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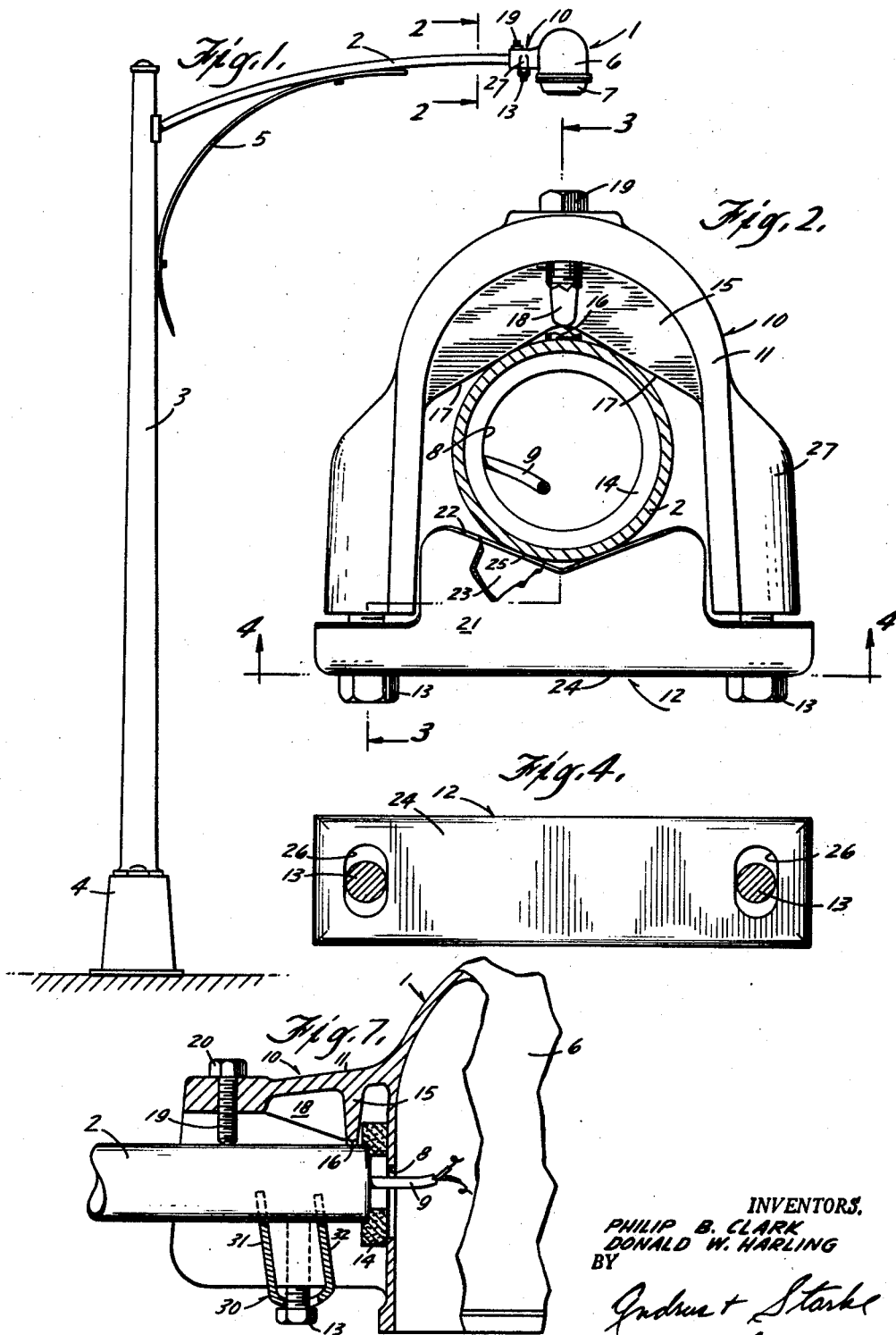
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3,142,501

ADJUSTABLE SIDE MOUNT FOR A LIGHT

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2 Sheets-Sheet 1



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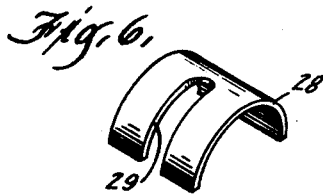
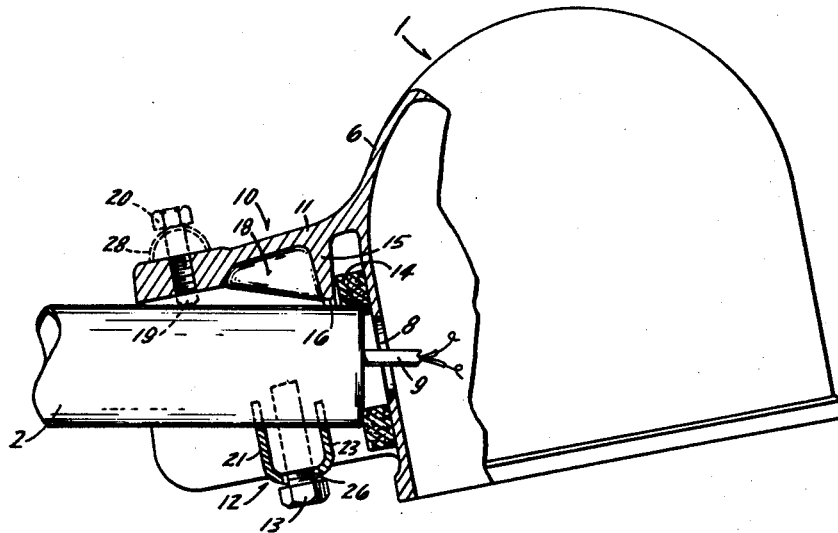
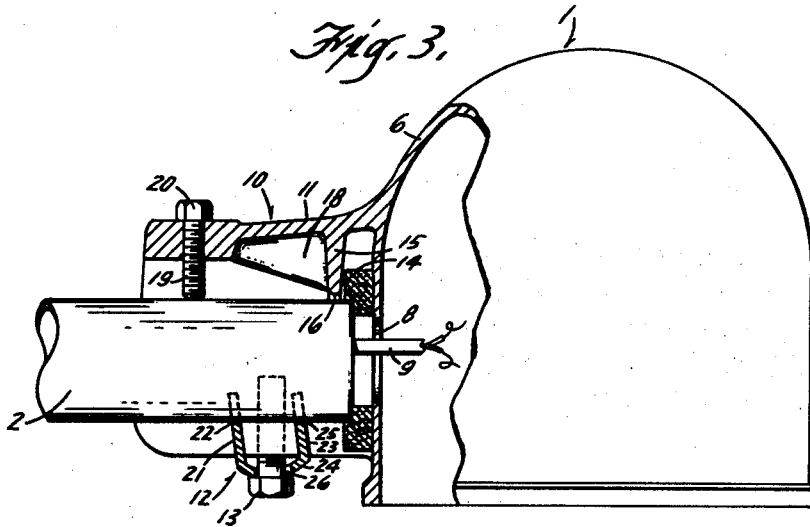
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ADJUSTABLE SIDE MOUNT FOR A LIGHT

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13 Claims. (Cl. 285—184)

This invention relates to an adjustable mount for a light and is particularly directed to a side mount for attachment of a light to a horizontally extending supporting bracket and which permits ready and simple adjustment of the light between a horizontal position and a tilt position.

Street lighting and similar systems commonly include vertical supporting poles mounted adjacent the street or area to be illuminated. A horizontally extending pipe bracket extends over the roadway or other area to be illuminated and a lighting unit is secured to the terminal end of the pipe bracket by a sliding clamp arrangement, normally generically defined as a slipfitter. A standard slipfitter generally includes an inverted U-shaped housing secured to the side of the light housing for the lighting unit. A clamping and leveling member is bolted to the underside of the slipfitter housing and the slipfitter slips over the end of the pipe bracket to releasably clamp the lighting unit to the end of the pipe bracket. Suitable locking bolts bear on the bracket and establish a positive and rigid connection of the slipfitter to the bracket.

The pipe bracket conventionally terminates in a tubular arm having a diameter of either 1 1/4 inches or 2 inches. The standard slipfitter is adapted to be secured to either sized diameter pipe bracket by adjustment of the leveling plate and the locking bolts.

Depending upon the particular application, the lighting unit is conventionally mounted on the pipe bracket in either a horizontal plane or in a plane rising at an angle of ten degrees or less. The vertical supporting poles generally have a tilt or rake of plus or minus three degrees from a true vertical position which constitutes a standard tolerance factor. The mounting of the lighting unit must then be slightly adjusted to compensate for the pole rake.

In accordance with present common practice, completely different slipfitters are provided for the horizontal mount and the angular mount of the lighting unit. The clamping and leveling plate and cooperating locking bolts are provided for angular adjustment to compensate for the pole rake. The practice requires inventories of both forms of mounts. Further, the slipfitters may be separate or integrally formed with the housing for the lighting unit. Consequently, inventories and the necessary control records for both the manufacturer and the user are relatively complex and large.

The conventional plus and minus three degree correction permitted in standard slipfitters is not always sufficient to compensate for pole rake and the like. Further, the lighting unit may in some instances be more advantageously mounted at some angle intermediate the horizontal and the maximum 10 degree tilt. However, standard slipfitters do not have any provision for these unusual cases and the undesirable mounting must be accepted.

In accordance with the present invention, a lighting unit mount of the slipfitter variety is provided which allows direct mounting of the lighting unit between the horizontal position and a maximum angular position, normally ten degrees. The mount permits adjustment to compensate for pole rake and further allows establishment of any intermediate angular position between the horizontal position and the maximum angular position.

The slipfitter of the present invention generally includes

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a housing which may be integrally or separately attached to the lamp unit. The housing receives the pipe bracket and includes an inner vertically facing fulcrum edge engaging the pipe bracket. Generally radially moving locking members are adjustably secured to the housing in a vertical plane through the housing with at least one of the locking members being mounted opposite the fulcrum edge. The locking members are axially spaced from each other and from the fulcrum edge. The locking member opposite the fulcrum edge serves to pivot the housing on the fulcrum edge and establish the angular positioning of the lighting unit. The other locking member securely clamps the housing to the pipe bracket and allows pre-setting of the desired mount of the lamp unit between the horizontal and any desired angular positioning. The locking member opposite the fulcrum edge is retracted to permit the pipe bracket to freely enter the housing and when drawn into tight clamping engagement with the pipe bracket, the lighting unit is automatically disposed in the desired angular position. The final adjustment for pole rake is accomplished by adjusting the locking members with respect to the housing.

In accordance with another aspect of the present invention, the angle predetermining locking member takes the form of a locking screw which is threadedly received by a suitably tapped opening in the housing generally in alignment with the upper portion of the housing. The locking screw includes a radial portion exteriorly of the housing and is selected to bear on the adjacent portion of the pipe bracket with the radial portion bottomed upon the housing and with the lighting unit essentially mounted in a horizontal position. A spacer member is initially interposed between the radial portion of the locking screw and the housing. The spacer is designed to dispose the bearing end of the locking screw in position to establish the maximum predesigned tilt mounting for the lighting unit.

The fulcrum edge of the slipfitter is generally V-shaped to accommodate both the 1 1/4 inch and the 2 inch pipe brackets. The locking members are selected with sufficient radial movement for clamping upon pipe brackets having a 1 1/4 inch or 2 inch diameter mounting portion. The same spacer member is employed for both diameter pipe brackets with the other locking member compensating for the difference in the bracket diameter.

The present invention provides an extremely versatile slipfitter which is readily mounted in any desired position upon the various standard pipe brackets. The inventory and stocking problems for both the consumer and the manufacturer of the equipment are therefore substantially improved. The lighting unit is orientated, simply and quickly, in the pre-set position and readily adjusted to the final position desired. The slipfitter is simple and rugged in construction and may readily be employed without any great degree of skill or experience.

The drawings furnished herewith illustrate the best mode presently contemplated for carrying out the invention.

In the drawings:

FIGURE 1 is an elevational view of a side mounted lighting unit supported by a conventional light pole;

FIG. 2 is an end view of the side mounted lighting unit taken on line 2—2 of FIG. 1;

FIG. 3 is an enlarged side elevational view with parts broken away to illustrate a horizontally mounted lighting unit having an integrally connected slipfitter constructed in accordance with the present invention;

FIG. 4 is a bottom view of a pipe support clamp taken on line 4—4 of FIG. 2;

FIG. 5 is a view similar to FIG. 3 with the lighting unit mounted in a pre-set angular position;

FIG. 6 is a perspective view of a spacing clip adapted

for use in the embodiment of the invention illustrated in the drawings to automatically establish a maximum angular pre-designed mount, as shown in FIG. 5; and

FIG. 7 is an enlarged fragmentary view of the slipfitter shown in FIGS. 2, 3 and 5 mounted on a somewhat smaller diameter pipe bracket.

Referring to the drawings and particularly FIG. 1, a street lighting unit is illustrated generally comprising a luminaire 1 which is mounted on the extended end of a horizontal pipe bracket 2. A vertical pole 3 is mounted on a pedestal 4 adjacent the area to be illuminated, such as a roadway, and the pipe bracket 2 is secured to the upper end of the pole 3 in any conventional manner and extends horizontally outwardly over the area to be illuminated. An arcuate bracing strap 5 is bolted to the pole 3 slightly below the pipe bracket 2 and extends upwardly and outwardly and is bolted to the horizontal pipe bracket to rigidly support the pipe bracket 2 and the attached luminaire 1 over the area to be illuminated.

The pole 3 is illustrated as a conventional hollow metal pole terminating in the supporting pedestal 4. Although the pole 3 theoretically is mounted in a true vertical position in commercial practice, the pole may tilt slightly because of tolerances and the like.

The illustrated luminaire 1 generally comprises a cup-shaped shell or housing 6 which opens downwardly and is sealed by a glass refractor 7 which is releasably secured to the open end of the housing 6.

The housing 6 is conventionally formed of a highly corrosion resistant material such as aluminum and supports the operating components, not shown, such as a reflector, a lamp, power connecting means and the like.

The glass refractor 7 is secured to housing 6 with a weatherproof seal which maintains initial reflector efficiency and protects the other internal components, not shown, from deterioration.

Referring particularly to FIGS. 2 and 3, a side wall portion of housing 6 includes a lead opening 8 aligned with the end of pipe bracket 2. Energizing conductors 9 extend outwardly through the opening 8 into the pipe bracket 2. The conductors 9 are housed in the pipe bracket 2 and the pole 3 and are connected to a suitable lighting power system, not shown, buried in the ground adjacent the supporting pole 3.

A slipfitter 10 is secured to the housing 6 at the opening 8 and releasably clamped about the end of bracket 2 to support the luminaire 1.

The illustrated slipfitter 10 includes an inverted U-shaped housing 11 which is integrally secured to the luminaire housing 6. The housing 11 opens downwardly about the lead opening 8 and covers the terminal end of the pipe bracket 2 in the assembled position. A pipe clamp 12 is releasably attached to the bottom of the U-shaped housing 11 by a pair of bolts 13 to rigidly clamp the slipfitter 10 to the pipe bracket 2. A felt gasket 14 or the like is adhesively secured to the exterior of the luminaire housing 6 encircling the lead opening 8 and is correspondingly apertured to allow passage of the conductors 9. In the assembled position, the end of pipe bracket 2 engages and compresses the felt pad 14, as shown in FIG. 3, to seal the lead opening 8 and maintain the luminaire 1 weatherproof and insect proof.

The slipfitter housing 11 includes a V-shaped chordal fulcrum rib 15 integrally formed on the interior top wall and extended diametrically of housing 11 slightly spaced from the luminaire housing 6. The fulcrum rib 15 opens downwardly and defines an apex 16 vertically aligned with the center line of the housing 11 and a pair of bearing edges 17 which flare downwardly and laterally from the apex. The bearing edges 17 contact corresponding points on the upper surface of the pipe bracket 2 on the opposite side of a vertical plane through the center line of the housing 11 and pipe bracket 2. The fulcrum rib 15 centers the pipe bracket 2 within the slipfitter 10 and constitutes a fulcrum for angular adjustment of the

luminaire 1 with respect to the pipe bracket 2, as more fully described hereinafter.

A longitudinally tapered rib 18 is integrally formed on the interior top wall with the fulcrum rib 15 and extends axially outwardly and upwardly from the apex 16 of the fulcrum rib 15 to the upper wall of the housing 11. The tapered rib 18 constitutes a guide for the pipe bracket 2 past the rib 15 and insure ease of assembly of the slipfitter 10 over the pipe bracket 2. Therefore, when the slipfitter 10 is slipped onto pipe bracket 2 as far as possible, the end of pipe bracket 2 positively engages the felt gasket 14 to seal the opening 8 and the fulcrum rib 15 overlies the pipe bracket.

A locking and pre-set screw 19 threads through a suitably tapped opening in the top wall of the housing 11 immediately adjacent the forward portion of the housing. The lock and pre-set screw 19 is aligned with the rib 18 and the apex 16 of rib 15 and engages the top of the pipe bracket 2 forwardly of the fulcrum rib 15. The lock and pre-set screw 19 is consequently located centrally of the two bearing contacts of the pipe bracket 2 with the bearing edges 17 of fulcrum rib 15 and establishes three clamping points on the top of pipe bracket 2.

The pipe clamp 12 is located axially intermediate the lock and pre-set screw 19 and the bearing edges 17 of fulcrum rib 15. When bolts 13 are tightened, the clamp 12 engages the underside of the pipe bracket 2 and draws the screw 19 and edges 17 into clamping engagement with pipe bracket 2 to rigidly clamp the slipfitter 10 in place.

The angular relation of slipfitter 10 and the pipe bracket 2 is determined by the vertical location of the end of the lock and pre-set screw 19 with respect to bearing edges 17 of rib 15.

The lock and pre-set screw 19 includes an outer hexagonal head 20. The screw 19 is selected such that when the head 20 is bottomed on the housing 11, the end of the screw 19 and the contact points of bearing edges 17 substantially position the luminaire 1 in the horizontal position incident to tightening of clamp 12 in place, with suitable movement permitted in accordance with the standard plus and minus 3 degree rake adjustment.

Referring particularly to FIGS. 2-4, the illustrated pipe clamp 12 is generally a U-shaped channel member opening into the housing 11 and extending laterally across the open end of the housing. The clamp 12 includes a forward arm 21 which projects into the housing 11 and terminates in a V-shaped groove 22 which engages the lower portion of the pipe bracket 2. A shortened rearward arm 23 is integrally secured to arm 21 by a web 24 and extends into housing 11 parallel to arm 21. Arm 23 terminates in a groove 25 generally corresponding to groove 22. The depth of the arm 23 is less than the depth of arm 21 and the groove 25 is correspondingly spaced from web 24. The web 24 is curved between arms 21 and 23 and allows the clamp 12 to pivot on an axis extending normal to the axis of the pipe bracket 2. Suitable slots 26 are provided in the arcuate web 24 and extend longitudinally of the slipfitter housing 11 in alignment with vertical embossments 27 which are integrally formed on the exterior sidewalls of housing 11. The bolts 13 pass through slots 26 and thread into corresponding tapped openings in the embossments 27. The slots 26 allow the pivotal movement of the clamp 12.

The functioning of the slipfitter 10 as shown in FIGS. 1-4 is summarized as follows:

The bolts 13 are loosened and the set-screw 19 threaded into the housing 11 until the screw head 20 engages housing 11.

The conductors 9 are passed through opening 8 and the housing 11 is slipped over the pipe bracket 2 as far as reasonable pressure allows to compress the felt gasket 14 and seal the lead opening 8. The longitudinal rib 18 guides the housing over the pipe bracket 2 and prevents engagement of the pipe bracket with the fulcrum rib 15.

The clamp bolts 13 are threaded into the housing em-

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bossments 27 to draw the clamp 12 into the housing 11 which pivots about the fulcrum edges 17 until engagement with the tip of screw 19 to rigidly attach the housing 11 to the pipe bracket 2. The lock and pre-set screw 19 and the fulcrum edges 17 automatically dispose the housing 11 and the attached luminaire 1 in the desired horizontal position. The fulcrum edges 17 and the V-shaped grooves 22 and 25 in arms 21 and 23 center the pipe bracket 2 within the housing 11 and establish positive clamping about the pipe bracket.

Referring particularly to FIG. 3, the clamp 12 pivots on the head of the bolts 13 to align the grooves 22 and 25 with the undersurface of the adjacent pipe bracket 2 and rigidly clamp the housing 11 and attached luminaire 1 in place.

To compensate for the angular rake of pole 3 and the like, the lock and set-screw 19 and the clamp 12 are oppositely adjusted to pivot the housing 11 on the fulcrum rib 15 with respect to pipe bracket 2 until the true horizontal position is obtained.

Referring particularly to FIGS. 5 and 6, the luminaire 1 is shown in an angularly mounted position. The locking and pre-set screw 19 is withdrawn and as clamp 12 is tightened the housing 11 pivots about the fulcrum rib 15. The outer end of slipfitter housing 11 moves toward the pipe bracket 2 until the housing 11 and attached luminaire 1 assume the position shown in FIG. 5.

A spacer clip 28, shown generally as an arcuate flat spring-like member, is disposed between the head 29 of the lock and pre-set screw 19 and the adjacent surface of the housing 11 during initial assembly of the slipfitter 10.

The radius or depth of the arcuate spacer clip 28 is selected such that the inner end of the lock and pre-set screw 19 and the contact points of the bearing edges 17 of fulcrum rib 15 position the slipfitter on the pipe bracket 2 to dispose the luminaire 1 in a predesigned angle, normally 10 degrees, incident to tightening of the pipe clamp bolts 13.

The spacer clip 28 is shown in FIG. 6 in phantom line because the clip is removed prior to assembly upon the pipe bracket 2. The spacer clip 28 includes a peripheral notch 29 to allow the removal of the clip without substantially changing the position of the lock and pre-set screw 19.

The spacer clip 28 is preferably formed of a suitable spring-like material to resiliently lock the pre-set screw 19 in position during storage and handling.

The most common installation employs the luminaire 1 mounted in a 10 degree upward tilt position. The slipfitter 10 is preassembled with a spacer clip 28 which establishes a corresponding angular positioning of the luminaire 1 if the pipe bracket 2 is in a true horizontal position.

If the luminaire 1 is to be mounted in the tilted position, the spacer clip 28 is removed and the luminaire 1 and the slipfitter 10 are slipped onto the terminal end of the pipe bracket 2. The clamping bolts 13 are tightly drawn up and force the slipfitter housing 11 and attached luminaire 1 to assume the position shown in FIG. 5. Any final adjustment necessary for the rake of the supporting hole 3 is readily accomplished by minor adjustment of the pipe bolts 13 and the lock and pre-set screw 19.

To create a horizontal mount as illustrated in FIG. 2, the spacer clip 28 is removed and the lock and pre-set screw is bottomed on the slipfitter housing 11. The luminaire 1 is then mounted on the pipe bracket 2 as previously described and the clamp bolts 13 are drawn up until the pipe firmly engages the tip of the lock and pre-set screw 19. Any minor adjustments can again be made by suitable movement of the clamping bolts 13 and the lock and pre-set screw 19.

To mount the luminaire 1 at any intermediate angle, the spacer clip 28 is removed and the luminaire 1 is loosely mounted on the pipe bracket 2. The clamp bolts 13 are drawn up and pivot the housing 11 about the bearing edge

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17 of fulcrum rib 15 until the luminaire 1 is in the desired angle of tilt. The lock and pre-set screw 19 is then threaded into housing 11 until it engages the top of the pipe bracket 2 to rigidly interlock the luminaire 1 to the pipe bracket 2.

As previously noted, the pipe bracket 2 conventionally is a 1/4 inch or a 2 inch diameter pipe. Although the embodiment of the invention shown in FIGS. 1-6 is not a production drawing with the corresponding precise relative dimensions, the drawings do generally illustrate typical relative dimensions for a two inch diameter pipe bracket. FIG. 7 is a fragmentary view, similar to FIG. 2, illustrating generally a 1/4 inch diameter pipe bracket.

Referring particularly to FIG. 7, a cross sectional view of a slipfitter 10 is shown having a U-shaped clamp bracket 30 adapted for mounting of the luminaire 1 upon a 1/4 inch pipe bracket. The several elements in FIG. 7 which correspond to elements of FIGS. 1-6 are given corresponding numbers.

Generally, the slipfitter shown in FIG. 7 corresponds to that shown in FIGS. 1-6 except for side arms 31 and 32 of the pipe clamp 30. The side arms 31 and 32 are lengthened to compensate for the reduced diameter of the pipe bracket 2. However, no change is necessary in the construction of the other components of the slipfitter 10 including the spacer clip 28.

The assembly of the unit on a 1/4 inch pipe bracket is the same as that previously described with respect to 2 inch pipe. A slight angular error is introduced in changing between a 1/4 inch and a 2 inch diameter pipe bracket 2 because of the change in the elevation of the slipfitter housing 11 immediately adjacent the fulcrum edge 17 on the pipe bracket. Thus, the larger diameter pipe bracket 2 cannot move into the groove defined by the bearing edges 17 of fulcrum rib 15 as far as a 1/4 inch pipe bracket. However, the error is very small and can be compensated for in the final adjustment for the pole rake and the like.

Although an integrally connected slipfitter and luminaire is illustrated and described, a separate slipfitter may be provided which is separately attached to the luminaire in accordance with the present invention.

The illustrated embodiments of the invention assumed pipe brackets having a 1/4 inch or a 2 inch diameter in accordance with standard commercial practice. Of course, the invention is equally applicable to any other suitable diameter bracket.

The present invention provides a universal pipe slipfitter having simple and wide range angular adjustment means for mounting of lighting units. The slipfitter of the present invention is rugged and durable and substantially reduces the inventory and the records which must be maintained in following prior art practice.

Various modes of carrying out the invention are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter which is regarded as the invention.

We claim:

1. An adjustable mounting unit for attaching lighting units on horizontal pipe brackets, which comprises a housing adapted to be secured to the lighting unit and adapted to encircle the pipe bracket, an internal fulcrum wall secured to the top wall of the housing in spaced relation to the lighting unit end of the housing and adapted to engage the periphery of the pipe bracket in the assembled relation, a pre-set and lock means vertically adjustably secured to the top wall of the housing and adapted to engage the pipe bracket in longitudinal spaced relation to said fulcrum wall to establish the angular position of the housing on the pipe bracket, a U-shaped clamp spanning the housing below the pipe bracket intermediate the fulcrum wall and the pre-set and lock means, and said clamp having a base portion and clamping arms projecting into the housing perpendicularly to the pipe bracket, the outermost arm being longer than the innermost arm to

maintain engagement with the underside of the pipe bracket for all relative positions of the housing and pipe bracket, said base portion having bolt slots extending between the clamping arms and being arcuately formed adjacent the bolt slots to allow pivoting of the clamp, and bolt means extending through the slots and secured to the housing to adjustably secure the clamp to the housing and to pivot the housing about said fulcrum wall until the pipe bracket engages the pre-set and lock means.

2. An adjustable mounting unit for attaching lighting units on horizontal pipe brackets, which comprises a housing adapted to be secured to the lighting unit and adapted to encircle the pipe bracket, an internal fulcrum wall secured to the top wall of the housing in spaced relation to the lighting unit end of the housing and adapted to engage the periphery of the pipe bracket in the assembled relation, a pre-set and lock means vertically adjustably secured to the top wall of the housing and adapted to engage the pipe bracket in longitudinal spaced relation to said fulcrum wall to establish the angular position of the housing on the pipe bracket, a U-shaped clamp having an arcuate base spanning the housing below the pipe bracket intermediate the fulcrum wall and the pre-set and lock means and having clamping arms projecting into the housing, the outermost arm being longer than the innermost arm to maintain engagement with the underside of the pipe bracket for all relative positions of the housing and pipe bracket, said arcuate base of the clamp having slots extending parallel to the housing, and bolt means extending through the slots to pivot the housing on said fulcrum wall until the pipe bracket engages the pre-set and lock means, said slots allowing said clamp to pivot about an axis normal to said pipe bracket to maintain simultaneous engagement of both clamp arms with the pipe bracket.

3. An adjustable mounting unit for attaching lighting units having an outer shell with a side lead opening smaller than the diameter of a horizontal pipe bracket, which comprises a housing adapted to be secured to the side of the outer shell about the lead opening and adapted to at least partially encircle said pipe bracket with the lead opening generally aligned with the pipe bracket, a resilient pad interposed between pipe bracket and the shell, an internal fulcrum wall means secured to said housing in spaced relation to the lighting unit and engaging the periphery of the pipe bracket in the assembled position with the pipe bracket abutting said pad, clamp means adjustably attached to the housing and engaging said pipe bracket in spaced and opposite relation to said fulcrum wall to selectively pivot the housing about the fulcrum wall on said pipe bracket, said resilient pad allowing relative tilting of the pipe bracket without axial movement of the housing, and pre-set means adjustably secured to the housing and adapted to engage the pipe bracket in longitudinally spaced relation to said fulcrum wall means and said clamp means and cooperating with said fulcrum wall to establish the angular position of the housing longitudinally of the bracket incidental to tightening of the clamp means upon the pipe bracket.

4. An adjustable mounting unit for angularly attaching a lighting unit having an outer shell with a lead opening on a generally horizontal pipe bracket, which comprises a generally channel shaped housing adapted to be secured to the shell about the lead opening and adapted to overlie the pipe bracket, said housing having an internal fulcrum rib extending laterally from the top wall of the housing and having a V-shaped bearing edge adapted to engage the adjacent periphery of the pipe bracket in the assembled relation and to align the end of the bracket with the opening, a resilient sealing member interposed between the end of the pipe bracket and the lead opening and adapted to be engaged by the pipe bracket to seal the opening, said sealing member allowing relative tilting movement of the housing and pipe bracket, a generally U-shaped clamp bracket defined by an arcuate web por-

tion and a pair of bearing arms having V-shaped notches defining corresponding bearing edges, bolt means adjustably securing the clamp bracket to the housing with said arms extending transversely of the pipe bracket and permitting limited pivotal movement of the bracket with respect to the housing and on an axis parallel to the bearing arms to selectively establish the angular relation between said housing and said pipe bracket, a pre-set member adjustably secured to the housing and having a head portion, said pre-set member being adapted to establish a horizontal positioning of the housing on said pipe bracket with the head portion bottomed on the housing, and spacer means adapted to be disposed between the head portion of the pre-set member and the housing to locate the inner end of said pre-set member for a pre-determined tilt of the housing relative to the pipe bracket.

5. An adjustable mounting unit for attaching a side mounted lighting unit on a generally horizontal pipe bracket, which comprises a generally channel shaped housing adapted to be secured to the side of a lighting unit and to overlie the pipe bracket, said housing having an internal fulcrum rib extending laterally from the top wall of the housing and having a downwardly opening V-shaped bearing edge adapted to engage the adjacent periphery of the pipe bracket, said V-shaped bearing edge selectively accommodating a 1¼ inch and a 2 inch pipe bracket, a tapered rib extending longitudinally outwardly and upwardly from said fulcrum rib to guide the pipe bracket into the housing and past the fulcrum rib, a generally U-shaped clamp bracket defined by an arcuate web portion and a pair of bearing arms having V-shaped notches defining corresponding bearing edges, bolt means adapted to adjustably secure the clamp bracket to the underside of the housing axially outwardly spaced from said fulcrum wall with said arms extending transversely of the pipe bracket and permitting limited pivotal movement of the bracket with respect to the housing and on an axis parallel to the bearing arms to selectively pivot the housing on said V-shaped bearing edge, the axially outer clamp arm having a greater depth than the axially inner clamp arm to maintain engagement of both arms with the pipe bracket for all relative positions of the housing with respect to the pipe bracket, a locking screw threaded through the top wall of the housing axially outwardly of the clamp bracket and having an exterior horizontal bearing member, said locking screw being adapted to establish a horizontal extension of the housing on said pipe bracket with the horizontal bearing portion of the locking screw bottomed on the housing, and a U-shaped spacer adapted to be disposed between the horizontal bearing portion of the locking screw and the housing to locate the inner end of said locking screw for a 10 degree tilt of the housing relative to the pipe bracket, said cup-shaped spacer having a radial slot corresponding in circumferential dimension to the locking screw to allow removal without movement of the locking screw.

6. An adjustable mounting unit for angularly attaching a lighting unit on a generally horizontal pipe bracket, which comprises a generally channel shaped housing adapted to be secured to the lighting unit and to encircle the pipe bracket, said housing having an internal fulcrum rib extending laterally from the top wall adjacent the lighting unit end of the housing terminating in a V-shaped bearing edge adapted to engage the adjacent periphery of the pipe bracket, a generally U-shaped clamp bracket defined by an arcuate web portion and a pair of bearing arms having V-shaped notches defining corresponding bearing edges, bolt means adapted to adjustably secure the clamp bracket to the housing axially outwardly of the fulcrum wall with said arms extending transversely of the pipe bracket and into the housing and permitting limited pivotal movement of the bracket with respect to the housing and on an axis parallel to the bearing arms to selectively establish the angular relation between said housing and said pipe bracket, the outer clamp arm having a

greater depth than the inner clamp arm to maintain engagement of both arms with the pipe bracket for all relative positions of the housing and the pipe bracket, a locking screw threaded through the top wall of the housing in alignment with the apex of the V-shaped bearing edges and having an external head, said locking screw being adapted to establish a horizontal extension of the housing on said pipe bracket with the external head of the locking screw bottomed on the housing, and a spacer adapted to be disposed between the head of the locking screw and the housing to locate the inner end of said locking screw for a predesigned tilt of the housing relative to the pipe bracket.

7. A mounting unit of the construction of claim 6 wherein said support member is an inverted U-shaped casing and said clamp means comprises a clamp element spanning the open bottom of the casing and includes a central recessed portion establishing multiple engagement with the adjacent periphery of the pipe bracket, said clamp means having bolt openings and bolt means passing through the openings in the clamp element and into tapped openings in the ends of the side walls of the casing to releasably clamp the mounting unit to the pipe bracket, said bolt openings in the clamp means being enlarged to allow limited tilting of the clamp element and to maintain engagement with the periphery of the pipe bracket for different positions of the mounting unit.

8. An adjustable mounting unit for angularly attaching a lighting unit on a generally horizontal pipe bracket, which comprises a generally channel shaped cast housing adapted to be secured to the lighting unit and to overlie the pipe bracket, said housing having an internal fulcrum rib extending laterally from the top wall inwardly from the lighting unit end of the housing and terminating in a centered V-shaped bearing edge adapted to engage the adjacent periphery of the pipe bracket in the assembled relation, an integrally cast tapered rib extending longitudinally outwardly and upwardly from said fulcrum rib to guide the pipe bracket into the housing and past the fulcrum rib, a generally U-shaped clamp bracket defined by an arcuate web portion and a pair of bearing arms having V-shaped notches defining corresponding bearing edges, bolt means adapted to adjustably secure the clamp bracket to the underside of the housing longitudinally intermediate the length of the housing with said arms extending transversely of the pipe bracket and permitting limited pivotal movement of the bracket with respect to the housing and on an axis parallel to the bearing arms to selectively establish the angular relation between said housing and said pipe bracket, the outer clamp arm having a greater depth than the inner clamp arm to maintain engagement of both arms with the pipe bracket, a locking screw threaded through the outer top wall of the housing in alignment with the opening of the V-shaped bearing edge and having a head, said locking screw being adapted to establish a horizontal extension of the housing on said pipe bracket with the head of the locking screw bottomed on the housing, and a spacer adapted to be disposed between the head of the locking screw and the housing to locate the inner end of said locking screw for predetermined tilt of the housing relative to the pipe bracket.

9. In an adjustable mounting unit for securing at one of a plurality of angles a lighting unit on a horizontal pipe bracket, comprising an inverted U-shaped casing for receiving the terminal end of the pipe bracket, a pair of angle locating members depending from the upper wall of the casing, one of said members being adjustable to set the angle of the casing with respect to the pipe bracket, a clamping bar spanning the open bottom of the casing and having vertical openings aligned with the casing with a clamping surface generally following the curvature of the pipe bracket and engaging the underside of

the pipe bracket, and rod-like clamping members of a diameter substantially less than said vertical openings to provide a substantial clearance between the wall of the openings or edges of the openings and the clamping members and projecting downwardly through said vertical openings and engaging the clamp element to releasably support the clamp element in clamping engagement with the pipe bracket, said vertical openings permitting tilting movement of the clamp element to maintain similar clamping engagement between the clamp element and the pipe bracket.

10. An adjustable mounting unit for securing a lighting unit at one of a plurality of angles on a substantially horizontal arm, comprising an inverted U-shaped casing having an upper wall and depending side walls for supporting the lighting unit at one end and receiving the terminal end of the arm from the opposite end, a pair of angle locating members depending in longitudinally spaced relation from the upper wall of the casing for engagement with the arm, at least one of said members being adjustable to set the angle of the casing with respect to the arm, a clamping saddle laterally spanning the open bottom of the casing and engaging the underside of the arm to establish a three area support of the lighting unit on the arm, and securing means secured to the side walls of the casing and aligned portions of the clamping saddle, said securing means including means constructed and arranged to provide pivotal and translating movement of the clamping saddle with respect to the support to maintain the clamping saddle in clamping engagement with the underside of the arm at a plurality of angles of the lighting unit, whereby the lighting unit can be angularly positioned by manual adjustment of only one of the locating members.

11. The mounting unit set forth in claim 10 wherein said last-mentioned means comprises enlarged openings in the aligned portions of said clamping saddle to permit the limited angular movement of said clamping saddle about the axis longitudinally of the clamping member and at right angles to the tilting movement of the lighting unit.

12. The apparatus set forth in claim 10 wherein one of said angle locating members comprises set screw means extending through said upper wall and the other angle locating means comprising fixed means integral with said casing and providing at least two point contact with the upper surface of said arm.

13. The apparatus set forth in claim 10 wherein said last-mentioned means comprises enlarged openings in said aligned portions of said clamping saddle to permit limited angular movement of said clamping saddle about the axis longitudinally of the clamping member and at right angles to the tilting movement of the lighting unit and wherein one of said angle locating members comprises set screw means extending through said upper wall and the other angle locating means comprising fixed means integral with said casing and providing at least two point contact with the upper surface of said arm, said angle locating members being disposed adjacent substantially the opposite ends of said housing.

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