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W. NIEDER-WESTERMANN

3,209,141

LIGHTING FIXTURE

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Fig. 1.

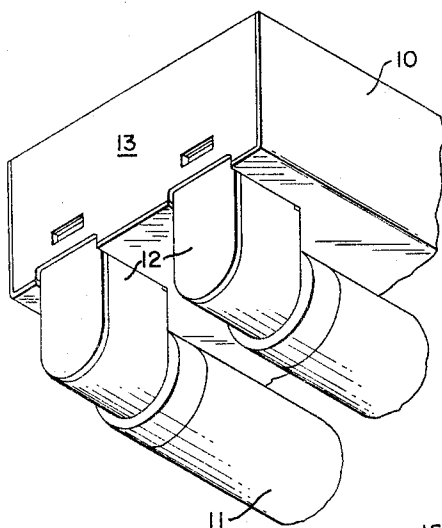


Fig. 2.

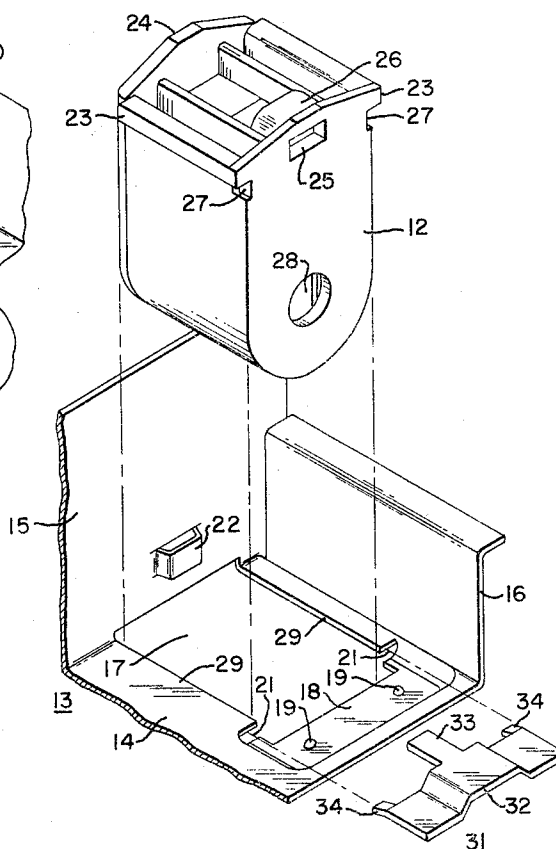


Fig. 4.

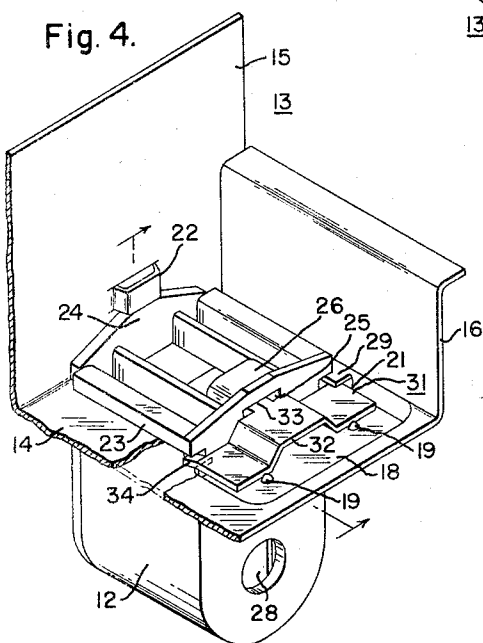
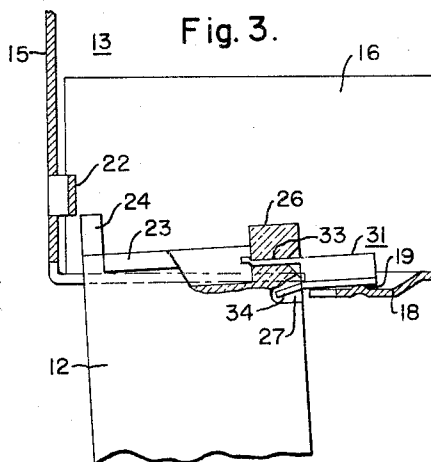


Fig. 3.



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LIGHTING FIXTURE

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12 Claims. (Cl. 240—51.11)

This invention relates, generally, to lighting fixtures and, more particularly, to means for retaining fluorescent lampholders in lighting fixtures.

Nearly all fluorescent lampholders heretofore available for use with fluorescent lighting fixtures are mounted in the fixture by means of screws and nuts. The foregoing assembly has certain disadvantages, one of which is the time required to assemble the lampholder in the fixture, which increases the cost. Another disadvantage is that it requires an objectionably deep wire channel in order to have the space necessary for replacing the lampholder in the field.

Accordingly, an object of this invention is to provide a lampholder and mounting plate assembly which does not require threaded means for retaining the parts of the assembly together.

Another object of the invention is to provide for retaining a lampholder and mounting plate in assembled relationship by frictional means.

A further object of the invention is to provide a frictionally held locking plate for retaining a lampholder in a mounting plate. Still another object of the invention is to provide a mounting plate, a lampholder and a locking plate which can be assembled and disassembled without the aid of tools.

A still further object of the invention is to provide a mounting plate and lampholder assembly which is simple and efficient in operation and which may be economically manufactured and installed.

Other objects of the invention will be explained fully hereinafter or will be apparent to those skilled in the art.

In accordance with one embodiment of the invention, a mounting plate for supporting a lampholder has a generally rectangular opening therein in which the lampholder is retained by means of a locking plate slidably disposed in a depressed area in the mounting plate adjoining one end of the opening. The locking plate is retained by a pair of raised dimples on the surface of the depressed area. A projection on the locking plate extends into a recess in the lampholder and additional projections at corners of the locking plate extend under edges of the mounting plate at opposite sides of the opening. Also, a projection on a rear wall of the mounting plate engages the lampholder. Thus, the lampholder is frictionally retained in the opening. The locking plate may be released by forcing it outwardly over the dimples.

For a better understanding of the nature and objects of the invention, reference may be had to the following detailed description, taken in conjunction with the accompanying drawing, in which:

FIGURE 1 is a view, in perspective, of a portion of a fluorescent lamp fixture having lampholders retained in the fixture in accordance with the present invention;

FIG. 2 is an exploded view, in perspective, showing the manner of assembling one of the lampholders in the supporting member;

FIG. 3 is an elevational view, partly shown in section, illustrating the supporting member or mounting plate and an alternative embodiment of the lampholder prior to sliding same into a locked position, and

FIG. 4 is a view, in perspective, showing the manner in which the lampholder is retained in the supporting member.

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Referring to the drawings, the portion of a lighting fixture shown in FIGURE 1 comprises a wiring channel 10, two fluorescent lamps 11, a lampholder 12 for each one of the lamps 11, and a supporting member or mounting plate 13 for the lampholders 12. The supporting members 13 may be utilized as an end plate or closure for the end of the wiring channel 10.

As shown more clearly in FIGURE 2, the supporting member or mounting plate 13 comprises a bottom wall 14, a rear wall 15 and two side walls 16, only one of which is shown in the present drawing. A generally rectangular opening 17 is provided in the bottom wall 14 for each one of the lampholders 12. Since the mounting arrangement for each lampholder is the same, the details for only one lampholder are shown and described. The mounting plate 13 may be formed in one piece from sheet steel. During the stamping or forming operation a depressed area 18 is provided adjoining the front end of the opening 17. Two spaced raised dimples 19 are provided on the upper surface of the depressed area 18.

It will be noted that the longest dimension of the depressed area 18 is greater than the width of the rectangular opening 17. Thus, an opening or notch 21 at each side of the opening 17 provides access to the bottom side of the plate 14 at the edges of the opening 17. An inwardly extending lance or projection 22 is also provided on the rear wall 15 during the forming of the mounting plate 13.

As also shown more clearly in FIGURE 2, the lampholder 12, which may be formed of porcelain or other suitable insulating material, is provided with a shoulder 23 at the top of each side of the lampholder. A raised portion 24 is provided at the top of the rear end of the lampholder 12. An opening 25 is provided in a raised portion 26 at the front end of the lampholder 12. A notch 27 is provided underneath each shoulder 23 at a front end of the holder 12. An opening 28 is also provided in the front end of a lampholder for receiving a contact member of a fluorescent lamp 11, which may be of a type having only one contact member at each end of the lamp. It will be understood that lampholders suitable for fluorescent lamps of other types may be provided, such as those which utilize two contact pins at each end of the lamp. The necessary electrical contact members are provided inside the lampholder 12.

As is shown in FIGURES 2 and 4 the lampholder 12 may be assembled in the supporting member or mounting plate 13 by placing the lampholder 12 in the opening 17 with the shoulders 23 resting upon opposite edges 29 of the plate 14 at the sides of the opening 17. The lampholder 12 is retained in the opening 17 by means of a locking plate 31 which is shown most clearly in FIGURE 2. As shown, the locking plate 31 is generally rectangular in shape and it may be formed from sheet steel. The locking plate 31 has a raised portion 32 intermediate the ends of the plate. A laterally extending projection 33 is provided on the raised portion 32. A projection 34 is provided at each one of the two corners of one side of the plate 31. The projections 34 are preferably bent downwardly slightly as shown in FIGURE 2 to facilitate engagement thereof with the undersides of the edges 29 of the rectangular opening 17 adjacent the mounting plate notches 21.

After the holder 22 is placed in the opening 17, it is moved to the rear with the raised portion 24 disposed underneath the projection 22 on the rear wall 15. The projection 33 on the locking plate 31 is then inserted into the opening 25 and the lampholder and the projections 34 on the plate 31 are inserted into the spaces or notches 21 underneath the edges 29 of the plate 14 at the sides of the openings 17. The plate 31 is moved inwardly over the dimples 19 by applying pressure on the raised

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portion 32 of the plate 31. As shown in FIGURE 4, the plate 31 is inserted to a position between the dimples 19 and the front end of the lampholder 12. In this position the projection 33 is inserted into the opening 25 to prevent the lampholder from being raised out of the opening 17, since the rear end of the lampholder engages the projection 22 on the rear wall 15. The front end of the lampholder cannot be raised since the projections 34 on the plate 31 are disposed in the notches 27 underneath the edges 29 of the mounting plate 14. In this manner, the lampholder 12 is retained in the supporting member 13.

If it is desired to remove the lampholder from the supporting member 13, the lampholder may be moved forwardly in the opening 17 by applying sufficient force at the rear of the lampholder to cause the locking plate 17 to ride up over the dimples 19. In this manner the projections 34 on the plate 31 are moved out from under the edges 29 of the plate 14 and the raised portion 24 of the lampholder is moved out from under the projection 22 on the rear wall 15. The lampholder 12 may then be raised out of the opening 17. Thus, the lampholder 12 with supporting member 13 and with locking plate 31 is readily assembled and disassembled without the aid of tools.

FIG. 3 shows an alternative preferred embodiment according to the invention, wherein the locking plate 31 is secured through opening 25 in the raised portion 26 of the lampholder 12, by deforming the projection 33 at the end thereof. In this arrangement it is necessary that the opening 17 be of sufficient length for the projections 34 on the plate 31 to clear the sides 29 of the opening 17 adjacent the spaces or notches 21. As shown in FIG. 3, the lampholder 12, with locking plate 31 secured thereto, is inserted into the opening 17. The plate 31 rides on top of the dimples 19 in the depressed area 18. As the lampholder assembly is urged rearwardly (indicated by an arrow), with the shoulders 23 resting on the sides 29 of the opening 17, the projections 34 engage the sides 29 forcing the assembly into frictional engagement with the mounting plate 13. The raised portion 24 slides under the projection or lance 22 on the rear wall 15, and thus the lampholder 12 is secured in place without screws or bolts. In this embodiment the lance 22 is not actually necessary if a full end plate is used, whereby a flush engagement of the rear wall of the lampholder 12 with a full end plate would be sufficient to retain the lampholder 12 in place. Furthermore, in lieu of the lance 22, a tab (not shown) may be used to engage an opening, similar to opening 25, in the raised portion 24 of the lampholder 12. Disengagement of the lampholder 12 would be identical to that of the first embodiment, as described in the preceding paragraph.

From the foregoing description it is apparent that the invention provides for mounting a fluorescent lampholder in a lighting fixture without requiring threaded means or other devices which require the use of tools during the assembling operation. The lampholder may also be removed from its supporting member without the aid of tools. The mounting plate 13 and the locking plate 31 may be readily formed in a manner well known in the art. The supporting member 13 and the lampholder 12 may be installed in a relatively shallow wiring channel or other parts of a lighting fixture.

Since numerous changes may be made in the above described construction, and additional embodiments of the invention may be made without departing from the spirit and scope thereof, it is intended that all the matter contained in the foregoing description or shown in the accompanying drawings shall be interpreted as illustrative, and not in a limiting sense.

I claim as my invention:

1. A support for a lampholder, said support comprising, a mounting plate having an opening therein, a lampholder disposed in said opening, a depressed area adjoining one side of the opening, a raised dimple on the surface

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of the depressed area, and a locking means disposed between the dimple and the lampholder and engaging the lampholder and the mounting plate at opposite sides of the opening to retain the lampholder in the opening.

2. A support for a lampholder, said support comprising, a mounting plate having an opening therein, a lampholder disposed in said opening, a depressed area adjoining one side of the opening, a raised dimple on the surface of the depressed area, locking means in engagement with the lampholder and slidably disposed in the depressed area between the dimple and the lampholder, and said locking means engaging edges of the mounting plate at opposite sides of the opening to retain the lampholder in the opening.

3. A support for a lampholder, said support comprising, a mounting plate having an opening therein, a lampholder disposed in said opening, a depressed area adjoining one side of the opening, a raised dimple on the surface of the depressed area, a locking plate slidably disposed in the depressed area between the dimple and the lampholder, said locking plate engaging said lampholder, and the ends of said locking plate being disposed underneath edges of the mounting plate at opposite sides of the opening to retain the lampholder in the opening.

4. A support for a lampholder, said support comprising, a mounting plate having an opening therein, a lampholder disposed in said opening, a depressed area adjoining one side of the opening, a raised dimple on the surface of the depressed area, a locking plate slidably disposed in the depressed area between the dimple and the lampholder, said locking plate engaging said lampholder and said locking plate having projections thereon extending underneath edges of the mounting plate at opposite sides of the opening to retain the lampholder in the opening.

5. A support for a lampholder, said support comprising, a mounting plate having an opening therein, a lampholder disposed in said opening, a depressed area adjoining one side of the opening, a raised dimple on the surface of the depressed area, a locking plate slidably disposed in the depressed area between the dimple and the lampholder, a projection on the locking plate engaging the lampholder, and additional projections on the locking plate extending underneath opposite edges of the mounting plate at sides of the opening to retain the lampholder in the opening.

6. In combination, a supporting member having a bottom wall and a rear wall disposed at substantially a right angle to the bottom wall with a generally rectangular opening in the bottom wall, a projection on the rear wall above said opening, a depressed area in the bottom wall adjoining the front end of the opening, two spaced raised dimples on the surface of the depressed area, a lampholder disposed in the opening and engaging the projection on the rear wall, a generally rectangular locking plate slidably disposed in the depressed area between the lampholder and said dimples, and projections on the locking plate extending underneath edges of the bottom wall at opposite sides of the opening to retain the lampholder in the opening.

7. In combination, a supporting member having a bottom wall and a rear wall disposed at substantially a right angle to the bottom wall with a generally rectangular opening in the bottom wall, a projection on the rear wall above said opening, a depressed area in the bottom wall adjoining the front end of the opening, two spaced raised dimples on the surface of the depressed area, a generally rectangular lampholder disposed in the opening and engaging the projection on the rear wall, said lampholder having a recess in the front side thereof, a generally rectangular locking plate slidably disposed in the depressed area between the lampholder and said dimples, a projection on one side of the locking plate extending into the recess in the lampholder, and the ends of the locking plate extending underneath the edges of the bottom wall at the sides of the opening to retain the lampholder in the opening.

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8. In combination, a supporting member having a bottom wall and a rear wall disposed at substantially a right angle to the bottom wall with a generally rectangular opening in the bottom wall, a projection on the rear wall above said opening, a depressed area in the bottom wall adjoining the front end of the opening, two spaced raised dimples on the surface of the depressed area, a generally rectangular lampholder disposed in the opening and engaging the projection on the rear wall, said lampholder having a recess in the front side thereof, a generally rectangular locking plate slidably disposed in the depressed area between the lampholder and said dimples, said locking plate having a raised portion intermediate its ends, a projection extending laterally from said raised portion into the recess in the lampholder, and the ends of the locking plate extending underneath edges of bottom wall at opposite sides of the opening to retain the lampholder in the opening.

9. In combination, a supporting member having a bottom wall and a rear wall disposed at substantially a right angle to the bottom wall with a generally rectangular opening in the bottom wall, a projection on the rear wall above said opening, a depressed area in the bottom wall adjoining the front end of the opening, two spaced raised dimples on the surface of the depressed area, a generally rectangular lampholder disposed in the opening and engaging the projection on the rear wall, said lampholder having a recess in the front side thereof, a generally rectangular locking plate slidably disposed in the depressed area between the lampholder and said dimples, said locking plate having a raised portion intermediate its ends, a projection extending laterally from said raised portion into the recess in the lampholder, and additional projections extending from corners of the locking plate underneath edges of the bottom wall at opposite sides of the opening to retain the lampholder in the opening.

10. In combination, a supporting member having a bottom wall and a rear wall disposed at substantially a right angle to the bottom wall with a generally rectangular opening in the bottom wall, a projection on the rear wall above said opening, a depressed area in the bottom wall adjoining the front end of the opening, two spaced raised dimples on the surface of the depressed area, a generally rectangular lampholder disposed in the opening and engaging the projection on the rear wall, said lampholder having a recess in the front side thereof, a generally rectangular locking plate slidably disposed in the depressed area between the lampholder and said dimples, a projection on one side of the locking plate extending into the recess in the lampholder, and the ends of the locking plate extending underneath the edges of the bottom wall at the sides of the opening to retain the lampholder in the open-

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ing, and said locking plate being removable to release the lampholder by forcing the plate over said dimples.

11. A lampholder support assembly comprising:

- (a) a generally L-shaped section mounting plate having a generally rectangular opening in the lower leg thereof;
- (b) a lampholder of such a width to be insertable within said rectangular opening, said lampholder having projecting means from opposite sides thereof adjacent the top portion thereof abutting against said mounting plate adjacent the opening therein to limit the insertion of said lampholder;
- (c) stop means on the other leg of said mounting plate and frictionally engaging an upwardly disposed portion of the lampholder to limit upward motion thereof; and
- (d) a separate and removable locking member frictionally engaging the lower leg of said mounting plate adjacent said opening and mating with complementally formed portions of said lampholder, and said stop means and said locking member securing said lampholder to said mounting plate.

12. A lampholder support assembly comprising:

- (a) a generally L-shaped section mounting plate having a cut-out portion in the lower leg thereof;
- (b) a lampholder of such a width to be insertable within said cut-out portion, said lampholder having opposed shoulder means adjacent the upper portion thereof abutting said mounting plate adjacent said cut-out portion;
- (c) stop means on the other leg of said mounting plate and frictionally engaging an upwardly disposed portion of the lampholder to limit upward motion thereof; and
- (d) a separate and removable locking member engaging said lampholder, said locking member having projections at the outer edges thereof, and said projections protruding inwardly toward the other leg of said mounting plate and located beneath said shoulder means to frictionally engage the under surface of said mounting plate adjacent said cut-out portion, and an additional projection on said locking member engaging a complementally formed opening on said lampholder to secure said lampholder to said mounting plate.

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NORTON ANSHER, *Primary Examiner*.