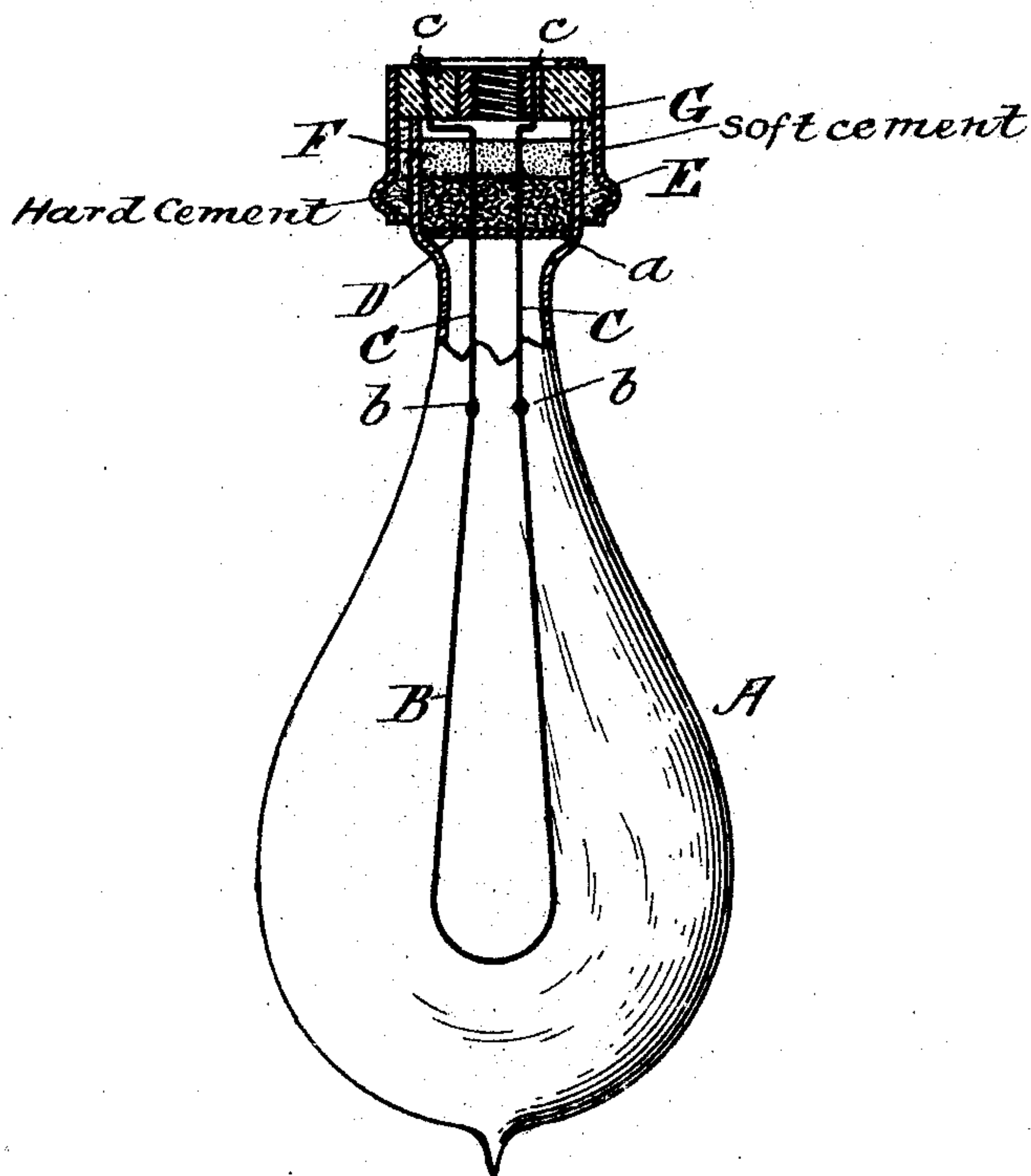


(No Model.)

W. E. NICKERSON.
INCANDESCENT ELECTRIC LAMP.

No. 503,671.

Patented Aug. 22, 1893.



WITNESSES

Frank H. Parker.
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WILLIAM EMERY NICKERSON, OF CAMBRIDGE, MASSACHUSETTS.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 503,671, dated August 22, 1893.

Application filed July 17, 1893. Serial No. 480,731. (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
5 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 globe is closed air-tight by a fusible cement. It is illustrated in the accompanying drawing, which shows partly in vertical section and partly in side elevation, a lamp
15 embodying my device.

In the drawing, A represents the globe of an incandescent electric lamp, the neck of which is provided with the shoulder *a*, upon which rests a disk of mica or other suitable
20 substances D. The disk D serves principally, to support the plug of fusible cement E.

B is the filament, and C C the leading-in wires to which the filament is attached at *b b*.

G is a brass cap or base, surmounting the neck of the lamp, to which it is secured by plaster in the usual manner. The leading-in
25 wires are attached to the cap by soldering, at *c c*.

F, is a layer of fusible cement of a different composition from E, and will be described
30 hereinafter.

In a lamp of the class described in this specification, it is necessary to use a cement whose fusion point is so high that it will not melt or
35 eliminate gas or vapor, when the lamp is in operation. A cement of this degree of hardness and infusibility, is liable when exposed to a very low temperature, such as may occur during the winter in cold countries, and
40 sometimes from other causes, to lose its adhesiveness, and become separated from the interior wall of the lamp neck, thereby allowing the lamp to leak. This defect I remedy, by using two layers of cement of different
45 composition and degrees of fusibility and elasticity. The harder and more infusible of these layers I place next the supporting disk D. This layer is able to resist without melting or elimination of gas, the heat received
50 from the incandescent filament. It may be composed of rosin combined chemically with

lime, and made somewhat flexible by the addition of a certain quantity of a suitable oil, and a granular substance, substantially as described in my Patent No. 500,075, granted June 20, 1893,
55 for an incandescent electric lamp. The other layer, shown in the drawing at F, may be composed of a similar compound of rosin and lime, but contains a much larger proportion of oil, whereby much greater flexibility is obtained, so that its adhesiveness is not destroyed by low temperatures, and no separation from the surrounding glass will take place. This effectually prevents the leakage
60 of air into the lamp, in case the layer of harder cement E, should slightly separate from the glass. Should such a separation take place on account of exposure to intense cold, the surface of the cement E and that of the glass will again unite, when subjected to the heat
65 occasioned by burning the lamp. The soft cement F is prevented from causing vapor in the lamp, by the hard layer E which underlies and protects it.

The gist of my invention consists in the use
75 of a layer of comparatively hard and infusible cement next to the disk or vacuum wall of an incandescent lamp, and a layer of comparatively soft and fusible cement overlying it, for the purpose of preventing the leakage
80 of air into the lamp, when intense cold, or other cause may have made the hard cement to lose its adhesiveness and separate from the surrounding glass.

While my invention applies especially to
85 lamps which are to encounter intense cold, it is also useful under ordinary circumstances, since it enables a much harder and more infusible cement to be used, where there is most danger of fusion and elimination of gas
90 or vapor, thereby producing a superior lamp.

I claim—

1. In an incandescent electric lamp, a fusible cement plug for closing the neck of the lamp globe air-tight, said plug consisting of two
95 layers, one comparatively hard and infusible, located nearer the filament, and one comparatively soft and fusible, located upon and outside the hard layer, substantially as and for the purpose set forth.

2. In an incandescent electric lamp, the combination of the glass globe A having a
100

neck adapted to be closed by a plug of fusible
cement, the filament B, the leading-in wires
C C and the cement-supporting disk D; with
the layer of fusible cement E, and the softer
5 and more flexible layer of cement F, substan-
tially 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 14th day of
July, A. D. 1893.

WILLIAM EMERY NICKERSON.

Witnesses:

FRANK G. PARKER,

FRANK G. HATTIE.