July 5, 1932. D. S. GUSTIN 1,865,468

LAMP BASE

Filed Aug. 29, 1929

Fig. 1.

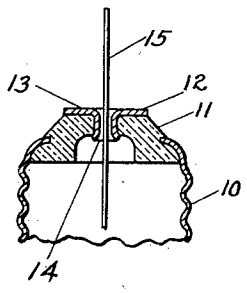


Fig. 2.

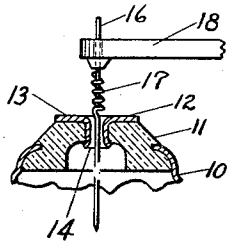


Fig. 3.

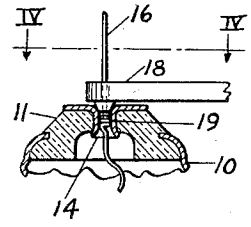


Fig. 4.

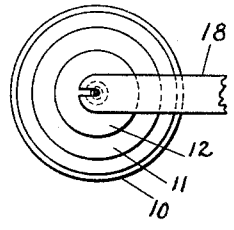


Fig. 5.

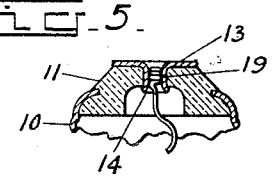


Fig. 6.

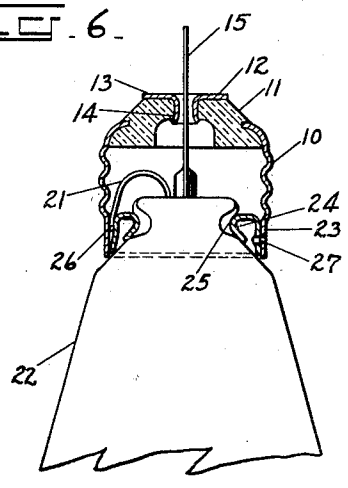
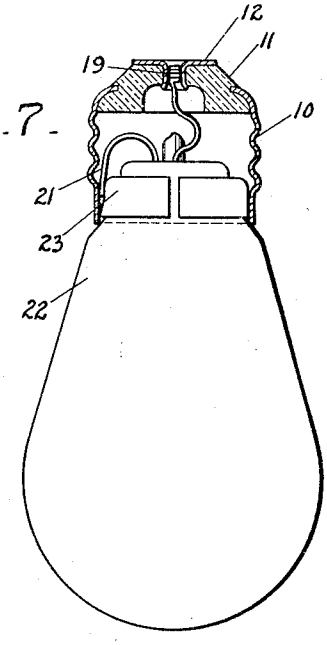


Fig. 7.



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Patented July 5, 1932 1,865,468

UNITED STATES PATENT OFFICE

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LAMP BASE

Application filed August 29, 1929. Serial No. 389,123.

This invention relates to incandescent electric lamps and relates more particularly to improvements in the base portions of such lamps.

In the manufacture of incandescent electric lamps it has become the standard practice to employ what is termed a base which usually consists of a metallic shell in the form of a cap or thimble having a portion of its cylindrical surface threaded and provided with a bottom contact member insulated from the base proper. This base is then applied to a bulb neck and secured to the bulb by a cement or other suitable means. For the purpose of providing contact surfaces for a flow of energy through the filament of a lamp, one of the leading-in conductors of the lamp is connected by solder or otherwise to the side wall or shell of the base. The other leading-in wire of the lamp is passed through and soldered or welded to the bottom contact-member.

It has heretofore been the practice to connect the leading-in wires to the shell and to the bottom contact by means of a soldering operation. This soldering operation presented a certain amount of difficulty particularly when performed by automatic machines as is necessary in the manufacture of large quantities of incandescent electric lamps. The inconvenience and necessary care required to properly solder the lead wires to the base made this soldering operation a relatively costly procedure, from the standpoint of time and maintenance required in connection with the soldering mechanism.

It is an object of the present invention to provide an incandescent lamp base to which leading-in wires may be electrically connected in the absence of solder.

Another object of the invention is to provide a method for conveniently and expeditiously electrically connecting a leading in wire with a contact member.

Other objects and advantages of the invention will be apparent from the following description together with the accompanying drawing, in which

Fig. 1 shows a portion of a lamp base with a lead wire positioned in a tubular contact member thereof.

Fig. 2 is a view similar to Fig. 1 which shows the leading in wire helically coiled about a mandrel and ready to be forced into the contact member.

Fig. 3 shows a pressure member in position to collapse the helically wound portion of a lead wire and force the same into a contact member.

Fig. 4 is a view taken on line IV—IV in Fig. 3.

Fig. 5 shows a portion of a base after the leading in wire has been secured thereto.

Fig. 6 shows a lamp base secured to a bulb neck by a metallic sleeve and with a leading in wire extending through a metallic contact of the base, and

Fig. 7 is a view similar to Fig. 6 but showing a metallic sleeve for securing the base to the bulb in full lines and showing the lead wire secured to a contact.

In practicing the present invention a base may be provided comprising a cylindrical metallic shell 10 having one end enclosed by a web 11 of insulative material such as glass and having embedded therein a metallic contact 12. The contact 12 comprises a flange portion 13 having a centrally disposed tubular portion 14. The contact member 12 is generally the same as is used in bases employed heretofore.

When the base is in position on a bulb, one of the lead wires 15 is positioned to extend through the tubular portion 14 of the contact member. A mandrel 16 is then disposed above the tubular portion of the contact and in axial alignment therewith. The free end of the lead wire 15 may then be spirally wound about the mandrel 16 to produce a loose helix 17. A pressure member 18 is then positioned above the helix and about the mandrel 16. The downward movement of the pressure member compresses or collapses the helix forcing the turns thereof in a compact body 19 within the tubular portion 14 of the contact 12. The mandrel 16 as well as the pressure member 18 may then be removed and the compact coiled body 19 will frictionally engage the inner surface of the tubular mem-

ber 14 and provide close electrical contact therewith.

The leading in wires are usually made of a relatively soft copper or other metal of a malleable nature so that when they are coiled about the mandrel and forced into the contact 12 they retain their adjusted position. The interior diameter of the tubular portion 14 may be slightly less than the outside diameter of the coiled body 19 and it will be evident that when the lead wire is in the form of a loose coil 17 it will slightly expand when forced into a compact closed coil 19 and thus tightly wedge itself into the tubular portion of the contact 12.

It will be evident that the interior diameter of the tubular portion 14 may readily be made of the proper dimension to provide a tight fit for the coiled body 19. In practice it has been found that when a coiled filament end is forced into the tubular contact it becomes securely wedged therein and gives a satisfactory electrical connection.

Although the present invention may be used in connection with bases wherein the second leading in wire is soldered to the outside of the shell it is preferable in order to have a completely mechanically constructed base to provide a structure shown in Figs. 6 and 7 in which a bulb is secured to a base by means of a metallic tension collar which structure is disclosed in copending application Serial No. 229,825 filed October 21, 1927 for lamp base. With this type of structure the second leading in wire 21 (see Figs. 6 and 7) may also be mechanically connected to the shell 10.

As illustrated a bulb 22 is secured to the base 10 by means of a split collar 23, the said collar having projections 24 which engage depressions 25 formed in the bulb neck. An end 26 of the lead wire 21 is clamped between the collar 23 and the interior surface of the base 10. Suitable pins 27 are provided to secure the collar and base against relative movement.

By reason of the present invention a lead wire may be effectively secured to the so-called bottom contact of a base without the aid of solder. By confining the coiled contact portion of the lead wire within the tubular portion of the contact 12, the surface of the flange 13 is free from any irregularities and presents a smooth surface for contact with a contact member in a socket. If desirable a covering material such as a water proof cement may be disposed about the coiled portion 19 to protect the same against the admittance of moisture, it being understood that such covering may be below the surface of the flange 13 and thus not interfere with the effective contact between the said flange and the socket.

Although a preferred embodiment of the invention is shown and described herein it will be understood that modifications may be made therein without departing from the spirit and scope of the invention as set forth in the appended claims.

What is claimed is:

1. A lamp comprising a bulb, lead-wires extending from the neck of said bulb, a base having a tubular contact member disposed on the neck of said bulb and an end of one of said lead wires formed into a compact coiled mass of wire disposed in tight frictional engagement with the inner wall of said tubular member.

2. A lamp comprising a bulb, lead-wires extending from the neck of said bulb, a base having a tubular contact member disposed on the neck of said bulb and an end of one of said lead wires formed into a helical coil and turns of said wire disposed in frictional relation with the inner wall of said tubular member.

In testimony whereof, I have hereunto subscribed my name this 23 day of August 1929.

DANIEL S. GUSTIN.