

A. SWAN.
INCANDESCENT LAMP.
APPLICATION FILED JUNE 7, 1905.

905,478.

Patented Dec. 1, 1908.

Fig. 1.

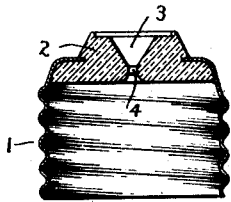


Fig. 2.

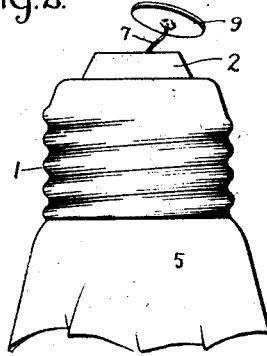


Fig. 3.

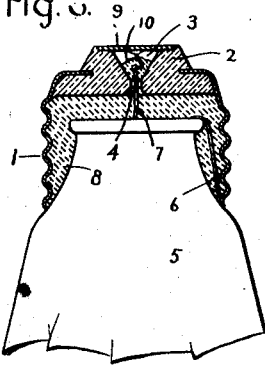
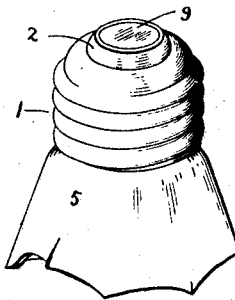


Fig. 4.



WITNESSES

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INVENTOR.

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UNITED STATES PATENT OFFICE.

ALFRED SWAN, OF NEW YORK, N. Y., ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

INCANDESCENT LAMP.

No. 905,478.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed June 7, 1905. Serial No. 264,078.

To all whom it may concern:

Be it known that I, ALFRED SWAN, a subject of the King of Great Britain, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Incandescent Lamps, of which the following is a specification.

This invention relates to incandescent lamps and refers more particularly to the bases for such lamps and the method of connecting the leading-in wires of the lamp to the contacts of the base.

An incandescent lamp base as commonly constructed consists of two contacts held in proper relation and insulated from each other by a button or web of insulating material. Porcelain and plaster-of-paris have been used extensively as the insulating material but more recently glass has been very widely employed since by introducing the glass at a temperature considerably above the melting point and therefore in a highly fluid state the joint formed between it and a contact is very strong and practically moisture-proof and air-tight.

In order to connect the leading-in wires of the lamp to the contacts of the base the usual practice has been to provide openings through one or both of the contacts so that a leading-in wire may be threaded through the opening when the base is to be cemented to the lamp bulb and afterwards soldered to the outer side of the contact to make electrical connection thereto. Thus an Edison type of lamp base consists of a threaded metallic shell and a metallic center contact united by insulating material and the center contact usually has an opening therethrough. When the base is to be applied to a bulb one of the leading-in wires is bent down along the bulb so that it may afterwards be soldered to the edge of the shell and the other leading-in wire is inserted through the opening in the center contact. The base is then cemented to the bulb and afterwards the leading-in wire is soldered to the center contact on the outside thereof. This solder on the outside of the lamp base has always been considered as detracting from the appearance of the finished product and furthermore the terminal of a socket or receptacle usually bears on the solder and it is considered objectionable to make the electrical connection through the solder.

The object of my invention is to provide

for connecting the leading-in wire to the under side of the center contact so that the solder does not show at all from the outside and connection is made with the contact direct and not through the solder used in connecting the leading-in wire thereto.

In accordance with my invention, I form the base with a cavity therein and an opening through the base from the bottom of this cavity. In basing a lamp one of the leading-in wires is threaded through this opening and when the base is secured to the bulb the end of the wire is soldered to the under side of a center contact outside the base. The extra length of wire necessary to permit this is then pushed back and curled within the cavity until the contact is supported against the insulating web and the connection thereto concealed within the base. Preferably the cavity is partly or entirely filled with cement which assists in holding the parts in their proper relation. The cavity in the base should be formed to provide a seat for the center contact of such size that when the contact rests thereon its surface is flush with the surface of the base in order that nothing can catch on the contact and pull it out. The leading-in wire is stiff enough to hold the contact in position within the cavity and if the cavity is filled with cement there is little danger of the contact ever becoming displaced.

The novel features which I believe to be characteristic of my invention will be definitely indicated in the claims appended hereto.

The details of construction of my improved lamp base and the method of applying the base to a lamp bulb will be better understood by reference to the following description taken in connection with the accompanying drawings which show one embodiment of my invention and in which

Figure 1 is a section of the lamp base; Fig. 2 is an elevation of the same applied to a lamp bulb showing the end of one of the leading-in wires extending through the base and soldered to the under side of the center contact; and Fig. 3 is a sectional elevation and Fig. 4 a perspective view of the completed lamp.

In the drawings I have shown my improvements in connection with a lamp base of the Edison type but I wish it understood that my invention is not limited in this re-

spect but is applicable also to other types of lamp bases which have gone into commercial use. The base consists of a threaded metallic shell 1 which is partially closed at one end by a web of insulating material 2 in the center of which a cavity 3 is formed; an opening 4 extends from the bottom of the cavity 3 to the interior of the base and the top of cavity 3 is so formed that a center contact will fit tightly therein with its surface flush with the surface of the web. This base is preferably made by inserting the shell 1 in a suitably-shaped mold, dropping a charge of glass reduced to a fluid state therein, and pressing the glass around the flange on the end of the shell, since in this way a joint is formed between the shell and the glass which is very strong and practically moisture-proof and air-tight.

In order to secure the base upon the neck of the bulb 5 one of the leading-in wires 6 is bent back along the bulb and the other leading-in wire 7 is threaded through the opening 4 in the base. A suitable cementing compound 8 is then introduced into the base, the leading-in wire is severed at the proper point and its end soldered to the inside of the shell 1 near the edge, as shown in Fig. 3. The base is then pressed down over the neck of the bulb where it is held tightly in place until the cementing compound has hardened. The end of the leading-in wire 7 extending through the base is then soldered to the under side of the center contact 9, as shown in Fig. 2. This contact preferably consists of a circular piece of thin sheet-metal. The extra length of the leading-in wire 7 necessary to permit soldering its end to the under side of the center contact in this way is then pushed back and curled within the cavity 3 in the web 2 of insulating material until the center contact 9 is seated in the shallow depression at the top of the cavity in proper position with its surface flush with the surface of the glass or other material and the connection to the contact concealed within the base. The wire 7 is stiff enough to hold the contact 9 in position; if desired, however, the cavity 3 may be partly or entirely filled with cement 10 before the contact 9 is seated in position so that the contact will be held more firmly. The surface of the contact 9 being flush with that of the insulating web 2 in the completed lamp, as shown in Fig. 4, a smooth exterior is presented and there is little or no danger of anything catching on the edge of the contact 9 and pulling it away from its seat.

In the finished lamp made as described herein, there is no solder on the exterior of the base which therefore presents a better appearance than those formerly used and contact is made direct with the center contact instead of through the solder used in connecting the leading-in wire to the contact.

The center contact used is a circular punching of sheet metal which is more easily made than the small tubular stems with flanges thereon which have heretofore been used. Other advantages offered by my construction of the lamp will occur to those skilled in the art.

I wish it understood that my invention is not limited to the Edison type of lamp base nor to the specific details which I have illustrated and described herein but that various modifications can be made in the construction and the method described without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent of the United States, is,—

1. An incandescent lamp having a base comprising a shell and an insulating web with an opening through it, a leading-in wire extending through and movable in said opening and long enough to extend beyond the web, a center contact soldered to the end of the leading-in wire, and means for holding said contact in engagement with the base.

2. An incandescent lamp having a base comprising a shell and an insulating web with an opening through it, a leading-in wire extending through and movable in said opening and long enough to extend beyond the web, and a center contact soldered to the end of the leading-in wire, said wire being cemented to the web to hold said contact in position on the web.

3. An incandescent lamp having a base comprising a shell and an insulating web with a depression on the outer side and an opening through the web into said depression, a leading-in wire extending through and movable in said opening and long enough to extend beyond the web, a center contact the same size as the depression soldered to the end of said wire, and means for holding said contact in said depression flush with the outer surface of the web.

4. An incandescent lamp comprising a base having a shell, a web of insulating material at one end thereof having a cavity therein, a contact covering said cavity with its outside surface flush with the outside surface of the web, a bulb to which the base is secured having a leading-in wire connected to the under side of said contact, and means for securing the wire to the web to hold the contact in position.

5. An incandescent lamp comprising a base having a shell, a web of insulating material at one end thereof, a contact supported by said web, and a bulb to which the base is secured having a leading-in wire a portion of which is curled up in a cavity in the web, the end of said wire being connected to the under side of the contact.

6. An incandescent lamp comprising a base having a shell, a web of insulating material at one end thereof having a cavity

therein, a contact supported by said web, and a bulb to which the base is secured having a leading-in wire with its end connected to the under side of the contact and a portion near its end curled up within said cavity.

5 7. An incandescent lamp comprising a base having a metallic shell, a web of insulating material secured thereto having a cavity therein, a contact covering said cavity and having its outer surface flush with the
10 outer surface of said web, and a bulb to which the base is secured having a leading-in wire with its end connected to the under side of the contact and a portion near its end
15 curled up within said cavity.

8. An incandescent lamp comprising a base having a metallic shell, a web of insulating material secured thereto having a cavity therein and a contact supported by
20 said web, a bulb to which the base is secured having a leading-in wire with its end connected to the under side of the contact and a

portion near its end curled within said cavity, and cement in said cavity holding the leading-in wire.

9. In an incandescent lamp, a bulb having
25 leading-in wires extending therefrom, and a base attached to said bulb and comprising a shell to which one of the leading-in wires is attached, a web of insulating material in
30 said shell, said web having a cavity on the outside thereof and a hole leading from the cavity through the web, a contact set in said web and having one of the leading-in wires
35 attached to its inner side, and cement in the cavity in the web for holding the portion of the lead wire curled up therein.

In witness whereof, I have hereunto set my hand this first day of June, 1905.

ALFRED SWAN.

Witnesses:

S. N. WHITEHEAD,
JOHN E. MITCHELL, Jr.