July 10, 1928. 1,676,790

R. D. MAILEY

ELECTRIC LAMP

Filed April 18, 1922

Fig. 1

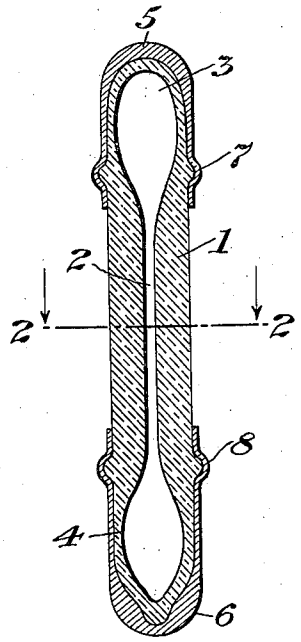
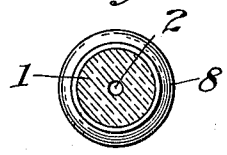


Fig. 2



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ELECTRIC LAMP.

Application filed April 18, 1922. Serial No. 555,338.

The present invention relates to electric lamps useful in the arts generally and particularly as indicators or detectors of impulses or oscillations of direct or alternating current, either of high or of low frequency.

I have discovered that a sealed tube of glass whose walls are of uniform thin or thick cross section, or a thick walled capillary cane having its ends drawn out to provide bulbous hollows thereat, containing a gas or other material rendered radiant by current flow therethrough and provided on its end portions with terminals of malleable or soft metal is useful in the arts generally as a lamp and particularly as a spark plug tester, and that such a lamp is rugged and efficient for the purposes mentioned, costing but little to produce, and is a unit not requiring auxiliary parts to operate it, although in special cases where such auxiliary parts are desired, it lends itself readily to use therewith.

I have illustrated my invention in the accompanying drawing in which Figure 1 is a vertical section of one form of my improved lamp tube provided with external terminals of soft malleable metal; and Figure 2 is a section along the line 2—2 of Figure 1.

In the drawings, 1 is a glass capillary cane or a thick walled tube in which the longitudinal opening 2 therein is of the capillary order, the ends of this tube in the preferred construction are drawn out as shown at 3 and 4 to form hollow end portions as shown in the drawings. Each of the end portions 3 and 4 is provided with a protecting coating 5 and 6, of malleable metal such as lead, or lead alloys, rose metal, plastic tin, etc., and preferably one having the property of wetting glass, which may be placed thereon by dipping the ends in a suitable solution, or by electro deposition, or by slipping the material or materials in thimble form over the ends and over retaining ring portions 7 and 8 on the lamp 1.

The malleable metals serve as terminals for introducing the electric current into the gas or other material in the interior of the tube 1 and rendering it light radiant. When the lamp is used as a spark testing device, these terminals 5 and 6, being of malleable metal, serve to take up the shocks of contact with the metal parts of an electric circuit on an engine, for example, the exposed terminal of a spark plug, and protect the glass structure, 1, from being fractured by the blow. When using the device for this purpose, one end, say the end 4—6, is held in the hand of the operator and the other end 3—5 is placed in contact with the spark plug. The pulsations or oscillations in the circuit of the plug pass through the terminal 5 into the gas or other material inside the tube 1 rendering it light radiant, through the terminal 6 and through the body of the operator to ground, thus completing a circuit through the device. If the lamp lights up as will be apparent by observing the uncovered portion of the tube 1 between the terminals 5 and 6, current is flowing into the spark plug. When desired, the lamp 1 having lead glass or quartz walls is connected in a circuit by placing the terminals 5 and 6 thereof across the terminals of a suitable source of current.

It will, of course, be understood that where desired, one metal which may be utilized because of its softness for shock absorbing purposes such as lead is covered with a coating of another material such as plastic tin, both together serving as the electrodes for the lamp terminals, the plastic tin preventing the soiling of the hands of the operator in handling the lamp or the soiling of his clothes when the lamp is carried in his pocket.

A suitable quantity of neon or other light radiant material, or neon mixed with helium, or a gas such as krypton, zenon or mercury, and having the property of giving light under excitation or conduction or induction is utilized in the lamp to meet varying conditions of service of the lamp.

I claim as my invention:

1. An electric lamp comprising a section of glass tubing sealed at both ends and having a longitudinal opening therein the cross section of the opening being increased at its ends, a light radiant material in said opening, a coating about the ends of the tube of a material which is both electrically conductive and shock absorbing, and a protective coating for said shock absorbent coating.

2. An electric lamp comprising a glass tube, a light radiant material therein, a coating of shock absorbing malleable metal on the terminal portions of said lamp and a coating of conducting material on said shock

absorbing material for protecting the hands of the operator from soiling.

3. An electric lamp comprising a section of glass cane having a longitudinal opening therein, the cross section of the glass being decreased and the cross section of the opening being increased at the terminals thereof, metal terminals on said end portions of malleable material for protecting said portions from the shock of contact and a light radiant material in said tube.

4. An electric lamp comprising a section of glass cane having a longitudinal opening therein, the cross section of the glass being decreased and the cross section of the opening being increased at the terminals thereof, metal terminals on said end portions of malleable material for protecting said portions from the shock of contact and a light radiant material in said tube and a coating of material on said metal terminals for protecting the hands of the operator.

5. An electric lamp comprising a section of glass tubing and terminals on the ends thereof of shock absorbing metal and a non-soiling coating on said material.

6. An electric lamp comprising a section of glass tubing and terminals on the ends thereof of shock absorbing conducting material and a non-soiling coating on said material.

Signed at Hoboken in the county of Hudson and State of New Jersey this 17th day of April, A. D. 1922.

ROY D. MAILEY.