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Kenyon et al.

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[54] **LUMINAIRE MOUNTING DEVICE**

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[52] **U.S. Cl.** ..... **248/226 R**, 240/84, 287/20.3, 287/124

[51] **Int. Cl.** **F16m 13/00**

[58] **Field of Search** ..... 240/84; 248/221, 248/226 R; 287/20.3, 124

[56] **References Cited**

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[57] **ABSTRACT**

Device for mounting a luminaire on a hollow pole includes a pair of superposed slidable tubular members arranged in wedging engagement inside the pole. The tubular wedge members are forced into sliding wedging engagement and frictional contact with the inside of the pole by an adjusting nut resting on top of the pole and threaded on a central pipe secured at its top to the luminaire and supporting the lower wedge member at its bottom. The wedge members are formed to contact the pole at a plurality of spaced regions.

9 Claims, 5 Drawing Figures

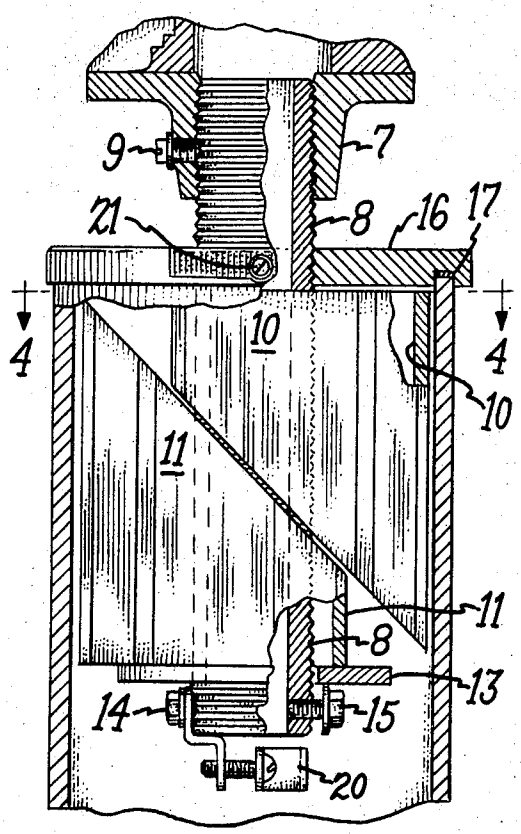


Fig. 1.

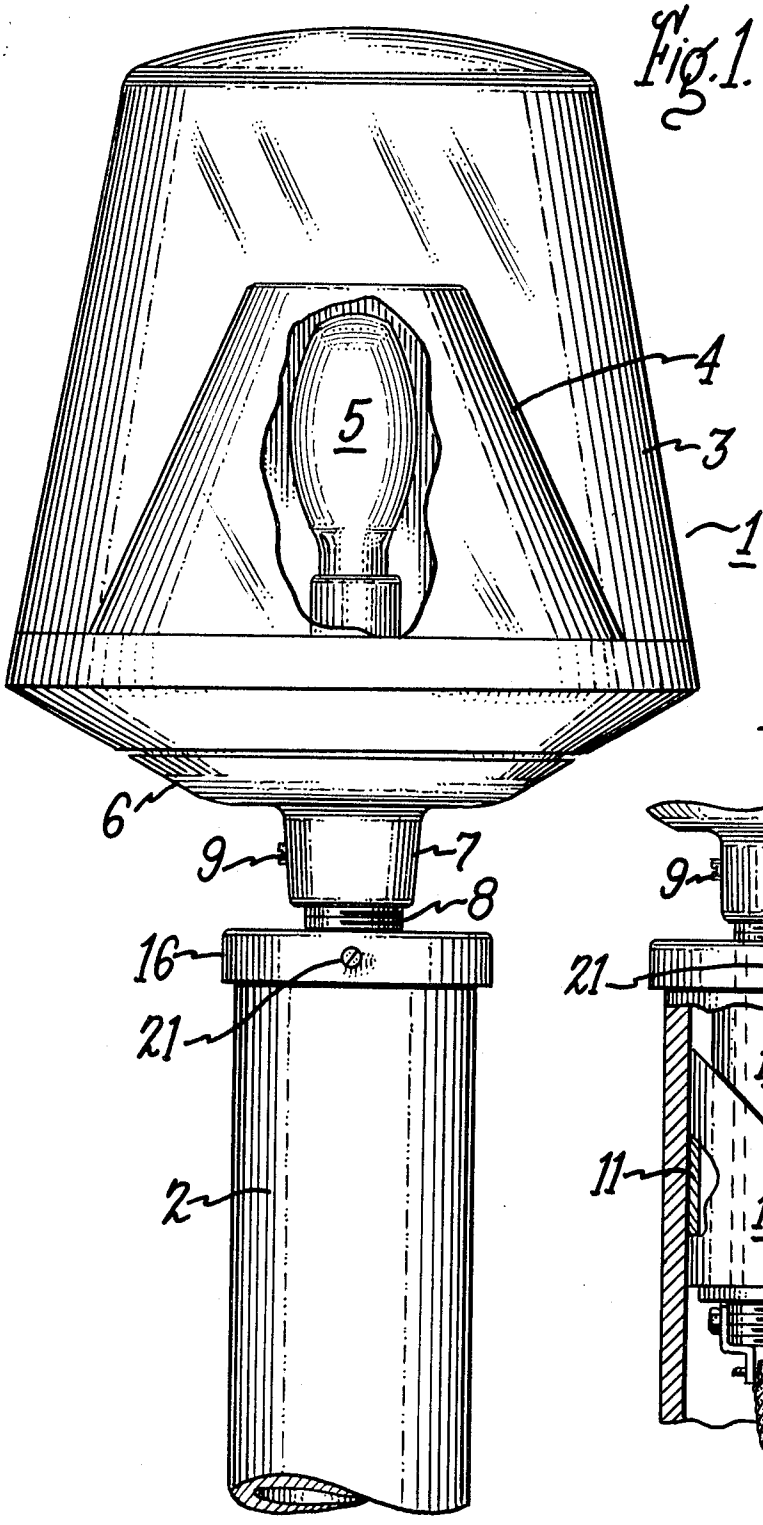


Fig. 2.

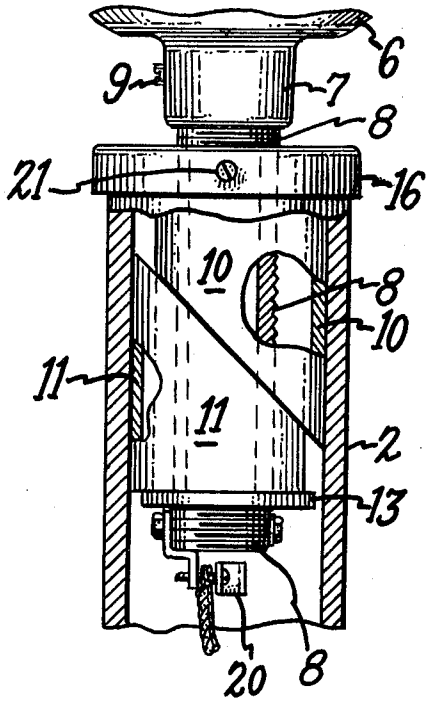


Fig. 3.

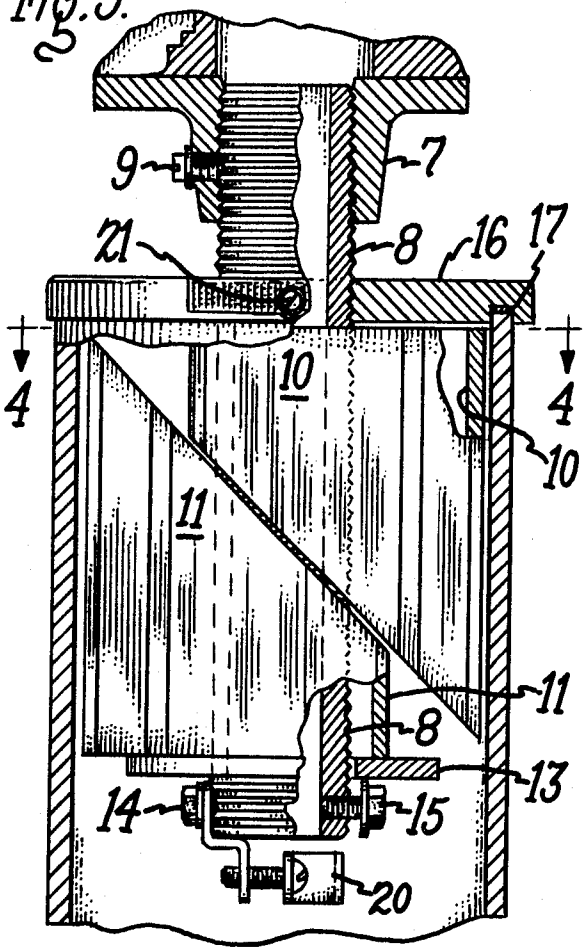


Fig. 5.

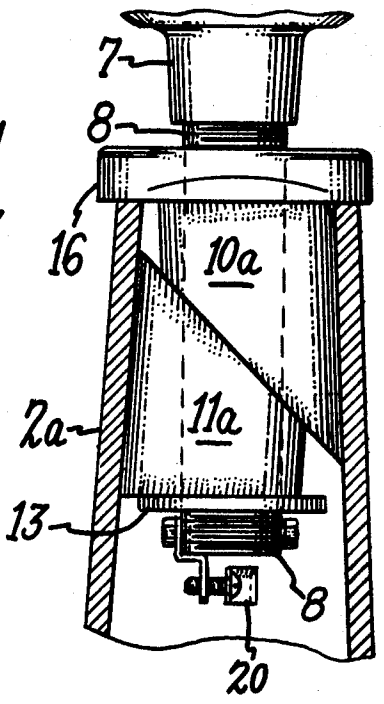
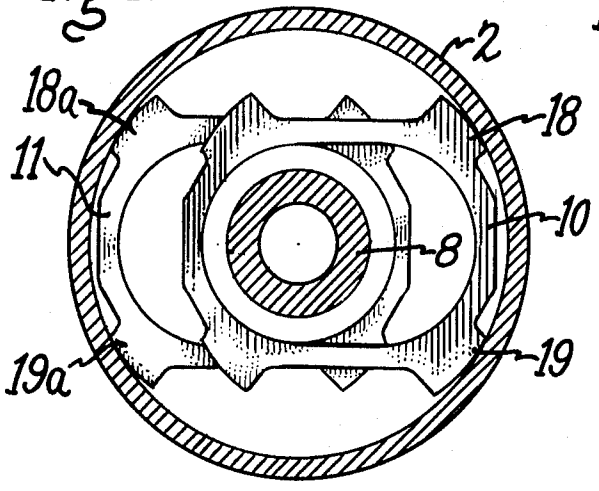


Fig. 4.



LUMINAIRE MOUNTING DEVICE

The present invention relates to lighting fixtures and particularly to a mounting device for securing a lighting fixture or luminaire to the top of a post.

It is an object of the invention to provide an improved mounting device for mounting a fixture, and particularly a luminaire, on the top of a hollow supporting post or pole.

It is a particular object of the invention to provide a luminaire mounting device of the above type which has high strength, reduces stress on the supporting pole, is readily installed and removed, is adapted for use with poles of various sizes, is economical to manufacture, and is reliable in operation.

Still another object of the invention is to provide a luminaire mounting device of the above type which fits within the interior of the hollow supporting pole and is automatically aligned with the axis of the pole.

Other objects and advantages will become apparent from the following description and the appended claims.

With the above objects in view, the present invention in one of its aspects relates to a luminaire mounting device for attachment to the top of a tubular supporting pole comprising, in combination, an elongated externally threaded pipe adapted to be secured at one end to a luminaire and adapted to be inserted at its other end into the open top of the tubular supporting pole, support means secured at the other end of the threaded pipe extending transversely thereof, a first tubular wedge member surrounding the threaded pipe and engaging the transverse support means, a second tubular wedge member surrounding the threaded pipe and superposed on the first wedge member, the adjacent mating ends of the wedge members being inclined to the longitudinal axis of the threaded pipe so as to be in slidable wedging relation, the wedge members being formed on the outer surfaces thereof with circumferentially spaced bearing ribs extending longitudinally thereon, and an adjusting member threadably engaging the threaded pipe adjacent the second wedge member and adapted to rotatably engage the top of the tubular supporting pole, whereby turning the adjusting member on the threaded pipe toward the wedge members moves the wedge members into sliding wedging engagement with each other for forcing the wedge members in opposite directions and the spaced bearing ribs thereof into frictional engagement with the inner surface of the supporting pole.

The invention will be better understood from the following description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a view in elevation of a luminaire mounted on a pole top by a mounting device embodying the invention;

FIG. 2 is a view of the mounting device, partly broken away, shown in the FIG. 1 arrangement;

FIG. 3 is an enlarged view in elevation, partly in section, of the mounting device;

FIG. 4 is a cross-sectional view of the mounting device taken along the line 4 — 4 in FIG. 3; and

FIG. 5 shows a modification of the mounting device as applied to a tapered pole.

Referring now to the drawings, and particularly to FIG. 1, there is shown a post top luminaire 1 which may be mounted at the top of a hollow pole 2 by a mounting

device constructed and arranged in accordance with the invention. The luminaire, which may be any of the wide variety of types and structures, includes an outer transparent globe 3 and an inner open ended shield 4 in which lamp 5 is arranged. Base 6 of the luminaire has a mounting socket 7 open at its bottom and internally threaded for receiving the end of an externally threaded pipe 8 (see FIG. 3) which is secured to socket 7 by set screw 9. As seen in FIGS. 3 and 4, tubular wedge members 10 and 11 which are elongated in a lateral direction and have a maximum diameter somewhat smaller than the inside diameter of pole 2 are arranged surrounding threaded pipe 8 and superposed on one another, and have adjacent mating ends inclined to the longitudinal axis of pipe 8. Lower wedge member 11 rests on washer 13 (see FIG. 3) which in turn rests on stop screws 14, 15 screwed into opposite sides of pipe 8 near its bottom end. Due to the camming or wedging action of the contacting inclined ends of the wedge members 10, 11 when moved axially together, they are forced in opposite directions into contact with the inside surfaces of pole 2.

Adjusting nut 16, which has a diameter larger than the diameter of supporting pole 2, rests on the top edge of pole 2 and is threaded on pipe 8 above the top of upper wedge member 10. An annular groove 17 formed on the underside of adjusting nut 16 for receiving the upper edge of pole 2 serves to guide adjusting nut 16 during rotation and to center the mounting assembly within the pole.

In accordance with a feature of the invention, the outer surfaces of wedge members 10 and 11 are formed with a plurality of circumferentially spaced arcuate bearing ribs 18, 19 and 18*a*, 19*a*, respectively, which extend along the length of each wedge member, so that when wedge members are forced into engagement with pole 2, such contact is made along a plurality of elongated spaced regions on the pole, and thus avoids concentration of stress on the pole and possible deformation thereof which might otherwise occur in the case where the wedge member is uniformly circular and has only a single line contact with the pole. The curvatures of the arcuate surfaces on the bearing ribs are such, as shown in FIG. 4, that the contact the pole along a substantial width and are adapted for effective contact with poles of various diameters. Such a plurality of bearing ribs 18, 19, 18*a*, 19*a* also serves to ensure proper alignment of the mounting assembly in the pole and increase its holding strength. Moreover, the laterally elongated form of the wedge members 10, 11 provides increased length of contact of the members at their mating end surfaces during their relative movement and thereby ensures proper alignment of the sliding wedge members.

The hollow interior of pipe 8 serves as a conduit for passage of electrical conductors (not shown) from the interior of pole 2 into luminaire 1 for connection to lamp 5 via the electrical operating elements therefor. Wire clamp 20 secured by screw 14 at the bottom of pipe 8 serves as a cable strain relief device for such wiring.

In the use of the described mounting device, the luminaire with threaded pipe 8 attached and adjusting nut 16 and wedge members 10, 11 in loose assembly on pipe 8 is mounted at the top of pole 2 by inserting the assembly into the pole in the arrangement shown in FIG. 3. Adjusting nut 16 is then rotated on pole 2 for

lifting lower wedge member **11** upwardly into sliding wedge relation with upper wedge member **10** and forcing the wedge members laterally apart and into tight frictional engagement with the interior surfaces of pole **2**. With the mounting device thus attached to pole **2**, set screw **21** in the rim of adjusting nut **16** is tightened to engage pipe **8** and firmly lock the nut **16** in the tightened position.

To remove the luminaire from the pole, set screw **21** is retracted and adjusting nut **16** is backed off, thus releasing the wedging pressure on the wedge members and allowing the mounting assembly with attached luminaire to be lifted off the pole.

FIG. **5** shows a modification of the mounting device which adapts it for use in a tapered pole. In such modification, the bearing surfaces of each wedge member **10***a*, **11***a* are inclined at an angle corresponding to that of the adjacent surface of the tapered pole **2***a*, so that frictional contact between the parts takes place along the entire length of the bearing ribs of the wedge members.

While the present invention has been described with reference to particular embodiments thereof, it will be understood that numerous modifications may be made by those skilled in the art without actually departing from the scope of the invention. Therefore, the appended claims are intended to cover all such equivalent variations as come within the true spirit and scope of the invention.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. A luminaire mounting device for attachment to the top of a tubular supporting pole comprising, in combination, an elongated externally threaded pipe adapted to be secured at one end to a luminaire and adapted to be inserted at its other end into the open top of the tubular supporting pole, support means secured at said other end of said threaded pipe extending transversely thereof, a first tubular wedge member surrounding said threaded pipe and engaging said transverse support means, a second tubular wedge member surrounding said threaded pipe and superposed on said first wedge member, the adjacent mating ends of said wedge members being inclined to the longitudinal axis of said threaded pipe so as to be in slidable wedging relation, said wedge members being formed on the outer surfaces thereof with circumferentially spaced bearing ribs extending longitudinally thereon, and an adjusting member threadably engaging said threaded pipe adjacent said second wedge member and adapted to rotatably engage the top of the tubular supporting pole, whereby turning said adjusting member on said threaded pipe toward said wedge members moves said wedge members into sliding wedging engagement with each other for forcing said wedge members in opposite directions and said spaced bearing ribs thereof into frictional engagement with the inner surface of the supporting pole.

2. A device as defined in claim **1**, said bearing ribs having arcuate surfaces.

3. A device as defined in claim **2**, said wedge members being generally elongated along said opposite directions whereby said mating ends thereof are in mutual contact along a substantial distance during relative movement thereof.

4. A device as defined in claim **3**, said adjusting member being formed with an annular groove for receiving the top edge of a supporting pole.

5. A mounting device as defined in claim **4**, and means for locking said adjusting member in adjusted position on said threaded pipe.

6. A device as defined in claim **1**, and wire clamp means connected to said threaded pipe adjacent the bottom thereof.

7. A device as defined in claim **1**, said wedge members having outer wall surfaces parallel to the longitudinal axes thereof for fitting along the interior of cylindrical poles.

8. A device as defined in claim **1**, said wedge members having outer wall surfaces inclined to the longitudinal axes thereof for fitting along the interior of tapered poles.

9. A luminaire comprising, in combination, a lighting fixture having a supporting base member formed with a mounting socket, an elongated externally threaded pipe secured at one end to said mounting socket and adapted to be inserted at its other end into the open top of a tubular supporting pole, support means secured at said other end of said threaded pipe extending transversely thereof, a first tubular wedge member surrounding said threaded pipe and engaging said transverse support means, a second tubular wedge member surrounding said threaded pipe and superposed on said first wedge member, the adjacent mating ends of said wedge members being inclined to the longitudinal axis of said threaded pipe so as to be in slidable wedging relation, said wedge members being formed on the outer surfaces thereof with circumferentially spaced bearing ribs extending longitudinally thereon, and an adjusting member threadably engaging said threaded pipe adjacent said second wedge member and adapted to rotatably engage the top of the tubular supporting pole, whereby turning said adjusting member on said threaded pipe toward said wedge members moves said wedge members into sliding wedging engagement with each other for forcing said wedge members in opposite directions and said spaced bearing ribs thereof into frictional engagement with the interior surface of the supporting pole.

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