(No Model.)

R. P. ASHWELL & G. W. TUTTLE.

INCANDESCENT ELECTRIC LAMP.

No. 517,017. Patented Mar. 27, 1894.

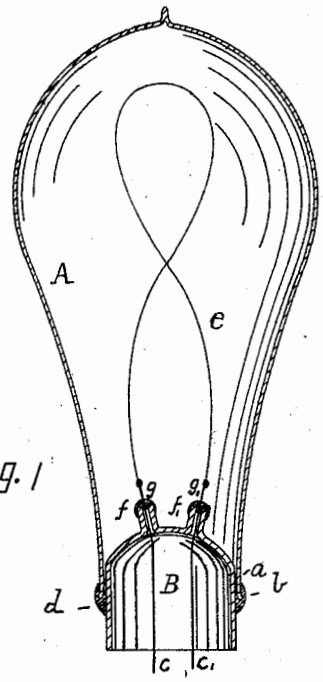

Fig. 1

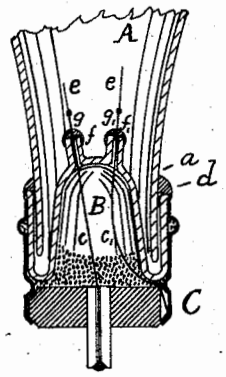

Fig. 2

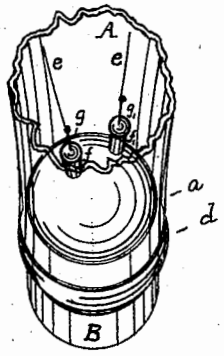

Fig. 3

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INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 517,017, dated March 27, 1894.

Application filed August 11, 1893. Serial No. 482,881. (No model.)

To all whom it may concern:

Be it known that we, RICHARD P. ASHWELL, residing at Newark, in the county of Essex and State of New Jersey, and GEORGE W. TUTTLE, residing at New York, in the county and State of New York, citizens of the United States, have invented certain new and useful Improvements in Incandescent Electric Lamps, of which the following is a specification.

The objects of our invention are first to so construct the lamp that it may readily be taken apart for the renewal of the filament without distorting or otherwise injuring its parts as would occur if the glass were heated until it softened. Second to lessen the cost of manufacture of the lamp by the use of other and cheaper metals for the leading in wires in place of the expensive platinum in common use. Lamps having copper or other metal leading in wires may be successfully made by the process described below.

Figure 1. is a sectional view of the lamp. Fig. 2. is a sectional view of a part of the lamp near the base, showing a modified form of joint, and having a cap attached. Fig. 3. is a perspective view near the base of a portion of the lamp shown in Fig. 1.

The bulb A is of glass, having a neck *a* coated with a film of platinum chloride, or other metallic salt in solution, which by heating to a suitable temperature, leaves a closely adherent film of metallic platinum or other metal on the glass; this film preferably extending over the edge *b* of said bulb.

Attached to the bulb by the method to be described, is the part B, through which extend leading in wires *c c*. The part B is made to fit closely into the neck *a* of the bulb; a coating similar to that described, is deposited on this part B, adjacent to the edge *b* of the bulb A. These coated surfaces we unite by solder *d* directly applied to these coatings, forming a perfectly tight and successful joint; the solder being more impermeable than any metal cast about the joint.

Passing through the part B, are metal leading in wires *c c*, which are attached to the filament *e*, short glass tubes *f f*, surrounding them, in the construction shown, though not a necessary part of the invention. On and around the ends of these tubes, or other parts adjacent to the leading in wires, we coat the glass surfaces as heretofore described, and unite by solder *g g*, said leading in wires *c c*, to the coated surfaces above described. It is not necessary to this invention that the leading in wires pass through the part B; one or both may pass through A, or one may pass through the joint between A and B; the wire being preferably flattened where it passes between these parts.

We have used other solutions or pastes besides that of platinum chloride, and do not desire to limit the invention to that alone; with some of these it is desirable to use one coating next the glass, and another, to which solder will more readily adhere thereon. In the process described, we heat the platinum chloride to reduce it; but suitable deposits may be made in some cases without the aid of heat.

Fig. 2. shows a particular form of joint, which may be used to connect the separable parts of the lamp; it has the advantage that a cap C may be plastered to the part carrying the leading in wires in the usual manner; and said part may be removed to renew the filament without disturbing the cap, or its connection to the leading in wires; other structures may be designed in which the same invention may be used.

We do not desire to limit ourselves to any particular form of structure.

What we claim is—

1. An incandescent electric lamp having an inclosing glass bulb and stopper, films reduced from a solution or paste of a metallic compound applied on the adjacent surfaces of said bulb and stopper, and solder or similar material uniting said films, to form an air tight joint as set forth.

2. An incandescent electric lamp having an inclosing glass bulb and stopper, films reduced from a solution or paste of platinum chloride applied on the adjacent surfaces of said bulb and stopper, and solder or similar material uniting said films as set forth.

3. An incandescent electric lamp having a glass bulb and stopper, inclosing an exhausted chamber, leading in wires entering said chamber and attached to a filament inclosed therein, films reduced from a solution or paste of

a metallic salt applied to said glass surfaces at their junction with each other, or with the leading in wires, and solder uniting said films with each other or with the leading in wires, as set forth.

4. An incandescent electric lamp having an inclosing glass bulb and stopper making an air tight joint with same, and having apertures through which pass leading in wires united to a filament inclosed within said bulb, films reduced from a solution or paste of a metallic compound applied on the glass surfaces adjacent to said apertures, and solder or similar material joining said wires and films, as herein set forth.

5. An incandescent electric lamp having a bulb and a stopper through which leading in wires pass inclosing the neck of the bulb, coatings reduced from a solution or paste of a metallic salt, applied to the exterior and adjacent parts of said bulb and stopper, and solder uniting them. A cap or shell attached to said stopper, and having suitable contacts thereon electrically connected with the leading in wires, as herein set forth.

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Witnesses:
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