

### [54] LIGHTING STANDARD OR POLE WITH DOUBLY HINGED BASE

[72] Inventor: Robert W. Beachley, P.O. Box 11281, Charlotte, N.C. 28209

[22] Filed: Jan. 13, 1971

[21] Appl. No.: 106,180

[52] U.S. Cl.: 240/84, 52/292, 52/296, 248/156

[51] Int. Cl.: F21s 13/10

[58] Field of Search: 240/84; 52/292, 296; 248/158

#### [56] References Cited

##### UNITED STATES PATENTS

981,610	1/1911	Bölsterli	52/292 X
1,643,689	9/1927	Woodin	52/292
3,375,620	4/1968	Phillips	240/84 X
3,521,413	7/1970	Scott	248/158 X
R26,995	12/1970	Guggemes	240/84 X

Primary Examiner—Samuel S. Matthews

Assistant Examiner—Michael Harris

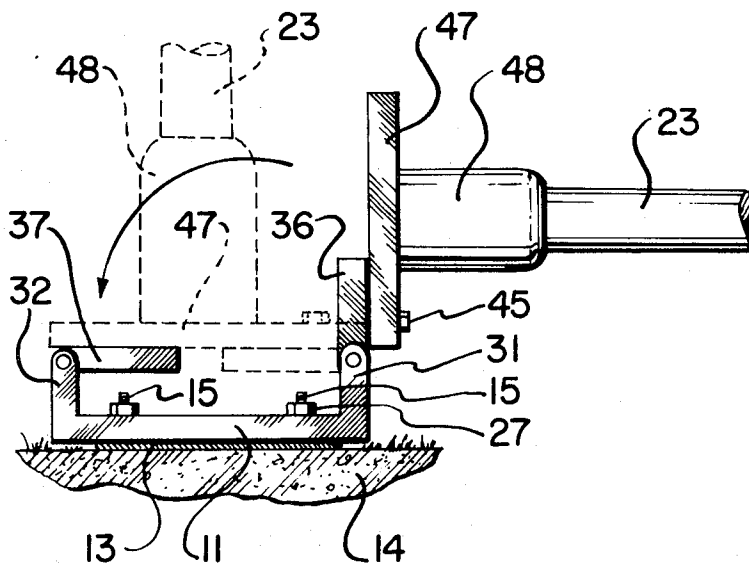
Attorney—Polachek & Saulsbury

#### [57] ABSTRACT

A lighting standard or pole is provided with a base assembly including a ground concrete base having upstanding studs arranged at the corners of a square, a base plate having openings

receiving the studs and adjustable nuts upon the studs for securing the base plate to the studs in a manner that the base plate can be leveled so that the lighting pole will be extended vertically plumb with respect to the ground. The opposite sides of the base plate are extended upwardly and to these opposite sides are opposing hinged plates one of which can be pivoted upwardly and over to the right and the other of which can be pivoted upwardly and over to the left. A top plate is secured by bolts to the hinge plates and upon releasing the bolts at one side of the top plate and from one hinge plate the top plate and the pole can be tilted downwardly from one direction and upon releasing the bolts from the other hinge plate while leaving the bolts attached to the one hinge plate the lighting pole can be tilted downwardly from the opposite direction. With the pole tilted one way or the other the fixture and the base are made accessible for servicing. The base plate while being connected to four studs has multiple openings to permit the base plate to be oriented detaching the base plate from the studs and replacing the same into other holes angularly disposed from one another about a center opening in the base plate so that the base plate can be angularly oriented to free the lighting fixture from trees or the like when it is desired to tilt the lighting post toward the ground. A split skirt formed of hingeable parts is detachably fitted about the base plate assembly and pole to enclose the same and give a more pleasing appearance. A rust-proof pan is provided under the base plate with sides extending upwardly to enclose the base plate and the hinge plates to permit a recessing of the base assembly into the ground so that the pole top plate would lie just slightly thereabove.

10 Claims, 14 Drawing Figures





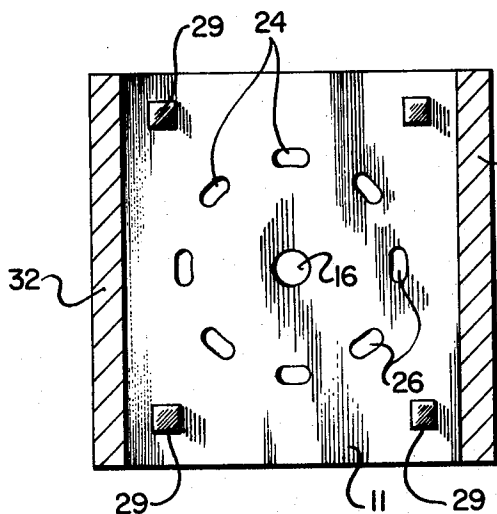


FIG. 3.

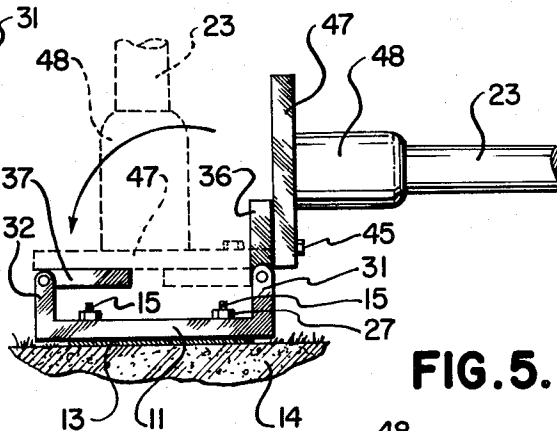


FIG. 5.

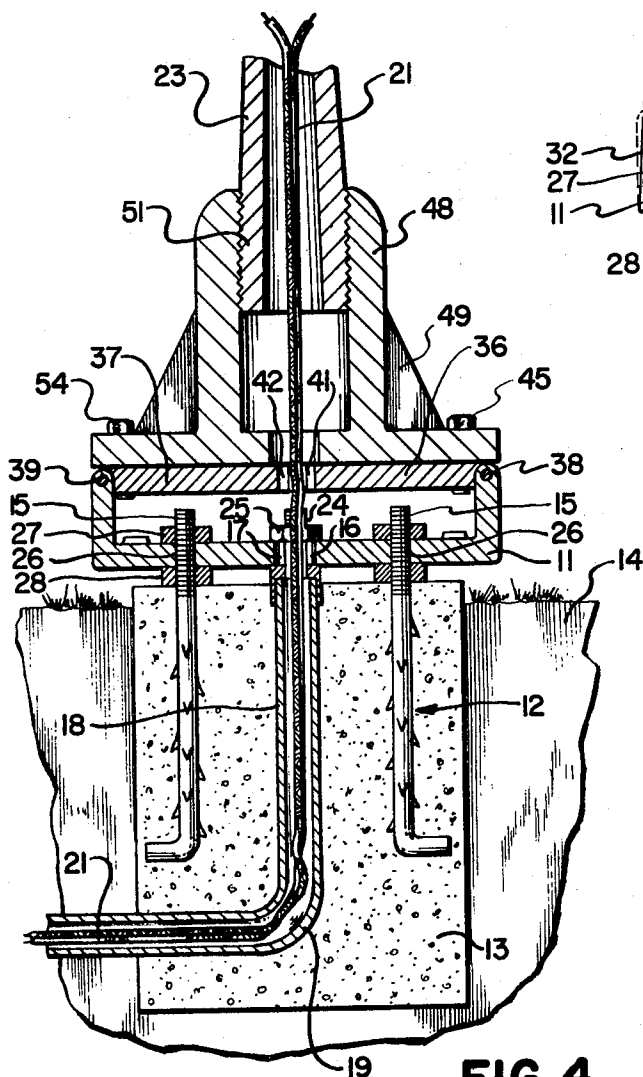


FIG. 4.

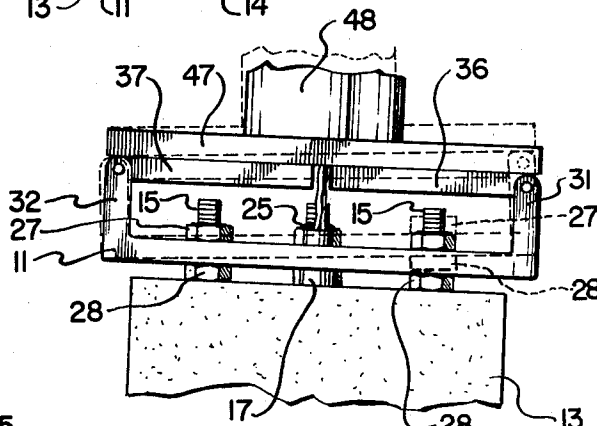


FIG. 6.

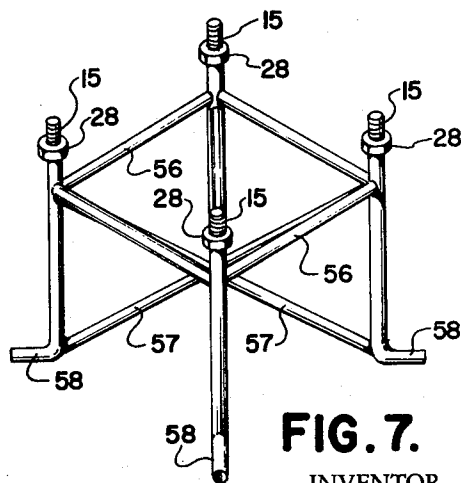


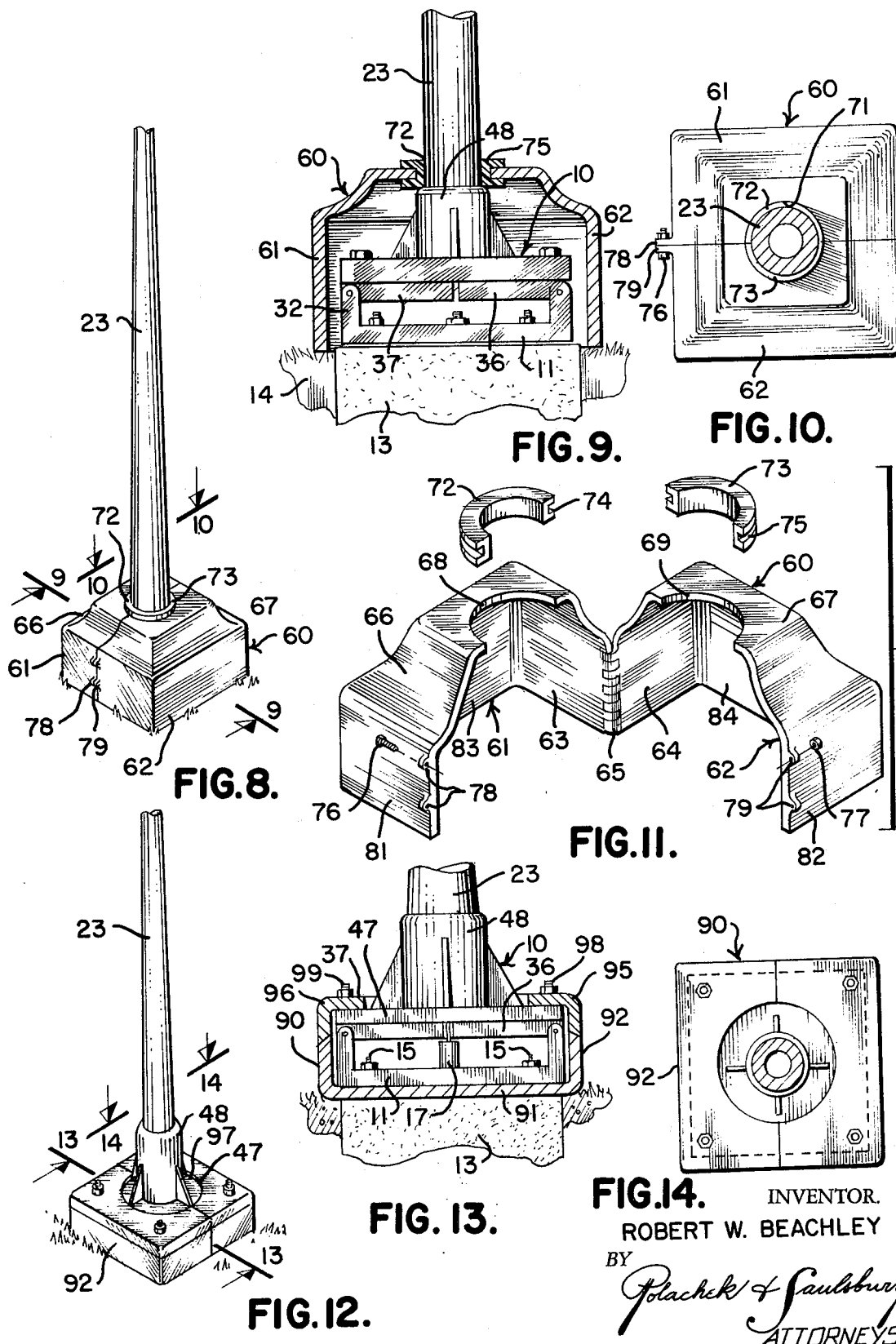
FIG. 7.

INVENTOR.

ROBERT W. BEACHLEY

BY

*Polachuk & Saulsbury*  
ATTORNEYS



INVENTOR.  
ROBERT W. BEACHLEY  
BY  
*Polachek & Saulsbury*  
ATTORNEYS

# **LIGHTING STANDARD OR POLE WITH DOUBLY HINGED BASE**

This invention relates to a lighting standard and pole base assembly.

It is an object of the invention to provide a pole base assembly having hingeable plates permitting the pole to be tilted in either of two directions to one side or the other and in a vertical plain to a horizontal position for servicing the fixture.

It is another object of the invention to provide a pole base assembly having a multiple of angle positions to which the pole base plate can be adjusted relative to the studs of the ground base so that the pole can be oriented and the lighting fixture at the top thereof made free of tree growth and thereby to change the direction in which the lighting pole can be tilted to the ground.

It is still another object of the invention to provide in a doubly hinged pole base assembly slotted pole connections between the pole base and the upstanding studs of the ground base so that slight orientation of the pole can be made during the erection of the pole or later by loosening the stud nuts and repositioning the pole base plate relative to the upstanding studs of the concrete base.

It is a further object of the invention to provide in a light standard or pole base assembly means for adjusting the hinge plate upon upstanding studs arranged at the corners of a square whereby the base plate can be leveled upon the studs by adjusting nuts disposed above and below the base plate to serve to alter the height of the base plate upon the stud bolt and for fixing the same against upward axial displacement therefrom.

It is a still further object of the invention to provide a light standard or pole base assembly having means for hinging down the pole for the purpose of being maintained which will have a releasable split skirt assembly that surrounds the pole and base assembly to enclose the same and to provide for a more pleasing appearance of the lighting standard and its base.

It is a still further object of the invention to provide a light standard or pole base assembly in which the pole can be hinged downwardly in which a closing the base plate assembly is effected through a rust-proof pan mounted under the base plate and having its sides extendable upwardly to enclose the side ends of the assembly and to permit the base plate assembly to be recessed into the ground surface and with its top plate flush therewith.

Other objects of the invention are to provide a lighting standard or pole base having the above objects in mind, which is of simple construction, has a minimum number of parts, easy to assemble, easy to maintain and adjust, of rugged construction, of pleasing appearance, efficient and effective in use.

For a better understanding of the invention, reference may be had to the following detailed construction taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of a mounting base assembly and lighting standard and pole constructed according to the present invention.

FIG. 2 is an enlarged exploded and perspective view of the hinged pole base assembly, the several parts being shown in top perspective views, and the assembling studs and bolts being aligned for the connecting of the several parts together.

FIG. 3 is a transverse sectional view taken through the upstanding hinge sides of the hinge base plate and showing the upper face of the plate in plan with its circumferentially spaced orienting slots, the view being taken generally on line 3—3 of FIG. 2.

FIG. 4 is an enlarged fragmentary vertical sectional view of the hinged pole base and as viewed generally on line 4—4 of FIG. 1.

FIG. 5 is a fragmentary elevational view of the pole base with the pole hinged downwardly from one side of the base from its normal upright dotted line position shown therein.

FIG. 6 is an enlarged side elevational view of the pole in an upright position and extended over its base and looking in

elevation upon the concrete ground anchor and illustrating the manner in which the pole base can be adjusted relative to the concrete anchor block and to level the base so that the pole extends vertically and plumb with respect to the surrounding ground.

FIG. 7 is a perspective view of the braced anchor bolt assembly that is embedded in a concrete block support.

FIG. 8 is a fragmentary perspective view of the mounting base assembly and the pole standard enclosed by a hinged split skirt structure.

FIG. 9 is an enlarged fragmentary vertical sectional view of the mounting base assembly and of the split skirt surrounding the same as viewed generally on line 9—9 of FIG. 8.

FIG. 10 is a transverse sectional view taken through the pole standard and looking downwardly in plan upon the mounting base and the split skirt cover assembly extended thereover.

FIG. 11 is a perspective view of the split skirt cover removed from the mounting base and pole and hinged open to illustrate the manner in which the skirt is assembled upon the base assembly and pole and of the split sealing rings insertable in the top opening thereof, these sealing rings being shown exploded from their respective girt parts and in collection therewith.

FIG. 12 is a perspective view of the lamp pole and base assembly and of the top edges of a rust-proof pan in which the base assembly is mounted and attached with the base assembly to the concrete base anchor, base assembly being recessed into the ground surface.

FIG. 13 is an enlarged fragmentary vertical sectional view of the base assembly and of the rust-proof skirt provided upon the concrete base and with its sides surrounding base assembly, this view being taken on lines 13—13 of FIG. 12.

FIG. 14 is a transverse sectional view taken through the pole of FIG. 12 and looking in plan downwardly upon the mounting base thereof and upon the upper edges of the rust-proof mounting pan.

Referring now particularly to the Figures, 10 represents generally a light standard or pole base constructed and assembled in accordance with the features of the present invention. This base assembly 10 comprises a base plate 11 adapted to be secured to an anchor assembly 12 preferably of the construction shown in FIG. 7 that is embedded in a concrete block or mass 13 within surrounding ground 14. This anchor bolt assembly includes four bolts arranged in the concrete mass 13 at the corners of a square to provide for upstanding stud portions 15—15 to which the hinge base 11 is attached.

In the bottom of the base plate 11 is a central hole 16 upwardly through which a ferrule 17 that is threaded or tight fitted upon an upwardly extending end of a wire conduit 18 that is embedded in the concrete mass 13 and has an elbow bend 19 to extend laterally through the side of the mass and into the surrounding ground 14. Wire cables 21 extend through the conduit 18 and upwardly through the ferrule into the base assembly and thereafter upwardly to supply current to a lighting fixture 22 on the upper end of light standard or pole 23. The ferrule 17 is threaded and is held in place upon the bottom of the lamp base 11 by a nut 25 extended thereover.

This base plate 11 has a series of elongated slots 26 equally radially spaced from the center of the hole 16 and equally circumferentially spaced from one another, the same subscribing a circle about the center of the hole 16 and concentric therewith. These slots 26 are angled 45° from one another and any four of these slots receive the upstanding studs 15 from the embedded anchor bolt assembly 12. By having a large number of stud bolt receiving holes 26 in the base plate 11, the base plate 11 can be assembled upon the stud bolts 15 so that the base plate 11 can be angled or oriented to a multiple number of angular positions relative to the stud bolts and by providing slots 26 which are elongated slight angular adjustments can be made on the base to change the angle of tilt to which the light standard or pole may be tilted. The reasons for this will be apparent as the description continues.

There are times when the studs 15 will not extend exactly vertical and the plumb as shown in FIG. 6 and thus the need for top and bottom adjustable hold down nuts 27 and 28 for supporting the base forced upwardly from the upper face of the concrete mass and upon the stud bolts 15. If it is found that the base 11 as shown in FIG. 6 is tilted, the nuts 27 and 28 can be lifted upon the stud bolt 15 to dotted line positions as shown at the right of FIG. 6, thereby leveling the base plate 11 so that the pole that will extend upwardly therefrom will lie vertical and plumb with the ground. In order to make the accurate adjustments of the nuts 27 and 28 upon the studs 15, a level gauge can be placed upon leveling bosses 29 located at each corner of the base plate 11, as best seen in FIG. 3 and with this level gauge being on center the base plate 11 will from the different angled positions be brought to a position such that the pole 23 will be plumb when finally erected.

The base plate 11 has upstanding opposite sides 31 and 32, the upper edges of which are slotted as indicated at 33 to receive hinge projections 34 and 35 of respective right and left opposing hinge plates 36 and 37 that are respectively hinged by hinge pins 38 and 39 providing thereby piano-like hinge connections of the plates 36 and 37 with their respective upstanding sides 31 and 32 of the base plate 11.

These hinge plates 36 and 37 when closed upon one another as best seen in FIG. 2 have their opposing edges slightly spaced but at the center of the base plate assembly and in axial alignment with the hole 16 of the base plate 11, these edges on the hinge plates are recessed at 41 and 42 to provide an opening upwardly through which the cable wires 21 may extend.

The hinge plate 36 has adjacent to the hinge pin 38 and at the opposite ends thereof a threaded hole 43, there being two holes upon the plate, one of which being shown and the hinge plate 37 has similarly located and spaced threaded holes 44. The holes 43 of the hinged plate 36 receive bolts 45 that are extended downwardly through holes 46 at the right side of a top plate 47 having an internally threaded upwardly extending central hub projection 48 having bottom braces 49 angularly spaced from one another about the hub and secured between the hub and the top face of the plate 47. The light standard or pole 23 is threaded by its threaded portion 51 through the internal threads 52 in the open end of the hub 48, as best seen in FIG. 2 so as to be extended upwardly from the hub rigidly and in coaxial vertical alignment therewith.

At the opposite side of the top pole plate 47 are holes 53 adapted to be aligned with the threaded holes 44 of the left hinge plate 37 and which receive bolts 54 that will secure the top plate 47 to the hinge plate 37.

With the base plate 11 properly mounted upon the upstanding stud bolts 15 and made level by the adjustable nuts 27 and 28 and with the top plate 47 secured to the hinge plates 36 and 37, the light standard or pole 23 will extend upwardly in a vertically plumb position and the light fixture 22 which is provided on the outer end of the angularly bent portion 23' will overhang the exact area to be lighted by the fixture 22.

As seen in FIG. 5, the bolts 54 that connects the top plate 47 to the left hinge plate 37 has been removed and the bolts 45 have been permitted to remain connected with the hinge plate 36 so that the top plate 47 can be pivoted upwardly and over with the hinge plate 36 and take with it the light pole 23 so that repairs can be made on the light fixture 22 on the upper end of the light pole and within the base assembly 10. If, on the other hand it is desired to tilt the light pole 23 in the opposite direction, the fastening bolts 45 for the right hinge plate 36 are removed and the fastening bolts 54 for the left hinge plate are left to keep the top plate 47 secured to the hinge plate 37 so that the tilting movement can be in the opposite direction to that shown in FIG. 5, and to the left. What may be desired will depend upon the installation where the light pole is used. The light pole ordinarily would be removed so as to not to have interference with trees or to be extended across the highway and in the manner which may veer to the worker as to what may be the expeditious direction to tilt the pole 23. With the bolts 45 and 54 fixed into place to hold the top plate 47

upon the hinge plates 36 and 37 a rigid pole based assembly 10 is provided with the base plate 11 secured to the concrete mass 13 in a level manner the pole 23 is held firmly in the ground.

In FIG. 7 there is shown the anchor bolt assembly wherein the stud bolts 15 are vertically aligned with one another and retained by laterally extending tie bars 56 at the proper spacing so that the stud bolts 15 will be aligned with any four of the circumferentially spaced slots 26 of the base plate 11 as viewed in FIG. 3. In order to keep the stud bolts 15 braced at their lower ends against displacement when surrounded with concrete mix, each one of the bolts have an inwardly and downwardly extending brace bar 57 that extends diagonally across the lower end of another stud 15. The studs 15 may be roughened to cling to the cement and a laterally bent foot portion 58 to further help to keep the stud bolts 15 from pulling out of the cement. This anchor bolt assembly is preconstructed and once located in a hole to be dug in the ground cement can be poured around the same while steadying the assembly 12 against being tilted and so that the bolts 15 will lie in vertically plumb directions.

It will appear that once the anchor base is in place that a prefabricated anchor base plate assembly including the hingeable plates can be attached to the anchor bolt assembly in any one of several angularly displaced positions thereupon. This base plate assembly includes the hinge plates and to these hinge plates the top plate is attached by bolts that will carry the pole and the lighting fixture in a true vertically extended position. It will be apparent that the lighting standard or pole can be hinged or tilted downwardly from its vertical plain in either of two directions.

It should be apparent that this lighting pole can be oriented and be easily leveled when it is necessary to position the pole in a new location after having been installed due to overcome the growth of trees that may have extended themselves over the lighting fixture or become in the way and serve as a hindrance to permit the easy tilting of the light pole to provide access to the lighting fixture for servicing the same.

Referring now particularly to FIGS. 8-11, there is shown the base assembly 10 and the light standard pole 23 enclosed by a hinged split skirt cover assembly indicated generally at 60. This cover assembly is formed of two parts 61 and 62 having depending side portions 61 and 62 having respectively depending rear walls 63 and 64 that are hinged together at 65 to allow these portions or parts 61 and 62 to be opened up for purposes of assembling the cover assembly about the pole 23 and over the base 10. The upper portions of these parts are narrowed for pleasing appearance as indicated respectively at 66 and 67, the upper faces of which are cut away respectively at 68 and 69 to provide for when the parts 61 and 62 are closed upon one another a central opening 71 upwardly through which the pole 23 extends and of a size to accommodate split bushing parts 72 and 73 that are externally grooved respectively at 74 and 75 to be accommodated over the cut away edges 68 and 69 of the respective top portions 66 and 67 of the parts 61 and 62. These bushings 72 and 73 provide a tight gripping engagement with the exterior surface of the pole 23 to prevent seepage of water and dirt therebetween and onto the base assembly 10.

When these split cover parts 61 and 62 are hinged together they are held about the pole base assembly 10 by bolts 76 and nuts 77 that are extended through external bosses vertically spaced from one another on respective front walls 81 and 82 of the split cover parts 61 and 62. The lower edge of the wall parts, the rear and front walls 63 and 81 of part 61 and the rear and front walls 64 and 82 of the part 62 being joined respectively by side walls 83 and 84 to provide a complete enclosure about base end. It will be seen that cover assembly provides for a pleasing appearance and will as well keep out dirt and water from the base assembly.

Referring now particularly to FIGS. 12, 13 and 14 in which there is provided a rust-proof pan indicated generally at 90 that is slightly larger than the base plate 11 with holes in its

bottom 91 to accommodate the upper ends of the anchor bolts 15 embedded in the concrete base 13 and upwardly from the edge of which extends a continuous side wall 92 to provide a square opening into which the base 11 and its upstanding side walls 31 and 32 extend. The hinged plates 36 and 37 are hinged to the upper ends through the sides 31 and 32 of the base plate 11 and the side wall 92 of the pan elevated as high as possible to close the opening between opposite sides of the base plate 11 and the hinge plates 36 and 37 but not sufficiently high enough to interfere with the hinging down of the pole and its plate 37 to a horizontal position. With this assembly, the pan and the base assembly can be recessed into the ground surface or sidewalk in which the pole or base assembly 10 is installed.

The base plate assembly 10 can be further closed by two separable cover plates 95 and 96 cut away at their top portions to provide an opening 97 and which can be secured respectively to the pole base plate 47 by bolts 98 and 99.

It will be seen that with the split cover assembly 60 and rust-proof pan 90 taken with top closure parts 95 and 96, that the base assembly 10 will be adequately confined and enclosed by these parts to shed water and dirt and that these parts are readily assembled onto the pole standard and its space and onto the concrete base anchor 13.

While various changes may be made in the detailed construction it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What is claimed is:

1. A lighting standard or pole construction comprising ground support means having upwardly extending stud bolt members, a pole base plate detachably secured to said stud members, said base plate having opposing hinge plates hingedly secured to the opposite sides of said base plate and a top plate with a lighting pole and fixture extending upwardly therefrom having its opposite sides respectively secured to the respective opposing hinge plates, whereby upon releasing one side of the top plate from one hinge plate the pole with the light fixture can be tilted downwardly with the hinge plate at the opposite side of the pole base and in either one direction or in the opposite direction.

2. A lighting standard or pole construction, as defined in claim 1, and said stud members extending upwardly from the ground mass being threaded and having top and bottom adjustable nuts thereon, said stud bolts being arranged at the corners of a square, said base plate having openings for receiving said stud bolts and said adjustable nuts when the studs are passed through the respective openings serving to support and retain the base plate in a vertically plumb position.

3. A lighting standard or pole construction, as defined in claim 2, and said base plate having upstanding leveling bosses arranged at the corners of a square and adapted for receiving a level gauge in any of four directions upon the hinge plate.

4. A lighting standard or pole construction, as defined in claim 2, and said poles in said hinged plate for receiving said ground based studs being provided in a series of such holes circumferentially spaced from one another at equal distances apart, there being multiple holes in number any four of which may receive the outwardly extending studs of the base, whereby the pole base may be oriented and angularly adjusted upon the upwardly extending studs of the ground base.

5. A lighting standard or pole construction, as defined in claim 4 and said stud receiving holes of the pole base being slightly elongated to permit slight angular adjustment of the pole base upon the upstanding studs of the ground base without removal of the pole base therefrom.

6. A lighting standard or pole construction as defined in claim 1, and said hinged plates having opposing edges recessed to provide an opening therebetween, said pole base having a pole aligned with the opening of the hinge plates and said ground base having a wire cable conduit extending upwardly from the top thereof and the opening of said ground base and the hinge plates being vertically aligned when the hinge plate is secured to the stud members for vertically receiving the wires passing from the conduit and upwardly into the lighting pole and fixture.

7. A lighting standard or pole construction, as defined in claim 1, and said top plate having a hub formation extending upwardly therefrom and said lighting pole and fixture threadedly connected into the upper end of said hub portion.

8. A lighting standard or pole construction as defined in claim 1 and said base plate having upwardly extending opposing side portions at the opposite sides thereof, and said hinge plates being hingedly connected to the upper ends of said side projections through piano-like hinge means, whereby the top plate may overlie the upper ends of the side portions of the base plate when attached to the hinge plates and flush connected therewith.

9. A lighting standard or pole construction as defined in claim 1 and a split cover assembly for the base and pole comprising two parts having depending walls hingedly secured together to be opened laterally from one another and to be closed about the pole and the base plate, said cover parts having top portions cut away when united with the parts being closed one upon another culminating the pole, and means for detachably securing together parts assembled about the pole and the base plate.

10. A lighting standard or pole construction as defined in claim 1 and a pan having its bottom mounted upon stud bolt members of the ground support means and beneath the pole base plate, said pan having its sidewall extending upwardly from its bottom and surrounding the base plate, said side wall extending upwardly to a height just below the opposing hinge plates so as not to interfere with the hinging down of the pole to a horizontal position.

\* \* \* \* \*

55

60

65

70

75