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ARRANGEMENT FOR SUPPORTING A STRING OF ELONGATED TUBULAR LAMPS ON A SUPPORTING CABLE

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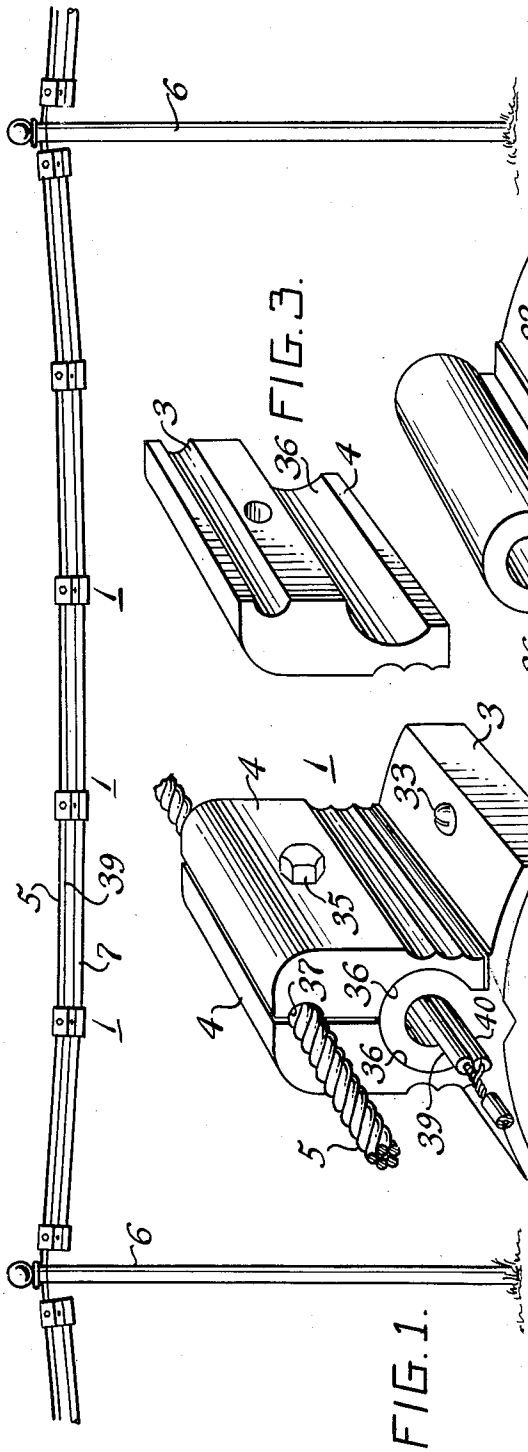


FIG. 1.

FIG. 2.

FIG. 3.

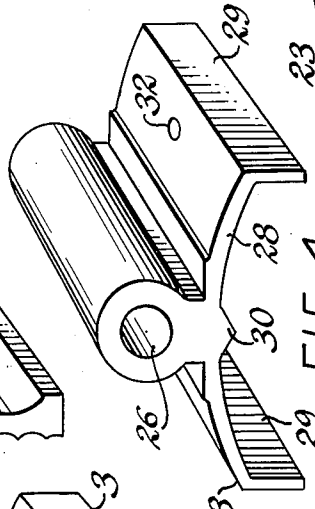


FIG. 4.

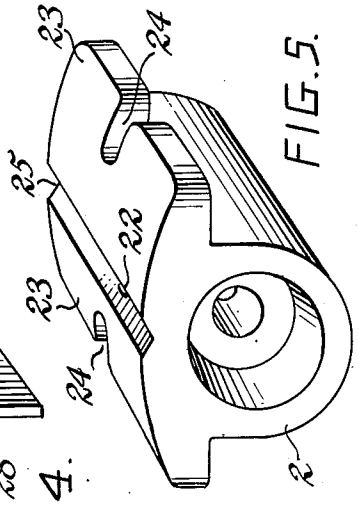


FIG. 5.

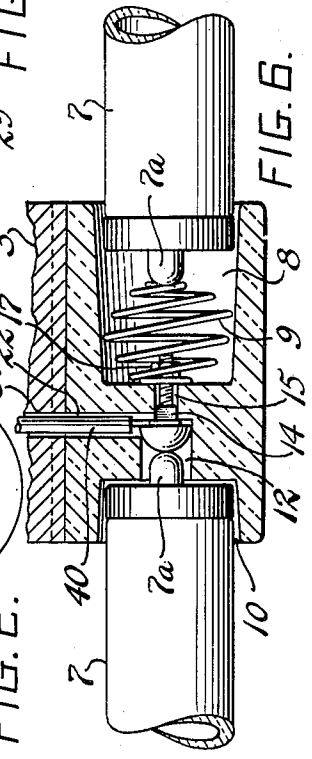


FIG. 6.

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ARRANGEMENT FOR SUPPORTING A STRING OF ELONGATED TUBULAR LAMPS ON A SUPPORTING CABLE

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9 Claims. (Cl. 240—9)

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This invention relates to a lighting fixture and more particularly to an arrangement whereby a plurality of elongated fluorescent tubes may be arranged as a long string of illuminating tubes, the tubes being supported by a catenary or cable, for outdoor lighting purposes to illuminate used car lots, parking lots and the like.

An object of this invention is to provide simple, economical, rugged means for supporting a plurality of relatively long fluorescent tubes in tandem from a cable or catenary, thereby providing a string of such tubes the length of which string may be made as long as desired.

Another object of this invention is to provide for a lighting fixture such as referred to above, a specially formed insulator provided with tube sockets, and a novel support and clamp arrangement whereby the insulators may be supported from the catenary or cable.

Another object of this invention is to provide a lighting fixture as set forth above that shall have an auxiliary conductor supporting eyelet and be of simple, relatively inexpensive construction and attractive and neat in appearance.

A further object of this invention is to provide a lighting tube socket and a mounting assembly therefor adapted to be mounted upon a catenary support at spaced intervals thereon to accommodate lighting tubes of fluorescent type and of whatever length desired.

These and other objects of this invention will be apparent from the following description taken in conjunction with the accompanying drawings, in which:

Figure 1 is a view in perspective of a plurality of fluorescent tubes provided with means for supporting them in tandem from a catenary or cable suspended between posts or poles in accordance with an embodiment of the invention;

Fig. 2 is a view in perspective of a fixture including socket and mounting means constructed in accordance with an embodiment of the invention, whereby a string of fluorescent tubes may be supported by a catenary or support cable;

Fig. 3 is a view in perspective of one jaw of a clamp such as shown in Fig. 2;

Fig. 4 is a view in perspective of a detail shown in Fig. 2;

Fig. 5 is a view in perspective of an insulator provided with tube sockets which insulator is embodied in the assembly shown in Fig. 2; and

Fig. 6 is a fragmentary view in vertical longitudinal section of the insulator shown in Fig. 5, the adjacent ends of adjacent tubes being shown seated in the sockets of the insulator.

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Throughout the drawings and specification like reference characters indicate like parts.

The invention illustrated in the drawings comprises a lighting fixture 1 having an insulator body 2 mounted under and secured to shroud bracket 3, and a shroud bracket 3 is secured to a split clamp 4. Clamp 4 is designed to be clamped to a catenary or cable 5 suspended between supports 6. Each insulator body 2 is provided with a pair of opposed tube sockets whereby when three or more fixtures 1 are suspended from cable 5, two or more fluorescent tubes 7, known to the trade as "slimline" tubes, may be supported in tandem or as a string from the catenary or cable 5 and illuminated. Each tube 7 is provided with a terminal lug 7a at its opposite ends and these lugs are received in the sockets.

The insulator body 2, may be made from a suitable non-conducting refractory material, such as porcelain.

In one end of insulator 2 is a cylindrical socket or recess 8 having a diameter greater than that of slimline tube 7 so that the tube end may be seated therein as shown in Fig. 6. A resilient double-end spiral or barrel-shaped contact spring 9 is disposed in socket 8. The length of this spring is preferably less than the depth of the socket when the spring is free of load. In the opposite end of insulator body 2 is a cylindrical socket or recess 10 that is coaxial with and of the same diameter as, socket 8. In the base of socket 8 a tube terminal socket 12 is formed, this being of smaller diameter than socket 10. The depth of socket 10 is such as to accommodate the terminal end of a tube as shown in Fig. 6.

Spring 9 may be secured in its socket 8 by means of a round-headed bolt 14 that extends from socket 12 into socket 8 through a bore 15 in the intervening portion of the insulator. As shown, the head of the bolt is nested in socket 12 and forms a contact seat for a terminal lug 7a. The inner end of the coil spring 9 is secured under a nut 17 threaded on the bolt. To facilitate assembly, the bore 15 may be non-circular in section and the bolt shank of the same shape to prevent turning thereof when the nut is applied. As shown, the bore and bolt shank are square in section. Insulator 2 is provided with a pair of lateral mounting flanges 23 into which extend transverse screw receiving slots 24. The upper face of insulator 2 is arcuate in form, having a medial aligning groove 25 extending longitudinally thereof.

Shroud bracket 3 is formed from metal such as

aluminum or aluminum alloy, preferably by extrusion. A shroud bracket 3 cut from extruded bar stock is shown in Fig. 4. The upper portion of bracket 3 is provided with an elongated tubular portion or eye 26 that extends longitudinally of the bracket. Below the eye is a downwardly concave or arcuate shroud or canopy 28 provided with depending flanges 29 along the longitudinal edges thereof. The under face of canopy 28 may be provided with an aligning tongue 30 that registers with a corresponding groove in the top of insulator 2. A bore 31 extends from the bore of eye 26 downward through the aligning tongue 30 into registering relation with bore 22 of insulator 2. In the canopy 28 to each side of the eye 26 is a hole 32 through which the shank of an insulator mounting screw 33 may be passed. As shown in Fig. 2, screws 33 pass through holes 32 and slots 24 into engagement with nuts (not shown) to clamp insulator 2 in shroud bracket 3 between the depending flanges 29 with tongue 30 engaging groove 25.

Split clamp 4 comprises opposed complementary jaws 34 and a clamp screw 35. Each jaw 34 has two longitudinal grooves 36 and 37. Grooves 36 are adapted to receive the tubular portion 26 and grooves 37 embrace the catenary or supporting cable 5.

To install an illumination system embodying this invention a number of fixtures 1 are clamped on a cable 5 strung between and supported by two or more poles 6 as desired. The space between fixtures on cable 5 is adjusted to suit the lengths of the lighting tubes. Operating voltage is supplied by an electric wire or conductor 39 that is strung through the tubular eyes 26. In alternate fixtures an insulated pigtail wire 40 extends from wire 39 through bores 22 and 31 to bolt 14. The intervening fixtures have a similar wire extending from bolt 14 through bore 31 and grounded to the shroud bracket 3 which is grounded through split clamp 4, cable 5, and posts 6.

A tube 7 is mounted in the sockets of an adjacent pair of insulators by inserting one end thereof into socket 8 and compressing the spring 9 therein until the opposite end of the tube can be inserted into socket 10 in the companion fixture 1. The tubes are removable in the same manner.

Having thus described the invention, it will be apparent to those skilled in the art, that various modifications and changes may be made in the illustrated embodiment of the invention without departing from either the spirit or the scope of the invention.

What I claim, therefore, as new and desire to secure by Letters Patent, is:

1. A lighting assembly comprising a catenary cable, a plurality of fluorescent tubes disposed tandemwise below the cable, and tube supporting and socket assemblies attached to said cable at points above adjacent ends of said tubes, said tube supporting and socket assemblies each comprising a cable engaging clamp, a shroud bracket secured to the clamp and an insulator supported by said shroud bracket on the under side thereof, said insulator having aligned oppositely extending sockets at the ends thereof for receiving the ends of fluorescent tubes, said sockets being provided with electric tube contact terminals in the bottoms thereof, and means for connecting said terminals to a supply of operating voltage.

2. A lighting assembly comprising a catenary cable, a plurality of fluorescent tubes disposed tandemwise below the cable, and tube supporting socket assemblies attached to said cable at points above adjacent ends of said tubes, said tube supporting and socket assemblies each comprising a two-part cable engaging split clamp having at the upper and lower ends of said parts facing grooves, the upper grooves receiving the cable, a shroud bracket provided at its top with a tubular portion which is received in the lower grooves of said split clamp, depending flanges at the longitudinal edges of the shroud bracket, and an insulator supported by said shroud bracket on the under side thereof between said depending flanges, said insulator having aligned oppositely extending sockets at the ends thereof for receiving the end of fluorescent tubes, said sockets being provided with electric tube contact terminals in the bottoms thereof, and means for connecting said terminals to a supply of operating voltage.

3. A lighting assembly comprising a catenary cable, a plurality of fluorescent tubes disposed tandemwise below the cable, and tube supporting and socket assemblies attached to said cable at points above adjacent ends of said tubes, said tube supporting and socket assemblies each comprising a two-part split clamp having at the upper and lower ends of said parts facing grooves, the upper grooves receiving the cable, a shroud bracket provided at its top with a tubular portion which is received in the lower grooves of said split clamp, said tubular portion being hollow and forming a channel for supporting an electric voltage supply cable, said shroud being provided at its longitudinal edges with depending flanges, and an insulator supported by said shroud bracket on the under side thereof between said depending flanges, said insulator having aligned oppositely extending sockets at the ends thereof for receiving the ends of fluorescent tubes, said sockets being provided with electric tube contact terminals in the bottoms thereof, and means for connecting said terminals to a supply of operating voltage.

4. A lighting assembly comprising a catenary cable, a plurality of fluorescent tubes disposed tandemwise below said cable, and tube supporting and socket assemblies attached to said cable at points above adjacent ends of said tubes, said tube supporting and socket assemblies each comprising a cable engaging clamp, a shroud bracket secured to said clamp, and an insulator supported by said shroud bracket on the under side thereof, said insulator having aligned oppositely extending sockets at the ends thereof for receiving the ends of fluorescent tubes, one of said sockets being provided with a coiled contact spring in the bottom thereof, a terminal extending through said insulator from one socket to the other and provided with means at one of its ends for anchoring said spring in its socket and at the other with means forming a solid tube-contact member in the bottom of said other socket, and means for connecting said terminals to a supply of operating voltage.

5. A support and socket assembly for supporting adjoining ends of a pair of tandem mounted elongated fluorescent tubes from a catenary cable or the like, said assembly comprising a pair of clamping members meeting in a vertical plane, each member having a pair of vertically spaced parallel substantially horizontal grooves, the grooves in one member facing and being complementary to the grooves in the other member, the upper grooves being adapted to receive said cable, a shroud bracket comprising a horizontal canopy extending laterally from the outer faces of said clamping members, said canopy having a

substantially horizontal tubular portion disposed above the top thereof, said tubular portion being disposed in the lower grooves of said clamping members, means for urging said clamping members towards each other to clamp the cable in the upper grooves and the tubular portion of said shroud bracket in the lower grooves, an insulator having tube-receiving sockets in opposite ends thereof, and means for securing said insulator to the under side of said canopy.

6. A support and socket assembly for supporting adjoining ends of a pair of tandem mounted elongated fluorescent tubes from a catenary cable or the like, said assembly comprising a pair of clamping members meeting in a vertical plane, each member having a pair of vertically spaced parallel substantially horizontal grooves, the grooves in one member facing and being complementary to the grooves in the other member, the upper grooves being adapted to receive said cable, a shroud bracket comprising a horizontal canopy extending laterally from the outer faces of said clamping members said canopy having a substantially horizontal tubular portion disposed above the top thereof, said tubular portion being disposed in the lower grooves of said clamping members, said tubular portion being hollow and forming a channel for supporting an electric voltage supply cable, means for urging said clamping members together to clamp the cable in the upper grooves and the tubular portion of the shroud bracket in the lower grooves, said canopy being provided with vertically depending flanges at the outer edges thereof parallel to said tubular portions, an insulator provided with tube supporting sockets at opposite ends thereof, and means for securing said insulator against the under side of said canopy between the flanges with the sockets therein extending parallel to said tubular portion.

7. A support and socket assembly for supporting adjoining ends of a pair of tandem mounted elongated fluorescent tubes from a catenary cable or the like, said assembly comprising a pair of clamping members meeting in a vertical plane, each member having a pair of vertically spaced parallel substantially horizontal grooves, the grooves in one member facing and being complementary to the grooves in the other member, the upper grooves being adapted to receive said cable, a shroud bracket comprising a horizontal canopy extending laterally of the outer faces of said clamping members, said canopy having a substantially horizontal tubular portion disposed above the top thereof, said tubular portion being disposed in the lower grooves of said clamping members, means for urging said clamping members towards each other to clamp the cable in the upper grooves and the tubular portion of said shroud bracket in the lower grooves, an insulator on the under side of said canopy, means securing the insulator to said canopy, said insulator having tube receiving sockets in opposite ends thereof, one socket in said insulator being provided with a coiled contact spring, the other socket in said insulator being provided with a solid contact member, means for electrically connecting said contact spring and solid contact member, aligned openings in said insulator, canopy, and tubular projection, and an electrical conductor means extending through said openings and connected to said contact members for connecting the same to an electric voltage supply cable.

8. A lighting fixture comprising a shroud bracket having a canopy provided with depending flanges at the lateral edges thereof and an aligning tongue on the under side of said canopy between the flanges, said shroud bracket having an elongate eyelet on the upper side of said canopy provided with a longitudinal bore extending parallel to said depending flanges for receiving and supporting an insulated conductor, and an insulator body attached to and supported by said canopy on the under side thereof, said insulator being provided with an aligning groove receiving said tongue, there being cylindrical sockets at opposite ends of said insulator and extending parallel to said eyelet bore, one of said sockets having a fixed contact and the other socket having a coiled spring contact, a conductor connecting said contacts and extending through the portion of the insulator separating said sockets and a split clamp having facing grooves adjacent the upper and lower edges of its jaws the upper grooves receiving a light supporting catenary cable, said facing grooves adjacent the lower edges of its jaws holding the elongate eyelet portion of said shroud bracket.

9. Strip lighting means comprising more than one support, a catenary supporting cable supported by said supports, a plurality of lighting fixtures each including a split clamp adapted to embrace said supporting cable, a shroud bracket having a canopy provided with flanges at the lateral edges thereof and an aligning tongue on the underside of said canopy and between said flanges, said bracket having an elongate eyelet provided with a longitudinal bore adapted to receive and support an insulated conductor, and an insulator body supported by said canopy on the underside thereof, said insulator being provided at its opposite ends with cylindrical sockets each adapted to receive the end of a fluorescent tube, one of said sockets having a fixed contact therein and the other socket a coiled spring, said fixed contact and spring being connected by a binding conductor extending through a portion of the insulator separating said sockets, said lighting fixtures being clamped onto the catenary cable in depending relation thereto at equal space intervals by said clamps, two conductors insulated from each other, means for connecting said two conductors to a source of operating electric current, at least one of said conductors extending through and being supported in the eyelet bores of the lighting fixtures, and being operatively connected to the binding conductor of alternate fixtures by conducting means, conducting means connecting the second conductor and the binding conductors of the intervening fixtures, whereby a series of fluorescent tubes may be operatively supported each in the opposed sockets of adjacent fixtures to illuminate areas as and when desired.

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The following references are of record in the file of this patent:

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