(No Model.)

C. M. BALL.

INCANDESCENT ELECTRIC LAMP.

No. 303,202. Patented Aug. 5, 1884.

Fig. 1.

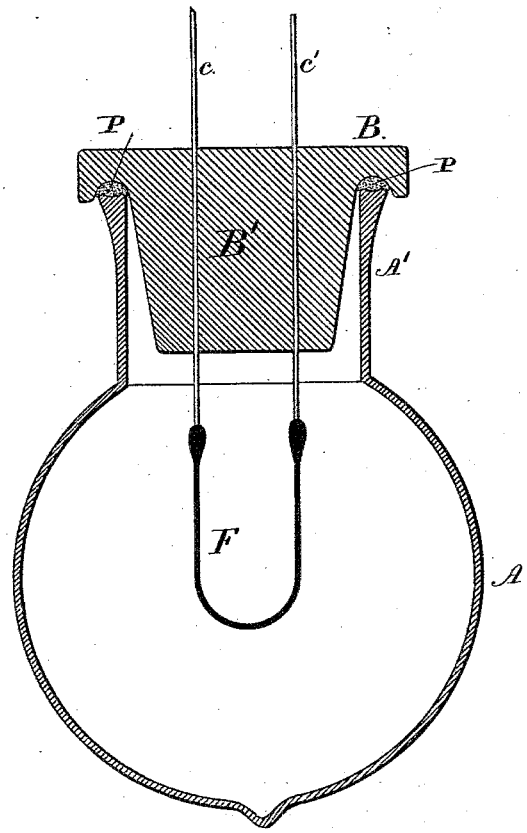
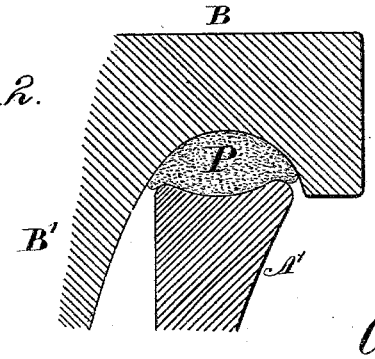


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 303,202, dated August 5, 1884.

Application filed April 11, 1881. Renewed May 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, CLINTON M. BALL, of Watervliet, Albany county, and State of New York, have invented a certain new and useful Improvement in Electric Incandescent Lamps, of which the following is a specification, reference being had to the accompanying drawings and the letters of reference marked thereon, which form a part of this specification.

The object of this invention is to construct an incandescent electric lamp in separate parts in such a manner as to admit of ready connection and adjustment of the metallic electrodes or connections with the carbon or other light-giving body in the lamp, and in packing the joint between the opposed bearing-surfaces with an elastic or plastic material, whereby the separate parts, when assembled together to form the inclosing-globe or vacuum-chamber for the electric light, are adapted to be held firmly in position after the exhaustion, and the required vacuum to be maintained by atmospheric pressure acting on the outer surfaces in contradistinction to mechanical fastening or uniting means.

My invention will be more fully hereinafter described, and pointed out in the claims.

Figure 1 represents a vertical sectional view of my improved lamp. Fig. 2 represents an enlarged sectional view of one side of the neck and seal.

In the annexed drawings, the letter A represents a glass vacuum bulb or chamber common to lamps of this class, formed with a prolongation or neck, A′. It will be observed by reference to the drawings that the outer end of this neck is somewhat re-enforced and provided with a concave surface formed by upsetting the glass while hot in a mold.

The letter B represents the wire-support, made of glass or any other suitable non-conductor of electricity, impervious to the atmosphere under pressure. This wire-support, made with an inward-projecting extension, B′, to support and define the position of the metallic conductors within the lamp, is formed with a lateral extension or flange, preferably recessed on its inner side for the reception of a gasket of rubber or equivalent elastic packing, P, substantially as seen.

In Fig. 2, which is a vertical section of one side of the neck A′ and a lateral extension of the wire-support, is shown on an enlarged scale the concave surfaces of the two bearing parts and the intermediate packing. This lateral extension of the wire-support constitutes one of the opposed bearing-surfaces in the complete lamp, and prevents the forcing of the wire-support into the bulb by atmospheric pressure.

The letters C C′ represent the metallic conductors, of proper length, embedded and hermetically sealed in the wire-support, and connected in the usual manner to the carbon or other light-giving body, F, by means of clamps or other devices.

The parts constituting the incandescent electric lamp are united or assembled together by connecting, as already stated, the carbon or other light-giving body to the metallic conductors C C′, embedded and sealed in their support B, and then centrally introducing the carbon into the vacuum bulb or chamber until arrested by the bearing-surface of the wire-support coming in contact with an intermediate packing arranged against the opposed bearing-surface of the bulb or chamber. The elastic or plastic packing P, interposed between these bearing-surfaces, is preferably employed to make a quick and ready air-tight joint. The air is exhausted from the bulb or chamber in the well-known manner of exhausting in this class of inventions. This construction and arrangement of the parts defines the location and position of the light-giving body within the vacuum-chamber and prevents the forcing of the wire-supports into the said chamber.

It will now be observed that the atmospheric pressure, acting upon the several parts in conjunction with the elasticity of the packing, serves to maintain the vacuum in the bulb or chamber when once obtained. The surfaces which bear upon the elastic packing, either one or both, are made with advantage slightly concave, thereby forcing the packing from

both sides toward the center of the bearing-surfaces when affected by atmospheric pressure acting on the several parts of the lamp.

In the manner above described a very substantial, cheap, and durable lamp is produced, and one in which the carbon may be readily replaced without destroying the bulb or globe.

The mode of manufacturing the insulating wire-support or closing-cap, and the same as a new manufacture or a new article of manufacture, will form the subject of another application; hence no claim is herein presented for such improvements.

Having thus fully described and set forth the nature of my invention and how the same is made operative, I wish to state that I do not claim, broadly, a vacuum-chamber the parts of which are adapted to be held together by atmospheric pressure; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the exhausted bulb or chamber of an electric lamp, having an outwardly-extended bearing-surface and a wire-support or a closing-cap provided with a flange or enlargement facing and constituting an opposed bearing-surface, such surfaces being made concave, with an interposed sealing-packing arranged between the bearing-surfaces, substantially as and for the purposes set forth.

2. The combination of a vacuum bulb or chamber having a neck with an outwardly-extended bearing-surface, a gasket of sealing material of corresponding dimension, and an insulating wire-support containing parts of the electrical conductor embedded therein, and provided with a flange or enlargement fitting closely over said packing, all adapted and arranged to maintain a tight joint and to determine or locate the position of the incandescent conductor in the chamber, substantially as set forth.

3. The combination, in an electric lamp to be exhausted of atmosphere, of two parts of glass, with opposing bearing-surfaces held together by the pressure, and forming the inclosing-vessel, an elastic air-tight packing between such bearing-surfaces, and two metallic conductors passing through and embedded in one of such pieces of glass, and connected within the vessel with the incandescing filament, substantially as specified.

In witness whereof I have hereto set my hand this 24th day of March, 1881.

CLINTON M. BALL.

Witnesses:
N. DAVENPORT,
A. W. GATES.