Sept. 20, 1938. H. L. KRESGE 2,130,768

ELECTRODE TERMINAL

Filed May 29, 1936

FIG. 1.

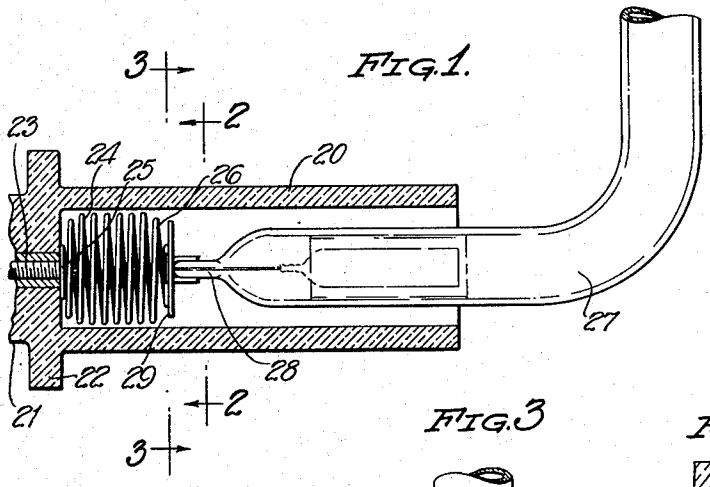


FIG. 2.

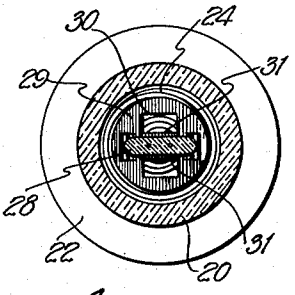


FIG. 3

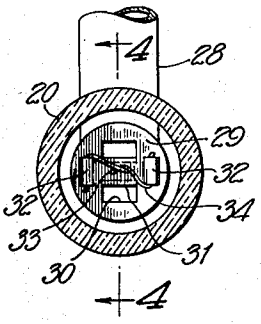


FIG. 4.

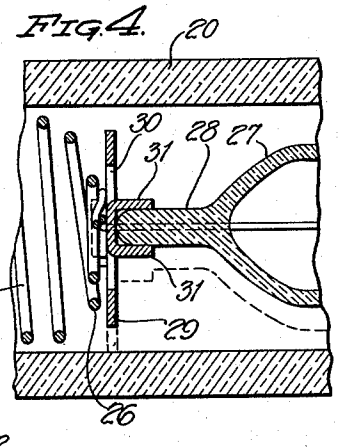


FIG. 5.

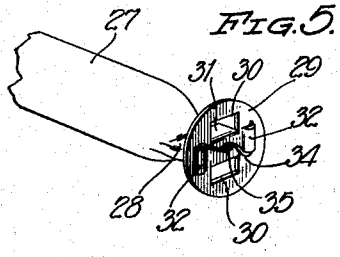


FIG. 6.

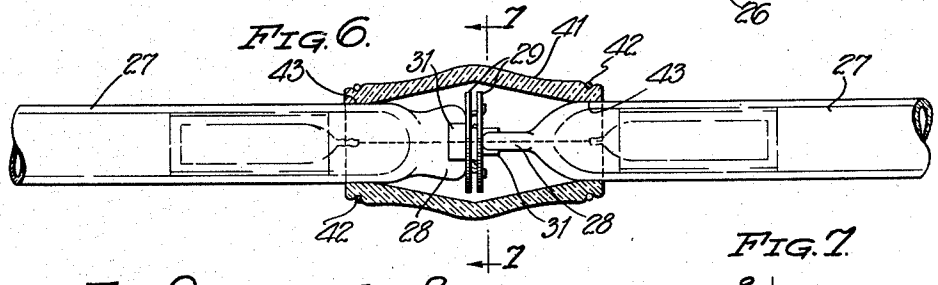


FIG. 7.

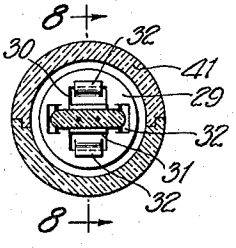


FIG. 8.

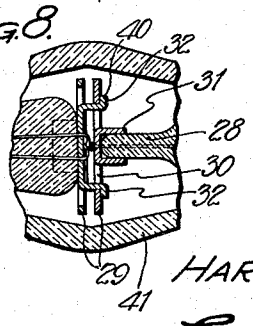
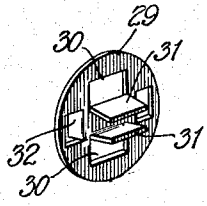


FIG. 9.



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Patented Sept. 20, 1938 2,130,768

UNITED STATES PATENT OFFICE

2,130,768

ELECTRODE TERMINAL

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Application May 29, 1936, Serial No. 83,099

2 Claims. (Cl. 176—126)

The present invention relates to new and useful improvements in neon signs and more particularly it pertains to connectors and mounts for the electrodes thereof.

In signs of the afore-mentioned type a common form of electrode is that in which a tubular member terminates in a flattened portion, and while the invention of the present application may with slight changes be adapted to other types of electrodes, it is particularly adapted, at least in the present presentation thereof, to neon lamp tubes of the type above mentioned.

In neon signs it often results that the lamp tube will contact the housing in which it terminates resulting in the accumulation of moisture and the short circuit of the electrode circuit, and it is an object of the present invention to provide means which will support the lamp tube and maintain it at all times out of contacting engagement with the housing in which it terminates.

It is a further object of the invention so to construct the device that a highly satisfactory electrical connection between the source of power and the lamp tube is provided.

It is a further object of the invention to provide a new and novel means whereby at least two of such lamp tubes may be rigidly connected together.

It is a further object of the invention to provide a new and novel device, the use of which will permit of two of such lamp tubes being efficiently electrically connected together.

Still a further object of the invention resides in the provision of a new and novel construction which is adaptable to either outdoor or indoor use.

Still a further object of the invention resides in a simplified construction which is relatively cheap of manufacture, simple in operation and readily adaptable to use in connection with the various sizes of apparatus.

With the above and other objects in view reference will be had to the accompanying drawing, in which:

Figure 1 is a detail sectional view illustrating a lamp of the type above mentioned mounted in a housing and carried therein by a device constructed in accordance with the present invention,

Figure 2 is a transverse sectional view taken substantially on the line 2—2 of Figure 1,

Figure 3 is a similar view taken substantially on the line 3—3 of Figure 1,

Figure 4 is a longitudinal sectional view on an enlarged scale taken substantially on the line 4—4 of Figure 3, said Figure 4 illustrating in dotted lines the method in which the lamp tube is supported out of contacting engagement with the housing in which it terminates even though there may be a tendency on the part of the lamp tube to sag,

Figure 5 is a detail perspective view,

Figure 6 is a longitudinal sectional view illustrating a modified form of the invention,

Figure 7 is a transverse sectional view taken substantially on the line 7—7 of Figure 6,

Figure 8 is a longitudinal sectional view on a slightly enlarged scale taken substantially on the line 8—8 of Figure 7,

Figure 9 is a detail perspective view of one of the elements employed in connection with the present invention.

In the drawing and referring particularly to Figures 1 to 5, inclusive, the reference numeral 20 designates a tubular housing of conventional form. The housing comprises a body portion having an extension 21 and a flange 22 by means of which it is mounted in a sign box or housing, not herein illustrated. The reference numeral 23 designates a terminal of a suitable source of power and in accordance with the present invention, a compressible resilient electrical conductor 24 may be employed. This electrical conductor 24 preferably consists of a coil spring rigidly connected to the terminal 23 as at 25 and having a free end portion 26 projecting into the housing 20. The reference numeral 27 designates the neon lamp tube, and in the present illustration of the invention said tube 27 is of the type which terminates in a flattened end portion 28. The reference character 29 designates a disk-like member, and as best illustrated in Figure 5, this disk-like member 29 has two projecting lugs 31 extending from one face thereof, the lugs being arranged in spaced relation to each other. These lugs may be formed by cutting out the disk-like member 29 as at 30 and pressing the lugs from the body portion thereof. The disk-like member 29 also has a pair of projecting lugs 32 projecting from the opposite face to that from which the lugs 31 project, and these lugs 32 are preferably formed by cutting the disk-like member 29 and forcing the same therefrom as illustrated in Figure 9.

The projecting lugs 31 are adapted to grip the opposite sides of the flattened portion 28 of the tube 27, this gripping of the flattened portion 28 by the lugs 31 serving to position the disk-like member 29 upon the end of the tube 27. The disk-like member 29 is also provided with a cen-

trally disposed perforation 33, and this perforation 33 is adapted to receive the electrical conductors 34 of the tube 27. These electrical conductors 34 serve as additional means to retain the disk-like member 29 in position upon the end of the tube 27, and this function is accomplished by twisting the conductors 34 as designated at 35 one or more times about each other after which the conductors are passed under the lugs 32 which are then compressed or otherwise distorted into gripping engagement with the conductors, after which the conductors may be clipped off. By this means the disk-like member 29 will be retained upon the end of the tube 27 and the lugs 31 will serve to maintain the proper relative position of the disk-like member 29 and the tube 27 while the conductors 34 will prevent accidental displacement of the disk-like member 29 relative to the tube 27.

In practice, it is intended that the disk-like member 29 will at all times be of a diameter or transverse dimension which will be greater than the diameter or transverse dimension of the tube 27. This construction is highly desirable since it prevents contact of the tube 27 with the inner face of the housing wall should there be any tendency on the part of the tube to sag as indicated by dotted lines in Figure 4 when the end of the tube is placed in position in the housing 20.

As heretofore stated, the resilient conductor 26 is rigidly attached to the terminal 25 within the housing 20. The end of the tube 27 with the disk-like member 29 attached, when it is inserted in the housing 20 will place the conductor 26 under compression and thereby establish a good electrical connection between the disk-like member 29 and the flexible electrical conductor 26. In the construction of neon signs every effort is made to center the tube 27 in the housing 20 but it often results that due to sagging of certain parts the tube contacts the housing 20 on the inner face of its walls at one point or another, and the accumulating of moisture will result in deterioration of the tube and a consequent short circuit of its circuit, rendering the tube inoperative. In the present device, such condition cannot exist for the reason that any sagging of the parts will cause the edge of the disk-like member 29 to engage the wall of the housing 20, for example, as illustrated in dotted lines in Figure 4, and since as above stated, the diameter or transverse dimension of the disk-like member 29 is greater than the diameter or transverse dimension of the tube 27, the disk-like member will contact the housing 20 and support the tube 27 out of contact therewith. Therefore, it will be apparent that the present invention will at all times serve to prevent contact of the tubular member 27 with the housing 20.

In addition to the function above described for the disk-like member 29, this member provides means for attaching two tubes 27 in end to end relation and electrically connecting them. When the device is employed in this manner the lugs 32 of one disk-like member are passed through the openings 30 of the other disk-like member and turned over as designated at 40 in Figure 8. This construction firmly connects two tubes 27 in alinement with each other both electrically and mechanically. In such installations it is common to employ a two part housing 41, the parts of which may be secured together to form the housing by suitable bands 42 preferably of wire, the housing being formed of suitable rigid material and provided with aligned openings 43 which receive the ends of the tubes 27 to retain the tubes in aligned end to end position, as illustrated in Figure 6.

From the foregoing it will be apparent that the present invention provides means for electrically connecting the electrodes of neon signs to a source of power, which device is also capable of use for connecting two or even more neon tubes together in operative relation.

Furthermore, the device is of relatively simple and cheap construction and in actual practice has proven highly satisfactory.

While the invention has been herein described in its preferred form, it is not to be limited to the specific constructions herein shown but may be practiced in other forms without departing from the spirit of the invention.

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

1. A terminal for neon lamp electrodes comprising in combination with a neon lamp having a flattened end and an electrical conductor projecting from said flattened end, a metal disk-like member, a pair of spaced ears projecting from said disk-like member upon one side thereof for embracing engagement with the flattened end of the neon lamp, and means for electrically connecting the electrical conductor of said neon lamp to said disk-like member, said last mentioned means comprising a pair of spaced ears projecting from the disk-like member upon the opposite side thereof with respect to said first mentioned ears.

2. A terminal for neon lamp electrodes comprising in combination with a neon lamp having a flattened end and an electrical conductor projecting from said flattened end, a metal disk-like member, a pair of spaced ears projecting from said disk-like member in one direction for embracing engagement with the flattened end of the neon lamp, and means for electrically connecting the electrical conductor of said neon lamp to said disk-like member, said last mentioned means comprising a pair of spaced ears struck from the body of said disk-like member and projecting from the disk-like member in a direction opposite to the first mentioned ears.

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