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ELECTRODE CONNECTION FOR ELECTRIC SIGNS

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FIG. 1.

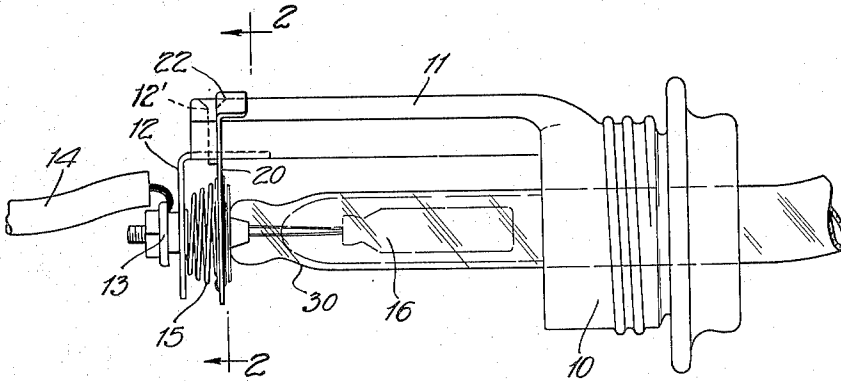


FIG. 2.

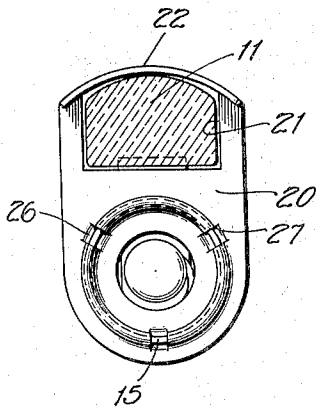


FIG. 3.

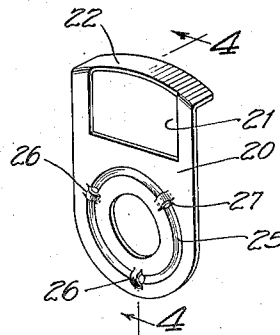


FIG. 4.

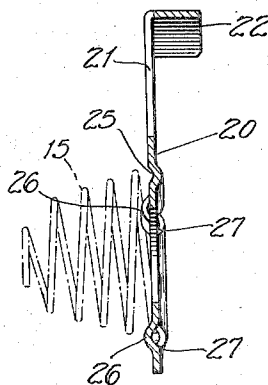
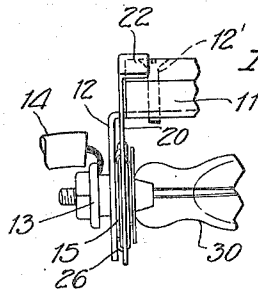


FIG. 5.



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ELECTRODE CONNECTION FOR ELECTRIC SIGNS

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5 Claims. (Cl. 173—328)

This invention relates to new and useful improvements in electrode connections for electric signs.

It is the object of the invention so to construct the device that a better electrical connection between the electrical conductor and the sign electrode is obtained than is possible in such devices as heretofore constructed with which I am familiar.

One common type of electrical connection for electric sign electrodes includes an electrical conductor in the form of a compressible coiled spring with which the lamp electrode of the sign has electrical engagement and it is to this type of device that the present invention relates.

Such devices as above mentioned include an arm which projects from a cylindrical body portion and the current supply conductor is electrically connected with a contact member carried by the outer end of said arm. The compressible coiled spring type of conductor is, in the commonly employed construction, electrically connected to the contact member carried by the outer end of the arm and extends inwardly towards the cylindrical body portion with its inner end free or unsupported for contact with the sign electrode.

In many installations, this compressible coiled spring conductor occupies a position in a horizontal plane and has a tendency to sag as a consequence of which, it is not in true axial alignment with the lamp electrode and poor electrical contact often results.

A feature of the present invention resides in a novel construction whereby the inner end of the compressible coiled spring conductor is suspended from the arm of the bushing thus insuring support of the compressible coiled spring conductor in axial alignment with the lamp electrode at all times.

Another feature of the invention resides in a combined means for supporting the inner end of the compressible coiled spring conductor which means also forms an electrical contact member for engagement with the lamp electrode.

Still another feature of the invention resides in a novel construction for suspending the combined supporting and electrical contact member from the arm which extends from the cylindrical body portion.

Other features of the invention relate to certain novel and improved constructions, arrangements and combinations of parts hereinafter described and particularly pointed out in the claims, the advantages of which will be readily under-

stood and appreciated by those skilled in the art.

The invention will be clearly understood from the accompanying drawing illustrating the invention in its preferred form and the following detailed description of the constructions therein shown.

In the drawing:

Figure 1 is a view in side elevation showing a sign bushing constructed in accordance with the present invention.

Figure 2 is a detail sectional view taken substantially on the line 2—2 of Figure 1.

Figure 3 is a perspective view of the lamp electrode contact member.

Figure 4 is a detail sectional view on an enlarged scale taken substantially on the line 4—4 of Figure 3, and;

Figure 5 is a detail fragmentary view in elevation illustrating the outer end portion of the arm of the bushing with the compressible coiled spring conductor in its completely compressed form.

Referring more specifically to the drawing, the bushing, which is of more or less conventional type, comprises a cylindrical body portion 10 from one end of which a rigid arm 11 projects. Suitably secured to the outer free end of the rigid arm 11 by a bolt or the like 12, there is a contact member 12 and electrically connected by a suitable clamping means 13 to this contact member 12, there is an electrical conductor 14. The electrical conductor 14 is secured upon one side of the contact member 12 and the clamping means 13 also serves to secure to the contact member 12, an electrical conductor 15 in the form of a compressible coiled spring.

In so far as described, the construction is of more or less conventional form.

Means is provided to support the unattached end of the compressible coiled spring conductor 15 from the arm 11 and this means also serves as an electrical contact for engagement with the lamp electrode of the sign, said electrode being designated 16 in the drawing.

This supporting means and contact member is shown in detail in Figures 2, 3 and 4 and it comprises a relatively thin plate-like member 20 having an opening 21 in its upper end to receive the arm 11 of the bushing. Defining one edge or side of the opening 21, there is a flange 22 and this flange is turned downwardly or at right angles to the body portion of the plate-like contact member 20 as best illustrated in Figures 1, 3 and 4. It will be noted by examination of these figures that the flange 22 extends in a direction towards

the cylindrical body 10 of the bushing and this feature of construction is important as will hereinafter appear.

The body portion of the combined support and contact member is formed with a circular groove or channel 25 at a point below the opening 21 heretofore described. This groove or channel is of a diameter which corresponds substantially to the diameter of the free end convolution of the compressible coiled spring conductor 15, which convolution it is adapted to receive, when the construction is assembled.

Means is provided rigidly to connect the free end convolution of the inner end of the compressible coiled spring conductor to the combination supporting and contact member when said convolution is in position in the groove or channel 25 and this means, as herein illustrated, comprises a plurality of strap-like members 26 which are formed by cutting the body portion of the supporting and contact member transversely of the groove or channel 25 and punching these straps upwardly or outwardly thereof in order that the inner end convolution of the compressible coiled spring conductor may be threaded beneath these straps as best illustrated in Figures 2 and 4 of the drawing.

It will be obvious that when the device is assembled, the combined supporting and contact member is freely slidable upon the arm 11 thus permitting of compression of the compressible coiled spring conductor 15 by the end of the lamp tube 30, as the same is passed through the cylindrical body portion of the bushing in the usual manner, into engagement with the combined supporting and contact member.

By this construction it will be obvious that the compressible coiled spring conductor 15 will be supported at all times from the arm 11, thus preventing sagging of the free end thereof and insuring true axial alignment of the conductor with the axis of the cylindrical body portion of the bushing which insures good electrical contact between the electrode of the lamp and the combined supporting and contact member.

It often happens that due to an extremely large extension of the lamp tube, the compressible coiled spring conductor is completely compressed as illustrated in Figure 5 of the drawing. In such a case, if it were not for the flange 22 which rides up the arm 11, being extended towards the cylindrical body portion of the bushing, the combined supporting and contact member would ride off the free end of the arm 11. However, as illustrated in Figure 5, under the conditions as above described, the flange 22 of the combined supporting and contact member will ride the arm 11 even when the compressible coiled spring conductor is compressed to the fullest extent, thus insuring free riding and positive retention of the combined supporting and contact member at all times upon the arm 11.

By a construction in which the compressible coiled spring conductor is positively or rigidly attached to a supporting and contact member, a larger area for electrical contact with the electrode of the sign lamp is provided than in constructions where the electrode depends upon engagement with one or more of the convolutions of the compressible coiled spring conductor thus insuring a better electrical contact between the electrode of the lamp and the compressible coiled spring conductor.

While the invention has been herein described and illustrated in its preferred form, it is obvious

that other forms may be resorted to within the scope of the appended claims without departing from the spirit of the invention.

Having thus described the invention what is claimed as new, is:

1. A bushing for illuminated electric signs comprising a hollow cylindrical body, a rigid arm extending from one end of the hollow cylindrical body and having its free end spaced an appreciable distance therefrom, an electrical contact member carried by said arm adjacent the free end thereof, a flexible electric conductor in the form of a compressible coiled spring connected at its outer end to said electrical contact member and extending from the outer end of the arm towards the hollow cylindrical body, and means for suspending the inner end of said electrical conductor from said arm, said suspending means comprising a plate-like member slidably mounted on said rigid arm and depending therefrom, and means for rigidly connecting the inner end of said conductor to said plate-like member.

2. A bushing for illuminated electric signs comprising a hollow cylindrical body, a rigid arm extending from one end of the hollow cylindrical body and having its free end spaced an appreciable distance therefrom, an electrical contact member carried by said arm adjacent the free end thereof, a flexible electric conductor in the form of a compressible coiled spring connected at its outer end to said electrical contact member and extending from the outer end of the arm towards the hollow cylindrical body, and means for suspending the inner end of said electrical conductor from said arm, said suspending means comprising a plate-like member having an opening therein for the reception of said aforementioned rigid arm, means for supporting the plate-like member for sliding movement upon the rigid arm, and means for rigidly securing the inner end of the electrical conductor to the plate-like member.

3. A bushing for illuminated electric signs comprising a hollow cylindrical body, a rigid arm extending from one end of the hollow cylindrical body and having its free end spaced an appreciable distance therefrom, an electrical contact member carried by said arm adjacent the free end thereof, a flexible electrical conductor in the form of a compressible coiled spring connected at its outer end to said electrical contact member and extending from the outer end of the arm towards the hollow cylindrical body, and means for suspending the inner end of said electrical conductor from said arm, said suspending means comprising a plate-like contact member for engagement with an electric sign electrode, said contact member having an opening therein to receive the rigid arm, and means for rigidly attaching the inner end of said electrical conductor to the plate-like contact member.

4. A bushing for illuminated electric signs comprising a hollow cylindrical body, a rigid arm extending from one end of the hollow cylindrical body and having its free end spaced an appreciable distance therefrom, an electrical contact member carried by said arm adjacent the free end thereof, a flexible electric conductor in the form of a compressible coiled spring connected at its outer end to said electrical contact member and extending from the outer end of the arm towards the hollow cylindrical body, and means for suspending the inner end of said electrical conductor from said arm, said suspending means comprising a plate-like contact member for engagement with an electric sign electrode, said

contact member having an opening therein for the reception of said rigid arm, a flange defining one edge or side of said opening and extending from the plate-like contact member in the direction of the hollow cylindrical body, and means for rigidly attaching the innermost convolution of said flexible electric conductor to the plate-like contact member.

5. A bushing for illuminated electric signs comprising a hollow cylindrical body, a rigid arm extending from one end of the hollow cylindrical body and having its free end spaced an appreciable distance therefrom, an electrical contact member carried by said arm adjacent the free end thereof, a flexible electric conductor in the form of a compressible coiled spring connected at its outer end to said electrical contact member and extending from the outer end of the arm

towards the hollow cylindrical body, and means for suspending the inner end of said electrical conductor from said arm, said suspending means comprising a plate-like contact member for engagement with an electric sign electrode, said contact member having an opening therein for the reception of said rigid arm, a flange defining one edge or side of said opening and extending from the plate-like contact member in the direction of the hollow cylindrical body, a continuous groove or channel in the plate-like contact member for the reception of the innermost convolution of said flexible conductor and means integral with the plate-like contact member for securing the inner convolution of the electrical conductor in the groove or channel of the plate-like contact member.

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