W. J. CAMERON.

INCANDESCENT ELECTRIC LAMP.

APPLICATION FILED NOV. 5, 1920.

1,433,982. Patented Oct. 31, 1922.

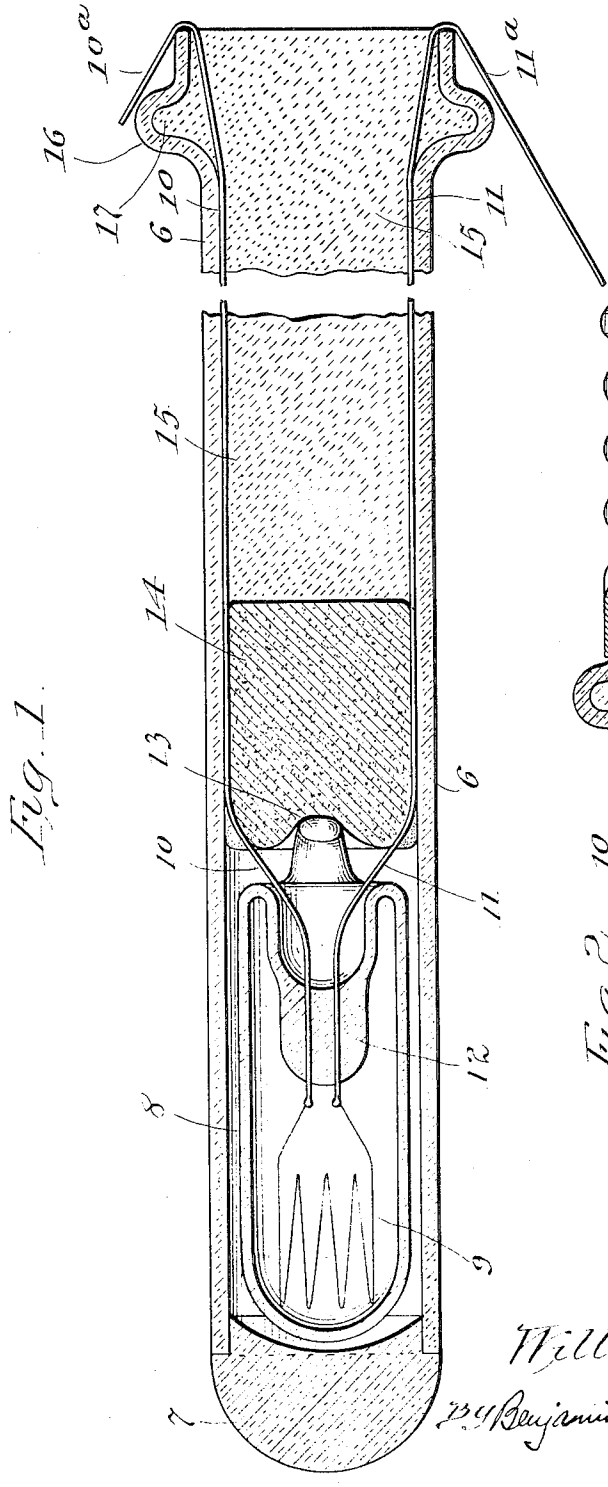


Fig. 1.

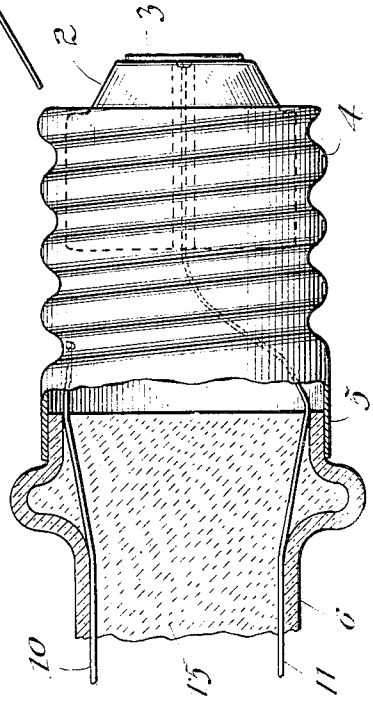


Fig. 2.

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Patented Oct. 31, 1922. 1,433,982

UNITED STATES PATENT OFFICE.

WILL J. CAMERON, OF CHICAGO, ILLINOIS.

INCANDESCENT ELECTRIC LAMP.

Application filed November 5, 1920. Serial No. 422,038.

To all whom it may concern:

Be it known that I, WILL J. CAMERON, a citizen of the Dominion of Canada, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in an Incandescent Electric Lamp, of which the following is a specification.

My present invention has relation to lamps of the type disclosed in my prior United States Letters Patent No. 1,208,743 issued to me on December 19th, 1916, for an incandescent electric lamp, which lamps are used by dentists, surgeons and persons engaged in similar lines of work for the purpose of making examinations, operations and diagnosis.

The type of lamp I have designed is elongated and is small in diameter having a cylindrical body of approximately four inches long by one-fourth of an inch thick, and the bulb that is enclosed therein is of an extremely miniature size.

Besides carrying out all of the objects of my aforesaid Letters Patent, one of the objects of the present invention is to reduce the cost of manufacture by eliminating the central tubular conductor insulator or separator of my prior device, and to separate or space the conductors in a cheaper and more readily assembled manner. Another object is to provide a cushion for the miniature light bulb so that it is not susceptible to any more than a very small degree of vibration which is not of sufficient extent to permit the bulb to contact the enclosing casing.

In assembling the parts, I employ a dry plaster of Paris filler that is tamped into the tubular casing and is then moistened to alter the physical characteristics thereof so that it will harden or set and form a solid mass. This is preferably carried out by a method similar to that set forth in my United States Letters Patent No. 1,348,978 issued to me on August 10th, 1920, for a method of filling lamps. In order to prevent the moisture reaching the bulb I have provided means in my present lamp that will cause a stoppage in the rise of the liquid which is moved upwardly in the plaster of Paris by capillarity so that the moisture will not reach the bulb and cannot cause any damage thereto.

Further objects will be apparent to others after an understanding of my invention is had, and I prefer to accomplish the divers objects in substantially the manner hereinafter fully described, and as more particularly pointed out in the claims, reference being now had to the accompanying drawings which form a portion of this specification, in which—

Figure 1 is a central longitudinal section of my lamp, the electrical contact plug being omitted to show the manner of securing the conductors during the charging or leading of the casing, the whole structure being drawn to a greatly exaggerated scale for clearness.

Figure 2 is a fragmental view partly in section of the contact plug end after assembly.

Similar reference characters designate the same parts in the several views, and by referring thereto, it will be seen the lamp consists of an outer casing comprising a screw plug end having a centrally bored non-conducting core 2 of porcelain, or the like, with a central terminal or contact element 3 and surrounded by a threaded metal casing 4. The upper or inner portion 5 of the metal casing 4 is cylindrical and unthreaded and receives the end of the lamp body or casing which is preferably cemented therein by means of any suitable moisture and chemical-resisting cement.

The lamp body or casing consists of a cylindrical tube 6 preferably of white or "milk" glass of the desired diameter and length, the outer end of which is closed by a lenticular light condensing cap or plug 7 that is fused or cemented thereon in any desirable manner.

The light bulb 8 is of preferably cylindrical form so as to secure the greatest length of filament 9 without adding to the diameter thereof. The conductors 10 and 11 pass out through the inwardly formed filament supporting base 12 and are retained in a separated or spread relation to each other by leading them upon opposite sides of a downwardly and inwardly turned teat 13 which has been formed in the operation of sealing the bulb.

Prior to inserting bulb 8 and conductors 10 and 11 into the tubular casing 6 the conductors are spread apart close to the bulb by placing them upon opposite sides of a pad or plug 14 of wool felt or like fibrous material so that the teat 13 of the bulb is embedded and cushioned in the adjacent end of the plug, as seen in Figure 1 of the drawings. The bulb, plug and spaced conductors are

then introduced into the casing by forcing the cushion plug 14, which is normally of greater diameter than the interior of the casing, into the latter until the bulb has been positioned adjacent the lenticular closure 7 in which position these elements will be retained in their relative positions by the frictional engagement of the cushion plug with the interior surface casing. The conductors are now drawn taut and their outer end portions are temporarily held in position by bending them back, as indicated at 10^a and 11^a in Figure 1 of the drawings. The cementitious material preferably in a powdered form such as plaster of Paris, is now placed in the casing until the latter is filled from plug 14 to the rear end of the casing or body and the same subjected to the action of water or other liquid or moisture in substantially the manner described in my aforesaid Letters Patent, No. 1,348,978 for the method of filling lamps. This consists in inverting the lamps and subjecting the lower open ends thereof to moisture or fluid so that the latter rises in the casing by capillarity until the entire charge of cementitious material has been moistened, after which the structures are removed and permitted to set and dry which hardens the material and forms an insulator and separator 15 for the conductors 10 and 11 so that they are permanently retained in their spaced positions. The insulator also strengthens the body portion of the lamp, and it will be seen that plug 14, besides performing the functions above mentioned in cushioning the bulb and separating the conductors, also provides a dam or blockade against the moisture or the cementitious material passing the same and reaching the bulb itself.

Adjacent the screw plug end, casing 6 is provided with a circumferentially outwardly extending corrugation 16 the outer portion of which forms a shoulder or stop for the metal casing 4 of the plug, and the interior of this corrugation receives the cementitious material which forms a key 17 to hold the cement in place when it has set and hardened.

What I claim new is:

1. An incandescent electric lamp comprising a casing having an annular corrugation adjacent one end, a light bulb disposed in said casing, conductors leading from said bulb, means for separating said conductors and retaining them in close proximity to said casing comprising a cement filling said casing and keyed in position by said corrugation, and devices for connecting said conductors with a suitable electric current.

2. An incandescent electric lamp comprising an insulating casing, a light bulb disposed therein, conductors leading from said bulb, means connecting the opposite ends of said conductors with a suitable electric circuit and a cushioning device against which the adjacent portion of said bulb abuts.

3. An incandescent electric lamp comprising an insulating casing, a light bulb disposed therein, conductors leading from said bulb, means connecting the opposite ends of said conductors with a suitable electric circuit, and a cushioning device against which the adjacent portion of said bulb abuts and upon opposite sides of which said conductors are respectively disposed.

4. An incandescent electric lamp comprising a casing, a light bulb disposed therein, conductors leading from said bulb through the casing, means connecting the outer ends of said conductors with a suitable electric circuit, and an insulating material introduced into said casing in which said conductors are embedded whereby said conductors are retained in separated relation and insulated from each other.

5. An incandescent electric lamp comprising a casing, a light bulb disposed therein, conductors leading from said bulb through said casing, a cushioning element against which the adjacent portion of said bulb abuts and which separates said conductors adjacent the bulb, and an insulating material introduced into said casing between said cushioning element and the opposite end of said casing in which said conductors are embedded and retained in separated relation and insulated from each other.

6. An incandescent electric lamp comprising a casing, a light bulb disposed therein adjacent one end, a cushion against which one end of said bulb abuts, conductors leading from said bulb upon opposite sides of said cushion and drawn taut to the opposite end of said casing whereby the conductor end of said bulb is firmly embedded in said cushion, and devices connecting said conductors with a suitable electric circuit.

7. An incandescent electric lamp comprising a casing, a light bulb disposed therein adjacent one end, a cushion against which one end of said bulb abuts, conductors leading from said bulb upon opposite sides of said cushion and drawn taut to the opposite end of casing whereby the conductor end of said bulb is firmly embedded in said cushion, an insulating element introduced in said tube between the cushion and the opposite end of the casing in which said conductors are retained in separated and insulated relation to each other, and devices connecting said conductors with a suitable electric circuit.

8. An incandescent electric lamp comprising an insulating casing, a light bulb disposed therein, conductors leading from said bulb, means connecting the opposite ends of said conductors with a suitable electric circuit, and a pad of felt interposed between said conductors and against which the adjacent portion of said bulb abuts.

9. An incandescent electric lamp comprising an exterior casing, an illuminating unit at one end thereof, conductors leading from said unit to the opposite end of said casing and separated from each other so as to lie adjacent said casing, devices connecting said conductors with a suitable electric circuit, and an insulating element disposed within said casing whereby said illuminating unit is retained in position in the end of the casing and said conductors are kept in spaced relation to each other between said insulating element and said casing.

10. An incandescent electric lamp comprising an exterior casing, a light bulb enclosed in one end of said casing, conductors leading from said bulb to the opposite end of said casing and spaced from each other so as to lie adjacent said casing, devices connecting said conductors with a suitable electric circuit, and an insulating element extending from said bulb to the opposite end of said casing whereby said bulb is retained in position and said conductors are kept in spaced relation to each other upon the exterior of said insulating element.

Signed at Chicago, county of Cook, and State of Illinois, this 28th day of October, 1920.

WILL J. CAMERON.