

May 18, 1965

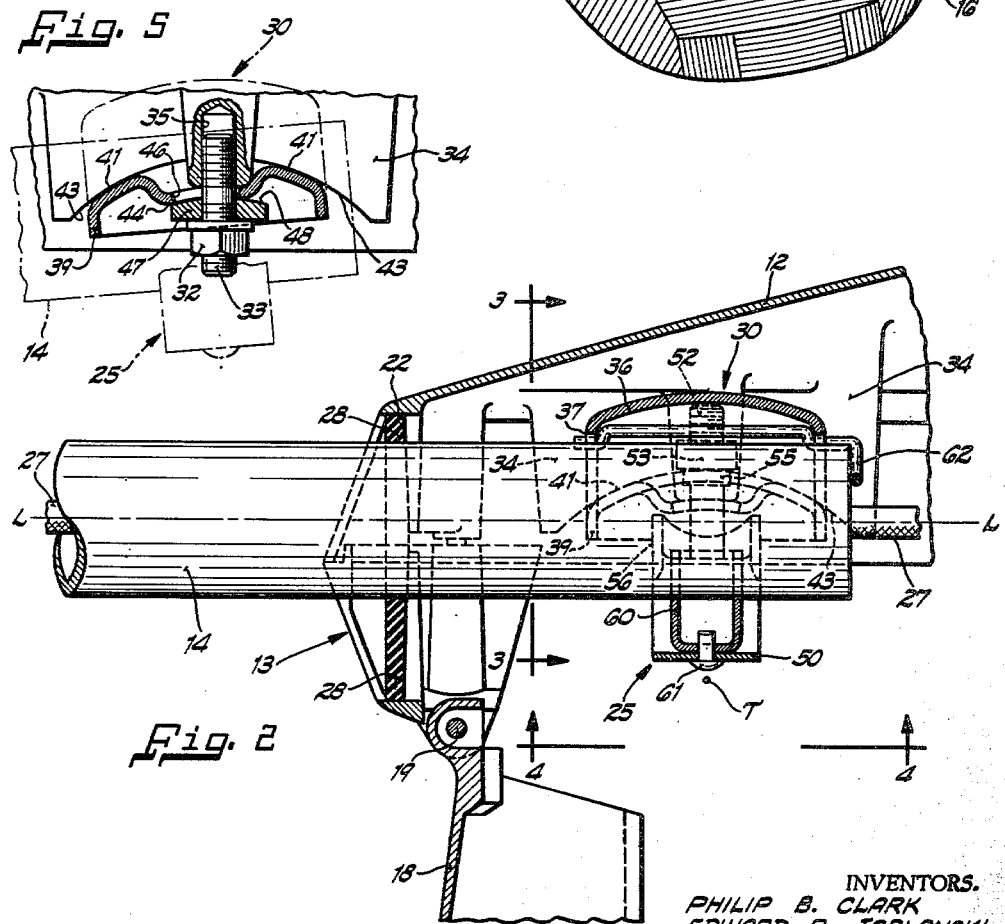
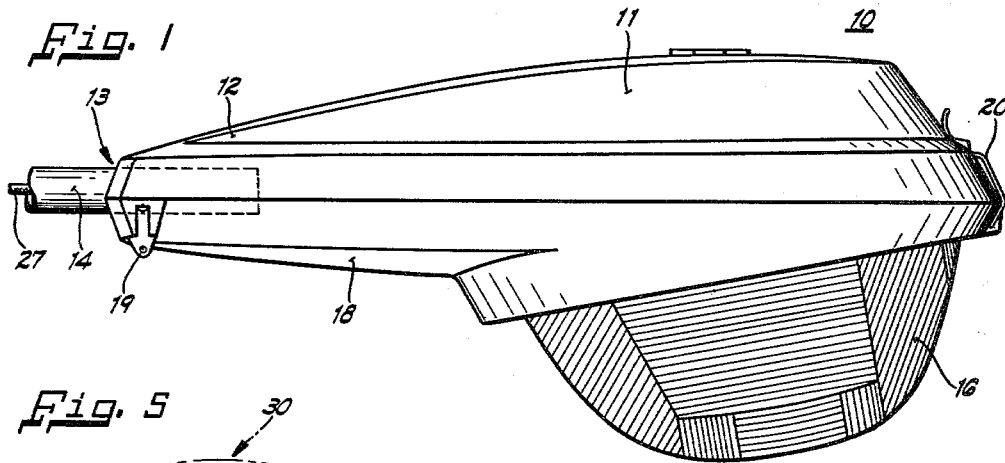
P. B. CLARK ETAL

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LUMINAIRE

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2 Sheets-Sheet 1



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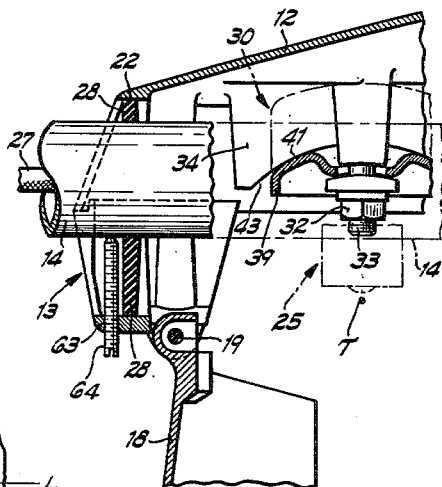
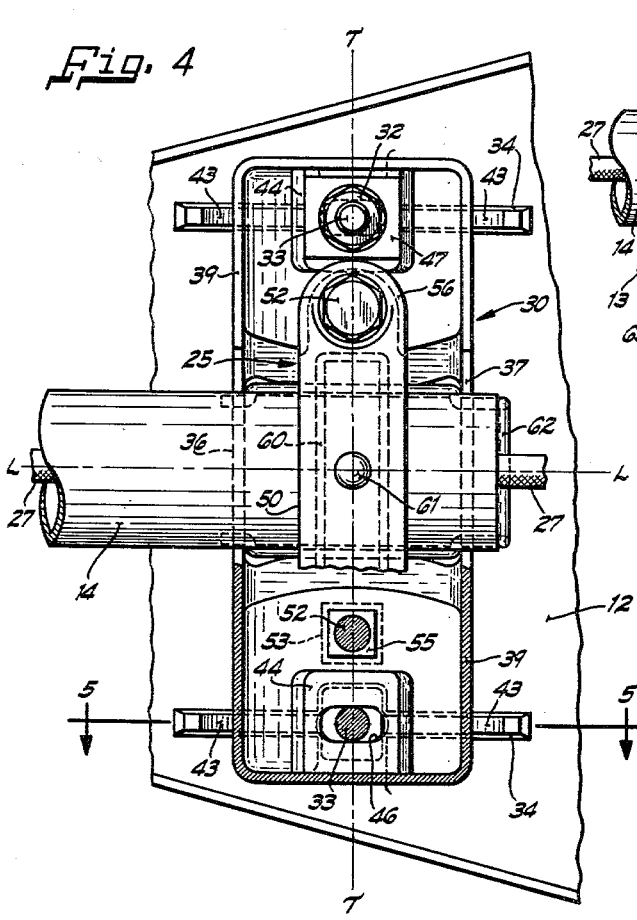
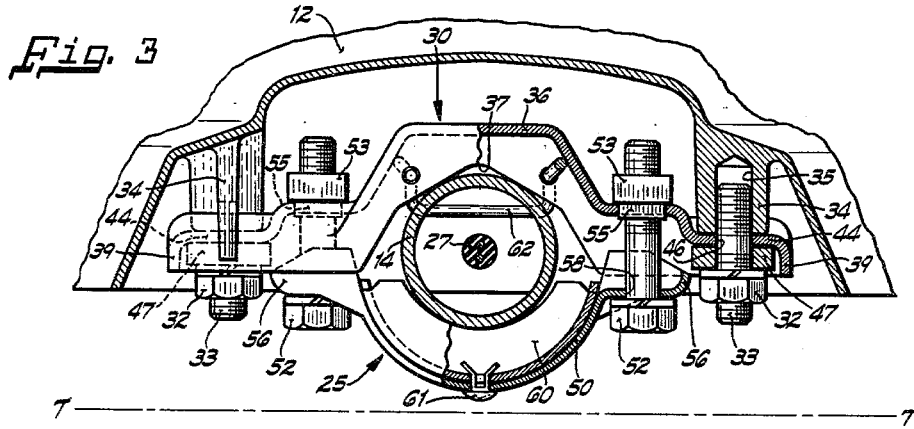
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LUMINAIRE

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LUMINAIRE

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14 Claims. (Cl. 248—230)

This invention relates to mounting means for luminaires and more particularly to a luminaire mounting assembly which provides means for aligning the luminaire about its longitudinal and transverse axes.

One type of mercury vapor luminaire has a horizontally extending ovate reflector and is mounted on a horizontal support pipe by means of a slipfitter and clamping assembly. Such clamping assemblies generally allow adjustment of the luminaire about its longitudinal and transverse axes so that the desired light pattern may be obtained in the area to be illuminated.

Most prior art luminarie slipfitter clamping assemblies allowed simultaneous rotation about both adjustment axes wherein clamping about both axes occurred simultaneously. That is, upon loosening the various members affixing these luminaires to their support members, they were free to simultaneously tilt forwardly and rotate about their longitudinal axes. This made luminaire adjustment difficult because the installer was required to maneuver a level while manually supporting the weight of the luminaire and adjusting it about both of its longitudinal axes. In addition, after a luminaire was maneuvered to the desired position, it was necessary to lock it in place while it was being manually held.

It is a primary object of the invention to provide a luminaire with a new and improved slipfitter clamping assembly.

A more specific object of the invention is to provide a luminaire slipfitter clamping assembly which allows independent adjustment about its longitudinal and transverse axes.

A still further object of the invention is to provide a first slipfitter clamping means which allows adjustment about the luminaire's longitudinal axes and a second slipfitter clamping means which allows adjustment about the luminaire's longitudinal axis wherein each adjustment is independent of the other.

A more specific object of the invention is to provide a slipfitter assembly having clamping means for releasably engaging a support member for rotation about its longitudinal axis wherein the clamping means is releasably connected to the luminaire for rotation about its transverse axis.

These and other objects and advantages of the instant invention will become more apparent from the detailed description thereof taken in view of the accompanying drawings in which:

FIG. 1 is a side elevational view of a luminaire incorporating the instant invention;

FIG. 2 is a side elevational view, partly in section, of the slipfitter clamping assembly according to the instant invention;

FIG. 3 is a view taken along lines 3—3 of FIG. 2;

FIG. 4 is a view taken along lines 4—4 of FIG. 2;

FIG. 5 is a view taken along lines 5—5 of FIG. 4; and

FIG. 6 shows a modified form of the invention.

Referring to the drawings in greater detail, FIG. 1 shows a luminaire or lighting fixture 10 which includes a generally ovate housing 11 having an elongate portion 12 integrally formed at one side for housing a slipfitter assembly 13 which permits attachment of the luminaire 10 to a horizontally extending, elongate support pipe 14.

It will be understood by those skilled in the art that

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an ovate reflector (not shown) is disposed within the housing 11 for reflecting light rays in a generally downward direction as viewed in FIG. 1 whereupon they are further modified by a cooperating refractor 16. The refractor 16 is mounted on a bottom closure member 18 which is supported at one end beneath the slipfitter 13 by a hinge assembly 19 to permit pivotal movement in a clockwise direction as viewed in FIG. 1 so that the underside of the housing 11 may be exposed for relamping and other maintenance purposes. A latch assembly 20 is provided at the opposite side of the closure member 18 so that the latter may be affixed in its closed position as shown in FIG. 1 whereby the refractor 16 is held in its cooperative position relative to the reflector (not shown).

Referring now to FIGS. 2, 3 and 4, the slipfitter housing 12 is shown to have a generally inverted U-shaped configuration and opening 22 at its outer end for receiving the end of the pipe 14. A pipe clamp assembly designated generally by the reference numeral 25, is releasably secured to the underside of the slipfitter housing 12 in a manner which will be more fully described hereinafter. Electrical energy is supplied to the luminaire by means of a conductor 27 extending centrally through the pipe 14. A gasket 28 is disposed in the aperture 22 and circumjacent the pipe 14 to seal the housing 11 against the entrance of foreign material.

The pipe clamp assembly 25 includes a yoke 30 which extends transversely of the pipe 14 and is affixed to the under side of the slipfitter housing 12 by a pair of nuts 32 which are each received on the threaded end of a self tapping stud 33 received in recesses 35 which are formed in a pair of ribs 34 integral with the housing 12 and disposed in the opposite sides of the pipe 14. The yoke 30 has a central body portion 36 whose under surface 37 is generally V-shaped for engaging the upper surface of the pipe 14. In addition, the yoke 30 has a pair of laterally projecting arms 39, each of which, as seen in FIGS. 2 and 5, are contoured to form an arcuate surface 41 for cooperatively engaging a corresponding arcuate surface 43 on the underside of the ribs 34. The arcuate surfaces 41 and 43 on the yoke 30 and the ribs 34, respectively, have a common axis which is coincident with the transverse rotation axis T of the slipfitter assembly 13 and extend in a direction parallel to the longitudinal adjustment axis L.

As seen in FIGS. 4 and 5, each of the arms 39 has an embossment 44 formed therein which is provided with a slot 46 for receiving the stud 33 therethrough. The slots 46 also extend in a direction parallel to the longitudinal axis. It can thus be seen from FIG. 5 that relative rotational sliding movement between the arms 39 and the ribs 34 along their contact surfaces 41 and 43 and about the axis T may be obtained upon loosening of the nuts 32. The slots 46 and the nuts 32, however, prevent lateral sliding movement.

A washer 47 is disposed between the head of each of the nuts 32 and the embossments 44 and each has a curved contact surface 48 for engaging a correspondingly formed surface on the under side of the embossments 44 so that the nuts 32 may tightly clamp the arms 39 against the ribs 34 regardless of their relative angular positions.

A strap 50 engages the undersurface of the pipe 14 and has a pair of laterally extending portions 56 each of which has an aperture 58 for receiving a bolt 52 which secures it to the yoke 30. The bolts 52 each threadably engage a nut 53 affixed by means of a collar 55 to each of the arms 39 between the embossments 44 and the body portion 36. It can therefore be seen that by tightening the nuts 52 the pipe 14 is clamped

between the surface 37 of the yoke 30 and the strap 50 wherein the luminaire is securely mounted on the pipe 14.

In order to accommodate various sized pipes, the strap 50 may be provided with a contoured adapter 60 which is secured to its inner surface adjacent the pipe 14 by means of a rivet 61. Thus, removal of the adapter allows attachment to a pipe having a larger diameter.

When the luminaire is initially installed, the bolts 32 are tightened within the tapped holes 33 to securely clamp the yoke 30 against the curved ribs 34. The nuts 52 are, however, loosened so that the pipe 14 may be slid between the V surface 37 on the under side of the yoke 30 and the adapter 60 until the inner end of the pipe 14 engages a stop wire 62 affixed to the body portion 36 of the yoke 30 and extending transversely across the path of the pipe 14.

When the pipe 14 engages the stop wire 62 the installer then rotates the luminaire about the longitudinal rotation axis L seen in FIGS. 2 and 4, until the luminaire is adjusted about this axis. The installer then tightens the bolts 52 until the pipe 14 is securely clamped between the V-shaped surface 37 and the adapter 60. This fixes the luminaire in its adjusted position about its longitudinal axis L.

In order to adjust the luminaire about its transverse axis, the nuts 32 are loosened so that the arms 39 of the yoke 30 will be movable relative to the curved ribs 34. However, the bolts 52 remain tightened so that the longitudinal adjustment is not disturbed during the transverse adjustment. The installer then rotates the luminaire about its transverse axis T by sliding the surfaces 41 of the arms 39 along the surface 43 of the curved ribs 34. The slots 46 in the arms 39 permit such rotation without interference by the studs 33. Also, the engagement between the surfaces 41 and 43 prevents any relative rotation between the clamp assembly 25 and the luminaire housing 11 about the longitudinal axis L so that this adjustment is not disturbed. After the luminaire has been adjusted about its transverse axis T, the nuts 32 are tightened to securely clamp the arcuate surface 41 of the arms 39 against the surface 43 of the curved ribs 34 thereby affixing the clamp assembly 25 to the housing 11 in the adjusted position.

It can thus be seen that by separately clamping the yoke 30 to the pipe 14 and to the slipfitter housing 12, independent adjustment about the longitudinal and transverse axes may be obtained to simplify leveling of the luminaire.

When the clamping assembly just described is to be employed on a relatively heavy luminaire, a leveling screw 64, shown in FIG. 6, may be provided to assist in adjustment about the transverse axis. The screw 64 is received in a threaded aperture 63 in the underside of the housing 12 and to the rear of the hinge 19 so that it extends in a direction substantially normal to the longitudinal axis and lies in a plane containing the longitudinal axis and which is normal to the transverse axis. Normally, when the nuts 32 are loosened, the weight of the luminaire, concentrated at its center of gravity, tends to rotate the assembly clockwise as viewed in FIG. 6. Such rotation is prevented, however, by the leveling screw 64. Leveling is accomplished by rotating the screw 64 so that when the screw is moved away from the pipe 14 the luminaire rotates clockwise as viewed in FIG. 6 and when the screw 64 is moved toward the pipe 14 the luminaire is rotated counterclockwise. After the luminaire has been leveled in this manner the nuts 32 are tightened to secure the luminaire in its adjusted position.

While the invention is shown and described with respect to one particular kind of luminaire, it will be understood that it may be employed with other types of luminaires as well. In addition, while only the preferred embodiment of the invention has been shown and described, it is not intended that the invention be limited

thereby, but only by the scope of the appended claims.

We claim:

1. Slipfitter means for affixing a luminaire to a support member, said slipfitter means having longitudinal and transverse rotation axes, said luminaire including a housing portion having a first rotation means, said slipfitter means including a first clamping member having a second rotation means slidably engaging said first rotation means, one of said rotation means including arcuate surface means whose axis is coincident with said transverse axis, means for releasably securing said first clamping member to said housing portion so that said first clamping member may be affixed to said housing portion in a plurality of angular positions around said transverse axis, a second clamping member releasably secured to said first clamping member, said clamping members engaging the opposite sides of said support member whereby said luminaire may be releasably affixed to said support member for relative rotational movement about said longitudinal axis.

2. Slipfitter means for affixing a luminaire to an elongate support member, said slipfitter means having longitudinal and transverse rotation axes, said luminaire having a housing portion, means associated with said housing portion to provide a first arcuate surface means whose axis is coincident with said transverse axis, said slipfitter means including clamping means releasably engaging said support member for rotation about said longitudinal axis, said clamping means having a second arcuate surface means slidably engaging the said first surface means and being coaxial therewith, means for releasably securing said clamping means to said housing portion at said arcuate surface means so that said clamping means may be affixed to said housing portion in a plurality of angular positions around said transverse axis.

3. Slipfitter means for affixing a luminaire to an elongate support member, said slipfitter means having longitudinal and transverse rotation axes, said luminaire including a housing portion, means associated with said housing portion to provide a pair of arcuate surfaces whose axis is coincident with said transverse axis, said slipfitter means including a first clamping member having a pair of arcuate surfaces each slidably engaging one of the surfaces on said housing portion and being coaxial therewith, means for releasably securing said first clamping member to said housing portion at said arcuate surfaces so that said first clamping member may be affixed to said housing portion in a plurality of angular positions around said transverse axis, a second clamping member releasably secured to said first clamping member, said clamping members engaging the opposite sides of said support member whereby said luminaire may be releasably affixed to said support member for relative rotational movement about its longitudinal axis.

4. Slipfitter means for affixing a luminaire to an elongate support member, said slipfitter means having longitudinal and transverse rotation axes, said luminaire including a housing portion, means rigidly associated with said housing portion to provide arcuate surface means whose axis is coincident with said transverse axis, said slipfitter means including a first clamping member having arcuate surface means slidably engaging the surface means associated with said housing portion and being coaxial therewith, elongate slot means formed in the surface means on said first clamping member, stud means extending from said housing portion and through said slot means, and means associated with said stud means for releasably securing said first clamping member to said housing portion so that said first clamping member may be affixed to said housing portion in a plurality of angular positions around said transverse axis, a second clamping member releasably secured to said first clamping member, said clamping members engaging the opposite sides of said support member whereby said lumi-

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naire may be releasably affixed to said support member for relative rotational movement about its longitudinal axis.

5. Slipfitter means for affixing a luminaire to a substantially horizontally extending support member, said slipfitter means having longitudinal and transverse rotation axes, said luminaire including an inverted U-shaped slipfitter housing portion, a pair of spaced arcuate surfaces formed on said housing portion and each having its axis coincident with said transverse axis, said slipfitter means including clamping means releasably engaging said support member for rotation about said longitudinal axis and having a pair of arcuate surfaces each engaging one of the surfaces on said housing portion and being coaxial therewith, an elongate slot formed in each of the surfaces on said clamping means, stud means extending from said housing portion and through each of said slots, and means associated with said stud means for releasably securing said clamping means to said housing so that said clamping means may be affixed to said housing portion in a plurality of angular positions around said transverse axis.

6. Slipfitter means for affixing a luminaire to a substantially horizontally extending support member, said slipfitter means having longitudinal and transverse rotation axes, said luminaire including a housing portion, a pair of arcuate surfaces formed on said housing portion and each having an axis coincident with said transverse axis, said slipfitter means including a first clamping member having a pair of arcuate surfaces each slidably engaging one of the surfaces on said housing portion and being coaxial therewith, an elongate slot formed in each of the surfaces on said first clamping member, stud means extending from said housing portion and through each of said slots, means associated with said stud means for releasably securing said first clamping member to said housing portion at the arcuate surfaces formed thereon so that said first clamping member may be affixed to said housing portion in a plurality of angular positions around said transverse axis, a second clamping member releasably secured to said first clamping member, one of said clamping members having a V-shaped surface for engaging one side of said support member, the other clamping member having a concave surface for engaging the other side of said support member whereby said luminaire may be releasably affixed to said support member for relative rotational movement about its longitudinal axis.

7. Slipfitter means for affixing a luminaire to a substantially horizontally extending support member, said slipfitter means having longitudinal and transverse rotation axes, said luminaire including an inverted U-shaped slipfitter housing portion, a pair of spaced rib means formed on said housing portion and each having an arcuate surface extending in a direction parallel to said longitudinal axis, the axis of said arcuate surface being coincident with said transverse axis, said slipfitter means including a first clamping member extending in a direction parallel to said transverse axis and having a pair of arcuate surfaces each engaging one of the surfaces on said rib means and being coaxial therewith, means for releasably securing said first clamping member to said housing portion at said arcuate surfaces so that said first clamping member may be affixed to said housing portion in a plurality of angular positions around said transverse axis, a second clamping member releasably secured to said first clamping member, one of said clamping members having a V-shaped surface for engaging one side of said support member, the other clamping member having a concave surface for engaging the other side of said support member whereby said luminaire may be releasably affixed to said support member for relative rotational movement about its longitudinal axis.

8. Slipfitter means for affixing a luminaire to a sub-

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stantially horizontally extending support member, said slipfitter means having longitudinal and transverse rotation axes, said luminaire including an inverted U-shaped slipfitter housing portion, a pair of spaced rib means formed on said housing portion and each having an arcuate surface formed thereon, the axis of said arcuate surfaces being coincident with said transverse axis, a threaded stud means extending from each of said rib means centrally of said surface, said slipfitter means including a first clamping member extending in a direction parallel to said transverse axis, said first clamping member having spaced portions contoured to form a pair of arcuate surfaces on one side thereof and each of which engages one of the surfaces on said rib means and is coaxial and oppositely formed relative thereto, a pair of elongate slots formed in said first clamping member and one extending through each of its contoured portions in a direction parallel to their respective surfaces and engaging said stud means, nut means threadably engaging one of said stud means, washer means disposed between each of said nut means and the opposite sides of the contoured portions on said first clamping member and engaging the peripheral edges of said slots, the opposite sides of said contoured portions and the engaging surfaces on said washer means being correspondingly curved arcs coaxial with said transverse axis so that said first clamping member may be affixed to said housing portion in a plurality of angular positions around said transverse axis whereby said luminaire may be adjusted about the transverse axis of said slipfitter means, a second clamping member releasably secured to said first clamping member, one of said clamping members having a V-shaped surface for engaging one side of said support member, the other clamping member having a concave surface for engaging the other side of said support member whereby said luminaire may be releasably affixed to said support member for relative rotational movement about its longitudinal axis.

9. Slipfitter means for affixing a luminaire to a support member, said slipfitter means having longitudinal and transverse rotation axes, said luminaire including a housing portion having a first rotation means, said slipfitter means including clamping means releasably engaging said support member for rotation about said longitudinal axis, said clamping means having a second rotation means slidably engaging said first rotation means for rotational movement relative thereto about said transverse axis, means for releasably securing said clamping means to said housing portion so that said clamping means may be affixed to said housing portion in a plurality of angular positions around said transverse axis, and screw means threadably engaging said housing portion and having an end abutting said support member at a point displaced from both said transverse axis and the center of gravity of said luminaire, said screw means extending along a line substantially normal to said longitudinal axis, said screw means also lying in a plane which contains said longitudinal axis and is normal to said transverse axis.

10. Slipfitter means for affixing a luminaire to a substantially horizontally extending support member, said slipfitter means having longitudinal and transverse rotation axes, said transverse axis lying to one side of the center of gravity of said luminaire, said luminaire including an inverted U-shaped slipfitter housing portion, a pair of spaced rib means formed on said housing portion and each having an arcuate surface formed thereon, the axis of said arcuate surfaces being coincident with said transverse axis, said slipfitter means including a first clamping member extending in a direction parallel to said transverse axis, said first clamping member having spaced portions contoured to form a pair of arcuate surfaces on one side thereof and each of which engages one of the surfaces on said rib means and is coaxial and oppositely formed relative thereto, clamping means for releasably securing said first clamping member to said housing portion at said arcuate surfaces so that said first clamping

member may be affixed to said housing portion in a plurality of angular positions around said transverse axis, whereby said luminaire may be adjusted about the transverse axis of said slipfitter means, a second clamping member releasably secured to said first clamping member, one of said clamping members having a V-shaped surface for engaging one side of said support member, the other clamping member having a concave surface for engaging the other side of said support member whereby said luminaire may be releasably affixed to said support member for relative rotational movement about its longitudinal axis, and screw means threadably engaging said housing and having an end abutting said support member at a point displaced from both said transverse axis and the center of gravity of said luminaire, said screw means extending along a line substantially normal to said longitudinal axis, said screw means also lying in a plane which contains said longitudinal axis and is normal to said transverse axis.

11. Attachment means for affixing a luminaire to an elongate support member, said attachment means having longitudinal and transverse rotation axes, said luminaire having a housing portion, first engaging means associated with said housing portion, said attachment means including clamping means releasably engaging said support member for rotation about said longitudinal axis, said clamping means having a second engaging means slidably engaging said first engaging means, at least one of said engaging means including an arcuate surface whose axis is coincident with said transverse axis and which is engaged by the other of said engaging means, and means for releasably securing said clamping means to said housing so that said clamping means may be affixed to said housing in a plurality of angular positions around said transverse axis.

12. Attachment means for affixing a luminaire to an elongate support member, said attachment means having longitudinal and transverse rotational axes, said luminaire including a housing portion, a first pair of engagement means associated with said housing portion, said attachment means including a first clamping member having a second pair of engagement means each slidably engaging one of the first engagement means associated with said housing portion, at least one pair of said first and second pairs of engagement means comprising arcuate surfaces whose axes are coincident with said transverse axis, means for releasably securing said first clamping member to said housing at said arcuate surfaces so that said first clamping member may be affixed to said housing in a plurality of angular positions around said transverse

axis, a second clamping member releasably secured to said first clamping member, said clamping members releasably engaging said support member for relative rotational movement about said longitudinal axis.

13. Attachment means for affixing a luminaire to an elongate support member, said attachment means having longitudinal and transverse rotation axis, said luminaire including a housing portion, means rigidly associated with said housing portion to provide first engagement means, said attachment means including a first clamping member having second engagement means slidably engaging said first engagement means, at least one of said engagement means comprising an arcuate surface whose axis is coincident with said transverse axis, elongate slot means formed in said first clamping member, releasable securing means extending through said slot means for releasably securing said clamping member to said housing so that said first clamping member may be affixed to said housing in a plurality of angular positions around said transverse axis, a second clamping member releasably secured to said first clamping member, said clamping members releasably engaging said support member for relative rotational movement about said longitudinal axis.

14. Attachment means for affixing a luminaire to a substantially horizontally extending support member, said attachment means having longitudinal and transverse rotation axes, said luminaire including an inverted U-shaped housing portion, a first pair of spaced engagement means formed on said housing portion, said attachment means also including clamping means releasably engaging said support member for rotation about said longitudinal axis and having a second pair of engagement means each engaging one of the engagement means on said housing portion, at least one pair of said first and second pairs of engagement means comprising arcuate surfaces each having its axis coincident with said transverse axis, an elongate slot formed in one of said housing portion and clamping means, means extending through said slot means for releasably securing said clamping means to said housing so that said first clamping member may be affixed to said housing in a plurality of angular positions around said transverse axis.

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CLAUDE A. LE ROY, Primary Examiner.