

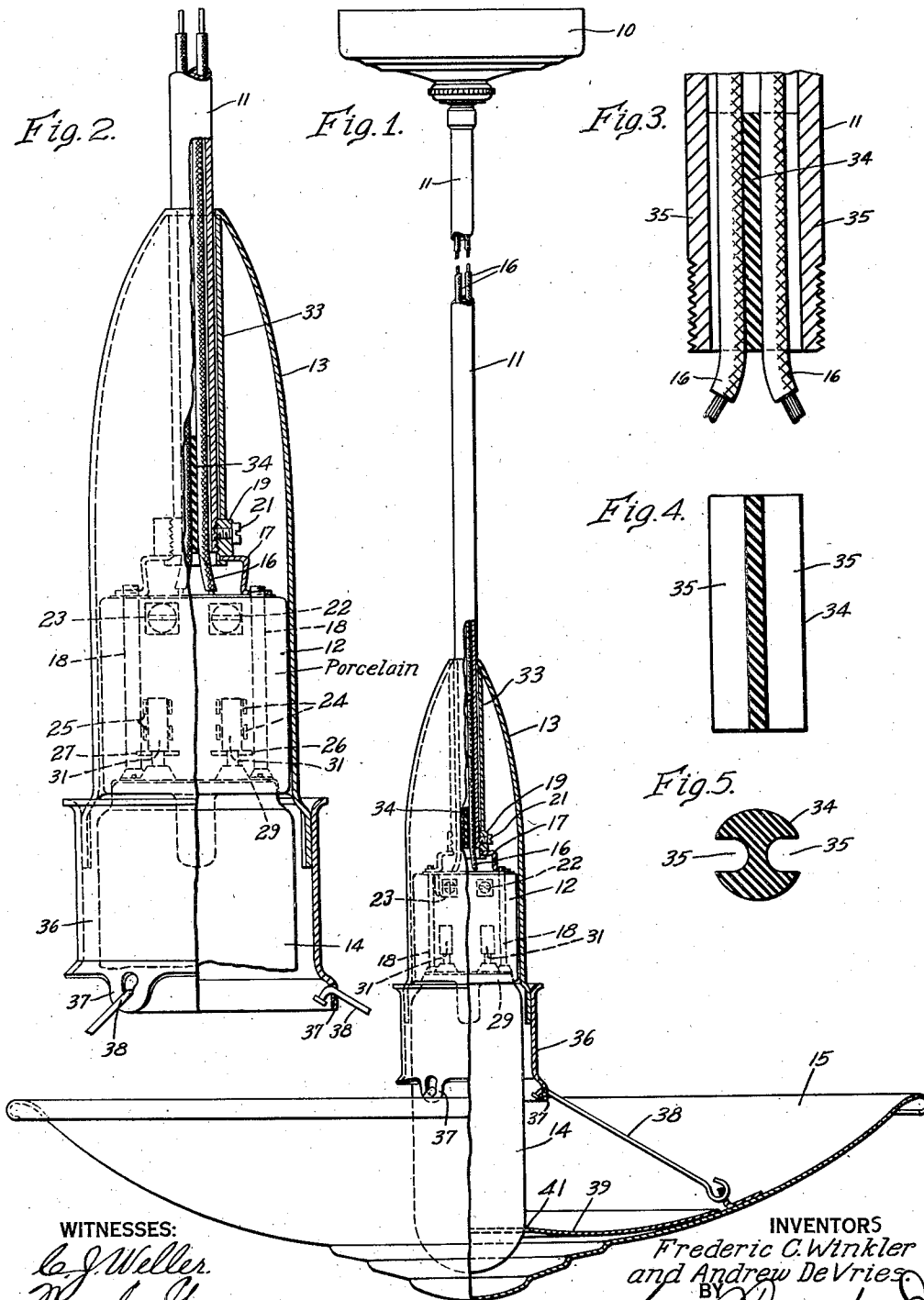
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LUMINAIRE

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LUMINAIRE

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Our invention relates, generally, to luminaries, and, more particularly, to luminaries of the pendant type suitable for commercial lighting application and for use with incandescent Bipost lamps, or lamps of similar construction.

In attempting to adapt luminaries, of more or less conventional design, which have been designed for use with pear shaped incandescent lamps of the ordinary type, commonly known as PS lamps, for use with Bipost lamps which have been placed on the market in recent years, considerable difficulty has been experienced in designing a suitable socket and reflector arrangement for use with these lamps.

These problems arise from the fact that the so-called Bipost lamp differs considerably in construction from the ordinary PS lamp, and is considerably smaller in size for the same wattage. The PS lamp comprises a hermetically sealed glass bulb or envelope containing a filament and a separate, unitary base attached to the neck portion thereof by cement or the like, the base usually being threaded to engage the socket. As distinguished from this, the Bipost lamp comprises an elongated glass envelope closed at one end, the open end being closed by a glass top through which the two metal contact prongs or pins extend. The prongs or pins are sealed into the glass cover portion of the envelope and function to conduct current to the filament, and also to support the lamp from the socket in a downward vertical position.

The PS lamp is also provided with a mica disc near the base which functions to direct the heat from the filament into the glass bulb rather than through the base. The Bipost lamp does not have a mica disc, and therefore, the heat from the filament rises and is dissipated through the base and prongs. Because of this construction and the fact that it is necessary to operate the lamp in a downward vertical position, the major portion of the heat produced by the lamp, which is a considerable amount in the 750 and 1000 watt sizes, is dissipated through the glass top and prongs of the lamp. This high heat dissipation and the way in which it is dissipated give rise to many problems in the successful use of this lamp in luminaries and especially in luminaries of the commercial type wherein it is necessary to support the lamp and a suitable reflector from a hanger attached to the ceiling or other overhead supporting surface.

In attempting to use this lamp with ordinary conventional designs of socket and husk constructions, it has been found that, unless special

provisions are made in the construction of the lighting fixture and especially in the construction of the socket and husk assembly, the lamp prongs will "freeze" in the socket, the insulation on the lead-in wires will become charred, and the wire itself become oxidized. Various attempts have been made to overcome these problems by ventilating the socket husks, but this was found not to be the solution, as the heat generated by the lamp was not effectively controlled to such extent as to eliminate freezing of the contact prongs in the socket and the deterioration of the lead-in wires.

Accordingly it is an object of our invention, generally stated, to overcome these problems and defects in the prior units and to provide a luminaire which may be successfully used with Bipost lamps, or lamps of similar nature, regardless of size, and which is of simple and economical construction.

A more specific object of our invention is to provide for controlling the heat produced by a Bipost lamp, or the like, in luminaires so as to prevent freezing of the contact prongs of the lamp in the socket and any appreciable deterioration of the wiring of the fixture.

A further object of our invention is to provide a husk and socket assembly for use in luminaires with Bipost lamps, or the like, which shall function to reduce the heating effect of the lamp on the engaging contact members of the socket and the lamp prongs to such an extent as to prevent freezing thereof and deterioration of the contact members and the lead-in wires.

Another object of our invention is to provide a husk construction for use in luminaires with Bipost lamps, or the like, which shall not only cooperate with the lamp socket to reduce the heating effect of the lamp on the contact elements of the socket, but which shall also function to produce an air movement around the lamp to carry the heat generated thereby away from the portion of the husk which encloses the socket and other parts which may be subject to damage and deterioration when excessively heated.

A further object of our invention is to provide a luminaire for eliminating the upward flow of heated air through the tubular hanger or supporting stem thereby to prevent the deposit of dirt and other foreign matter on the ceiling or other supporting surface.

These and other objects of our invention will become more apparent from the following de-

tailed description when read in conjunction with the drawing, in which:

Figure 1 is an elevational view, partly in section, showing a luminaire embodying the principal features of our invention;

Fig. 2 is an enlarged view in elevation, partly in section, of the socket and husk assembly of the luminaire of Fig. 1 showing details of the construction thereof;

Fig. 3 is an enlarged view of the lower end of the hanger stem;

Fig. 4 is a vertical section view of the lava plug which is disposed in the lower end of the hanger stem as shown in Fig. 3, and

Fig. 5 is a cross-sectional view of the lava plug of Fig. 3.

The principal feature of our invention resides primarily in the construction of the socket and husk assembly of the fixture. The husk proper may be of the bullet-type design, preferably spun from aluminum, and provided with an extension in the form of a shield ring at the bottom, also formed of aluminum. The lamp socket is preferably constructed of porcelain in one piece and is cylindrical in shape. A socket cap is provided for attaching the socket to the end of the hanger stem. In the preferred embodiment the outside diameter of the socket is made very nearly the same as the inside diameter of the husk proper to provide a close fit therebetween when in an assembled condition, in order to prevent the passage of any appreciable amount of heated air between the socket and husk. In other words, in a construction of this kind the husk must "hug" the socket. The extension or shield ring portion of the husk is of larger diameter than the husk proper, and is preferably connected thereto by welding it to downwardly extending ears formed on the bottom of the husk proper, thereby leaving open spaces between the upper end of the shield ring and the bottom edge of the husk proper for the purpose of producing air movements or circulation around the lamp. The shield ring also functions to shield the upper portion of the lamp from view to permit the use of a shallow reflector and also functions to support the reflector or basin assembly.

Another feature of the preferred construction is the use of a suitable plug in the hanger stem through which the electrical conductors extend to the socket. The plug is preferably made of a suitable heat resisting material and so shaped as to cooperate with the conductors to seal the stem against the upward passage of heated air therethrough.

Referring to the drawing, the luminaire of our invention comprises, generally, a canopy 10, stem 11, socket 12, husk 13, lamp 14, and reflector or basin 15. The canopy 10 and stem 11 are of the usual construction, the stem being of tubular form through which the insulated lead-in conductors 16 extend to the socket 12.

The socket 12 may be of any suitable type so long as it is so constructed that it will support and conduct current to a lamp of the Bipost type. The body portion of the socket may be made of any suitable heat-resisting insulating material, such, for example, as porcelain, and may be attached to the lower end of the stem 11 by means of the adapter or bracket 17, which is secured to the body portion by means of the screws 18 extending therethrough as shown. The adapter 17 is provided with a threaded sleeve portion 19 which engages the threaded end

portion of the stem 11 and may be locked therewith by means of the set screw 21.

The socket 12 is further provided with terminals 22 and 23 and a pair of contact elements 24 and 25, the terminals and contact elements being electrically connected in any suitable manner. The socket is also provided with a pair of locking clips 26 and 27, which are utilized to hold the lamp in the socket.

As pointed out hereinbefore, the lamp 14 is of a type of construction which produces a relatively large amount of heat for its size, as compared to that which is produced by an ordinary incandescent Mazda lamp of the same wattage and which also dissipates the major portion of this heat through the base and contact prongs. The envelope of the lamp 14 is composed entirely of glass, and the lamp also has a glass base 29 which normally engages, or is in close proximity to, the bottom part of the socket 12, as shown clearly in Fig. 2. The lamp is further provided with a pair of terminal prongs 31, which are attached to or extend through the base 29 and which function both to support the lamp in a downward vertical position and to conduct current to the filament thereof.

Since the socket must embody metallic contact elements for supporting and conducting current to the lamp, it has been found necessary to provide for protecting these elements against the excessive amount of heat developed to not only prevent deterioration of the elements themselves, but also to prevent the contact prongs of the lamp from freezing to these contact elements, and also to prevent the heat from destroying the insulation on the lead-in wires.

It is to this problem that our invention is particularly directed, and one way in which it has been solved is in the design of the husk 13 and the particular manner in which it is associated with the socket 12.

The problem has been solved in this particular instance by associating the husk 13 and socket 12 together in such a way as to purposely provide against any ventilation thereof. One way in which this may be accomplished is to construct the husk 13 in such manner that when it is mounted on the stem 11 in the usual way the interior portion thereof is in close engagement with the exterior portion of the socket.

In the embodiment shown, the husk is of bullet-shape design, and is supported in the desired position over the socket 12 by means of a short length of tubing 33 surrounding the lower end of the stem as shown, the tubing resting on the sleeve 19, and the constructed end of the husk resting upon the other end of the tubing.

In order to prevent the passage of heated air upwardly through the stem 11, a plug 34 of heat-resisting material may be disposed in the lower end thereof. This is shown best in Fig. 3, the detail construction of the plug being shown in Figs. 4 and 5.

As shown in Figs. 4 and 5, the plug is of an elongated cylindrical construction, preferably composed of lava or similar material, and is provided with opposite longitudinal grooves 35 in the sides thereof to receive the lead-in wires, as shown in Fig. 5.

The way in which the plug 34 is used is shown in Fig. 3, the plug being merely inserted within the lower end of the stem 11 with the lead-in wires 16 extending through the grooves 35 as shown. It will be apparent that if the plug is so constructed that it interfits closely with the in-

terior of the tube and the lead-in wires substantially fill the grooves, it, together with the lead-in wires, will function as an effective blocking means against the upward passage of heated air through the stem and thereby eliminate the depositing of dirt or other foreign matter on the ceiling or other supporting surface.

In order to provide for cooling the lamp 14 as much as possible and also to provide a light shield about the upper end thereof, the husk 13 is provided with an offset extension or shield ring 36 which, in this instance, has an inside diameter larger than the outside diameter of the husk to provide a considerable space between the shield ring and the lamp as shown. The extension 36 may be secured to the lower edge of the husk by means of the downwardly extending offset ears 37 formed on the husk body which may be attached to the extension by welding or in any other suitable manner. In this instance, the offset ears 37 are four in number and are equally spaced about the circumference of the husk in order that openings will be provided between the lower edge of the husk and the upper edge of the extension 36. As will be readily understood, this provides a chimney-effect through which heated air may circulate upwardly along the upper part of the lamp in order to ventilate and cool the lamp as much as possible.

The extension 36 may also be utilized to directly support the reflector basin 15 by means of the rods 38 as shown. In this embodiment of the invention, the reflector basin 15 is of the totally indirect type, being constructed entirely of a suitable metal, such, for example, as aluminum, and is provided with an inner auxiliary reflecting portion 39. The reflecting portion 39 is provided with a central opening 41 through which the lower end of the lamp 14 extends. The basin 15 is supported in such position that the lower central part thereof is in close proximity to the tip of the lamp as shown. It is to be understood, however, that any other type of basin, such for example, as a glass basin, may be used if desired.

In view of the foregoing description, it will be apparent that the invention provides a luminaire which may be utilized with a Bipost lamp, and which will effectively prevent the relatively large amount of heat developed by a lamp of this kind from damaging the contact elements of the socket or any other part of the fixture which necessarily must be placed in such position as to be exposed to this heat.

Since certain changes may be made in the above-described construction and different embodiments of the invention may be made without departing from the spirit thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

We claim as our invention:

1. A luminaire comprising, a support stem, a socket attached to the bottom of the stem for supporting and conducting current to a lamp, a husk mounted on the stem and extending downwardly over the socket and terminating at the lower end of the socket, the joint between the side walls of the socket and husk being relatively close so as to prevent circulation of any appreciable amount of heated air therebetween, a cylindrical extension member of larger diameter than the husk attached to the bottom of the husk in spaced relation thereto and to the upper por-

tion of the lamp and open at both ends to produce air circulation about the base of the lamp adjacent the lower end of the socket, and a reflector basin supported beneath the lamp from said cylindrical extension member.

2. A luminaire comprising, a support stem, a socket attached to the bottom of the stem for supporting and conducting current to a Bipost lamp, a husk mounted on the stem and extending downwardly over the socket and terminating adjacent the lower end thereof, the joint between the side walls of the socket and husk being substantially closed so as to prevent the circulation of any appreciable amount of heated air upwardly therebetween, a cylindrical member of greater diameter than the husk attached to the lower end of the husk at spaced points to provide openings therebetween for the upward circulation of air between the upper portion of the lamp and the said member, and a reflector basin supported beneath the lamp from the cylindrical member, said cylindrical member extending downwardly and in spaced relation about the upper portion of the lamp to shield said lamp from view over the rim of the reflector basin.

3. A luminaire comprising, a tubular support stem, a lamp socket attached to the lower end of the stem for supporting and conducting current to a lamp, electrical conductors extending through the stem to the socket, a husk mounted on the stem and enclosing the top and side portions of the socket, the joint between the side walls of the socket and husk being relatively tight to prevent circulation of any appreciable amount of heated air from the lamp therebetween, and plug means inserted within the lower portion of the stem to prevent upward flow of heated air through the stem about the conductors, thereby to provide for reducing the operating temperature of the socket and conductors.

4. A luminaire comprising a tubular support stem, means for attaching the stem to a supporting means, a lamp socket detachably secured to the lower end of the stem for supporting and conducting current to a Bipost lamp, electrical conductors extending through the stem to the socket, said socket having terminal members to which said conductors are attached and also contact elements for engaging the contact prongs of the lamp, a husk element mounted on said stem for enclosing the top and side portions of the socket, said husk element and socket being disposed in close interfitting relation so as to prevent any appreciable amount of upward circulation of heated air from the lamp therebetween, and a plug member of heat-resisting material disposed within the stem and cooperating with said conductors to block the passage through the stem against the circulation of heated air from the lamp therethrough, thereby to reduce the operating temperature of the socket and conductors to a degree such as will prevent damage thereto through overheating.

5. A luminaire for use with incandescent lamps of the Bipost type which constitute relatively concentrated sources of heat, comprising a tubular support stem, a lamp socket attached to the lower end of the stem for supporting and conducting current to the lamp, said socket having a body portion of insulating material and metallic terminal members and contact elements mounted thereon, a pair of insulated conductors extending through the stem to the terminal members of the socket, a plug member of heat-resisting material disposed in said stem adjacent the

lower end thereof, a husk element mounted on the stem and enclosing the socket, said husk element and socket being disposed in such inter-fitting relation as to preclude any substantial upward circulation of heated air from the lamp therebetween, an extension for said husk attached to the lower end thereof in offset relation to provide openings therebetween, said extension extending downwardly from the lower edge of the husk about the upper portion of the lamp and in spaced relation thereto to provide for the circulation of air therebetween, and a reflector supported from the husk extension beneath the lamp.

6. A luminaire for use with incandescent lamps of the Bipost type constructed in the form of a glass envelope with contact prongs attached directly to the envelope comprising, a tubular supporting stem, a socket attached to the lower end of the stem, said socket having a heat-resisting body portion on which contact elements for engaging the lamp prongs are mounted and also terminals for connection to the lead-in conductors which extend through the stem, a husk mounted on the stem for enclosing the socket, said husk and socket being cooperatively disposed to prevent any appreciable circulation of heated air from the lamp upwardly therebetween, an offset extension attached at spaced intervals to the bottom of the husk to provide a light shield about the upper end of the lamp, a lava plug member disposed in the lower end of the stem and functioning together with the lead-in conductors to prevent heated air from passing upwardly through the stem, and a reflector basin supported beneath the lamp from the husk.

7. The combination with a Bipost incandescent lamp having contact prongs in the base thereof and which constitutes a relatively concentrated light source producing a relatively large amount of heat, of a socket for supporting and conducting current to the lamp, said socket having a body portion constructed of heat-resisting material and metallic contact elements carried thereby, said contact elements being disposed to receive the contact prongs of the Bipost lamp and thereby be subjected to the heat produced by the lamp, a tubular stem for supporting the

socket, electrical conductors extending through the stem to the socket, a husk element mounted on the stem for enclosing the top and side portions of the socket, said husk element extending only to the lower edge of the socket, the inside dimensions of the husk being such that it fits closely about the outside surface of the socket so as to prevent the upward passage of any appreciable amount of heated air between it and the socket whereby the operating temperature of the socket is maintained below a value which would otherwise be destructive to the contact elements of the socket and the electrical conductors to which it is normally connected, and an extension member having inside dimensions greater than the outside dimensions of the lower end of the husk element attached in spaced relation to the lower end of said husk element to provide openings therebetween and extending downwardly from the husk element about the upper portion of the lamp, said extension member functioning to produce a circulation of air about the lamp.

8. In combination, a lamp socket for supporting and conducting current to an incandescent lamp having contact prongs, said socket comprising an insulating body portion with metallic contact elements supported thereby for receiving the contact prongs of the lamp, a husk element enclosing the top and side walls of the socket, said husk element terminating at the lower end of the socket, the joint between the side walls of the body portion of the socket and husk being relatively tight so as to prevent the upward circulation therebetween of any appreciable amount of heated air from the lamp, whereby the operating temperature of the metallic contact elements is maintained at a non-destructive value, and an extension member of larger size than the outside dimensions of the husk element open at both ends and attached in spaced relation to the lower edge of said husk element to provide openings therebetween and extending downwardly in a position to surround the upper portion of the lamp for producing a circulation of air about the lamp.

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