

Description

This invention relates to a lamp holder and a festoon lighting system.

The invention relates more particularly to lamp holders of the kind used in festoon lighting systems, which can be fixed at selected points along a length of electrical supply cable. The holders incorporate probes which penetrate the insulation of the cable to make contact with the conductors of the cable as required. Such holders are usually formed in two or more principal body parts which screw together to clamp the holder firmly to the cable and simultaneously hold the probes in contact with the cable conductors through penetration points in the cable insulation. A lamp holder according to the preamble of Claim 1 is disclosed in GB-A-412 939.

Presently used lamp holders available for low voltage supplies, usually 12 or 24 volts, and for mains voltage supplies, usually 110 volts or 230 and 240 volts, suffer from various disadvantages but are especially vulnerable to water ingress causing corrosion and premature failure in use. Further, removal or shifting of the holder along the line normally leaves bared conductors which can corrode and can be dangerous. Further examples of lamp holders of this general type are disclosed in BE-A-509 482 and EP-A-250 215.

According to one aspect of the invention there is provided a lamp holder comprising a base, incorporating a lamp socket, having upstanding probes electrically connected to the lamp socket and formed with two opposing recesses, one at each side of the probes, shaped to receive an insulated electrical supply cable which extends beyond the recesses and across the probes in use, and a cap arranged to fit on to the base and to press down on the cable to force the probes through the cable insulation to make contact with the cable conductors and simultaneously press the cables into the recesses to provide a water-tight seal between the outer surface of the cable and the holder, characterised in that the cap is non-deformable and has an internal formation formed along the complete inner surface of the cap, said formation being co-operable with lugs on the base to latch-fit thereto, whereby the cap becomes permanently fixed to the base, can not be removed without destruction of the holder and co-operates with the base and the cable to form a pressure-tight seal between the interior and exterior of the cap.

The recesses may be formed to accommodate substantially the whole of the cable and the cap is formed with a non-recessed base.

A separate peripheral seal may be fitted between the abutting surfaces of the cap and the base.

The recesses may be provided with upstanding lips to form line indentations in the outer circumference of the electrical cable to improve sealing between the holder and the cable.

Upstanding lips may be provided on the base around and between the probes.

The holder may be used with a trapezoidal or hemispherical (having a flat base) cable in cross-section, in which case the recesses are shaped such that the cap bears on the larger base of the trapezoid or hemisphere as the case may be, so that pressure applied to the cable is distributed from all sides of the recess.

Where conventional lighting cable is used which is generally rectangular in cross-section with rounded corners, the recesses in the base are preferably like-shaped and arranged to have a depth of at least about 75% of the natural depth of the cable.

The base may be shaped to receive a lamp globe with one or more seals to form a water-tight seal between the globe end of the base.

The globes are preferably formed of polycarbonate material which can also be conveniently tinted in selected colours. Glass, polystyrene and other translucent materials may be used where desired.

For low voltage applications, the socket is preferably formed with probes which extend down through the body of the base and terminate with narrow female connectors to receive the conventional wire connectors of tungsten halogen lamps. The wire connectors are preferably crimped so that the lamp is held firmly in position when the holder is vibrated or orientated once the lamp is in position.

In a mains voltage form, the base may be formed with or provided with a bayonet or screw fitting for a mains voltage lamp.

In that case seal for the lamp is preferably mounted inside the housing below the bayonet or screw coupling so that a water seal is formed in use between the socket and the lamp below the lamp and socket connections.

The base and cap are preferably moulded from plastics material, such as nylon, ABS or polypropylene.

According to another aspect of the invention there is provided a festoon lighting system having a plurality of lamp holders separated and attached to an insulated electrical supply cable, each holder comprising a base, incorporating a lamp socket, having upstanding probes electrically connected to the lamp socket and formed with two opposing recesses, one at each side of the probes, shaped to receive the electrical supply cable which extends beyond the recesses and across the probes in use, and a cap arranged to fit on to the base and to

press down on the cable to force the probes through the cable insulation to make contact with the cable conductors and simultaneously press the cables into the recesses to provide a water-tight seal between the outer surface of the cable and the holder, characterised in that the cap is non-deformable and has an internal formation formed along the complete inner surface of the cap, said formation being co-operable with lugs on the base to latch-fit thereto, whereby the cap becomes permanently fixed to the base, can not be removed without destruction of the holder and co-operates with the base and the cable to form a pressure-tight seal between the interior and exterior of the cap.

The power cable may be trapezoidal in cross-section and the recesses shaped such that the cap bears on the larger base of the trapezoid.

Embodiments of lamp holders according to the invention will now be described by way of example with reference to the accompanying drawings in which:-

Figure 1 is a partly sectioned front view of a first lamp holder;

Figure 2 is a partly sectioned front view of a second lamp holder;

Figure 3 is part of a sectioned front view of a third lamp holder;

Figure 4 is a sectioned front view of a further lamp holder similar to that shown in Figure 1; and

Figure 5 is a top view of Figure 4 with the cap and cable removed;

Figure 6 is a front view of a lamp holder with a protective frame;

Figure 7 is a schematic arrangement of part of a festoon lighting system.

Referring to Figure 1, a circular lamp holder 1 for use with a 12 or 24 volt, 5 watt electrical supply is shown having a base 2, and a cap 3 fitted in use to the base 2. No cable is shown in these figures. The base 2 and cap 3 are made from nylon. A lamp socket 4 comprising two electrical feed throughs 6, 7, incorporated into the base 2, has two pointed upstanding probes 8. Each electrical feed through 6, 7 extends down through the body of the base 2 and terminates with a narrow female connector 9 which is crimped to receive and hold a wire connector 11 from a tungsten halogen lamp 12. The base 2 further has trapezoidal recesses 13 in the wall of the base 2 at either side of the probes 8. A centrally located triangular upstanding lip 16 extends around the periphery of each recess 13. A similar upstanding lip is provided on the underside of the outer wall of the cap 3 to form a water-tight seal together with a peripheral nitrile gasket 17 arranged to fit between the abutting surfaces of the cap 3 and the base 2.

The cap 3 and base 2 have co-operating lugs 18, 19 which form a snap-fit between the cap 3 and base 2. An aperture 21, for the cable, in the base 2 provides the co-operating lug in the base 2 with a degree of resiliency for the snap-fit which is permanent. A separable boss 22 is formed centrally within the cap 3.

The lamp socket 4 is surrounded by an integrally formed housing 23 extending from the base for receiving a plastics or glass tinted globe 24. The globe 24 is held in place by two "O" rings 26, 27 which form a water-tight seal. The lamp holder 1 can be mounted to a fixed structure where required by attachment to a cylindrically shaped mountable clamp 28 made from PVC, having a fixing screw 29, into which the cap 4 may be press-fitted.

In use a twin core insulated electrical cable of complimentary shape to the recesses 13 is laid in a channel, extending between the recesses 13, in such a manner that the cores of the cable align with the probes 8. The cap 3 is then snap-fitted onto the base 2 and the boss 22 within the cap 3 presses down on the cable to force each probe 8 through the cable insulation to make contact with the respective cores. Simultaneously, the cable is pressed firmly into the recesses 13 to form a water-tight seal between the outer surface of the cable and the lamp holder 1. It will be noted that because the recesses 13 are trapezoidal the downward pressure of the cap tends to exert both downward pressure as well as sideways pressure on the exterior of the cable to urge the cable into good sealing contact around its whole periphery.

Inboard of and adjacent to the recesses 13, the base 2 is cut-away to some extent so that a small gap 31 is formed in use between the outer surface of the cable and the inner bearing surfaces of the base 2. This ensures good sealing between the cap 3 and the base 2 and the cable in the region of the recesses 13 by concentrating pressure applied to the cable within the region of the recesses.

Referring to Figure 2, a circular lamp holder 40 for use with a mains electrical supply is shown, having a socket 41 in the form of a bayonet connector. The top of the base 43 and cap 44 are similar in construction to that of the low voltage lamp holder. A double "O" ring gasket 42, is used to form a water-tight seal between the lower inside surface of the base 43 and the base of the lamp 45. A standard mains double insulated cable (not shown) is rectangular with rounded corners, and complimentary shaped opposing recesses 46, are provided in the base 43 of the lamp holder 40. The depth of the recesses 46, in the base 43 are at least 75% of the normal depth of the cable and the cap 44 has recesses to receive the other 25% of the cable. A gasket 47 is also provided to fit between the abutting surfaces of the base 43 and

the cap 44.

The contacts 51, 52 are off-set from the central axis of the lamp holder 40, and they are spring loaded at the lamp end with pointed probes 53, 54 for penetrating the cable insulation at the other end. The contacts 51, 52 are mounted within a separable insert 56 which is located within the base 43 on a circular shoulder 57.

In Figure 3, a sawtooth shaped gasket 58, shown in cross-section, is used to form a water-tight seal between the base 43 and the base of the lamp 44. In a further arrangement an edison screw socket is used to replace the bayonet connector socket 41.

In Figures 4 and 5, certain differences to Figure 1 are noted. The cap 3 is provided with a stepped blind hole 60 to accept a fixing screw (not shown). A peripheral neoprene gasket 61 provides a seal between the cap 3 and the base 2. In practice the gasket 61 is compressed to about half its natural thickness (compressed from 1mm to 0.5mm) which compression is carefully controlled by the configuration of the cooperating lugs 18, 19.

The contact pins are formed of hard brass and extend to female connectors 9. The wire connectors of the lamp 12 are crimped to hold them in place in use. It will be noted that upstanding lips 62 are provided around and between the probes 8 to enhance the seal to be formed between the outer surface of the cable and the base 2.

It will be noted that the cap 3 fits to the base 2, when pressed on to the base towards the cable, because the lugs 19 can move to some extent inwards, being formed by an incomplete circle, to allow the lugs 18 to ride over and lock behind the lugs 19. The lugs 18 do not normally move outwards because the cap is made of generally rigid material and the lugs 18 are formed around a complete circle. Thus, when the cap 3 is fitted it snaps on, or better stated, latches on to the base 2 and remains permanently fixed to the base. The cap 3 cannot be removed without destruction of the holder but completes in use as explained a secure gas-tight seal to the electrical cable for the holder.

In Figure 4 it can be seen that the neck of the globe 24 is carefully shaped and so is the bottom of the base 2. The cooperating adverse tapers on the globe and the base provide the facility of making it easier to fit the globe than to remove it. The globe 24 can of course be removed for replacement of the bulb 12 if required. The seals 26 and 27 do render the connection between the globe and the base gas-tight so that replacement of the bulb is in any event much less frequently required than in normal circumstances. More importantly, the described holder can be used in hazardous environments (e.g. underground mines) or even under water because the exposed elec-

trical components and the bulb are isolated from the environment by the sealing arrangements described.

Embodiments of the present invention provide lamp holders which are both water and pressure-tight i.e. gas-tight. The life time of festoon lighting systems using these lamp holders is much improved, especially in areas such as seaside resorts, on board ships, bridges, piers or quays as compared to present similar lighting systems which are available. The lamp holders are also extremely durable against both storm damage and against vandalism especially when the described globes are fitted. Most importantly the lamp holders cannot easily be disassembled which is necessary to satisfy to some wiring legislations concerning such lighting systems.

In Figure 6, the globe is surrounded by a protective frame which is held in position by a screw in the cap 3. The frame prevents removal of the globe 24 which facility may be required to satisfy safety regulations where the festoon lighting system is used in hazardous environments for example where intrinsically safe systems are required.

The described lamp holders are easy to assemble, preferably by use of a clamp or press. The use of tungsten halogen lamps give an expected life of several thousand hours. Furthermore, a safe low power lightweight festoon system aesthetically pleasing to the eye is provided. Finally, it is possible to use the lampholders both for low voltage and mains voltage systems in an inverted orientation with the lamps upper most, because they are water-tight, and because they are light weight they are not susceptible to storm damage.

Figure 7 shows part of a festoon lighting system having a number of lamps 80 permanently attached to an electrical power supply cable 81.

Claims

1. A lamp holder comprising a base (2, 43), incorporating a lamp socket (4, 41), having upstanding probes (8, 53, 54) electrically connected to the lamp socket and formed with two opposing recesses (13, 46), one at each side of the probes, shaped to receive an insulated electrical supply cable which extends beyond the recesses and across the probes in use, and a cap (3, 44) arranged to fit on to the base and to press down on the cable to force the probes through the cable insulation to make contact with the cable conductors and simultaneously press the cables into the recesses to provide a water-tight seal between the outer surface of the cable and the holder, characterised in that the cap (3, 44) is non-deformable and has an

the cap 44.

The contacts 51, 52 are off-set from the central axis of the lamp holder 40, and they are spring loaded at the lamp end with pointed probes 53, 54 for penetrating the cable insulation at the other end. The contacts 51, 52 are mounted within a separable insert 56 which is located within the base 43 on a circular shoulder 57.

In Figure 3, a sawtooth shaped gasket 58, shown in cross-section, is used to form a water-tight seal between the base 43 and the base of the lamp 44. In a further arrangement an edison screw socket is used to replace the bayonet connector socket 41.

In Figures 4 and 5, certain differences to Figure 1, are noted. The cap 3 is provided with a stepped blind hole 60 to accept a fixing screw (not shown). A peripheral neoprene gasket 61 provides a seal between the cap 3 and the base 2. In practice the gasket 61 is compressed to about half its natural thickness (compressed from 1mm to 0.5mm) which compression is carefully controlled by the configuration of the cooperating lugs 18, 19.

The contact pins are formed of hard brass and extend to female connectors 9. The wire connectors of the lamp 12 are crimped to hold them in place in use. It will be noted that upstanding lips 62 are provided around and between the probes 8 to enhance the seal to be formed between the outer surface of the cable and the base 2.

It will be noted that the cap 3 fits to the base 2, when pressed on to the base towards the cable, because the lugs 19 can move to some extent inwards, being formed by an incomplete circle, to allow the lugs 18 to ride over and lock behind the lugs 19. The lugs 18 do not normally move outwards because the cap is made of generally rigid material and the lugs 18 are formed around a complete circle. Thus, when the cap 3 is fitted it snaps on, or better stated, latches on to the base 2 and remains permanently fixed to the base. The cap 3 cannot be removed without destruction of the holder but completes in use as explained a secure gas-tight seal to the electrical cable for the holder.

In Figure 4 it can be seen that the neck of the globe 24 is carefully shaped and so is the bottom of the base 2. The cooperating adverse tapers on the globe and the base provide the facility of making it easier to fit the globe than to remove it. The globe 24 can of course be removed for replacement of the bulb 12 if required. The seals 26 and 27 do render the connection between the globe and the base gas-tight so that replacement of the bulb is in any event much less frequently required than in normal circumstances. More importantly, the described holder can be used in hazardous environments (e.g. underground mines) or even under water because the exposed elec-

trical components and the bulb are isolated from the environment by the sealing arrangements described.

Embodiments of the present invention provide lamp holders which are both water and pressure-tight i.e. gas-tight. The life time of festoon lighting systems using these lamp holders is much improved, especially in areas such as seaside resorts, on board ships, bridges, piers or quays as compared to present similar lighting systems which are available. The lamp holders are also extremely durable against both storm damage and against vandalism especially when the described globes are fitted. Most importantly the lamp holders cannot easily be disassembled which is necessary to satisfy to some wiring legislations concerning such lighting systems.

In Figure 6, the globe is surrounded by a protective frame which is held in position by a screw in the cap 3. The frame prevents removal of the globe 24 which facility may be required to satisfy safety regulations where the festoon lighting system is used in hazardous environments for example where intrinsically safe systems are required.

The described lamp holders are easy to assemble, preferably by use of a clamp or press. The use of tungsten halogen lamps give an expected life of several thousand hours. Furthermore, a safe low power lightweight festoon system aesthetically pleasing to the eye is provided. Finally, it is possible to use the lampholders both for low voltage and mains voltage systems in an inverted orientation with the lamps upper most, because they are water-tight, and because they are light weight they are not susceptible to storm damage.

Figure 7 shows part of a festoon lighting system having a number of lamps 80 permanently attached to an electrical power supply cable 81.

Claims

1. A lamp holder comprising a base (2, 43), incorporating a lamp socket (4, 41), having upstanding probes (8, 53, 54) electrically connected to the lamp socket and formed with two opposing recesses (13, 46), one at each side of the probes, shaped to receive an insulated electrical supply cable which extends beyond the recesses and across the probes in use, and a cap (3, 44) arranged to fit on to the base and to press down on the cable to force the probes through the cable insulation to make contact with the cable conductors and simultaneously press the cables into the recesses to provide a water-tight seal between the outer surface of the cable and the holder, characterised in that the cap (3, 44) is non-deformable and has an



internal formation (18) formed along the complete inner surface of the cap (3,44), said formation (18) being co-operable with lugs (19) on the base to latch-fit thereto, whereby the cap becomes permanently fixed to the base, can not be removed without destruction of the holder and co-operates with the base and the cable to form a pressure-tight seal between the interior and exterior of the cap.

2. A holder according to Claim 1 incorporating a separate peripheral seal (17, 47, 61) fitted between the abutting surfaces of the cap and the base.
3. A holder according to Claim 1 or 2, in which the recesses are provided with upstanding lips (16) to form line indentations in the outer circumference of the electrical cable to improve sealing between the holder and the cable.
4. A holder according to any of Claims 1 to 3, in which upstanding lips (62) are provided on the base around and between the probes.
5. A holder according to any of Claims 1 to 4, for use with a trapezoidal or hemispherical (having a flat base) cable in cross-section, in which the recesses (13) respectively are shaped such that the cap bears on the larger base of the trapezoid or hemisphere as the case may be, so that pressure applied to the cable is distributed from all sides of the recess.
6. A holder according to any of Claims 1 to 5, in which the base is shaped to receive a lamp globe (24) with one or more seals (26, 27) to form a water-tight seal between the globe end of the base.
7. A holder according to Claim 6, having a globe fitted thereto formed of glass, or polycarbonate or polystyrene material.
8. A festoon lighting system having a plurality of lamp holders (1) separated and attached to an insulated electrical power supply cable, each holder comprising a base (2, 43), incorporating a lamp socket (4,41), having upstanding probes (8, 53, 54) electrically connected to the lamp socket and formed with two opposing recesses (13, 46), one at each side of the probes, shaped to receive an insulated electrical supply cable which extends beyond the recesses and across the probes in use, and a cap (3, 44) arranged to fit on to the base and to press down on the cable to force the probes through the cable insulation to make contact

with the cable conductors and simultaneously press the cables into the recesses to provide a water-tight seal between the outer surface of the cable and the holder, characterised in that the cap (3, 44) is non-deformable and has an internal formation (18) formed along the complete inner surface of the cap (3,44), said formation (18) being co-operable with a lug or lugs (19) on the base to latch-fit thereto, whereby the cap becomes permanently fixed to the base, can not be removed without destruction of the holder and co-operates with the base and the cable to form a pressure-tight seal between the interior and exterior of the cap.

9. A festoon lighting system according to Claim 8, in which the power supply cable is trapezoidal in cross-section and the recesses (13) are shaped such that the cap bears on the larger base of the trapezoid.

Patentansprüche

1. Lampenhalter mit einer Basis (2, 43), die einen Lampensockel (4, 41) umfaßt, der abstehende Sonden (8, 53, 54) besitzt, die elektrisch mit dem Lampensockel verbunden sind, und die mit zwei einander gegenüberliegenden Vertiefungen (13, 46) ausgebildet ist, von denen jeweils eine auf jeder Seite der Sonden liegt und die so geformt sind, daß sie ein isoliertes elektrisches Versorgungskabel aufnehmen, das sich im Betrieb über die Vertiefungen hinaus und über die Sonden erstreckt, sowie mit einer Kappe (3, 44), die so ausgebildet ist, daß sie auf die Basis paßt und auf das Kabel nach unten drückt, um die Sonden durch die Kabelisolierung zu pressen, um einen Kontakt mit den Leitern des Kabels herzustellen und gleichzeitig die Kabel in die Vertiefungen zu pressen, um eine wasserdichte Abdichtung zwischen der äußeren Oberfläche des Kabels und dem Halter zu schaffen, dadurch gekennzeichnet, daß die Kappe (3, 44) nicht verformbar ist und eine innere Formation (18) aufweist, die längs der gesamten inneren Oberfläche der Kappe (3, 44) ausgebildet ist, wobei diese Formation (18) mit Nasen (19) an der Basis zusammenwirken kann, um mit dieser eine Schnappverbindung herzustellen, wodurch die Kappe an der Basis dauerhaft befestigt wird, so daß sie nicht ohne Zerstörung des Halters entfernt werden kann, und mit der Basis und dem Kabel zusammenwirkt, um eine druckdichte Dichtung zwischen dem Inneren und dem Äußeren der Kappe zu bilden.



2. Halter nach Anspruch 1, der eine gesonderte Umfangsdichtung (17, 47, 61) umfaßt, die zwischen die aneinander anliegenden Oberflächen der Kappe und der Basis eingepaßt ist. 5
3. Halter nach Anspruch 1 oder 2, bei dem die Vertiefungen mit vorstehenden Lippen (16) versehen sind, um in dem äußeren Umfang des elektrischen Kabels linienförmige Eindrücke zu bilden, um die Dichtung zwischen dem Halter und dem Kabel zu verbessern. 10
4. Halter nach einem der Ansprüche 1 bis 3, bei dem die vorstehenden Lippen (62) auf der Basis um die Sonden herum und zwischen den Sonden vorgesehen sind. 15
5. Halter nach einem der Ansprüche 1 bis 4 zur Verwendung mit einem Kabel, das einen trapezförmigen oder halbkugeligen Querschnitt (mit einer flachen Basis) besitzt, bei dem die Vertiefungen (13) jeweils so geformt sind, daß die Kappe an der größeren Basis des Trapezes bzw. der Halbkugel anliegt, so daß der auf das Kabel ausgeübte Druck von allen Seiten der Vertiefung verteilt wird. 20 25
6. Halter nach einem der Ansprüche 1 bis 5, bei dem die Basis so geformt ist, daß sie eine Lampenkugel (24) mit einer oder mehreren Dichtungen (26, 27) aufnimmt, um eine wasserdichte Dichtung zwischen dem Kugelende der Basis zu bilden. 30
7. Halter nach Anspruch 6, an den eine Kugel angesetzt ist, die aus Glas, Polycarbonat oder Polystyrol besteht. 35
8. Girlanden-Beleuchtungssystem, das eine Vielzahl von getrennten Lampenhaltern (1) umfaßt, die an einem isolierten Stromversorgungskabel befestigt sind, wobei jeder Halter eine Basis (2, 43), die einen Lampensockel (4, 41) umschließt, der abstehende Sonden (8, 53, 54) aufweist, die elektrisch mit dem Lampensockel verbunden sind, und die mit zwei einander gegenüberliegenden Vertiefungen (13, 46) ausgebildet ist, von denen sich jeweils eine auf jeder Seite der Sonden befindet und die so geformt sind, daß sie ein isoliertes elektrisches Versorgungskabel aufnehmen, das sich im Betrieb über die Vertiefungen hinaus und über die Sonden erstreckt, sowie eine Kappe (3, 44) besitzt, die so ausgebildet ist, daß sie auf die Basis paßt um das Kabel nach unten zu pressen, um die Sonden durch die Kabelisolation zu drücken, um einen Kontakt mit den Kabelleitern herzustellen, und gleichzeitig die Kabel 40 45 50 55

in die Vertiefungen zu drücken, um eine wasserdichte Dichtung zwischen der äußeren Oberfläche des Kabels und dem Halter zu schaffen, dadurch **gekennzeichnet**, daß die Kappe (3, 44) nicht verformbar ist und eine innere Formation (18) aufweist, die längs der gesamten inneren Oberfläche der Kappe (3, 44) ausgebildet ist, wobei die Formation (18) mit einer Nase oder Nasen (19) an der Basis zur Bildung einer Schnappverbindung mit der Basis zusammenwirken kann, wodurch die Kappe dauerhaft an der Basis befestigt wird, so daß sie nicht ohne Zerstörung des Halters entfernt werden kann und die mit der Basis und dem Kabel zusammenwirkt, um eine druckdichte Dichtung zwischen der Innenseite und der Außenseite der Kappe herzustellen.

9. Girlanden-Beleuchtungssystem nach Anspruch 8, bei dem das Stromversorgungskabel einen trapezförmigen Querschnitt besitzt und die Vertiefungen (13) so geformt sind, daß die Kappe an der größeren Basis des Trapezes anliegt.

Revendications

1. Support de lampe comprenant une base (2, 43), incorporant une douille de lampe (4, 41), ayant des contacts dressés (8, 53, 54) connectés électriquement à la douille de lampe et formée avec deux cavités opposées (13, 46), chacune d'un côté des contacts, conformées pour recevoir un câble d'alimentation électrique isolé qui s'étend au-delà des cavités et à travers les contacts lors de l'utilisation, et un capuchon (3, 44) disposé pour s'adapter sur la base et pour appuyer sur le câble afin de forcer les contacts à travers l'isolation du câble à faire contact avec les conducteurs du câble et simultanément comprimer les câbles dans les cavités pour fournir un joint étanche à l'eau entre la surface extérieure du câble et le support, caractérisé par le fait que le capuchon (3, 44) est non déformable et a une configuration interne (18) formée le long de la totalité de la surface interne du capuchon (3, 44), ladite configuration (18) étant apte à coopérer avec des saillies (19) sur la base pour s'adapter par encliquetage sur celles-ci, ce par quoi le capuchon devient fixé de façon permanente sur la base, ne peut pas être retiré sans destruction du support, et coopère avec la base et le câble pour former un joint étanche à la pression entre l'intérieur et l'extérieur du capuchon.
2. Support selon la revendication 1, incorporant un joint périphérique séparé (17, 47, 61), adap-



té entre les surfaces attenantes du capuchon et de la base.

3. Support selon l'une des revendications 1 ou 2, dans lequel les cavités sont dotées de lèvres dressées (16) pour former des indentations en ligne dans la circonférence externe du câble électrique, afin d'améliorer l'étanchéité entre le support et le câble. 5
4. Support selon l'une quelconque des revendications 1 à 3, dans lequel des lèvres dressées (62) sont prévues sur la base autour et entre les contacts. 10
5. Support selon l'une quelconque des revendications 1 à 4, destiné à être utilisé avec un câble trapézoïdal ou hémisphérique (ayant une base plate) en coupe transversale, dans lequel les cavités (13) sont respectivement conformées de telle sorte que le capuchon appuie sur la plus grande base du trapèze ou de l'hémisphère selon le cas, de telle sorte que la pression appliquée au câble soit distribuée à partir de tous les côtés de la cavité. 20
6. Support selon l'une quelconque des revendications 1 à 5, dans lequel la base est conformée pour recevoir un globe de lampe (24) avec un ou plusieurs joints (26, 27), afin de former un joint étanche à l'eau entre l'extrémité côté globe de la base. 25
7. Support selon la revendication 6, sur lequel est adapté un globe, formé de verre, ou d'une matière de type polycarbonate ou polystyrène. 30
8. Système d'éclairage en guirlande, ayant une pluralité de supports de lampes (1), séparés et fixés à un câble d'alimentation en courant électrique, isolé, chaque support comprenant une base (2, 43), incorporant une douille de lampe (4, 41), ayant des contacts dressés (8, 53, 54) connectés électriquement à la douille de lampe et formée avec deux cavités opposées (13, 48), chacune d'un côté des contacts, conformées pour recevoir un câble d'alimentation électrique isolé qui s'étend au-delà des cavités et à travers les contacts lors de l'utilisation, et un capuchon (3, 44) disposé pour s'adapter sur la base et pour appuyer sur le câble afin de forcer les contacts à travers l'isolation du câble à faire contact avec les conducteurs du câble et simultanément comprimer les câbles dans les cavités pour fournir un joint étanche à l'eau entre la surface extérieure du câble et le support, caractérisé par le fait que le capuchon (3, 44) est non déforma- 40

ble et a une configuration interne (18) formée le long de la totalité de la surface interne du capuchon (3, 44), ladite configuration (18) étant apte à coopérer avec une ou des saillies (19) sur la base pour s'adapter par encliquetage sur celles-ci, ce par quoi le capuchon devient fixé de façon permanente sur la base, ne peut pas être retiré sans destruction du support, et coopère avec la base et le câble pour former un joint étanche à la pression entre l'intérieur et l'extérieur du capuchon. 45

9. Système d'éclairage en guirlande selon la revendication 8, dans lequel le câble d'alimentation en courant est trapézoïdal en coupe transversale, et les cavités (13) sont conformées de telle sorte que le capuchon appuie sur la plus grande base du trapèze. 50

