

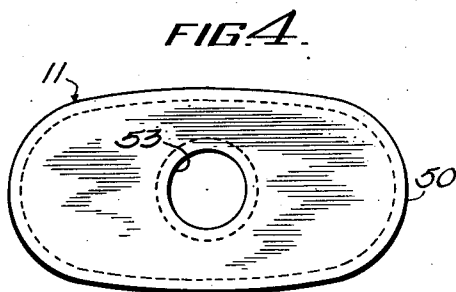
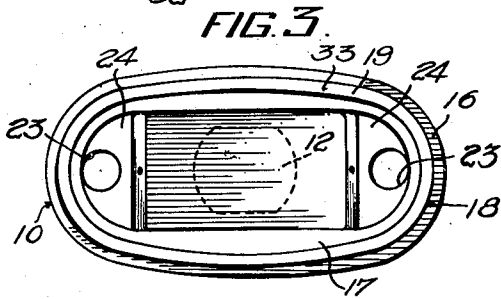
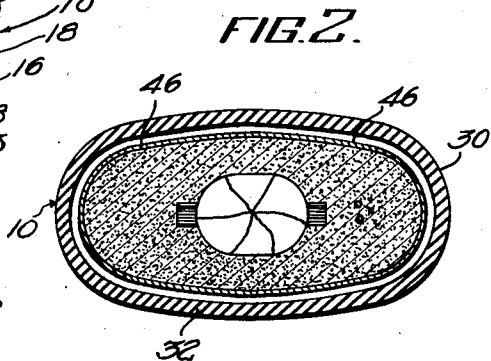
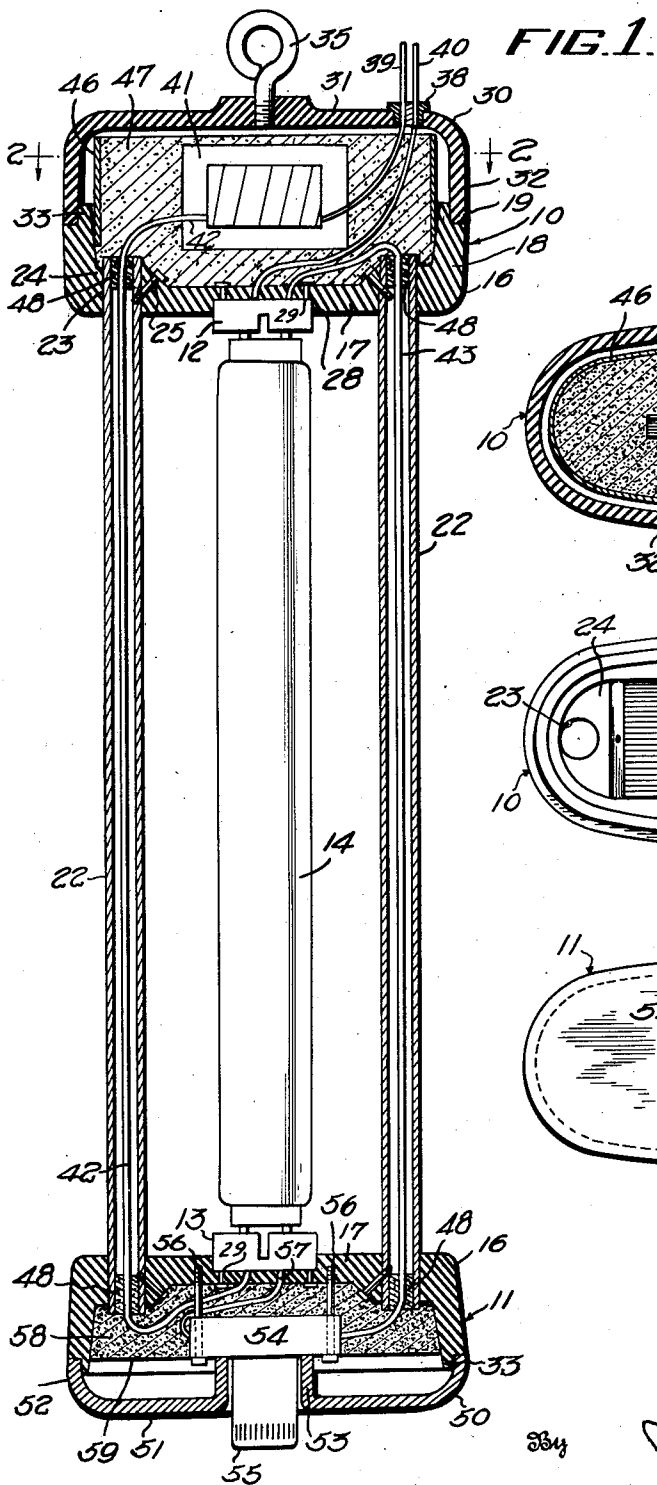
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LAMP MOUNTING

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LAMP MOUNTING

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This invention relates to lamp mountings, and more particularly to a lamp mounting for fluorescent, germicidal or similar lamps.

There are several conventional lamp mountings available for supporting fluorescent, germicidal and similar lamp structures, such mountings usually embodying an impedance coil, commonly referred to in the art as "ballast," an automatic structure for heating the lamp to place it in normal operation, etc. Lamps of this character frequently are employed in places where substantial moisture content exists in the atmosphere, and this moisture tends to interfere after some length of time with the normal operation of the lamp, for example, by causing corrosion of the parts.

An important object of the present invention is to provide a lamp mounting of novel construction wherein the sockets for the lamp tubes are rigidly supported with respect to each other for the easy insertion of the lamp tubes, and wherein the parts are effectively protected against corrosion by moisture.

A further object is to provide a structure of the character referred to wherein a pair of spaced heads carry the respective lamp sockets and are rigidly fixed in a novel manner with respect to each other whereby stresses and strains are equally divided on opposite sides of the axis of the centrally located lamp tube, thus providing a highly rigid lamp supporting structure.

A further object is to provide a lamp mounting of the character referred to, wherein the supporting heads are provided therein with a non-hygroscopic material sealed within the heads in a novel manner so as to provide highly effective protection against the effects of moisture.

A further object is to provide such a structure wherein rigid tubes form supporting columns between the two heads, and wherein the wiring connections between the two heads extend through such columns, the latter being so arranged as to equally distribute any stresses or strains to which the device may be subjected, thus rigidly fixing the relative positions of the lamp receiving sockets.

A further object is to provide such a device wherein the "ballast" is mounted in one of the heads and is protected, together with its wiring connections, against the effects of moisture by being completely embedded in a protective body of a non-hygroscopic material possessing high dielectric qualities.

A further object is to provide such a device wherein hollow supporting heads are employed and within which are respectively arranged the

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"ballast" and automatic structure, and to provide means in said heads for effectively sealing such electrical devices against the entrance of moisture.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawing I have shown one embodiment of the invention. In this showing:

Figure 1 is a central longitudinal sectional view through the device, parts being shown in elevation,

Figure 2 is a section on line 2-2 of Figure 1,

Figure 3 is a face view of the body portion of one of the head elements, and,

Figure 4 is an end elevation of the device, looking in the direction of the automatic structure.

Referring to Figure 1, the numerals 10 and 11 designate a pair of spaced head structures as a whole to be referred to in detail later, these heads respectively carrying conventional sockets 12 and 13 to receive the ends of a conventional two-pin fluorescent, germicidal or similar tubular lamp 14.

Each head structure comprises a body member 16 having a base 17 perpendicular to the axis of the lamp 14. In profile, each body member is substantially elliptical in shape as shown in Figure 3 and is provided with a surrounding flange 18 shouldered as at 19 for a purpose to be described.

Supporting tubes or columns 22 extend between the head structures in spaced parallel relation equidistantly spaced on opposite sides of the lamp 14. These tubes have their ends projecting through openings 23 formed in the bases 17 of the respective bodies, the latter having bosses 24 at the point of entry of each tube 22 to thicken the corresponding base portion 17 and thus lengthen the openings 23. If desired, positive anchoring means may be provided for the end of each tube 22, such means comprising, for example, locking pins 25.

Each socket 12 and 13 has its base portion set in a recess 28 formed in the associated base 17, and screws 29 secure the sockets 12 and 13 in position.

The end structure 10, in addition to the body member 16, is provided with a cap 30 shaped in profile as shown in Figure 2 to correspond to the shape of the body 16. The cap 30 comprises an upper base portion 31 and a depending flange 32 seating on the shoulder 19 and tightly fitting the small upstanding flange 33 at the top of the main flange 18. An eye 35 may be carried by the cap base 31 for suspending the structure, although it

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will be apparent that any suitable supporting means may be employed.

A thimble 38 provides for the entrance into the head 10 of wires 39 and 40 from a suitable source of current. The wire 39 is shown as leading to a conventional ballast 41, and the opposite end of the winding of the "ballast" is provided with a wire 42 which extends throughout the length of one of the tubes 22 and is connected to one terminal of the socket 13 of the head 11. The wire 40 is connected to one terminal of the socket 12, and the other terminal of such socket is provided with a lead wire 43 extending through the other tube 22 for a purpose to be described.

As shown in Figure 1, a thin pouring form 46 has its lower end seating against the slightly tapered inner surface of the flange 18, the member 46 corresponding in contour to the elements of the cap 10 as shown in Figure 2 and having its upper edge extending above the ballast 41. The space within the form 46 and within the cap body 16 therebeneath is filled with a suitable non-hygroscopic material 47 having high dielectric characteristics. For this purpose, any one of several thermo-plastics such as suitable waxes or wax-like substances may be employed, and such substance being completely waterproof, protects the ballast 41 and its wiring connections from the possible entrance of moisture, and similarly protects the socket 12 and its wiring connections. To prevent the flow of the wax into the tubes 22, the latter may be provided with suitable stoppers 48.

The head 11 is provided with a cap 50 generally similar to the cap 30, but somewhat shallower since less space is required within the head 11. The cap 50 comprises a base 51 and a surrounding flange 52, the edge portion of which corresponds to the edge portion of the flange 32, and engages the flange 33 of the associated body 16. It will be understood, of course, that the bodies 16 of the two heads are preferably identical in construction and the same reference numerals have been employed for indicating the various parts of both heads.

The cap 50 is provided with an axial inturned flange 53 which extends approximately into contact with a starter socket 54, and an automatic starter 55, which is conventional, is inserted in the socket 54 through the opening through the flange 53. The socket 54 is conventionally supported in position by suitable screws 56 threaded in the adjacent base 17. The wire 43 is connected to one terminal of the base 54 while the other terminal of this base is connected by a wire 57 to the adjacent socket 13, the second terminal of the latter socket being connected to the wire 42, as previously stated. It will be understood that the particular electrical connections, so far as the completion of the usual circuits is concerned, are conventional.

The lower body 16, as viewed in Figure 1, contains a body of a non-hygroscopic material of high dielectric characteristics indicated by the numeral 58. This material also may be of wax as is true of the body of material 47, and is poured in fluid condition with the device inverted and prior to the placing of the cap 50, the level of the material 58 being indicated by the numeral 59, which is approximately at the level of the bottom of the socket 54 when the device is in the normal position shown in Figure 1.

The operation of the device is as follows:

The various head elements, that is, the two bodies 16 and caps 30 and 50, may be of any

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suitable material, but it is preferred that they be made of a molded plastic of a type which possesses a reasonable degree of inherent elasticity, for a reason to be referred to later, in order that any cracking of the material may be avoided. Both body members 16 are provided with the openings 23 which are very slightly smaller in diameter than the diameter of the tubes 22. The body members 16 are heated to effect expansion thereof so that the openings 23 become of a size at least corresponding in diameter to that of the tubes 22 to permit the insertion or the driving of the ends of such tubes into the openings 23. The assembly of the tubes 22 and cap bodies 16 is effected in a suitable jig for the positioning of the parts and the proper spacing of the body members 16. The sockets 12 and 13 are then connected in position, and the starter socket 54 attached by the screws 56 to position the socket 54. The various wiring connections are then completed, and it will be apparent that while the ballast 41 is shown in Figure 1 spaced from the cap base 17, the ballast need not be positioned in any particular place in the assembly of the parts so long as the top thereof is below the upper limit of the form 46. With the device in the position shown in Figure 1, the form 46 is inserted in position whereupon the moisture-sealing composition 47 is poured into the form 46 to a level approximately at the top of such form, completely submerging the ballast, the connections of the various wires thereto, and the connections of the wires to the socket 12. Upon the hardening of the material 47, the cap 30 is applied. This cap has a relatively tight fit with the shoulder 19 and the small inside flange 33, but the contacting faces of these elements are preferably provided with a plastic cement which forms a rigid bond between the parts upon placing the cap 30 in position.

The device is then inverted and the body of material 58 is poured to the level indicated by the numeral 59. The cap 50 is then placed in position in the same manner as the cap 30.

The device is now ready for operation. A conventional fluorescent or germicidal tubular lamp 14 has its pins inserted in the slots of the sockets 12 and 13, whereupon the lamp is turned to operative position. The lamp, the sockets 12 and 13, and the method of placing the lamp in position are all conventional and need not be specifically described. The automatic starter 55 is then inserted in the socket 54 in the usual and conventional manner. The entire structure is supportable by being suspended by the eye 35, but it will be apparent that the structure is a complete operative unitary assembly which may be supported in any desired manner.

Devices of the present character have been found highly satisfactory and efficient in operation except that they are subject to the destructive corrosive effects of moisture. This is particularly true when lamps of this character are used in rooms where a high degree of humidity or chemical fumes are present, such as in driers, adjacent wash racks, and in food cooler rooms and cases. The assembling of the head structures of the present device forms a permanent lamp mounting which affords highly efficient and permanent protection of the electrical parts from moisture, chemical fumes, etc. For example, the ballast 41 is completely submerged in the material 47 as are its wiring connections as well as the wiring connections of the sockets 12, 13 and 54. As the waterproofing material 47

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and 58, I prefer to employ a wax having a melting point preferably around 170° F. and a hardening point at least as low as 0° F. Waxes of this type are commercially available and some have hardening points as low as 90° below zero. A wax or wax-like material of this type is preferably employed since its use is practicable in rooms where temperatures are relatively high, and also in rooms, cases, etc., where low temperatures are maintained. A low hardening point is desirable in order to prevent the hardening and possible cracking of the material when very low temperatures are present.

As previously stated, the material used in the making of the bodies 16 and caps 30 and 50 is preferably of an available type which possesses a reasonable degree of inherent elasticity at any temperatures to which the present device may be subjected. This is important from a practical standpoint in view of the shrinking of the walls of the openings 23 about the tubes 22. It is of less importance with respect to the thimble 38 and eye 35, except that inasmuch as these elements will be assembled around normal room temperatures and contraction of the caps will occur at low temperatures, a gripping of the elements referred to will be caused. The use of the proper material avoids any cracking of the material when shrinkage occurs, this being particularly important as to the shrinking of the walls of the openings 23 on the tubes 22, as stated. The assembly of the tubes 22 in the manner stated provides, in actual practice, perfectly leak-proof joints around the tubes 22. However, if any moisture should seep around these tubes, it can progress no further than into contact with the body of the materials 47 and 58, and the electrical parts accordingly are effectively protected.

I claim:

1. A lamp mounting comprising a pair of hollow heads, sockets carried by the respective heads to receive the bases of a tubular lamp, a pair of rigid parallel elongated members rigidly connected to the respective heads, said elongated members being arranged at opposite sides of and spaced from the lamp parallel to the axis thereof and having axes lying in a plane common to the axis of the lamp, one of said heads containing an electrical device electrically associated with the lamp, and a body of a non-hygroscopic material of high dielectric characteristics in said last named head and in which said electrical device is completely embedded, said body of material forming the sole supporting means for said electrical device.

2. A lamp mounting comprising a pair of heads each having a base portion and a flange extending in a direction away from the other head, and a cap turned toward and engaging each flange, a socket carried by the base of each body for electrical engagement with the bases of a tubular lamp, the bases of said bodies having openings therethrough, a pair of rigid tubular members having their ends tightly engaging within said openings to fix said heads with respect to each other, said tubes being arranged at diametrically opposite sides of the lamp and spaced therefrom

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parallel to the axis thereof, electrical devices in said heads, wires extending through said tubular members for electrically connecting said electrical devices and said sockets, and a body of a non-hygroscopic material in each of said heads and in which one of said respective electrical devices is at least partially embedded, the other electrical device being wholly embedded in such material and solely supported thereby.

3. A lamp mounting comprising a pair of spaced heads having base portions facing toward and parallel to each other, a socket carried by the base portion of each body for connection with the bases of a tubular lamp, rigid means connecting said heads in fixed relationship to each other, one of said heads comprising a cup-shaped body of which the associated base portion is a part, said body being provided with a flange extending upwardly when the lamp is in vertical position and said one head is at the top of said mounting, and a cap having a depending flange portion engageable with the flange of the body of said one head, an electrical device in said one head, a form of thin material arranged in said one head and engaging therewith within the flange of the body thereof and projecting above such flange, and a body of a non-hygroscopic material of high dielectric characteristics in said one head and in said form to a height extending above said electrical device whereby the latter is completely embedded in said material.

4. A lamp mounting comprising a pair of heads each having a base portion and a flange extending in a direction away from the other head, and a cap turned toward and engaging each flange, a socket carried by the base of each body in axial alignment for electrical engagement with the bases of a tubular lamp, the base portions of said bodies having openings therethrough, a pair of rigid tubular members having their ends tightly engaging within said openings to fix said heads with respect to each other, said tubes being arranged at diametrically opposite sides of the lamp and spaced therefrom parallel to the axis thereof, electrical devices in said heads, and wires extending through at least one of said tubular members for electrically connecting said electrical devices and said sockets, said tubular members and the axis of the lamp lying in a common plane, said heads being elongated in the direction of said plane and being relatively narrow transversely of said plane.

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