

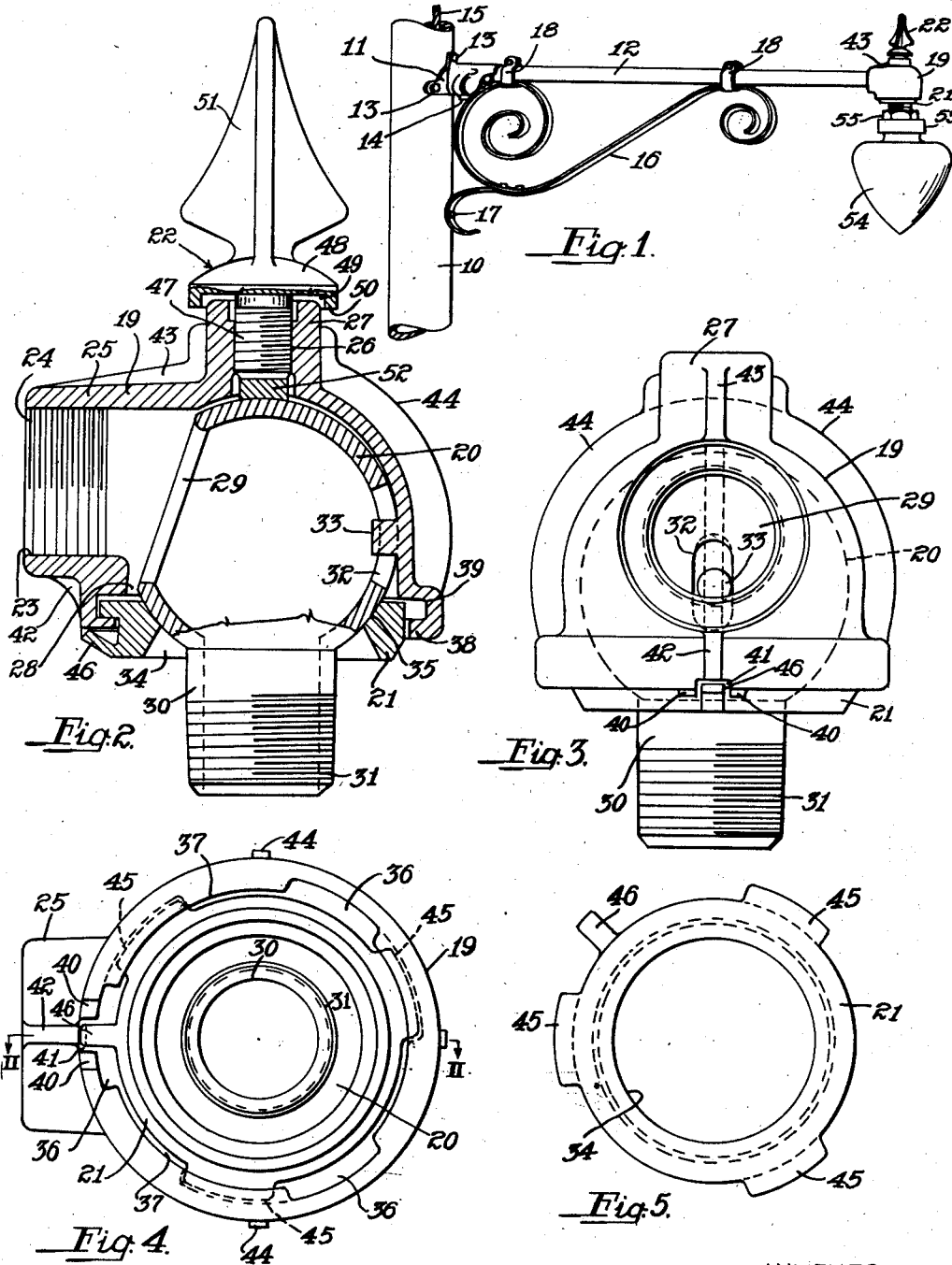
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END FITTING FOR STREET LIGHTS

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END FITTING FOR STREET LIGHTS

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My present invention relates to street lighting, and more particularly to fittings for street light brackets by means of which proper positioning of the illuminating units can be effected to provide efficient lighting.

In street lighting systems such as those commonly installed throughout the country solid or hollow poles are located at appropriate points in many municipalities and each such pole is generally provided with a horizontally extending bracket attached at one end to the pole and the distal end of which is provided with an illuminating unit. Despite even the most careful installation and servicing of poles and brackets, it is well recognized that either the pole may depart somewhat from a true vertical position or the horizontal bracket may depart somewhat from a true horizontal position. As a result, the illuminating units are not vertical (i. e., out of plumb) and thus not only mar the appearance of the street lighting system but appreciably diminish the effectiveness and locus of the illumination planned upon. In addition, some poles and/or brackets which are properly positioned initially may lose the same after a period of time due to the fact that the pole or bracket or both may become loosened, warped, damaged or otherwise dislocated. Conventional fixtures as now made and employed do not allow for overcoming misalignment, either that which may arise due to the original inaccuracy of installation or that which may arise after installation. Thus the physical equipment designed for effective illumination at predetermined locations is both unattractive in appearance and inefficient in operation. Since street lights are frequently placed at dangerous corners, intersections or bad terrain, the importance of proper lighting cannot be minimized or disregarded.

It is one of the objects of the present invention to overcome the defects and disadvantages inherent in conventional lighting systems and to provide a lighting system wherein each illuminating unit can be adjusted to overcome misalignment due to faulty installation or to developed dislocation.

Another object of the invention resides in providing an illuminating unit for street lighting systems which is adaptable for use either with so-called internal or external wiring arrangements and which is not only simple in construction and easy to operate but which is characterized by its being subject to no structural or functional difficulties.

A further object of the invention resides in pro-

ducing a fitting for the distal end of the bracket attached to the pole of a street lighting unit which is not only both highly useful and ornamental but which makes it possible to have the illuminating unit always "in plumb."

A still further object of the invention resides in the provision of a fitting for the distal end of the bracket attached to the poles of street lighting systems which is capable of acting as a bulb and globe adjusting means whereby the predetermined quality and quantity of illumination can be realized regardless of faulty installation or developed dislocation of such street lighting equipment.

There is also a still further object of the invention which is to make it possible to secure the predetermined quality and quantity of illumination while relieving the service and maintenance divisions of the lighting company from the necessity of extremely accurate placing and installation of its street facilities.

Other and further objects and advantages will be understood by those skilled in this art from a consideration of the subsequent description or will be apparent or pointed out hereinafter.

In the accompanying drawing wherein I have illustrated a preferred embodiment of the present invention and wherein like numerals designate corresponding parts throughout the various views:

Figure 1 is substantially an elevational view of a complete illuminating unit such as is involved by and employed in connection with my present invention, the pole being, however, shown only fragmentarily;

Fig. 2 is a combined elevational and sectional view on an enlarged scale taken through the operative parts of the fitting constituting my present invention along line II—II of Fig. 4;

Fig. 3 is an elevational view at right angles to Fig. 2 and looking from left to right of that figure but minus the finial;

Fig. 4 is a view looking upwardly from beneath Fig. 2; and

Fig. 5 is a detail plan view of the locking ring forming a part of this invention.

The general nature and location of the invention will be appreciated from Fig. 1, from which it will be noted that the pole 10, in this case a hollow metal pole, is provided with a pole plate 11, the specific structure of which forms no part of the present invention but which is of such nature as to form a suitable attaching means for the bracket or arm 12. The pole plate is suitably secured to the pole as by fastening instru-

mentalities 13 (e. g., bolts) and is provided in the form illustrated with a hollow bushing 14 by means of which the electrical conductor 15 passing internally of the pole may extend through such bushing and into the said bracket. The bracket 12 in this case is in the form of a hollow pipe or tube, one end of which is held within the pole plate and in such relation to the bushing as to be enabled to receive the conductor 15, which accordingly passes internally through the said bracket 12. This bracket is usually provided with a brace in order to strengthen it and to keep it approximately in the desired horizontal position, and in Fig. 1 this brace takes the form of an ornamental scroll 16 which, as shown, is attached to the pole at 17 and to the bracket by means of the hangers 18. The brace may, of course, be of any suitable or desired physical configuration and may be either above or below the bracket. Likewise, the bracket itself may be located at or near the upper end of the pole or at a point considerably below the top. This, however, depends upon the type and design of pole and the esthetic qualities of the lighting system. Per se, these factors form no part of this invention.

The distal end of the bracket 12 is exteriorly threaded for the reception of the parts which constitute the present invention. These comprise four main parts: a housing 19, a spherical shell 20, a locking ring 21 and a finial 22. The housing is hollow and of a hemispherical shape. It is provided with three openings: that numbered 23 which is interiorly threaded at 24 and passes through a lateral extension 25 adapted threadedly to engage the externally threaded end of the bracket 12; that numbered 26 which is within the hollow vertical boss 27 and through which the parts are locked or unlocked; and that numbered 28 at the bottom of the housing by means of which the spherical shell 20 is adapted to be introduced and withdrawn for assembly and disassembly purposes and in which the locking ring 21 operates.

The spherical shell 20 is, as shown, of the general form of a hollow sphere. This member is provided with a relatively large opening 29 in the wall thereof and substantially in alignment with the opening 23 in the housing 19. The member 20 is provided with a hollow depending extension 30 exteriorly threaded at 31 and also with a slot 32 in its wall substantially diametrically opposite the center of the opening 29 in such member. The housing 19 is provided with an inwardly extending projection 33 adapted to operate in the slot 32 as and for the purpose hereinafter to be described.

The locking ring 21 is an annular member which has a flaring central opening 34 which tapers from bottom to top, i. e., the internal diameter of the opening 34 at the upper edge of the locking ring is somewhat less than at the lower surface thereof. The internal diameter of the opening 34 at the upper end of the ring is less than the external diameter of the hollow spherical member 20, which, as shown in Fig. 2, rests upon or against the said locking ring and engages with a concave annular bearing surface 35 which is complementary to the curvature of the said spherical member 20 at the engaging portion of the latter. The locking ring operates on the principle of a bayonet connection.

A reference to Figs. 2 and 4 will show that the bottom of the housing member 19 is provided with spaced cut-away portions 36 between which arcuate flanges 37 accordingly become formed.

Thus the annular shoulder 38 formed in the bottom of the housing 19 constitutes one side of an annular groove 39, the other side of which is delimited by the projecting portions (flanges) 37 which, as already noted, are discontinuous since the cut-away portions 36 separate and space them. In the particular form of the invention which has been illustrated there are three such cut-away portions 36. In addition, the bottom edge of the housing 19 below the lateral extension 25 is provided with two spaced lug-like projections 40 between which an inverted U-shaped recess 41 is thus produced.

A strengthening rib 42 preferably extends from just above the recess 41 to the under side of the lateral projection 25. Other strengthening ribs may likewise be employed such as that designated at 43 on the upper side of the lateral extension 25 and those designated at 44 which are spaced uniformly around the periphery of the housing 19.

The locking ring 21 is provided with spaced arcuate projections 45 adapted to be received within the correspondingly spaced cut-away portions 36 already described. The projections 45 are in this case three in number and are disposed at 120° intervals around the ring. On its under surface the ring is provided with a projecting locking element 46 which, as the ring is initially made, extends horizontally and radially outwardly until the same underlies the inverted U-shaped recess 41 between the projections 40 on the bottom surface of the housing 19. Then the locking element 46 is bent upwardly until it lies within the recess 41, thus maintaining the parts against accidental disassembly and also preventing relative rotation, it being noted that rotation of the ring through an angle of approximately 45° is all that is required to bring the projections 45 into registry with the cut-away portions 36 for assembly and disassembly purposes.

The finial 22 is made up of an externally threaded short shank 47 of such size as to be threadedly engageable with the opening 26 in the boss 27 which is interiorly threaded for this purpose. It will be noted that the upper portion of the opening 26 is somewhat enlarged and that the lower end of the member 47 is somewhat tapered for guide purposes and for ease of assembly. Above threaded portion 47 the finial is provided with a cap-like portion 48 having a depression 49 in its under side and a depending annular skirt 50 surrounding the same. The upper surface of the cap is preferably ornamented such as by a spearhead 51, but it is to be understood that this may be of any ornamental form or nature and is not an essential part of the invention. In the form of the invention shown, a plug 52 is provided between the bottom of the portion 47 and the adjacent surface of the spherical member 20, but this is not essential and is preferably omitted so that the lower end of the finial shank contacts directly with the surface of the spherical member. It will be noted that the cap-like portion 48 is larger in diameter than the hollow boss 27 and that the cap therefore covers and protects the adjacent underlying portions. I have thereby produced a weatherproof connection which will not be affected by snow, rain, dirt or other foreign matter.

It will be understood that to disassemble the parts shown assembled in Fig. 2 I first loosen or rotate the finial 22 by turning it in a counterclockwise direction to release the parts thereby affected and I then rotate the locking ring

through 45° or until projections 45 register with cut-away portions 36, under which conditions the locking ring may be moved out of the assembly. This frees the hollow spherical member 20, the maximum diameter of which is less than the minimum diameter of opening 28, and therefore this member may be readily removed through such opening. There is no difficulty in causing slot 32 in the spherical member 20 to become disengaged from the projection 33. By dropping member 20 downwardly for a short distance and then rotating it slightly counterclockwise the disassembly is readily effected. The plug 52, when used, is then accessible for removal and, of course, the finial may be removed by unscrewing the same. Assembly is substantially the opposite and is carried out by reinserting the hollow spherical member 20 in the housing to the position of Fig. 2, placing the locking ring in such position that its projections 45 register with and drop into the cut-away portions 36 and then rotating the ring until the projection 46 underlies the inverted U-shaped recess 41. Where the projection is bent, this, of course, is unbent prior to disassembly and rebent upon reassembly. The plug may be inserted from either end of opening 26 and the finial screwed into place.

To adjust the parts and to make the portion 30 of the hollow spherical member assume a true vertical position, the same is moved within the limits permitted by the projection 33 and slot 32 until the desired adjustment is reached, whereupon the finial is tightened, thus holding the parts in adjusted condition. It is obvious that prior to adjustment or readjustment the finial must be loosened.

The assembly of the illuminating unit is completed by attaching the cup-like fitting 53 to the projection 30, by inserting a bulb in operative association with member 30 and by installing a suitably shaped globe 54 within the cup-shaped member 53 as by setscrews or the like (not shown) or any other suitable fastening means. A polygonal member 55 of the nature and purpose of a lock nut may also be provided for the usual purposes.

It is to be understood that the foregoing is presented as illustrative and not as limitative and that I may make various additions, omissions, substitutions and modifications without departing from the spirit or principles hereof. Rather, the invention is to be defined by the appended claims. While I prefer to make the parts hereinabove described of malleable cast iron, it is to be understood that I am not restricted as to the composition of the material involved, as this may be any suitable metal, alloy or combination of materials, including also non-metallic materials such as so-called plastics and resins.

As previously stated, the wiring may be either external or internal. In the former case the conductor passes from the pole directly to the cup-like member 53, through which it passes to make connection with the terminals provided therein. In the latter case, the conductor passes through the bushing 14 interiorly through the bracket 12 into and through the parts of the present invention and thus to the terminals in 53 as before. In passing through the parts constituting the present invention it will be clear from a reference to Fig. 2 that there is an unobstructed path provided by the parts here involved and that the conductor may enter the opening in lateral extension 25, pass through such extension and through the opening 29 in the hollow spherical

member 20, and thence from the interior of that member down through the hollow extension 30 until it is connected to the terminals as already recited. The bulb contacts therewith in known manner. This bulb may be either a single or multiple terminal bulb, and in the former case a single terminal and a single wire will suffice for the electrical connections. Irrespective of the other features referred to, the conductor may be either internal or external with respect to the pole, being preferably internal when a hollow pole is employed and external when a solid pole is employed. The solid poles may be made either of metal or of wood, and the hollow poles are invariably made of metal. It should be understood, moreover, that the invention is applicable to arc-type illuminating units as well as those employing an incandescent bulb, and it is therefore to be understood that the invention covers these and other variations in physical equipment.

Having thus described my invention, what I claim is new and desire to secure by Letter Patent is:

1. An end fitting for street lights which comprises a housing having a lateral hollow extension adapted to be attached to the distal end of the bracket of a street light pole, a hollow upwardly projecting boss and a bottom opening bounded by an annular flange which has spaced cut-away portions in its lower side wall, a hollow spherical member disposed within said housing having an opening in substantial registration with the lateral extension of said housing and a hollow depending exteriorly threaded extension adapted to make connection with an illuminating unit, said spherical member being adapted for introduction and withdrawal through the bottom opening of said housing and through which the depending extension projects, a locking ring configured to cooperate with the annular groove of said housing and having a bayonet-type engagement therewith and a finial member operable through the hollow boss aforesaid to hold said housing and spherical member against relative movement.

2. An end fitting for street lights which comprises a housing having a lateral hollow extension adapted to be attached to the distal end of the bracket of a street light pole, a hollow upwardly projecting boss and a bottom opening bounded by an annular flange which has spaced cut-away portions in its lower side wall, a hollow spherical member disposed within said housing having an opening in substantial registration with the lateral extension of said housing and a hollow depending exteriorly threaded extension adapted to make connection with an illuminating unit, said spherical member being adapted for introduction and withdrawal through the bottom opening of said housing and through which the depending extension projects, a locking ring configured to cooperate with the annular groove of said housing and having a bayonet-type engagement therewith and a finial member operable through the hollow boss aforesaid to hold said housing and spherical member against relative movement, said locking ring comprising an annular member having a plurality of arcuate projections extending outwardly from its upper surface and capable of registering and non-registering positions with respect to the cut-away portions in the bottom annular flange of the said housing and a locking element bent upwardly into a recess provided in the housing for that purpose.

3. An end fitting for street lights which com-

prises a housing having a lateral hollow extension adapted to be attached to the distal end of the bracket of a street light pole, a hollow upwardly projecting boss and a bottom opening bounded by an annular flange which has spaced cut-away portions in its lower side wall, a hollow spherical member disposed within said housing having an opening in substantial registration with the lateral extension of said housing and a hollow depending exteriorly threaded extension adapted to make connection with an illuminating unit, said spherical member being adapted for introduction and withdrawal through the bottom opening of said housing and through which the depending extension projects, a locking ring configured to cooperate with the annular groove of said housing and having a bayonet-type engagement therewith and a finial member operable through the hollow boss aforesaid to hold said housing and spherical member against relative movement, said locking ring being also provided with a locking element adapted to enter a recess provided for that purpose on the lower surface of said housing.

4. In an end fitting of the character described, a hollow housing which has a substantially hemispherical central portion, a hollow interiorly threaded lateral extension on one side thereof, an upwardly projecting hollow interiorly threaded boss and a large opening in its bottom, the bottom of the housing around said opening being

provided with a continuous annular shoulder overlying an annular groove and an annular bottom flange which is discontinuous due to the presence of spaced arcuate recesses, the last-named flange being provided at one point with a pair of spaced depending lugs which between them define an inverted U-shaped cut-away portion.

5. An end fitting for street lights which comprises a housing having a lateral hollow extension adapted to be attached to the distal end of the bracket of a street light pole, a hollow upwardly projecting boss and a bottom opening bounded by an annular flange which has spaced cut-away portions in its lower side wall, a hollow spherical member disposed within said housing having an opening in substantial registration with the lateral extension of said housing and a hollow depending exteriorly threaded extension adapted to make connection with an illuminating unit, said spherical member being adapted for introduction and withdrawal through the bottom opening of said housing and through which the depending extension projects, means cooperating with said annular flange for locking said spherical member within said housing and means operating through said hollow boss to maintain the housing and spherical member in a desired angular relationship.

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