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ELECTRODE HOUSING AND TERMINAL CAP

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Fig. 1

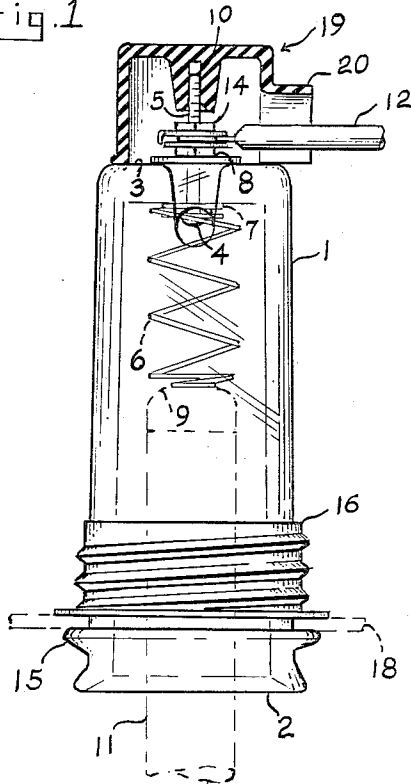
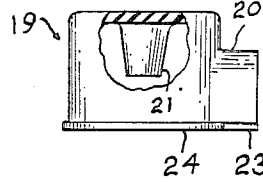


Fig. 2

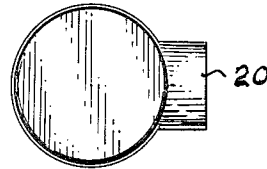


Fig. 3

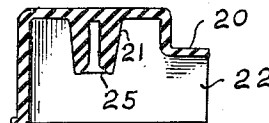


Fig. 4

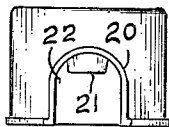


Fig. 5

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1

2

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ELECTRODE HOUSING AND TERMINAL CAP

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2 Claims. (Cl. 339—116)

This invention is concerned with electrode housings such as are employed in signs as receptacles for elongated neon lamp electrodes. Housings of this type are customarily secured in a hole of a sign panel and are provided with a coil spring electrode, the terminal end of which projects through the top of the housing. On this terminal end is attached a high tension line to provide current supply through the electrode to the lamp. This terminal or "hot" end of the housing is usually exposed, and if inadvertently touched by hand will result in serious burns or shock and may even prove fatal. The terminal end of the housing is often confined to the rear of the sign panel and often within the space between the front and rear panels of box signs. In repairing such signs, the electrician or mechanic, as the case may be, often puts his hand to the rear of the sign or within the sign, and in many cases must feel his way. The dangers associated with repairing such signs with exposed electrode terminals is obvious.

A means of permitting repairs of such signs without the attendant dangers is highly desirable, and an object of this invention is, therefore, to provide means for covering the exposed terminal in such manner as to eliminate the hazards commonly associated therewith.

Now, I have invented a novel cap of insulation material which can be readily secured over the terminal to cover the same, and can, when required, be quickly removed without difficulty. The cap is of a unitary structure and practical for the use to which it is intended, and further, is inexpensive and within the reach of all. Through the use of the cap, it will be clear, that the hazards commonly associated with exposed neon lamp housing electrodes will be eliminated.

A further object, therefore, of this invention, is an improved and practical insulating cap of an inexpensive nature, finding particular use in covering the exposed electrode of a neon lamp electrode housing.

Another object of the invention is to provide a cap of the above nature which can be quickly secured or removed from the housing electrode terminal without difficulty.

The foregoing and other objects and advantages of the invention will appear more fully hereinafter from a consideration of the detailed description which follows, taken together with the accompanying drawings wherein an embodiment of the invention is illustrated. It is to be expressly understood, however, that the drawings are for purposes of illustration and description, and are not to be construed as defining the limits of the invention.

In the drawing:

Fig. 1 is a view of the combination of a neon lamp electrode housing and an insulating cap embodying the invention, the cap being shown in cross section;

Fig. 2 is a side elevational view of the cap removed from the housing;

Fig. 3 is a top plane view of the cap;

Fig. 4 is a cross section thereof; and

Fig. 5 is a front plan thereof.

In describing the invention in further detail, reference is directed to the drawings wherein there is disclosed an electrode housing 1 of a type finding particular use in association with elongated tubular electrical lamps, such as are used in neon signs and the like.

The housing 1 is formed of electrical insulating material, suitable for the purpose to which the housing is employed. Here it is of glass. It is elongated and substantially cylindrical in form, having a hollow interior that is open at the bottom 2 and is closed over by a top end wall 3. Extending axially through wall 3 is an elongated electrode terminal bolt or screw 10, the head end 4 of which is located on the inner side of wall 3 and the threaded shank 5 of which projects through wall 3 for a short distance to the outside. Disposed axially within the hollow interior of the housing is an electrode coil 6, one end of which is connected to the terminal bolt between the head 5 of the latter and a washer 7. By means of a washer carried by the shank of the bolt on the outside of wall 3 and by a nut 8 threaded upon the bolt tightly against the washer, the terminal bolt is secured fast in the end wall 3. The free end of the electrode coil 6 is adapted to contact with an electrode end 9 of a tubular type neon lamp 11 admitted into the housing. Current is supplied through the contacting electrodes 6 and 9 by a high tension line 12, the terminal end of which is adapted to be connected to the projecting shank of the terminal bolt (Fig. 1). A nut 14 threaded onto the bolt, and washer elements on opposite side of the current line 12 serve to hold the latter securely to the terminal bolt.

The housing 1 is adapted to be secured in a hole of a sign panel. To this end the housing is provided with a peripheral lip 15 at its bottom end and with conventional collar means 16 threadable onto the body of the housing. The housing is assembled to a sign panel 18 in conventional manner. The top end 3 of the housing is inserted through the panel until the lip of the housing limits against the panel face. The collar is then slipped on the housing end 3 and is threaded up against the opposite side of the panel so as to secure the housing in position. The terminal of the high tension line 12 may then be connected to the shank 5 of the housing terminal.

It is plain that in this arrangement and use of the housing that the exposed terminal bolt connected with the high tension line will provide a dangerous electrical hazard particularly to sign maintenance and repair men who might accidentally come in contact with the exposed housing terminal.

This hazard is eliminated by a cap 19 of insulating material which is designed to cover and thereby protect against manual contact both the terminal end of the housing and that of the high tension line.

The cap is open over its bottom end and is cylindrical in form. The diameter of the open end of the cap is less than that of the housing end wall 3 so that the end wall of the cap will rest upon the surface of wall 3; and the cap is of a height sufficient to contain the projecting terminal screw when resting on the end wall 3.

The cap is provided with an elongated lateral extension 20 which provides a passage communicating through the side wall of the cap. This passage allows access of the high tension line 12 through the side wall of the cap to the housing terminal. The extension 20 serves to cover the tension line for a short distance beyond the side wall of the cap as a further protective measure.

The cap is held in position on the housing over the connecting terminals by means of a boss 21 depending axially from the center of the underside of the top wall

3

of the cap. The boss is provided with an axial bore that opens out at the free end of the boss, which bore is adapted to receive the free end of the terminal bolt 5. The shank 5 of the terminal bolt is elongated for this purpose and extends for a short distance, about five-eighths of an inch, above the point where the tension line connects with the shank. The bore in the boss is preferably of a smaller diameter than that of the shank 5 so as to permit a tight friction grip of the boss upon the shank 5 when the boss is pressed down over the latter.

The cap 19 is applied to the housing by fitting the boss over the free end of the terminal shank 5 and forcing the boss over the latter until the end wall of the cap comes to rest upon the top wall of the housing. To allow for the space occupied above the surface of the housing by the terminal and tension line securing elements, the free end of the boss does not depend to the bottom of the cap but terminates short thereof sufficiently to allow room for the nut and washer means engaging the tension line and other elements on the terminal bolt shank 5 above the surface of the housing top wall.

The cap is formed preferably of an insulating material having some resilience, such as plastic or rubberized fibre, or material commercially known by the name of Rulon. This resilient property is desirable as it facilitates reception of the terminal shank 5 in the bore of the boss and allows the wall of the bore to contract about the threads of the shank and grip the latter tightly, so that there is no danger of the cap becoming loose and slipping away.

To further facilitate application of the cap to the terminal bolt, particularly after the tension line has been connected to the latter, the lateral extension 20 is open at its bottom, the extension providing in cross section an inverted U form passage 22 communicating through the side wall of the cap. By this structure, when the cap is fitted over the terminal bolt and pressed down upon the surface of the housing, the lateral extension will cover over the terminal portion of the tension line 12 for a short distance away from the side wall of the cap. It is to be noted that the lateral extension 20 is an integral part of the cap and that the bottom end walls thereof 23 are contiguous with the bottom wall 24 of the cap.

A further advantage of the cap is provided by the formation of the free end of the boss 21 in that the entrance end of the bore is conical or flared as at 25 whereby a guide is provided to the shank 5 in entering the bore when the cap 20 is applied over it.

The protective benefits of the cap against contact with the terminal bolt 10 can be readily appreciated as well

4

as the ease with which the cap may be applied to the housing. Not only are the above advantages provided, but others are present particularly in the ease whereby the cap may be removed without damage thereto and without interfering with the power line 12, the cap being removable simply by pulling the same from the terminal.

Having described and illustrated the invention, it is my intent, however, to claim the invention not only as shown and described, but also in all such forms and modifications as may be reasonably construed to be within the spirit of the invention and the scope of the appended claims.

I claim:

1. A protector for a threaded rigid terminal extending axially from the exterior end wall of a tubular lamp electrode insulator and including a laterally extending high power line connected to the terminal immediately above the end wall of the insulator, the protector comprising a cap of electrical insulating resilient material having a top wall, an annular skirt wall depending integrally from the top wall, a semi-circular lateral extension integrally from the bottom end of the skirt wall, a boss element integral with the interior face of the top wall and depending axially therefrom in spaced relation to the annular skirt wall and to a point short of the bottom end of the latter, the lateral extension and annular skirt being open in their bottom ends and in communication with each other, and the boss element having an axially extending counterbore in its free end of a length greater than the threaded terminal and of a diameter slightly less than the latter, whereby the boss element may frictionally receive the threaded terminal in its bore for a distance until the bottom end of the skirt wall rests upon the exterior end of the insulator and the lateral line is received at the point adjacent its connected end in the underside of the lateral extension.

2. A protector as defined in claim 1 wherein the entrance end to the counterbore of the boss element is flared outward and serves as a means for guiding the threaded terminal into the counterbore in a blind application of the protector over the terminal.

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