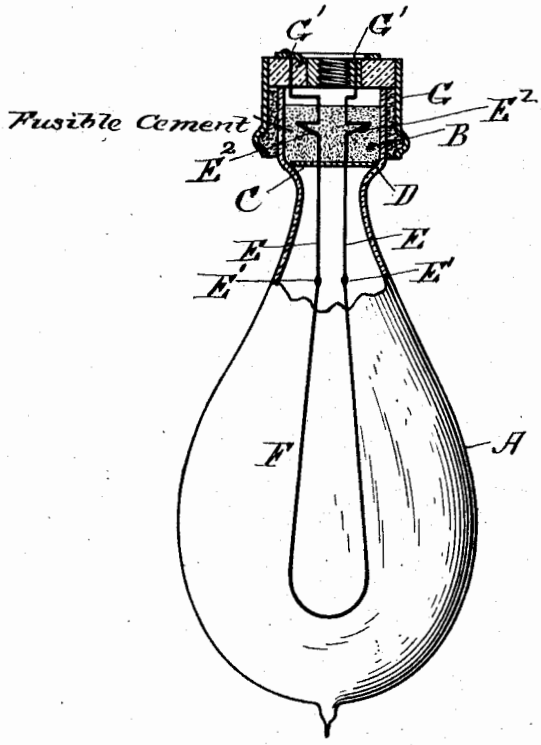
(No Model.)

W. E. NICKERSON.

INCANDESCENT ELECTRIC LAMP.

No. 503,670. Patented Aug. 22, 1893.



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INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 503,670, dated August 22, 1893.

Application filed July 19, 1893. Serial No. 480,930. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM EMERY NICKERSON, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Incandescent Electric Lamps, of which the following, taken in connection with the accompanying drawing, is a specification.

My invention relates to that class of incandescent electric lamps, in which the neck of the lamp bulb is closed air-tight, and the leading-in wires sealed and supported, by a plug of fusible cement. Its object is to prevent the breaking of the perfect contact of the wires with the cement which might otherwise occur as the result of handling during manufacture.

My invention is illustrated in the accompanying drawings, in which—

A is the glass bulb of an incandescent lamp, the neck of which is adapted to be closed air-tight by the plug of fusible cement B. The latter is supported when soft by the disk of mica C, which rests upon the shoulder D formed in the neck of the lamp bulb.

E E are the leading-in wires to which the filament F is attached at E′ E′. The leading-in wires E E are provided with the bends E^2 E^2, located above, but not in contact with, the disk C, and within the body of the cement plug B. A base or cap G, of an ordinary kind, is secured to the top of the lamp neck in the usual manner, by plaster of paris. The ends of the leading-in wires are attached by soldering to the perspective parts G′ G′ of the cap, in order to properly complete the electric circuit when the lamp is placed in its socket.

My invention relates to the bends E^2 E^2, in the leading-in wires E E. These bends are an effectual remedy for a defect which, when they are not used, frequently impairs the value of lamps of the class described in this specification, and which may be explained in the following manner.

Ordinarily the leading-in wires offer but little surface for the adhesion of the cement through which they pass. Insomuch, that after the cement, (which is poured into the lamp neck in the fused state,) has set to its normal hardness, they may, by such pushing, pulling or twisting as they are liable to receive in being handled during manufacture, break their perfect mechanical contact with the cement, and spoil the lamp by causing it to leak. The bends E^2 E^2, which are located within the cement, and preferably near the upper surface, prevent the breaking of the perfect contact of the cement with that part of each wire which lies between the bends and the disk C. This is accomplished by the resistance which the bends offer to being forced through the cement, either by pushing, pulling or twisting. Hence a perfect union of surfaces is preserved, in a part at least, of the immersed portion of the wires, and leakage is thereby prevented.

Instead of bends, buttons of metal, glass, or other suitable material, may be attached to the wires, which would also tend to prevent them from moving in the cement, and thereby breaking the perfect mechanical contact.

In my Patent No. 500,076, granted June 20, 1893, for an incandescent electric lamp, bends in the leading-in wires are shown located at the inner surface of the cement plug by which the neck of the lamp is closed. They rest on the disk which supports the cement plug, and are in contact with it. Their purpose is to prevent the wires from dropping into the lamp, before the cement plug has become fixed in its place during manufacture. They would not perform the function of the bends described in this specification, since, as they are in contact with the disk and at the inner surface of the cement plug, there is no portion of the wires immersed in the cement, which would be protected by their use, as all that part of the wires located above them within the cement, would be subject to movement, owing to their flexibility, whereby the contact of the cement with the wires might be broken, even to the inner surface, causing leakage. While the bends in Patent No. 500,076 are located adjacent to and in contact with the cement-supporting disk and at the inner surface of the cement plug for the purpose of preventing the wires from slipping into the lamp during manufacture, the bends described in this specification are located within the cement at a distance from the disk, leaving a portion of protected wire between them and it, and are for the purpose of preventing such portion of