

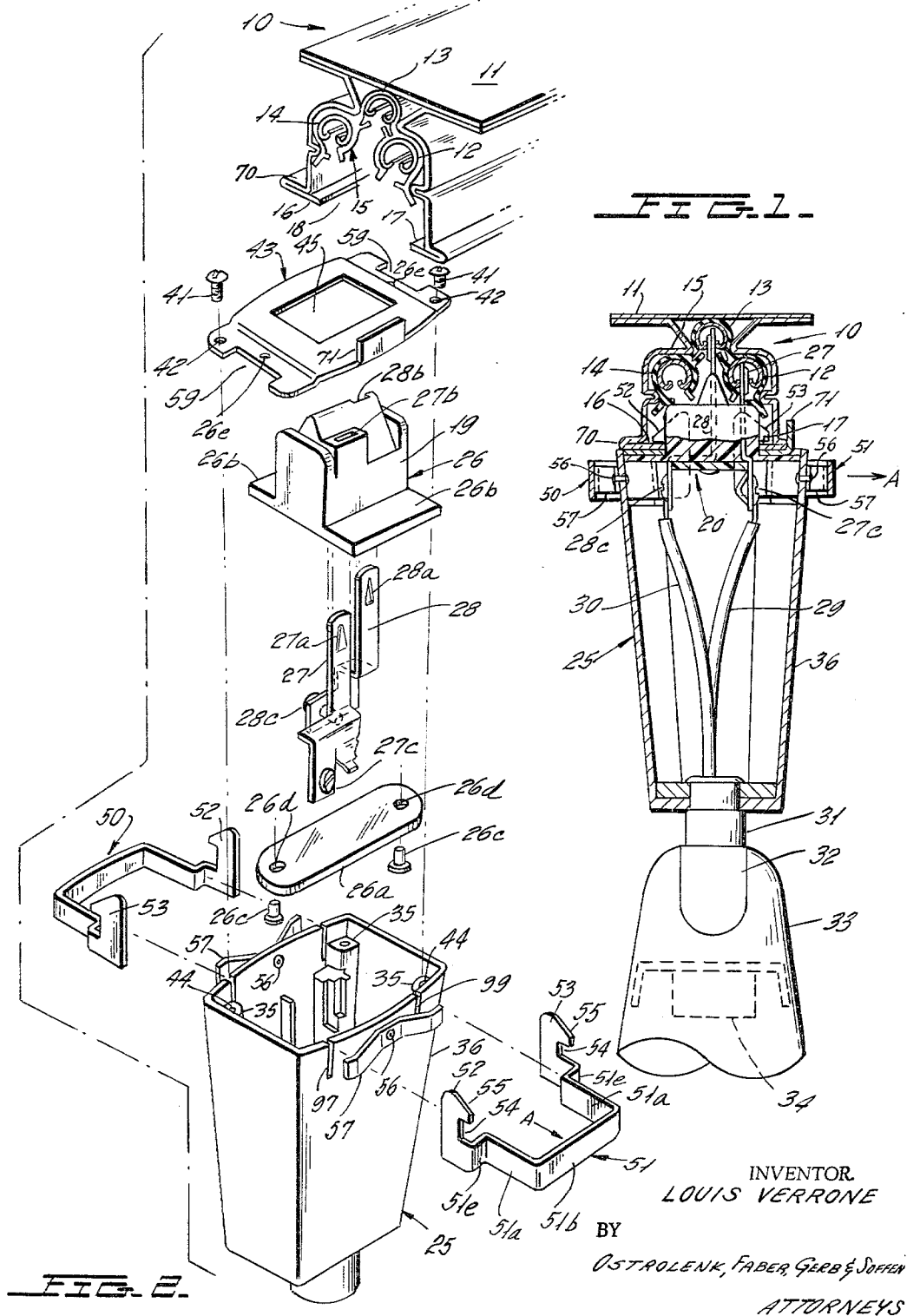
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BUSWAY LOCKING FIXTURE

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BUSWAY LOCKING FIXTURE

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This application is a continuation-in-part of my co-pending application Serial No. 177,054, filed March 2, 1962, entitled Means for Locking Fixtures to Busway, now Patent No. 3,150,908, issued September 29, 1964. The instant invention relates to electrical fixtures in general and more particularly relates to a novel fixture for connecting and locking electrical devices to a busway.

My aforesaid Patent No. 3,150,908 discloses a device which not only mechanically secures a fixture to a continuous outlet busway but at the same time provides a locking means which prevents accidental release of the mechanical securement. The instant invention constitutes an improvement over the device disclosed in my aforesaid application in that a less expensive unit is provided having all of the electrical and mechanical features and performance characteristics of the more expensive unit.

Accordingly, a primary object of this invention is to provide a novel construction for an electrical fixture securable to a busway.

Another object is to provide a novel construction of this type in which mechanical securement between the fixture and busway cannot be broken accidentally.

Still another object is to provide a novel construction of this type in which the same members which provide for mechanical securement also constitute a locking means.

A still further object is to provide a novel construction of this type which requires the use of only a single hand for mounting and dismounting of the fixture.

These as well as other objects of this invention shall become readily apparent after reading the following description of the accompanying drawings in which:

FIGURE 1 is an end view of a busway showing a lighting fixture mounted thereto by the novel mounting and locking means constructed in accordance with the teachings of the instant invention, with certain elements having portions broken away to more clearly reveal the relationship between other elements.

FIGURE 2 is an exploded perspective of the essential elements illustrated in FIGURE 1.

Now referring to the figures. Busway 10 is a continuous outlet device including elongated metal housing 11 and longitudinally extending elongated bus bars 12, 13, 14 disposed within housing 11. Housing 11 is of a modified rectangular cross section with the side walls thereof including internal formations entered into cooperating formations of insulating member 15 to maintain the latter in operative position within housing 11. Bus bars 12-14 are hollow members disposed within appropriately shaped grooves of insulator 15. For a reason to be hereinafter explained each of the bus bars 12-14 has a longitudinally extending opening operatively positioned in close proximity to a portion of insulator 15 which is deflectable to permit entry of a plug contact into the bus bar opening.

Longitudinally extending slot 18 in the bottom wall of housing 11 is defined by spaced inwardly turned lips 16, 17. Slot 18 is wider than the narrow cross-sectional dimension of plug unit insulating member extension 19 but is narrower than the long cross-sectional dimension of extension 19 so that the latter may be entered into housing 11 through slot 18 only when base 25 is properly oriented. Extension 19 constitutes the upwardly project-

ing portion of molded insulating member 26 which is part of plug unit 20.

Unit 20 also includes contact members 27, 28 which are maintained in operative positions by suitable internal formations of insulating member 26 and insulating fiber sheet 26a. The upper ends 27a, 28a of contact members 27, 28, respectively, extend upwardly through apertures 27b, 28b, respectively, in extension 19 and engage bus bars 12, 13 respectively. The lower ends of contact members 27, 28 are provided with terminal screws 27c, 28c, respectively, connected to the upper ends of insulation covered conductors 29, 30, respectively. Conductors 29, 30 extend through nipple 31 of conventional swivel unit 32 mounted internally of conically shaped lamp shade 33 and are connected to the appropriate terminals of lamp receiving socket 34. The connection of swivel unit 32 to shade 33 is described in detail in U.S. Patent No. 2,974,220, issued March 7, 1961, entitled Enclosed Swivel Lighting Fixture.

Extension 19 projects through centrally located rectangular aperture 45 in cover plate 43 with the lateral extensions 26b, 26c of member 26 abutting the under surface of plate 43. Sheet 26a, secured to cover plate 43 by rivets 26c, maintains contact members 27, 28 and insulating member 26 mounted to cover plate 43. Rivets 26c extend through clearance apertures 26d in sheet 26a and clearance apertures 26e in cover plate 43.

Cover plate 43 rests upon four supporting surfaces 35 formed internally at hollow base member 36 at the corners thereof. Screws 41 pass through clearance apertures 42 in diagonally opposite corners of cover plate 43 and are received by threaded apertures 44 communicating with two of the surfaces 35 for securement of cover plate 43 to member 36.

The combined locking and securing means of the instant invention includes a pair of generally U-shaped members 50, 51 of substantially identical construction. Accordingly, only one of these members will be described in detail. Member 51 is mounted for movement in a plane perpendicular to the longitudinal axis of base 25 and is provided with a pair of projections 52, 53 which extend through clearance notches 59 of cover plate 43. A portion of each projection 52, 53 overlies an arm of member 51 and is spaced therefrom to define seating depressions 54. Further, each projection 52, 53 is provided with a cam surface 55 inclined with respect to the plane within which member 51 is disposed for movement. Movement of member 51 is guided by slots 97, 99 of base 25 which receive the spaced arms 51a of member 51.

Rivet 56 secures the mid-point of leaf spring 57 to base 25 in a position between arms 51a. The oppositely flared ends of spring 57 bear against web 51b of member 51 urging the latter outwardly in the direction of arrow A with this movement being limited through the engagement of offsets 51e with suitably disposed internal formations of member 36.

With the fixture in mounted position as shown in FIGURE 1 busway housing lips 16, 17 are disposed within seating depressions 54 and cover plate 43 is drawn tightly against the bottom of busway housing 11. In this position projections 52, 53 are disposed within busway housing 11 and members 50, 51 are urged in opposite directions by their respective biasing springs 57.

In order to dismount the fixture from busway 10 it is necessary to depress the webs of both members 50 and 51 thereby moving these members toward one another, against the forces exerted by their respective biasing springs 57, to positions where projections 52, 53 are aligned with slot 18 in busway housing 11. Thereafter base 25 may be freely moved downwardly.

For mounting the fixture to busway 10, base 25 is moved upwardly with insulating member extension 19 entering housing 11 through slot 18. The inner free edges of lips 16, 17 engage the cam surfaces 55 of members 50, 51 thereby forcing these members toward one another until such time as lips 16, 17 are aligned with seating depressions 54. Thereafter, springs 57 move members 50, 51 along diverging paths to their locking positions illustrated in FIGURE 1.

It is noted that housing 11 is provided with polarizing rib 70 which extends from the bottom of housing 11 in the plane of lips 16, 17. Cooperating with rib 70 is polarizing projection 71 which is an upturned extension of cover plate 43. Projection 71 is so positioned that base 25 can be mounted to busway 10 only in the position shown, that is, with plug contacts 27, 28 in engagement with bus bars 12, 13 respectively. If base 25 is rotated 180 degrees, polarizing projection 71 will engage rib 70 thereby preventing the mounting of base 25 to busway 10.

It is noted that for some application plug unit 20 may be provided with a third bus bar engaging contact (not shown) for engagement with the other side bus bar 14 of busway 10. Naturally, to balance loads some plug units will be provided with contacts that engage only bus bars 13 and 14.

Thus, this invention provides a novel construction whereby an electrical fixture may be mounted or dismounted from a busway at any position along the length thereof. The construction is such that only a single hand is required for operation and the mechanical securement is of such a nature that it cannot be broken accidentally or be broken as a result of vibration.

Although there has been described a preferred embodiment of this novel invention, many variations and modifications will now be apparent to those skilled in the art. Therefore, this invention is to be limited, not by the specific disclosure herein, but only by the appending claims.

The embodiments of the invention in which an exclusive privilege or property is claimed are defined as follows.

1. A device of the class described comprising a hollow base; a plug unit including a first portion disposed within said base and a second portion projecting externally of said base in front of an external surface thereof; said plug unit including conducting members each having a section positioned above said external surface and externally of said second portion to engage a busway conductor; a first and a second member mounted to said base and guided for movement along diverging paths to a locking position and along converging paths to a dismounting position; each of said members being U-shaped with a pair of spaced arms joined at one end by a web; a projecting means carried by each of said arms; said projecting means positioned above said external surface and cooperating therewith to define a plurality of slot means operatively positioned to receive inwardly turned lips of a busway housing when said members are in said locking position; an individual spring for each of said members in engagement with said webs and urging said members in opposite directions toward said locking position; said webs and said springs being disposed externally of said base.

2. A device as set forth in claim 1 in which each of said springs in a leaf member secured at its midpoint to

said base and having flared ends both of which engage and urge the web of their associated member in the same direction, each of said leaf members being disposed between the arms of its associated member.

3. The device of claim 2 in which each of the projecting means includes cam means engageable with busway lips for movement of said members to said dismounting position during mounting of said device; said webs being hand depressible for operation of said members to dismounting position.

4. A device as set forth in claim 2 in which the webs are disposed remote from one another.

5. A device as set forth in claim 2 in which the projecting means are integral with said members; each of said members being constructed with the web and arms thereof extending generally parallel to said external surface.

6. A device as set forth in claim 5 in which the members are mounted for sliding movement generally parallel to said external surface.

7. A device of the class described comprising a hollow base; a plug unit including a first portion disposed within said base and a second portion projecting externally of said base in front of an external surface thereof; said plug unit including conducting members each having a section positioned above said external surface and externally of said second portion to engage a busway conductor; a first and a second member mounted to said base and guided for movement along diverging paths to a locking position and along converging paths to a dismounting position; each of said members being U-shaped with a pair of spaced arms joined at one end by a web; projecting means carried by each of said arms; said projecting means positioned above said external surface and cooperating therewith to define a plurality of slot means operatively positioned to receive inwardly turned lips of a busway housing when said members are in said locking position; an individual spring for each of said members in engagement with said webs and urging said members in opposite directions toward said locking position; a cover plate positioned over an aperture of said base, one surface of said plate constituting said external surface; securing means mounting said plug unit directly to said plate to form a sub-assembly; and additional means removably securing said sub-assembly to said base; said sub-assembly also including an insulating sheet secured to said plate, said first portion disposed behind the other surface of said plate, said sheet disposed behind said first portion and positioned to retain said conducting members in their operative positions.

8. A device as set forth in claim 7 in which the second portion extends through a central aperture in said plate; a polarizing projection integral with said plate and extending in front of said one surface.

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