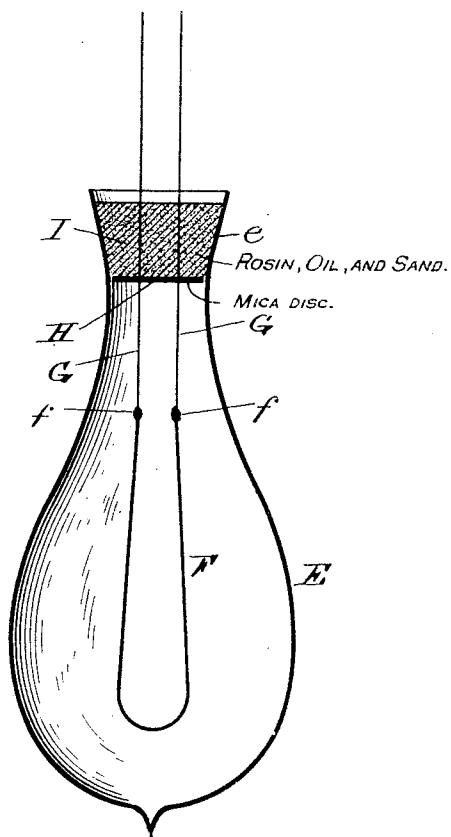


(No Model.)

W. E. NICKERSON.
INCANDESCENT ELECTRIC LAMP.

No. 500,075.

Patented June 20, 1893.



WITNESSES

Frank G. Parker
Frank G. Hattie

INVENTOR

William Emery Nickerson

UNITED STATES PATENT OFFICE.

WILLIAM EMERY NICKERSON, OF CAMBRIDGE, MASSACHUSETTS.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 500,075, dated June 20, 1893.

Application filed April 1, 1893. Serial No. 468,696. (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 drawings, is a specification.

My invention relates to that class of incandescent electric lamps in which the leading-in wires are not sealed into the glass, but in which they are held and the neck of the lamp globe is rendered air tight, by means of a fusible cement.

It consists of a method of rendering such a cement more efficacious and more easy of manipulation, as well as to reduce the quantity of certain component parts required.

In the accompanying drawings, E represents the glass globe of an incandescent electric lamp having a conical neck *e*.

F is the filament, attached to the leading-in wires G G at *ff*. The wires G G pass through a disk H of mica or other suitable substance, which is of such a diameter as to loosely fit the neck of the lamp globe when in position. The neck of the lamp globe above the disk H is filled with a cement I which serves to render the lamp globe air tight and support firmly the leading-in wires. This cement is poured into the neck of the lamp globe in the melted state and may be composed substantially as follows: pine rosin of good quality which is preferred to have been treated with lime, in order to raise the melting point, three parts by weight; linseed or other equivalent oil, one part; beach sand, granulated glass or quartz, or other suitable inert substance, free from pores or volatile constituents, in granular form, five parts. In this cement the rosin and oil form a matrix by which the particles of sand or other granular substance are surrounded and held together.

The sand, or its equivalent, accomplishes several important results. First, it requires less of the organic portion or matrix of the

cement to fill the lamp neck, thereby economizing in material used. Second, as the particles of sand, touch or nearly touch, adjacent particles, there is little or no tendency for the mass to shrink on solidifying. Third, it has a tendency, somewhat analogous to that of sand in mortar, to rendering the cement much firmer and less liable to fracture. Fourth, it tends to prevent the cement from running into the lamp when poured into the neck of the globe, in case that the disk D does not exactly fit the neck of the globe. Fifth, the particles of sand being impervious to air in themselves, and the interstices being filled with the organic portion or matrix of the cement, the air in order to pass through is compelled to take a longer path through the cement than it otherwise would, and at the same time, a less actual section of the organic portion, is presented to the action of the air.

Instead of rosin and linseed oil, other fusible substances such as copal, or some of the hydro-carbons of high melting point may be used. The list may be extended to some of the more readily fusible inorganic bodies, like chloride of zinc or nitrate of potassium. In fact, my invention consists in adding to a fusible cement or matrix to be used in the manufacture of incandescent electric lamps, a quantity of sand or its equivalent for the purpose above specified.

I claim—

In an incandescent electric lamp, a fusible cement, supporting the leading-in wires, and rendering the lamp air tight, composed of a granular substance, as sand and a fusible matrix, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 30th day of March, A. D. 1893.

WILLIAM EMERY NICKERSON.

Witnesses:

FRANK G. PARKER,
FRANK G. HATTIE.