March 3, 1964 R. C. DAMERAL 3,123,310

BALLAST HOUSING FOR FLUORESCENT LIGHTING FIXTURES

Filed Sept. 15, 1961

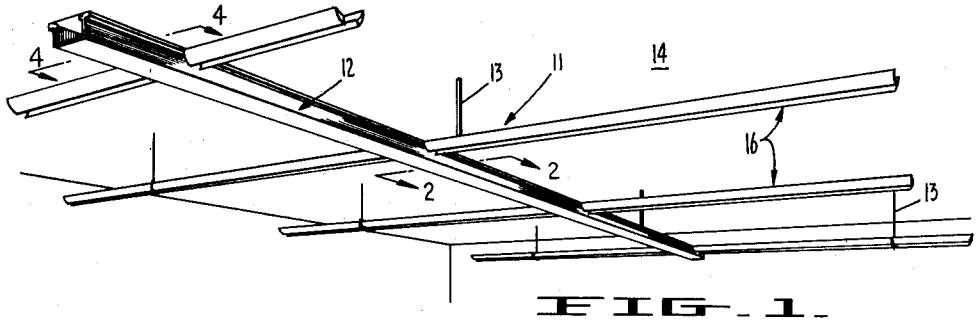


FIG. 1.

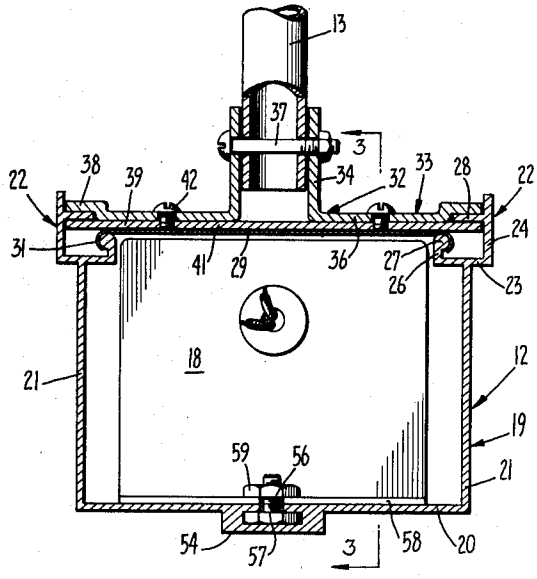


FIG. 2.

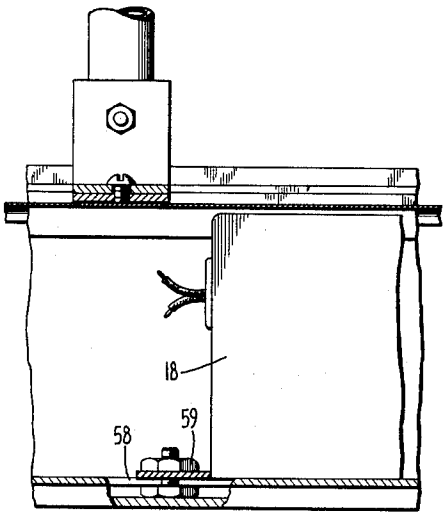


FIG. 3.

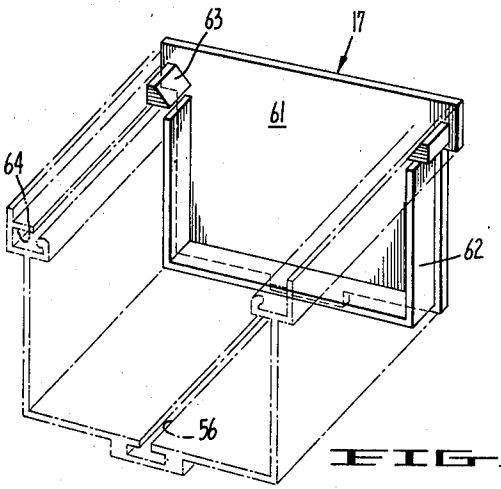


FIG. 5.

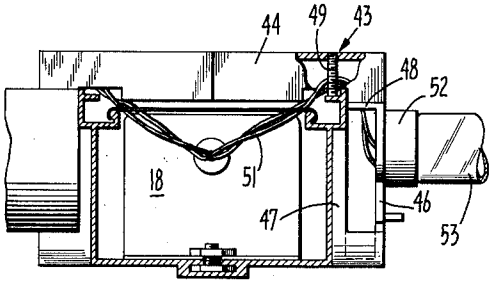


FIG. 4.

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BALLAST HOUSING FOR FLUORESCENT LIGHTING FIXTURES

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6 Claims. (Cl. 240—51.11)

This invention relates to fluorescent lighting fixtures in general, and is particularly directed to a ballast housing therefor which is continuous and independent of a number of outrigger lamp housing units arranged to receive fluorescent lamps.

Various lighting fixtures are known wherein a number of parallel widely spaced fluorescent lamp housings are suspended from a ceiling with ballast boxes extending transversely therebetween at intervals throughout the structure. Fixtures of this variety have the particular advantage of illuminating a large area while occupying a very small area so as to provide very little interference with reflected light from the ceiling nor with the acoustical properties of the ceiling nor with fire extinction equipment installed at the ceiling level. Heretofore it has been the practice to secure a number of ballast boxes between respective pairs of the lamp housings and suspend the lamp housings from a ceiling, the ballast boxes being thus integral members of the fixture and not independently supported.

It will be appreciated that advantages are to be gained where a relatively few continuous, independently supported, ballast housings are employed in a fixture of the foregoing general type with a number of outrigger lamp housing units which may be independently suspended, or supported at one end by one of the ballast housings. The over-all resulting fixture structure is then materially simplified in construction and is more readily installed. In addition, the fixture structure is highly flexible by virtue of the continuous, independently supported ballast housings. Spacing between the lamp housing units may be varied as desired without requirement of ballast housings of a number of correspondingly varied lengths. Moreover, since a relatively few ballast housings are employed in the fixture structure, the ceiling area occupied by the fixture is comparatively less.

I have provided a continuous, independently supported, ballast housing of this type which is particularly arranged to cooperate with lamp housing units of the type disclosed in my copending application for U.S. Letters Patent, Serial No. 138,467, filed September 15, 1961, in the provision of an improved lighting fixture system.

It is therefore an object of the present invention to provide a continuous ballast housing which as arranged to be suspended independently of lamp housings employed therewith in the construction of a lighting fixture system.

Another object of the invention is the provision of a ballast housing of the class described which is constructed to facilitate end attachment of lamp housings to its opposite sides in right angular projecting relation thereto and at readily adjustable longitudinally spaced intervals therealong.

It is still another object of the invention to provide a ballast housing of the class described having means for the securance of ballast units therein at readily adjustable longitudinally spaced positions to accommodate a variety of spacings between lamp housings.

Yet another object of the invention is to provide a ballast housing which is adapted to be supported by means of either stem hangers or wall brackets.

It is still another object of the invention to provide a ballast housing of the class described which is arranged

to cooperate with lamp housing units end secured thereto in the formation of a wire way therebetween at any longitudinal position along the ballast housing.

It is a further object of the invention to provide a ballast housing of the class described which is extremely simple and economical in construction.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

FIGURE 1 is a perspective view of a fluorescent lighting system employing the ballast housing of the present invention.

FIGURE 2 is a transverse sectional view of the ballast housing taken at line 2—2 of FIGURE 1.

FIGURE 3 is a sectional view taken at line 3—3 of FIGURE 2.

FIGURE 4 is a transverse sectional view of the ballast housing taken at line 4—4 of FIGURE 1.

FIGURE 5 is a partial perspective view of one end of the ballast housing illustrating the manner in which it may be supported by wall brackets.

Referring now to FIGURE 1, there is shown a lighting fixture system **11** which includes a continuous elongated ballast housing **12** in accordance with the present invention which is individually supported as by means of stem hangers **13** depending from a ceiling **14**. The system **11** also includes a number of outrigger lamp housing units **16** which are disposed in laterally extending relation to one or both of the sides of the ballast housing at longitudinally spaced intervals therealong. The lamp housing units **16** may be supported entirely independently of the ballast housing as by means of additional stem hangers **13** or cables secured thereto. Preferably, however, the lamp housing units are supported at one of their ends by the ballast housing and at their opposite ends by stem hangers, as depicted in the figure, or by wall brackets or the like.

In the accomplishment of the foregoing as well as to render the lighting fixture system highly flexible it is to be noted that the ballast housing **12** is constructed in a manner which facilitates its support by either the stem hangers **13**, wall brackets **17** of the type illustrated in FIGURE 5 and subsequently described, or the like. In addition, the ballast housing construction is adapted to facilitate convenient end attachment of the lamp housing units **16** to its opposite sides at any desired longitudinal positions therealong while defining wire ways therebetween. The ballast housing also enables ballast units **18** to be adjustably positioned as desired and secured in place therein.

More specifically, ballast housing **11** comprises a substantially channel shaped member **19** including a base wall **20** and parallel spaced longitudinal side walls **21** projecting upwardly therefrom. Of particular importance to the ends of the invention, each of the side walls **21** has a flange **22** of unique configuration along its upper edge which facilitates attachment of the hangers **13**, wall brackets **17** and adjustably positioned end attachment of the lamp housing units **16** thereto. Each flange **22** is substantially J-shaped in cross section and includes a longitudinally extending base portion **23** in right angular relation to its associated side wall **21**. An outer longitudinal side portion **24** projects upwardly from the outer edge of base portion **23**. An inner longitudinal side portion **26** of lesser height than portion **24** projects upwardly from the inner edge of base portion **23** and has a rounded lip **27** at its upper edge outwardly turned towards side portion

24. In addition, a longitudinally extending upper shelf portion 28 projects right angularly inward from outer side wall portion 24 at an intermediate vertical position therealong spaced slightly upward relative to the lip 27. The inner edge of shelf portion 28 is spaced slightly transversely outward from the inner edge of the lip 27.

With the flanges 22 formed as just described longitudinally extending cover plates 29 having downwardly and inwardly turned arcuate side clips 31 are readily secured to the channel member 20 by engagement of the clips with the lips 27. The cover plates 29 may be positioned at any desired locations along the channel member for purposes subsequently described merely by sliding the cover plates along the lips.

The stem hangers 13 are readily secured to the ballast housing by brackets 32 which are arranged to cooperate with the flanges 22 in the manner depicted in FIGURES 2 and 3. The brackets 32 include opposed clamp members 33 of substantially L-configuration each including a vertical side portion 34 and base portion 36 projecting right angularly therefrom. The side portions 34 of the clamp members engage the end of a stem hanger 13 in diametric opposition and a threaded fastener 37 is inserted therethrough or equivalent fastening means are employed to secure the clamp members to the hanger. The base portions 36 have upwardly stepped edge shoulders 38 adapted to engage the upper surfaces of shelf portions 28 of flanges 22. Each bracket 32 then further includes a cross plate member 39 which is adapted to bridge the outer side wall portions 24 of the flanges in underlying engagement with the shelf portions 28. Transversely spaced tapped bores 41 are provided through cross plate member 39 to threadably receive screws 42 inserted through the base portions 36 of the respective clamp members 33. To secure the ballast housing to the stem hangers 13, it is thus only necessary to place the cross plate member 39 and clamp members 33 of each bracket 32 in engagement with respectively the lower and upper edges of the flange shelf portions 28 and loosely threadably engage the screws 42 in the tapped bores 41. The brackets may now be slid longitudinally along the housing to any desired positions and secured in place by tightening the screws 42. The stem hangers 13 may be inserted between the side portions 34 of the clamp members 33 of the respective brackets and secured by means of the fasteners 37.

In the attachment of the ends of the lamp housing units 16 to the ballast housing 12, it is to be noted that each lamp housing unit may be provided with a ballast housing joiner member 43 adapted to releasably retentitively engage the flanges 22. The joiner member is described in substantial detail in my previously referenced copending application and for the purposes of the present invention it suffices to state that the joiner member is of generally inverted L-configuration in side elevation including an upper section 44 of preferably downwardly opening cupped configuration and a depending outer end section 46 coextensive with one end thereof. The member 43 also includes a reentrant inner end section 47 upwardly turned from the lower extremes of the outer end section and spaced therefrom. The joiner member 43 is so dimensioned that when the upper section 44 is disposed transversely of channel member 19 and rests upon the upper edge of the outer longitudinal side portion 24 of one flange 22, the reentrant inner end section 47 engages the under side of the flange base portion 23 and abuts the side wall 21 of the channel member. The joiner member may also be advantageously provided with tabs 48 which project inwardly from outer end section 46 to engage the flange side portion 24 at longitudinally spaced positions thereof. It will be thus appreciated that the joiner members 43 by engagement with the flanges 22 of the channel member 19 in the foregoing manner facilitate end attachment of the lamp housing units 16 thereto. Moreover the joiner members may be moved longitudinally along the flanges to position the lamp housings at any desired positions relative to the ballast housing. Each joiner member may then be releasably fixed in position by means of a set screw 49 threaded through the upper wall of section 44 and tightened against the shelf portion 28 of the flange.

It is important to note that communication between the interior of a joiner member, upper section 44 and the interior of the channel member 19 in whatever position the joiner member is secured thereto is afforded by correspondingly positioning and spacing the cover plates 29. Also the interior of the upper section 44 communicates with the region between the inner and outer end sections 47, 46 through the space between the tabs 48. A convenient wire way is thus defined which enables the wires 51 emanating from the ballast units 18 enclosed within the ballast housing to be led to a receptacle 52 for receiving a fluorescent lamp 53 secured to the outer end section of the joiner member.

Adjustably positionable mounting of the ballast units within the ballast housing to correspond to the placement of the lamp housing units therealong is facilitated by the provision of a central bolt channel 54 which extends longitudinally along the base portion 20 of the channel member 19. Communication between the bolt channel passage and interior of the channel member is afforded by a longitudinal slot 56 of lesser width than the bolt channel passage. Mounting bolts 57 may thus be disposed with their heads in the bolt channel passage and their threaded shafts projecting upwardly through the slot 56, the bolts being slidable therein. The bolt shafts are inserted through apertures in the base flanges 58 of the ballast units and threadably receive nuts 59. Thus with the nuts loose, the ballast units may be slid longitudinally along the base of the channel member 19 to whatever positions are desired and secured therein by tightening the nuts.

Referring now to FIGURE 5, it will be noted that it is the configuration of flanges 22 that facilitates support of the ballast housing by means of the wall brackets 17 alternative to the stem hangers 13 or in cooperation therewith. In this regard the wall brackets 17 include an end plate 61 which may be secured to a wall adjacent the ceiling by any suitable means. A U-shaped rim 62 projects from the plate in inwardly spaced relation to its lower and side edges, the rim being dimensioned to engage the inner bottom and side walls of channel member 19. The side legs of the rim 62 are of a length to engage the undersides of the base portions 23 of flanges 22 when the rim is encompassed by the end of the channel member. A pair of keys 63 of generally trapezoidal cross section also project from the end plate 61 and are adapted to engage the keyways 64 defined by the various portions of the flanges 22. Thus the ends of the ballast housing may be engaged upon the keys and rim of the wall brackets 17 to facilitate wall support of the housing.

It will thus be appreciated that by virtue of the substantial freedom in positioning of the lamp housing units 16 and ballast units afforded by the ballast housing of the present invention as well as the versatility afforded in the support thereof, optimum flexibility in the construction of lighting fixture systems is facilitated.

What is claimed is:

1. In a lighting fixture system, the combination comprising an elongated continuous ballast housing of generally channel configuration including a base portion and upwardly projecting parallel side portions, said side portions having continuous flanges along their upper edges, a plurality of joiner members engaging said flanges in longtiudinally slidable relation thereto, said joiner members having inner end faces abutting the side portions of said housing and outer end faces in parallel relation thereto, fluorescent lamp receiving receptacles secured to the outer end faces of said joiner members, said joiner members and receptacles thereby defining end portions

of transverse lamp housings, means carried by said joiner members for selectively locking same to said flanges, and means secured to said ballast housing for supporting same adjacent a ceiling.

2. In a lighting fixture system, the combination comprising an elongated continuous ballast housing of generally channel configuration including a base and upwardly projecting parallel side walls, said side walls having flanges along their upper edges of substantially J-shaped configuration in transverse cross section each including a base portion in right angular relation to the side wall with an outer side portion projecting upwardly from the outer edge of the base portion and an inner side portion of lesser height projecting upwardly from the inner edge of the base portion and having an outwardly turned rounded upper lip, each said flanges further including a shelf portion projecting inwardly from said outer side portion at a position upwardly displaced from said lip, a plurality of joiner members adapted for attachment to lamp housing units each including an upper section with a depending outer end section at one edge thereof and an inner end section inwardly and upwardly turned from said outer end section in inwardly spaced parallel relation thereto, the upper sections of said joiner members transversely engaging the upper edges of the outer side portions of said flanges at longitudinally spaced positions therealong with the inner end sections of the joiner members abutting the side walls of the ballast housing and engaging the undersurfaces of the base portions of said flanges, threaded fasteners extending through the upper sections of the respective joiner members in threaded engagement therewith and engaging said shelf portions of said flanges, and means for supporting said ballast housing adjacent a ceiling.

3. In a lighting fixture system according to claim 2, the combination further defined by the upper section of each of said joiner members being of generally downwardly opening cupped configuration with the lower edges thereof engaging the upper edge of the outer side portion of the corresponding flange, the outer side section of each joiner member having a fluorescent lamp receiving socket, a plurality of ballast units mounted within said ballast housing, and wires electrically connected to said ballast units and extending through the spaces defined between the upper walls of the upper sections of said joiner members and the upper edges of the outer side portions of said flanges into electrical connection with said sockets.

4. In a lighting fixture system according to claim 2, the combination further defined by said means for supporting said ballast housing comprising a plurality of stem hangers adapted for connection to a ceiling, and a plurality of brackets, each of said brackets including a cross plate member in underlying engagement with the shelf portions of said flanges, a pair of opposed L-shaped clamp members respectively having upright side portions and right angularly projecting base portions with upwardly stepped edge shoulders, the side portions of the clamp members engaging one of said stem hangers in diametric opposition and secured thereto and the edge shoulders of the base portions of the clamp members engaging the upper surfaces of the shelf portions of said flanges in overlying relation to said cross plate member, and fasteners extending through the base portions of said clamp members and threadably engaging said cross plate member.

5. In a lighting fixture system according to claim 2, the combination further defined by said means for supporting said ballast housing comprising a pair of wall brackets each including a plate adapted for attachment to a wall, a U-shaped rim projecting from one face of said plate adjacent the bottom and adjacent side edges thereof, said rim engaging the inner faces of the base and side walls of said ballast housing at one end thereof and the undersurfaces of the shelf portions of said flanges, and a pair of keys projecting from the first face of said plate and respectively engaging the keyways defined between the outer side, inner side, base, and shelf portions and lips of said flanges.

6. In a lighting fixture system according to claim 2, the combination further defined by said ballast housing having a central bolt channel extending longitudinally along the undersurface of the base thereof and a central longitudinal slot therethrough, a plurality of ballast units supported upon the base of said ballast housing and having base brackets with apertures in alignment with said slot, bolts disposed with their heads in said bolt channel in slidable relation thereto and their threaded shafts projecting through said slot and the apertures of said base brackets, and nuts threadably engaging the ends of the shafts of said bolts.

References Cited in the file of this patent

UNITED STATES PATENTS

2,250,276	Rutherford	July 22, 1941
2,888,113	Schwartz et al.	May 26, 1959
2,932,728	Thomas	Apr. 12, 1960
2,988,633	Rosenfield	June 13, 1961
2,990,470	Bodian et al.	June 27, 1961