March 19, 1957 G. ZADOR 2,786,131

SOCKET ELIMINATING BASE FOR ELECTRIC LAMPS

Filed June 14, 1954 2 Sheets-Sheet 1

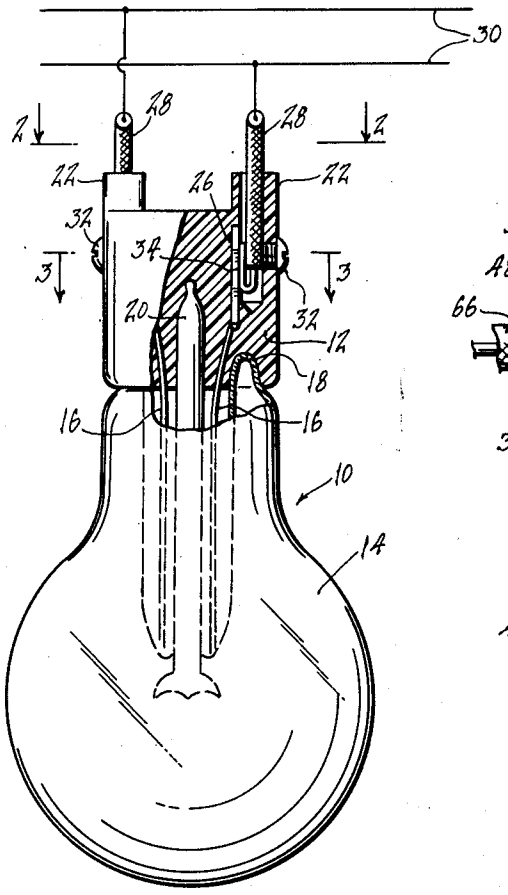


Fig. 1.

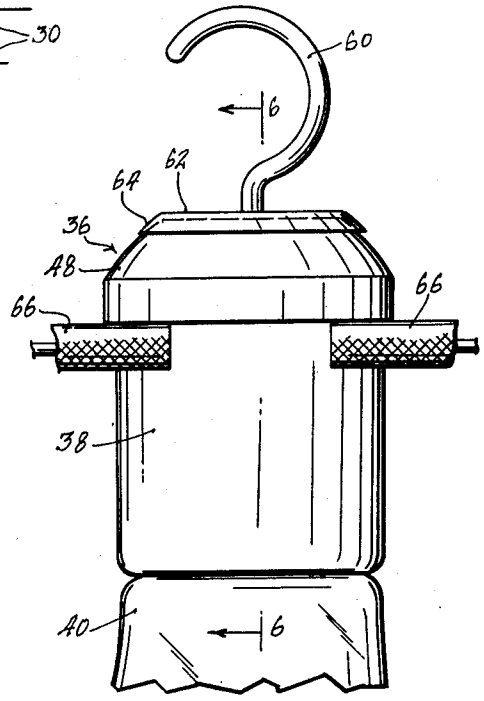


Fig. 4.

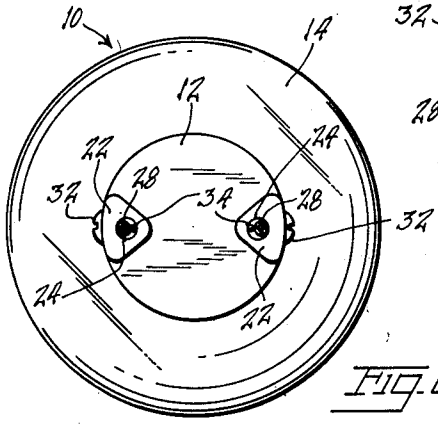


Fig. 2.

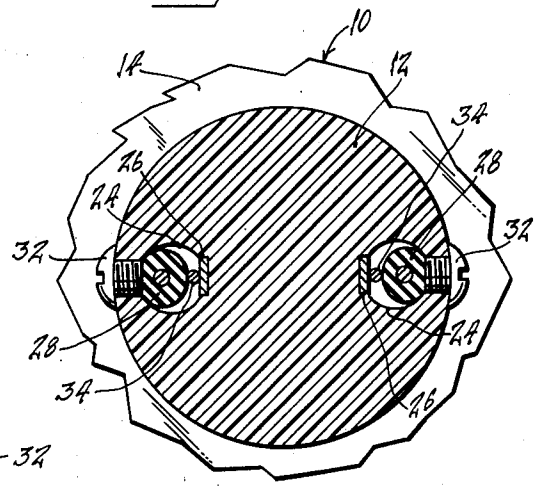


Fig. 3.

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SOCKET ELIMINATING BASE FOR ELECTRIC LAMPS

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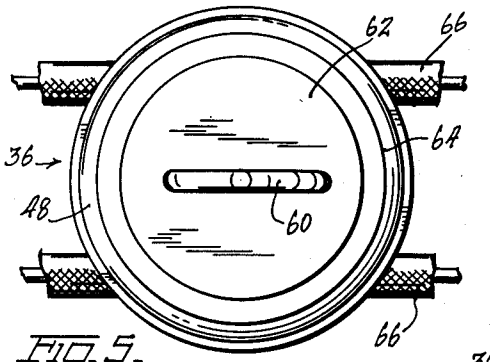


Fig. 5.

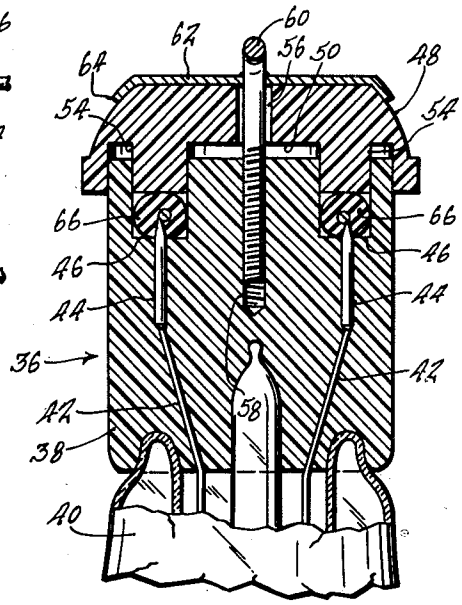


Fig. 6.

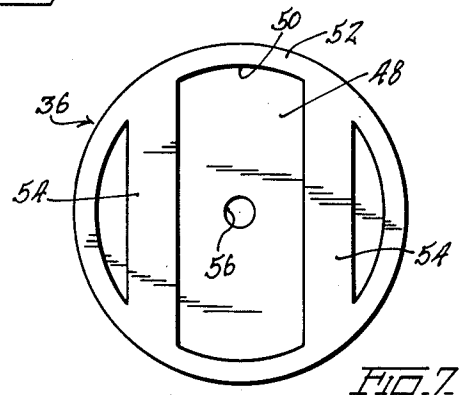


Fig. 7.

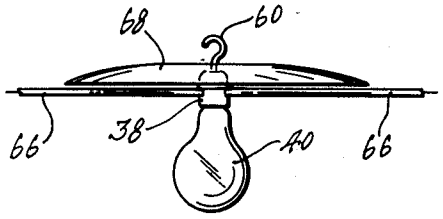


Fig. 9.

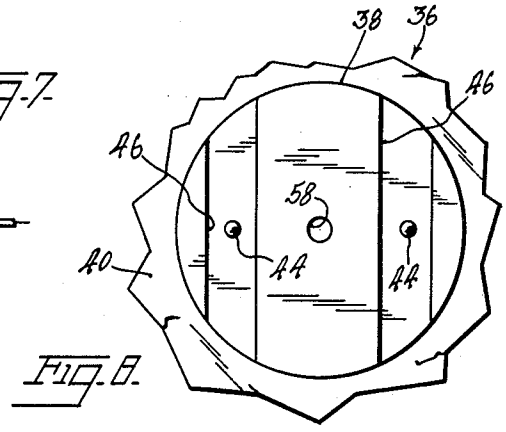


Fig. 8.

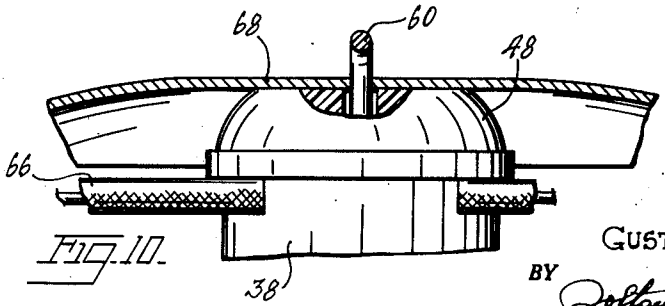


Fig. 10.

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2,786,131

SOCKET ELIMINATING BASE FOR ELECTRIC LAMPS

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Application June 14, 1954, Serial No. 436,579

7 Claims. (Cl. 240—52)

This invention relates to an electric lamp. More particularly, the invention has reference to a lamp which, as distinguished from the conventional type having a threaded base engageable in a complementarily threaded socket, has a base and socket molded about the end of the envelope as a single unit.

One important object of the present invention is to provide an electric lamp of the type stated which will be so designed as to simplify the use of electric lamps, while reducing considerably the cost of lamp installation, by elimination of separately formed sockets and lamps.

Another object of importance is to provide an incandescent electric lamp as stated in which the connection of the lamp to conductors through which electric current is supplied to the lamp can be effected with substantial speed and facility.

Another object of importance is to provide, in at least one form of the invention, means incorporated directly within the lamp base that will facilitate the connection of the lamp electrically to a pair of conductors, at any location upon the length of said conductors, without the necessity of baring said conductors at the point at which the connection is to be made.

Another object of importance is to provide, in an electric lamp as stated, a construction which will particularly lend itself to the manufacture of electric lamps to be used outdoors in locations in which said lamps will be exposed to the elements.

Yet another object is to provide, in a means for connecting a lamp of the nature referred to, to a pair of conductors, a supporting hook for the lamp, whereby said lamp can be readily suspended from an overhead support, such as a tree branch, with said supporting hook being so designed as to constitute the means for forcing cooperating parts of the lamp base against a pair of conductors to effect the desired electrical connection between the lamp and said conductors.

Still another object is to provide, in another form of the invention, means associated with said hook which will constitute a reflector for the lamp and will also constitute a rain shield, thus to prevent the lamp from being affected adversely by the elements, said reflector further constituting means for forcing cooperating parts of the lamp base toward one another to effect an electrical connection between the lamp and a pair of conductors extended between said cooperating parts of the lamp base.

Yet another object of importance is to provide, in another form of the invention, means including a pair of diametrically opposed set screws, that will facilitate the connection of the lamp to a pair of electrical leads, without the necessity of providing a separate socket on said leads.

A further object of the invention is to provide a lamp base as stated which will meet the several desirable purposes set forth above, but will at the same time be not only capable of manufacture at relatively low cost, but will also be safe when in use, to eliminate hazards to the users of the lamp.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a view partly in side elevation and partly in longitudinal section of a lamp formed in accordance with the present invention.

Fig. 2 is a sectional view taken substantially on line 2—2 of Fig. 1.

Fig. 3 is a sectional view, on an enlarged scale, taken substantially on line 3—3 of Fig. 1.

Fig. 4 is a fragmentary side elevational view of a modified form of the invention.

Fig. 5 is a top plan view of the form of Fig. 4.

Fig. 6 is a longitudinal sectional view taken substantially on line 6—6 of Fig. 4.

Fig. 7 is a bottom plan view of the cap in the form of Fig. 4.

Fig. 8 is a top plan view of the lamp of Fig. 4 with the cap removed, the envelope being shown fragmentarily.

Fig. 9 is a side elevational view, on a reduced scale, of another modified form.

Fig. 10 is a greatly enlarged, fragmentary view partly in side elevation and partly in section, of the form shown in Fig. 9.

Referring to Figs. 1–3, in this form of the invention the lamp has been designated generally by the reference numeral 10. The lamp includes a base 12 of molded plastic or other electrically insulative material, and a sealed envelope 14. Considered per se, the envelope 14 is of conventional design, including a glass shell and the lead wires from filaments 16 extending out of said shell. At its smaller or inner end, the shell is formed with the usual annular end formation 18, surrounding and spaced from the axially extending, sealed tube 20 that projects beyond the annular end portion 18, the lead wires from filaments 16 extending out of the lamp within the space defined between the tube 20 and annular end portion 18 of the envelope shell.

The base 12 is molded in a single piece, and is of solid or hollow shell formation, the base being exteriorly cylindrical. The inner end of the envelope, that is the projecting part of the tube 20 and the annular end formation 18, is embedded in one end of the base 12, as shown in Fig. 1, the connection being a permanent one and being made by cementing of the base to the envelope after the formation of the envelope has been completed in the regular manner.

On that end of the base 12 remote from the envelope, there are formed diametrically opposite extensions 22 which are shown in Fig. 2. The extensions 22 are each formed with an elongated bore 24, the bores 24 extending longitudinally of the base and terminating intermediate the opposite ends of the base as shown in Fig. 1. The bores 24 extend in close proximity to elongated, flat contacts 26 of electrically conductive material, the respective lead wires from filaments 16 being soldered or otherwise permanently and electrically connected to said contacts. The contacts are embedded in the base, with one face of each contact being exposed within the bore 24 as best shown in Fig. 3.

A pair of leads 28 is adapted to be extended from conductors 30, said conductors constituting a conventional supply of electrical power. The leads 28, at those ends thereof remote from the conductors 30, are extended into the bores 24. Set screws 32 are threadedly engaged in complementarily threaded, radially extending openings formed in the base 12, said openings communicating with the bores 24 intermediate opposite ends of the bores.

It will be seen that the bared ends of the leads 28 can be folded upon themselves as shown at 34 in Fig. 1 and also in Fig. 3, the folded, bared ends of the leads being disposed in contact with the contact bars 26. The set screws 32 are now threaded inwardly to bear against the folded end portions of the leads 28, thus to clamp the leads within the bores 24, in electrical contact with the elements 26.

The set screws 32 may be formed of a plastic or other electrically insulative material if desired, to insure against hazards to users of the device.

It will be seen from the above that a lamp formed in accordance with the invention does not have the usual threaded base, and hence does not require a separate, threaded socket. Instead, a base and socket are, in effect, formed as a unitary assembly on each lamp, remaining permanently with the envelope. Then, the lamp can be readily connected to ordinary leads 28, without the necessity of providing any special receptacles or sockets on said leads.

The invention has particularly advantageous use in connection with outdoor lighting systems, wherein a substantial number of lamps are often connected to a pair of conductors, in parallel. This is desirable, as will be appreciated, on used car sales lots, fair grounds, etc. All that is necessary is that a plurality of the lamps be electrically connected in parallel, to conductors 30, merely by threading of the set screws 32 against the leads 28, which leads will be provided at spaced intervals longitudinally of the conductors 30.

In the form of the invention shown in Figs. 4–8 the lamp has been designated generally by the reference numeral 36, and includes a molded, plastic base 38 of exteriorly cylindrical formation, an envelope 40 similar to the envelope 14 being embedded permanently at its smaller end in one end of the base 38. Envelope 40 has lead wires from the filaments 42, soldered to prongs 44, that are embedded in the base. The prongs 44 constitute contact bars or elements, analogous to the contact bars 26 in the first form of the invention.

At one end, each prong 44 is sharpened as best shown in Fig. 6, the sharpened end of each prong projecting upwardly within an open-ended groove 46 formed in that end of base 38 remote from the envelope 40.

The grooves 46 are shown to particular advantage in Fig. 8, and as will be noted, said grooves are extended in parallel relation, at opposite sides of the center of the lamp base. Grooves 46 are open at their opposite ends.

A cap has been designated by the reference numeral 48, and like the base 38 is molded of plastic material or the like. Cap 48 is generally flat, and is of circular outer configuration, the cap being integrally molded with a shallow recess 50 in its underside, said recess defining a depending peripheral flange 52 upon the cap. Flange 52 is integral, at locations spaced circumferentially thereof, with opposite ends of parallel ribs 54 integrally formed upon the underside of the cap, said ribs extending across the recess 50 as members mating with the grooves 46 of the base.

It will be noted that the bottom surfaces of the rib 54 are coplanar with the bottom surface of the flange 52 of the cap 48.

Formed in the center portion of the cap is a smooth-walled opening 56 registering with a tapped opening 58 that is formed in the base 38. Tapped opening 58 is extended axially of the base, inwardly from the grooved end of the base, the tapped opening or socket 58 terminating intermediate opposite ends of the base.

A hook 60 has a threaded shaft engageable in the socket 58, as shown in Fig. 6, the hook having at its other end a grooved hook portion adapted to engage over a suitable support, such as a branch or twig of a tree, or a horizontal support bar, not shown. Fixedly secured to the shank of the hook, adjacent the curved hook portion thereof, is a flat, disc-like shield 62, the marginal portion of which is dependingly flanged as at 64 to overlie the marginal portion of the cap 48 as best shown in Fig. 6.

In use of the device shown in Figs. 4–8, a pair of conductors 66 is positioned within the grooves 46, with the cap and hook removed. Thereafter, the cap is positioned over the conductors, with the ribs 54 aligned with and extending partially into the grooves 46. The hook is now extended through the registering openings 56, 58, and when threaded in the opening or socket 58 will ultimately move inwardly to an extent sufficient to cause the shield 62 to bear against the flat top surface of the cap. Further threading of the hook in an inward direction will now cause the shield 62 to force the cap 48 in the direction of the base, and this will in turn result in the ribs 54 exerting pressure against the conductors 66, tending to force said conductors against the prongs 44. The conductors will be impaled by the prongs as shown in Fig. 6, the prongs thus being brought into electrical contact with the sheathed lead wires of the conductors. A connection between the lamp and the conductors will thus be made, and when electrical current is applied through the conductors, the lamp will be illuminated.

It will be noted that the construction illustrated in Figs. 4–8 is also adapted to be used to particular advantage in outdoor lighting systems. A number of the lamps can be spaced along a single pair of conductors 66, and any number of the lamps can be used if desired. At each location selected for a lamp, a hook is threaded into the socket 58 of the lamp, so as to cause the lamp to be securely attached to the conductors while at the same time being connected electrically to the source of electrical power. The hooks may now be used for supporting the lamps and their associated conductors from any suitable overhead supports.

In Figs. 9 and 10 there is illustrated another modification, this form of the invention being identical to that shown in Figs. 4–8, except for the provision of a differently shaped shield. In this form of the invention the shield has been designated by the reference numerals 68, and is of substantial diameter, so as to constitute a reflector for the lamp. This is best shown in Fig. 9, wherein it is seen that the shield is of great diameter, it being readily apparent that the underside of the shield can be suitably burnished so as to add to the reflective properties thereof. At the same time, the shield still serves to force the cap 48 against the body 38 of the lamp base to effect the electrical connection. At the same time, the hook portion is still usable to suspend the entire lamp and associated conductors from a suitable overhead support.

In the form of the invention shown in Fig. 9, as well as that shown in Figs. 4–8, the admission of rain to the interior of the device is effectively prevented, by the cap formation and the shield. It will be noted, in this connection, that the depending flange 52 of the cap overlies the adjacent end portion of the body 38 of the lamp base, surrounding said body. As a result, when the lamp is suspended from an overhead support, rain will simply flow off the cap, and will not, under ordinary circumstances, flow into the body. It will be noted, in this regard, that rain will not flow into the grooves 46 in view of the fact that the conductors will be compressed within said grooves and will substantially fill the same, when the lamp is in use.

Further, the shield 62, having a depending flange 64, is also adapted to prevent rain from entering the device, since the rain will flow off the flange 64 onto the cap, said rain thereafter flowing off the flange 52 of the cap in the manner previously described herein.

In the form shown in Figs. 9 and 10, the shield 68 serves as the entire means for preventing the base of the device from becoming wet, since rain will flow off the marginal portion of the shield at a substantial distance from the base of the lamp.

It is to be understood that this socket eliminating base may be used with all types of electric lamps.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. An electrical incandescent lamp adapted for direct connection to a pair of electrical conductors, comprising a base, an envelope embedded in said base, said envelope including filaments with connecting wires extending into the base, and means for connecting said lamps electrically to said conductors, said means including a pair of contact elements, the connecting wires of the filaments being permanently connected to said elements, said elements being embedded in the base, said elements being formed as pointed prongs embedded in said base, the base including spaced grooves within which said conductors are extendible, the prongs projecting within said grooves to impale the conductors for forming an electrical connection between the conductors and prongs, said base comprising a body in which the grooves are formed and to which said envelope is permanently affixed, and a cap formed separately from the body, the cap including ribs extendible into said grooves to force the conductors against the prongs.

2. An electrical incandescent lamp adapted for direct connection to a pair of electrical conductors, comprising a base, an envelope embedded in said base, said envelope including filaments with connecting wires extending into the base, and means for connecting said lamps electrically to said conductors, said means including a pair of contact elements, the connecting wires of the filaments being permanently connected to said elements, said elements being embedded in the base, said elements being formed as pointed prongs embedded in said base, the base including spaced grooves within which said conductors are extendible, the prongs projecting within said grooves to impale the conductors for forming an electrical connection between the conductors and prongs, said base comprising a body in which the grooves are formed and to which said envelope is permanently affixed, and a cap formed separately from the body, the cap including ribs extendible into said grooves to force the conductors against the prongs, said base further including means extendible through the cap into said body for forcing said cap in the direction of the body to shift the ribs into the grooves against the conductors.

3. An electrical lamp adapted for direct connection to a pair of electrical conductors, comprising a base, an envelope embedded in said base, said envelope including filaments with connecting wires extending into the base, and means for connecting said lamps electrically to said conductors, said means including a pair of contact elements, the connecting wires of the filaments being permanently connected to said elements, said elements being embedded in the base, said elements being formed as pointed prongs embedded in said base, the base including spaced grooves within which said conductors are extendible, the prongs projecting within said grooves to impale the conductors for forming an electrical connection between the conductors and prongs, said base comprising a body in which the grooves are formed and to which said envelope is permanently affixed, and a cap formed separately from the body, the cap including ribs extendible into said grooves to force the conductors against the prongs, said base further including means extendible through the cap into said body for forcing said cap in the direction of the body to shift the ribs into the grooves against the conductors, said last-named means comprising a hook for suspending the lamp from an overhead support, said body having an axially extending, threaded socket, the hook having a shank threaded complementarily to said socket for engagement in the socket, said hook including an abutment engageable against the cap to force the cap in the direction of the body responsive to threading of the hook into the body.

4. An electrical lamp adapted for direct connection to a pair of electrical conductors, comprising a base, an envelope embedded in said base, said envelope including filaments with connecting wires extending into the base, and means for connecting said lamps electrically to said conductors, said means including a pair of contact elements, the connecting wires of the filaments being permanently connected to said elements, said elements being embedded in the base, said elements being formed as pointed prongs embedded in said base, the base including spaced grooves within which said conductors are extendible, the prongs projecting within said grooves to impale the conductors for forming an electrical connection between the conductors and prongs, said base comprising a body in which the grooves are formed and to which said envelope is permanently affixed, and a cap formed separately from the body, the cap including ribs extendible into said grooves to force the conductors against the prongs, said base further including means extendible through the cap into said body for forcing said cap in the direction of the body to shift the ribs into the grooves against the conductors, said last-named means comprising a hook for suspending the lamp from an overhead support, said body having an axially extending, threaded socket, the hook having a shank threaded complementarily to said socket for engagement in the socket, said hook including an abutment engageable against the cap to force the cap in the direction of the body responsive to threading of the hook into the body, said abutment being formed as a shield fixedly secured to the shank of the hook and surrounding said shank, said shield being engageable against the cap on threading of the hook into the body.

5. An electrical incandescent lamp adapted for direct connection to a pair of electrical conductors, comprising a base, an envelope embedded in said base, said envelope including filaments with connecting wires extending into the base, and means for connecting said lamps electrically to said conductors, said means including a pair of contact elements, the connecting wires of the filaments being permanently connected to said elements, said elements being embedded in the base, said elements being formed as pointed prongs embedded in said base, the base including spaced grooves within which said conductors are extendible, the prongs projecting within said grooves to impale the conductors for forming an electrical connection between the conductors and prongs, said base comprising a body in which the grooves are formed and to which said envelope is permanently affixed, and a cap formed separately from the body, the cap including ribs extendible into said grooves to force the conductors against the prongs, said base further including means extendible through the cap into said body for forcing said cap in the direction of the body to shift the ribs into the grooves against the conductors, said last-named means comprising a hook for suspending the lamp from an overhead support, said body having an axially extending, threaded socket, the hook having a shank threaded complementarily to said socket for engagement in the socket, said hook including an abutment engageable against the cap to force the cap in the direction of the body responsive to threading of the hook into the body, said abutment being formed as a shield fixedly secured to the shank of the hook and surrounding said shank, said shield being engageable against the cap on threading of the hook into the body, said cap including a peripheral flange surrounding one end of the body to aid in preventing moisture from entering the body when the cap is forced against the body by said shield.

6. An electrical lamp adapted for direct connection to a pair of electrical conductors, comprising a base, an envelope embedded in said base, said envelope including filaments with connecting wires extending into the base, and means for connecting said lamps electrically to said conductors, said means including a pair of contact elements, the connecting wires of the filaments being permanently connected to said elements, said elements being embedded in the base, said elements being formed as pointed prongs embedded in said base, the base including spaced grooves within which said conductors are extendible, the prongs projecting within said grooves to impale the conductors for forming an electrical connection between the conductors and prongs, said base comprising a body in which the grooves are formed and to which said envelope is permanently affixed, and a cap formed separately from the body, the cap including ribs extendible into said grooves to force the conductors against the prongs, said base further including means extendible through the cap into said body for forcing said cap in the direction of the body to shift the ribs into the grooves against the conductors, said last-named means comprising a hook for suspending the lamp from an overhead support, said body having an axially extending, threaded socket, the hook having a shank threaded complementarily to said socket for engagement in the socket, said hook including an abutment engageable against the cap to force the cap in the direction of the body responsive to threading of the hook into the body, said abutment being formed as a shield fixedly secured to the shank of the hook and surrounding said shank, said shield being engageable against the cap on threading of the hook into the body, said cap including a peripheral flange surrounding one end of the body to aid in preventing moisture from entering the body when the cap is forced against the body by said shield, the shield including a marginal flange extending about the cap, to cooperate with the flange of the cap in preventing the admission of moisture into the base.

7. An electrical incandescent lamp adapted for direct connection to a pair of electrical conductors, comprising a base, an envelope embedded in said base, said envelope

including filaments with connecting wires extending into the base, and means for connecting said lamp electrically to said conductors, said means including a pair of contact elements, the connecting wires of the filaments being permanently connected to said elements, said elements being embedded in the base, said elements being formed as pointed prongs embedded in said base, the base including spaced grooves within which said conductors are extendible, the prongs projecting within said grooves to impale the conductors for forming an electrical connection between the conductors and prongs, said base comprising a body in which the grooves are formed and to which said envelope is permanently affixed, and a cap formed separately from the body, the cap including ribs extendible into said grooves to force the conductors against the prongs, said base further including means extendible through the cap into said body for forcing said cap in the direction of the body to shift the ribs into the grooves against the conductors, said last-named means comprising a hook for suspending the lamp from an overhead support, said body having an axially extending, threaded socket, the hook having a shank threaded complementarily to said socket for engagement in the socket, said hook including an abutment engageable against the cap to force the cap in the direction of the body responsive to threading of the hook into the body, said abutment being formed as a shield fixedly secured to the shank of the hook and surrounding said shank, said shield being engageable against the cap on threading of the hook into the body, said shield being formed as a generally concavo-convex reflector of substantial diameter as compared to the diameter of the base, said reflector protectively overlying the base to deflect moisture therefrom, the reflector being so proportioned as to be disposed in the path of light beams cast by the envelope on illumination of the envelope.

References Cited in the file of this patent

UNITED STATES PATENTS

479,020	Richter et al.	July 19, 1892
667,128	Harthan	Jan. 29, 1901
2,079,801	Grant	May 11, 1937