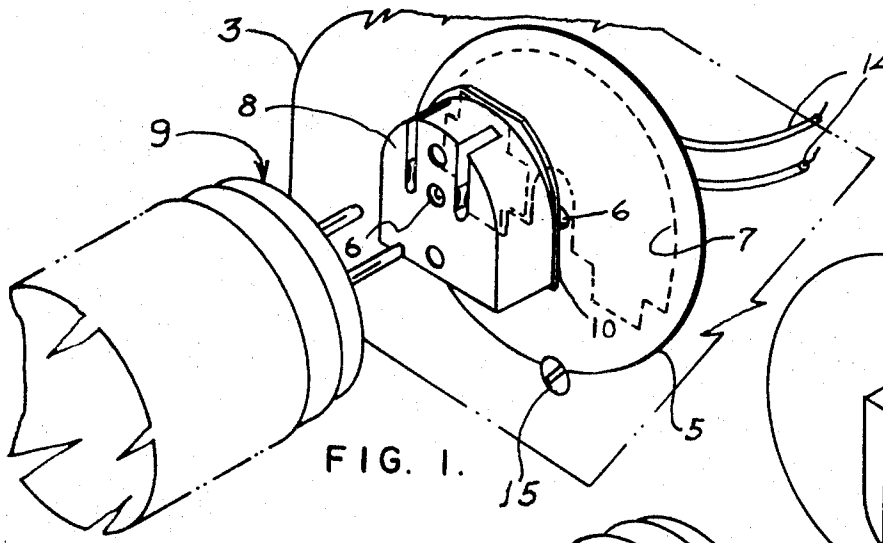
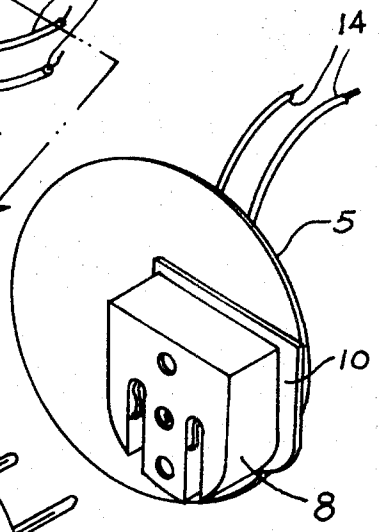


FIG. 1.



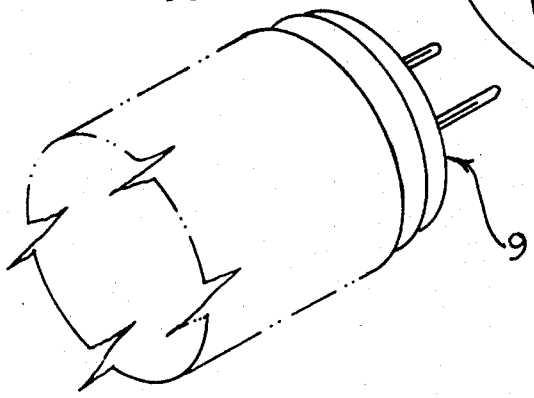


FIG. 2.

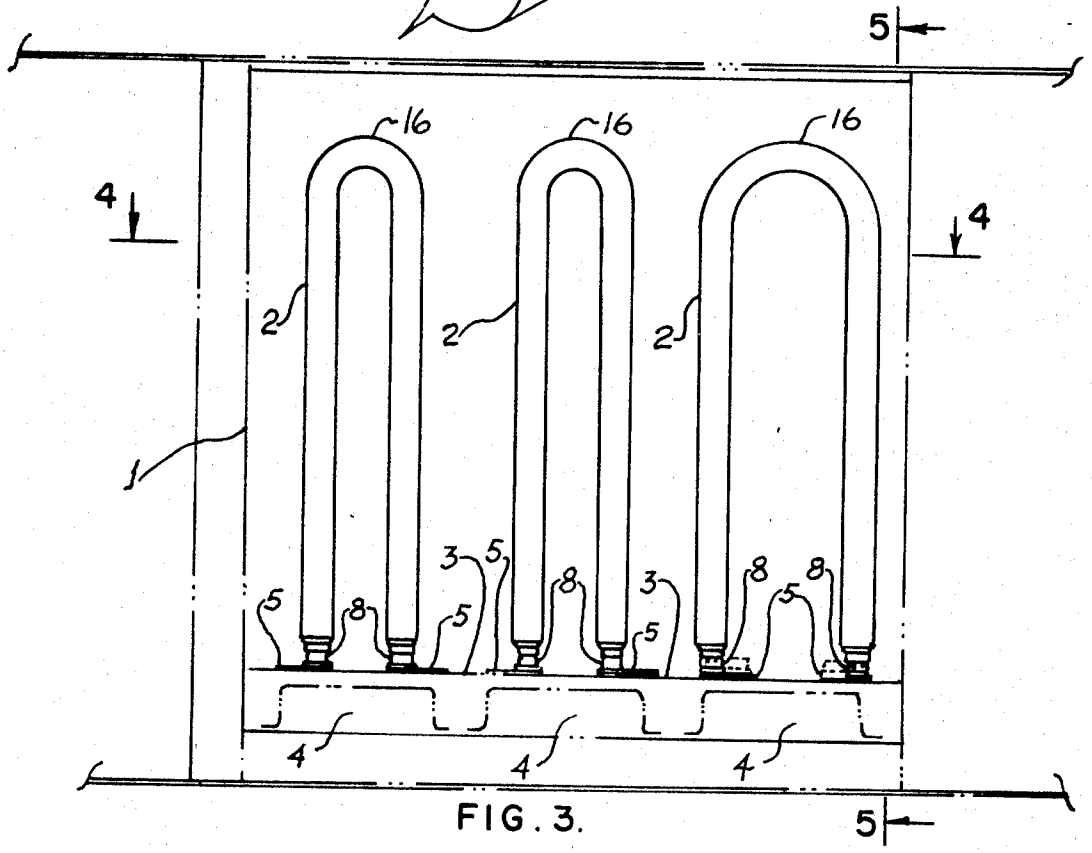


FIG. 3.

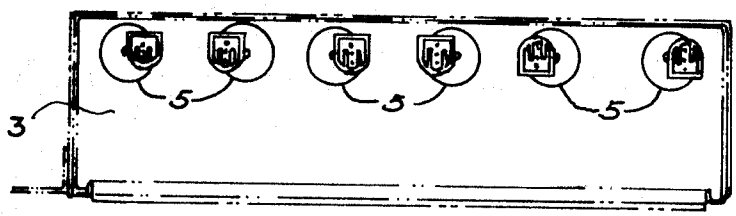


FIG. 4.

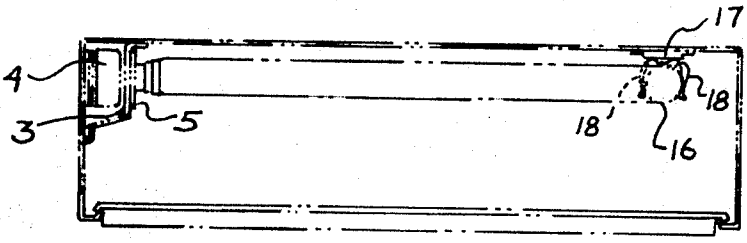


FIG. 5.

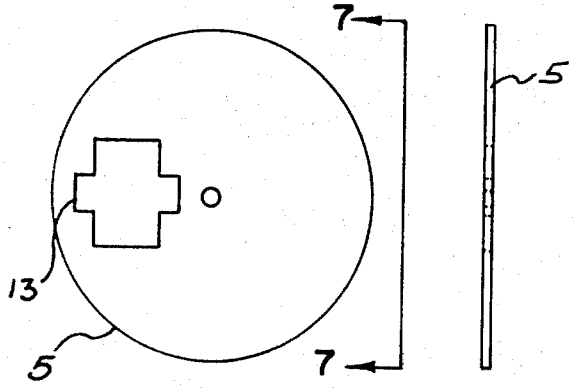


FIG. 6.

FIG. 7.

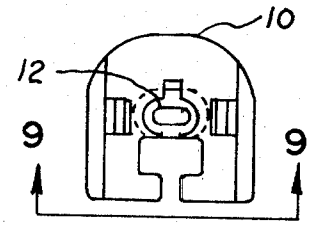


FIG. 8.

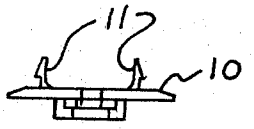


FIG. 9.

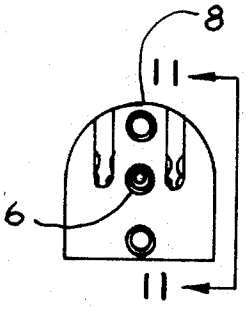


FIG. 10.

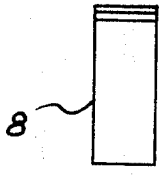


FIG. 11.

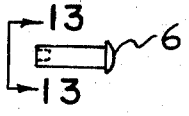


FIG. 12.



FIG. 13.

ADJUSTABLE FLUORESCENT LAMP MOUNTING MEANS

BACKGROUND OF THE INVENTION

This invention generally relates to fluorescent light mountings, and more particularly, pertains to pivotally adjustable fluorescent light sockets for use in supporting various size U-shaped lamps.

Various prior art fluorescent lamp holders have been devised for use in supporting U-shaped lamps, and most of these earlier devices direct their attention to the concept of furnishing substantial play in a lateral direction of the lamp socket so that it can be slid to either side and used for supporting such lamps. Also, and as shown in the prior art patent to Johnson, U.S. Pat. No. 3,568,132, more recent holders for U-shaped lamps have been designed incorporating a self-adjustment feature mainly to allow for some limited movement to the lamp sockets, generally in some angular and lateral directions, so as to ease the process of engaging the two parallel ends of the fluorescent lamp to its sockets during installation. It does not appear that the prior art has directed its attention to the construction of a mount in which the sockets themselves may be conveniently and stably adjusted to provide for a rapid change in the size of the U-shaped lamp being installed, and where such has been attempted, it is usually done by the removal of a panel holding a pair of lamp holders which have limited laterally adjustable attributes, with a replacement by a panel incorporating a pair of lamp sockets that are prefixed at a different distance apart to hold a lamp of another size. Such a maneuver usually requires excessive service of an electrician in also manipulating the circuitry. At present U-shaped lamps are available in basically two designs, one having a center to center dimension of the parallel lamp legs of approximately 3⅝ inches, while the second design has a center to center dimension of approximately 6 inches. Hence, in the prior art, panels each incorporating a pair of holders at approximately these two distances apart have been provided, and one may be removed and the other installed into the lighting fixture to provide for accommondation of either one of these two sizes of U-shaped lamps.

It is the principle object of the present invention to provide a mounting means for a fluorescent lighting fixture which is readily adjustable to provide for quick and facile mounting of either one of the two sizes of U-shaped fluorescent lamps that are presently available upon the market.

It is another object of this invention to provide a U-shaped fluorescent lamp lighting fixture incorporating a mounting means that has been designed in such a manner that quick adjustment by means of pivoting of one or both of the lamp sockets will dispose them for rapid installation for either one of the two U-lamps presently available.

It is a further object of this invention to provide a U-shaped fluorescent lamp lighting fixture wherein it may be adjusted to accommodate any of such commercial lamps without requiring the removal of any particular component.

Another object of this invention is to provide a fluorescent lamp holder for use in a lighting fixture which may be adjusted by simply pivoting of a plate that accommodates the lamp socket.

These and other objects of this invention will become more apparent to those skilled in the art upon reviewing the summary of this invention, the drawings, and the description of its preferred embodiment.

SUMMARY OF THE INVENTION

This design is an adjustable fluorescent lamp holder for use in a lighting fixture incorporates a pair of pivotally mounted plates, each having the usual fluorescent lamp socket connecting proximate the periphery of its respective circular plate, so that adjustment to accommodate the size of the lamp, particularly of U-shaped variety, to be mounted in the fixture can be conveniently achieved with a minimum of effort on the part of the installer. As stated, the invention incorporates a pair of pivotal plates that are mounted to the end panel of the light fixture, and each plate includes an opening of a size designed to provide for attachment to the plate, by means of a mount, a lamp socket, and being of a size to furnish passage therethrough, to the socket, of electrical wires which energize the light from an electrical source and ballast.

As previously described, the usual dimension between the parallel legs of a U-shaped fluorescent light is of two distinct lengths, the present dimensions being 3⅝ inches and 6 inches between the center to center of each lamp leg. The present invention contemplates these available commercial lamp sizes, and has its plates designed so that as they are pivoted in such a manner to provide for the disposition of their sockets at a lateral distance between sockets of approximately the narrower of the aforesaid dimensions, they will hold the smaller sized U-lamp. On the other hand, upon pivoting each plate member approximately 180° and thereby disposing each of their sockets at the greatest lateral distance possible between the two, they will be arranged in position approximately 6 inches apart, and therein accommodate the installation of the aforesaid lamp of greater size. All that need be done to provide for pivoting of these sockets plates is to loosen a locking means, and when each plate has been pivoted into the desired adjusted position, the locking means may be quickly tightened to provide for prompt fastening of each plate firmly in place, and thereby in a stable manner to provide for rigid support of the lamp to be installed.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, FIG. 1 provides a partial view of one leg of a U-shaped lamp that is nearing installation into one of the sockets connecting with a pivotal plate mounting to the end panel of a lighting fixture;

FIG. 2 provides a partial view of one leg of a U-shaped lamp of a different size being installed into the socket attached to the plate which has been pivoted approximately 180° from its position as shown in FIG. 1;

FIG. 3 provides a plan view of a lighting fixture incorporating a series of the mounting means of this invention as used to support a plurality of U-shaped lamps of two different sizes;

FIG. 4 is a transverse sectional view of the lighting fixture taken along the line 4—4 of FIG. 3;

FIG. 5 is a side sectional view taken along the line 5—5 of FIG. 3;

FIG. 6 provides an end view of one of the pivotal plates of this invention utilized for supporting a lamp socket;

FIG. 7 provides an edge view of the plate taken along the line 7—7 of FIG. 6;

FIG. 8 provides a front view of a lamp socket mount that attaches to the pivotal plate of this invention, such as the plate shown in FIG. 6;

FIG. 9 provides a bottom view of the mount shown in FIG. 8;

FIG. 10 provides a front view of the lamp socket which is mounted to the pivotal plate of this invention;

FIG. 11 discloses a side view of the lamp socket shown in FIG. 10;

FIG. 12 provides a side view of a fastening means that is useful for mounting both the lamp socket to its mount, or the pivotal plate to the end panel of the lighting fixture; and

FIG. 13 provides an end view of the fastening means shown in FIG. 12.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings for one illustrative embodiment of the adjustable fluorescent lamp mounting means of this invention, FIG. 3 discloses a lighting fixture 1 mounting a series of various sized U-shaped fluorescent lamps 2 to its end panel 3, which in this case, comprises a wall of the housing that supports the series of ballasts 4 normally included in the operating circuitry of fluorescent lamps.

A portion of the end plate 3 is disclosed in FIG. 1, and has mounted thereto for pivotal movement a plate member 5, which centrally connects to said panel by means of a fastening device, such as a screw, or a rivet 6, such as the rivet shown in FIGS. 12 and 13.

Connecting to the exposed surface of the plate member 5 is a commercially available fluorescent light socket 8 which is the type incorporating a pair of spring biased clips within the slots to accommodate the insertion of the bipined end of a leg of a fluorescent lamp, as shown at 9. The lamp socket 8 is more accurately disclosed in FIGS. 10 and 11 of the drawings.

Intermediate each socket 8 and the pivotal plate 5 is a mount 10, as shown in FIGS. 8 and 9, which is of the type normally connecting to the backside of a fluorescent lamp socket and which includes a pair of resilient projections, as at 11, that are useful and disposed for easy attachment of such a socket to a lamp fixture. Also, the attachment of the socket 8 to the mount 10 is normally made through the positioning of a rivet, as at 6, through the center of the socket and also through a laterally elongated aperature 12 in the mount so as to provide for slight lateral adjustment of the socket with respect to that portion of the lighting fixture to which it securely attaches. In this particular invention, the pivotal plate 5, as also shown in FIGS. 6 and 7, has an eccentrically disposed designed opening provided therethrough, as at 13, with the wider portion of said opening being of a width sufficient to accommodate through the snug insertion and attachment of the projections 11 of the mount 10 therein, with the lower, narrower portion of said opening providing clearance for disposition of the circuit wires 14 of the lamp sockets therethrough. See once again FIG. 1.

It is also to be noted from FIG. 1 that the pivotal plate 5 has been arranged with respect to the panel 3 in a manner so as to dispose its socket 8 laterally or to one specific side of the lighting fixture, and in this position, can support one end of a U-shaped fluorescent lamp when installed. On the other hand, where it is intended to install a similar type lamp of lesser dimensions, the pivotal plate 5 may be freed from its snug securement against the end panel 3 by means of loosening the fastening means 15, in this case being the common screw as shown, and thereby pivoting said plate, and its attached mount and socket, approximately 180° so as to arrange and locate said socket at a position that provides for its closer proximity to the other pivotal plate and socket that has been rear-ranged for installation of the other and parallel leg of the U-shaped lamp. For example, the U-shaped lamps shown at the left and center of the fixture in FIG. 3 each have a center to center leg dimension of approximately 3⅝ inches, and to accommodate the installation of this smaller sized lamp its pivotal plates 5 have been pivoted in a manner that provides for the disposition of their respective sockets 8 closer to each other at the circumferential edges of the two plates thereby providing a proximity between said two sockets. On the other hand, and by viewing the large size U-shaped lamp disclosed on the right hand side of the lighting fixture disclosed in FIG. 3, you can see that its pivotal plates 5 have been loosened and pivoted in a manner that provides for the disposition of their respective lamp sockets along the outer periphery of each plate and at a position which provides for the greatest distance between the same to allow for installation of a lamp that has a 6 inch center to center dimension between its parallel legs.

It can be seen that as each plate 5 and its socket 8 are being pivoted the approximate 180° to provide for a redisposition of the sockets, the circuit wires 14 will be free to move within the arcuate-like slot 7 provided through said end panel 3, thereby manipulating this adjustment with little or no resistance, with said wires having sufficient clearance.

As previously described, each mount 10 and its connecting lamp socket 8 are removably attached by means of the projections 11 into the opening 13 of each pivotal plate. Therefore, by compressing the two resilient projections together, the mount and socket may be removed from its respective plate. Likewise, and as previously mentioned, the fastening means 6 holding the pivotal plate to the end panel may also be removable, and in this manner, the plate 5 could be freed from the panel, and reversed, if desired.

But, it is to be noted from FIG. 6 that the opening 13 provided to one side of the pivotal plate 5 is formed having a wider portion cut proximate the center of the opening, with upper and lower narrower portions communicating with and formed integrally of said intermediate portion. The usefullness of the disposition of this opening in the plate can be explained as follows. Upon noting the disposition of the socket 8 in its mounting upon the pivotal plate, as in FIG. 2, the bipined slots of the socket are disposed in a downwardly opening direction. This is the customary manner in which a fluorescent light socket is mounted so that upon installation of the lamp, it can be slid upwardly into the socket and engaged and held by its spring clips provided within the two slots. But, when the combination socket 8 and plate 5 are pivoted approximately 180°, to the position as it is shown in FIG. 1, it can be seen that the socket slots are oriented in an upward direction, and to facilitate the ease of installation of the fluorescent lamp, the installer may simply disengage the projections 11 of the socket's mount 10 from within the aperature 13, invert the socket, once again reinsert the projections into said opening 13, and in this manner have the socket slots

disposed in a downward direction, making it easy for the insertion and installation of the lamp within said socket. Naturally, since the opening **13** has these narrower upper and lower portions provided therewith, there will be plenty of clearance for the circuit wires **14**, and they need not be disconnected from the ballast or lamp circuitry to provide for this quick manipulation repositioning of the socket. Hence, as described, while the socket **8** may be pivoted upon the plate **5** to provide for its disposition in either of the two lateral directions, as for holding lamps of at least two different sizes, at the same time, the socket **8** may also be disengaged and inverted so that its lamp slots may be disposed in that direction which provides for facile and complete support for the fluorescent light.

As also shown in FIG. **5**, the turned end **16** of the U-shaped lamp requires some support when the lamp has been installed in the lighting fixture. For this reason there is provided a clip **17** incorporating a pair of downwardly disposed resilient legs **18** that are useful for snugly embracing this portion of the lamp, and provide for its suspension. Hence, while each leg of the bipined ends of the lamp are supported and retained in their respective sockets **8**, the other or turned portion of the U-shaped lamp is supported by this clip **17**. Therefore, the lamp has total suspension and support within the fixture.

Numerous variations in the construction of the fluorescent lamp holder of the lighting fixture of this invention, within the scope of the appended claims, will occur to those skilled in the art in light of the foregoing disclosure. As previously stated, the specific description of the preferred embodiment is meant to be illustrative of its basic principle, and any variations and equivalent designs within the spirit and scope of the claims as set forth are to be ascribed their protection.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. In an adjustable fluorescent lamp holder for use in a lighting fixture incorporating at least one end panel, a plate member being pivotally mounted to said panel, a fluorescent lamp socket having socket wires connected thereto, said plate member having an opening therein to accommodate attachment of said socket and insertion of its wires therethrough, locking means disposed for fixing said plate member to said panel with its attached socket being disposed laterally with respect to the center of said plate. whereby upon loosening said locking means and pivoting the plate member its socket is repositioned for supporting a fluorescent lamp of differing size.

2. The invention of claim **1** wherein said plate member is pivoted approximately 180° to dispose its socket to one side for support of a fluorescent lamp, and said locking means capable of being tightened to fix said plate stably to said panel to support said lamp.

3. In an adjustable fluorescent lamp holder for use in a lighting fixture incorporating at least one end panel, said fixture being of the type designed to accommodate U-shaped lamps of differing size, a plate member pivotally mounted to said panel, a fluorescent lamp socket connected to said plate, locking means disposed for fixing said plate member to said panel, said plate member disposing its connected socket laterally for accommodating a lamp of one size, and said plate member upon loosening of said locking means and being pivoted approximately 180° disposing its connected socket for accommodating a lamp of differing size.

4. In a lighting fixture for accommodating U-shaped lamps of more than one size, said fixture incorporating at least one end panel, a pair of fluorescent lamp holders, each holder including a plate member being pivotally mounted to said panel, a fluorescent lamp socket connected to each plate, locking means disposed for fixing each plate member to said panel, each plate member disposing its connected socket laterally and distant from each other to accommodate a lamp of large size, and each plate member upon loosening of said locking means and upon their pivoting approximately 180° disposing their connected sockets in a closer relationship to accommodate a lamp of smaller size.

5. The invention of claim **1** wherein said socket attaches loosely to a connecting mount providing for slight lateral adjustment of said socket with respect to its pivotal plate member, said mount incorporating a pair of projections which are disposed for engaging the edges of said plate opening thereby fixing said mount with respect to said pivotal plate member, and said mount being disconnectable from said plate member.

6. The invention of claim **5** wherein said pivotal plate is removable from said end panel and capable of attachment on its reverse side to said panel, said mount and connecting socket being disconnectable from said plate for reattachment to its reverse surface.

7. The invention of claim **4** and including a clip connecting to said fixture and supporting the lamp at a location where it forms its U-shaped bend.

8. The invention of claim **7** wherein said clip incorporates a pair of downwardly extending resilient legs designed for snugly embracing and retaining the lamp at this location, with said lamp being removable from said clip through the exertion of a downward pressure acting against the resiliency of said clip.

9. The invention of claim **1** wherein said end panel has an opening therethrough to provide clearance for movement of said socket wires upon the pivoting of said plate and repositioning of its lamp socket.

10. The invention of claim **9** wherein said panel opening is of arcuate shape.

11. The invention of claim **4** wherein said lighting fixture incorporates a ballast housing, and said end panel comprises a wall of said housing.

12. The invention of claim **1** wherein said plate opening accommodates attachment of said socket thereto, with said opening communicating with upper and lower openings which provide clearance for disposition of said socket wires therethrough.

* * * * *