This invention relates to a device for attaching an arm to an angular surface formed by the intersection of a pair of plane surfaces, and more particularly to a device for attaching the bracket arm supporting a luminaire, or other lighting unit, to one pair of intersecting faces of a lighting standard or pole having a polygonal cross section.

Hereinafter, a luminaire bracket arm has been attached to a lighting standard or lamp pole having polygonal, and conventioneally octagonal, cross sections, by providing a plate member having three faces disposed at the same angle as the angles formed by three of the pole faces so that the plate member could fit flush against the pole.

One important disadvantage of this type of attachment device is that a different device must be made for poles of different diameters, even though the angles between the faces remain the same.

It is therefore an object of this invention to provide an attachment device for securing a luminaire bracket arm to a light or lamp pole having a polygonal cross section comprising a plate member having only two faces intersecting at the same angle as a pair of corresponding pole faces, in order that the member may fit flush against the corresponding faces of any similar-shaped pole regardless of size.

Another object of this invention is to provide a device for attaching an arm to a light pole in which the arm may be temporarily suspended in operative position while it is being permanently secured to the pole.

Another object of this invention is to provide an arm attachment device for a light pole which is of simple and economical construction and adapted to facilitate the assembly of the arm to the light pole.

Further objects and advantages of the invention will be apparent from the following description taken in conjunction with the drawings, wherein:

FIG. 1 is an exploded assembly view of the invention;

FIG. 2 is a side elevation of the invention;

FIG. 3 is a view similar to FIG. 2 with parts broken away to show the attachment device in section, and showing an operational position in phantom; and

FIG. 4 is a section taken along the line 4—4 of FIG. 2.

Referring now to the drawings in more detail, a novel attachment device 10 is disclosed supporting a luminaire bracket arm 11 on a conventional lighting standard or light pole 12 of regular octagonal cross section. It will be noted that the attachment device 10 is secured flush against only two adjacent pole faces 13 and 14 forming an interior angle of 135°.

The attachment device 10 comprises essentially two plate members, a pole plate 17, adapted to abut flush against the pole faces 13 and 14, and an arm or shoe plate 18, adapted to abut flush against the pole plate 17. The pole plate 17 comprises two plane plate sections 19 and 20 joining each other at the same angle as the pole faces 13 and 14, which would be 135° for a regular octagonal pole 12.

The upper portion of the pole plate 17 forms an outwardly extending flange 21 having a down-turned lip 22 spaced from and substantially parallel to the plate portions 19 and 20 a distance slightly greater than the thickness of the shoe plate 18.

The pole plate 17 is provided with a longitudinal opening 23 having substantially straight sides and circular ends and having its longitudinal axis coinciding with the intersection of the plate sections 19 and 20. The opening 23 is provided with a peripheral flange or lip 24 extending inwardly to fit within a similar opening formed in the pole faces 13 and 14 so that the pole plate 17 may be held in alignment while it is being welded to the pole faces 13 and 14 for permanent attachment.

The shoe plate 18 also comprises two plane plate sections 25 and 26 joined at the same angle as the angle between the pole plate sections 19 and 20. A similar opening 27 of the same size and corresponding position as the opening 23 is formed in the shoe plate sections 25 and 26 so that the longitudinal axis of the opening 27 coincides with the line of intersection of the plate sections 25 and 26.

As best disclosed in FIG. 3, the base of the arm 11, which preferably has a circular cross section is inserted into the opening 27 at an angle to the longitudinal axis of the opening 27 so that the arm 11 will extend upwardly and outwardly from the pole 12 when secured in position by means of the attachment device 10. The combined weight of the arm 11 may be secured in place by any convenient means such as the weld 30.

In order to assemble the shoe plate 18 and the pole plate 17, a circular recess 32 is formed in the pole plate 17 at the intersection of the plate sections 19 and 20. A pin 33 extends from the inside of the corresponding position in the shoe plate 18 in such a manner that when the pole plate and the shoe plate 18 are nested flush against each other in aligned operative position, the pin 33 will be slidably received within the recess 32, as best disclosed in FIGS. 3 and 4. The pin 33 is strong enough to support the combined weight of the shoe plate 18, the bracket arm 11 and the luminaire, not shown, attached to the extreme end of the arm 11. The pin 33 and recess 32 are designed primarily as a temporary means of supporting the shoe plate 18 and the arm 11 until the shoe plate may be permanently attached to the pole plate 17. One preferred method of permanently attaching the plates 17 and 18 is to provide the pole plate 17 with a pair of tapped holes 34 and 35, one in each plate section 19 and 20, respectively, and a pair of smooth openings 36 and 37 formed in the same relative positions in their respective plate sections 25 and 26 in such a manner that they will align with the tapped openings 34 and 35, respectively. The pole plate 17 and the shoe plate 18 are then held in place by a threaded bolt 38 extending through and engaging the aligned smooth hole 36 and tapped hole 34, and a second threaded bolt 39 extending through and engaging the aligned holes 37 and 35. Bosses 40 and 41 are formed on the plate sections 19 and 20, respectively to extend the tapped openings 34 and 35 through mating openings in the pole faces 13 and 14.

By employing the elements thus far described, the assembly of these elements for attaching a conventional luminaire bracket arm 11 to an octagonal lighting standard or light pole 10 becomes simple. After the light pole 12 has been manufactured the pole plate 17 may be welded in place so that its plate sections 19 and 20 will fit flush against their respective pole faces 13 and 14, with the flange 21 extending outwardly. After the luminaire bracket arm 11 has been manufactured, it may be permanently fixed at any desired angle to the shoe plate 18 by welding its face at 30 in the longitudinal opening 27. With these elements thus prefabricated, they may be transported to their destination and the light pole 12 erected in its permanent location. The arm 11 welded to its shoe plate 18 is then elevated to the phantom-line position of FIG. 5, where the upper edge of the shoe plate 18 is inserted behind the lip 22 and up against the flange 21. The shoe plate 18 is then rotated toward the solid-line position of FIG. 3 against the pole plate 17 with the pin 33 sliding into its mating recess 32. With the combined weight of the shoe plate 18 and the arm 11 and the luminaire fully
supported and in proper alignment, by means of the pin 33 and the recess 32, the shoe plate 18 may easily be per-
manently attached to the pole face 17 by inserting and fastening the bolts 38 and 39 through their respective holes.
The flange 21 and lip 22 not only guide the shoe plate 18 into position and limit its upward movement, but also to a certain degree prevent the shoe plate from kicking outwardly while it is being bolted in place because of the leverage of the luminaire and its arm 11.

As previously mentioned, the arm attachment device 10 made in accordance with this invention is more adaptable for mass production because of its universal application to light poles 12 of different diameters having similar shaped cross section. For example, the particular device disclosed in the drawings for an octagonal light pole may be readily adaptable to any regular octagonal light pole regardless of its cross sectional dimensions.

It will be apparent to those skilled in the art that various changes may be made in the invention, without departing from the spirit and scope thereof, and therefore the invention is not limited by that which is shown in the drawings and described in the specification, but only as indicated in the appended claims.

What is claimed is:

1. A device for attaching an arm to a pole having two pole faces intersecting at a predetermined angle, an angular pole plate having two plane sections intersecting at said predetermined angle, an angular arm plate having two plane sections substantially equal to the pole plate sections and intersecting at said predetermined angle, means for fixing said angular pole plate to nest flush against said pole faces, means for fixing said arm to said arm plate on the opposite side from said angle, the axis of said arm lying in a plane bi-secting the dihedral angle formed by said arm plate face sections, a recess formed in the upper portion of said pole plate at the intersection of its plate sections, and an aligning pin extending from the opposite side of said arm plate from said arm at the intersection of the arm plate sections, said pin being adapted to mate with said recess when said arm plate is nested flush against said pole plate, said pin being adapted to suspend the weight of said arm plate and said arm from said recess.

2. A device for attaching an arm to a pole having two pole faces intersecting at a predetermined angle, an angular pole plate having two plane sections intersecting at said predetermined angle, an angular arm plate having two plane sections substantially equal to the pole plate sections and intersecting at said predetermined angle, means for fixing said angular pole plate to nest flush against said pole faces, means for fixing said arm to said arm plate on the opposite side from said angle, aligning means for receiving said arm plate in a fixed nested position flush against said pole plate, bosses on the opposite surface of said pole plate from said arm plate, and means in said pole faces for receiving said bosses.

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