No. 780,087. PATENTED JAN. 17, 1905.

M. C. BURT.

INCANDESCENT ELECTRIC LIGHT BULB.

APPLICATION FILED MAR. 4, 1904.

Fig. 1.

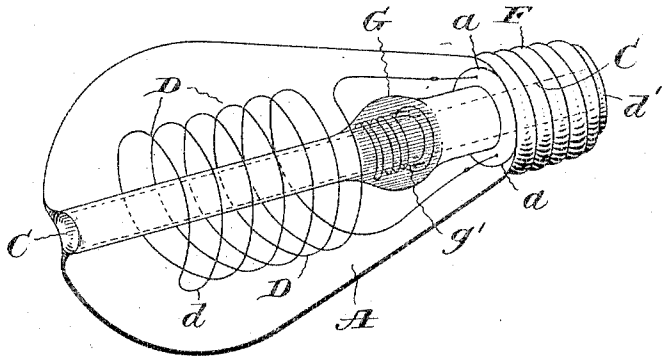


Fig. 2.

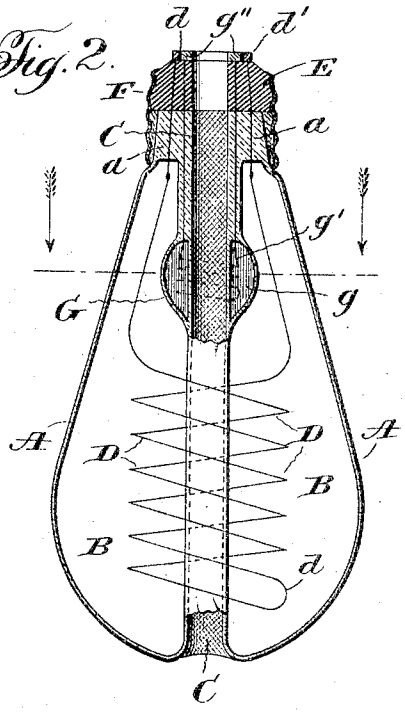


Fig. 3.

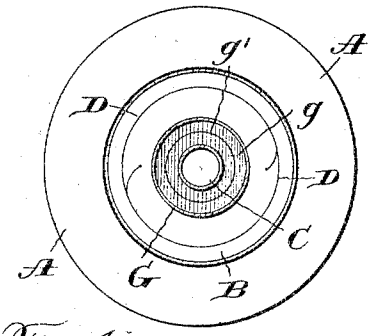
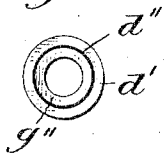


Fig. 4.



Witnesses:

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Inventor:

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No. 780,087. Patented January 17, 1905.

UNITED STATES PATENT OFFICE.

MARTIN C. BURT, OF CHICAGO, ILLINOIS.

INCANDESCENT-ELECTRIC-LIGHT BULB.

SPECIFICATION forming part of Letters Patent No. 780,087, dated January 17, 1905.

Application filed March 4, 1904. Serial No. 196,529.

To all whom it may concern:

Be it known that I, MARTIN C. BURT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Incandescent-Electric-Light Bulbs, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in incandescent-electric-light bulbs, and has for an object the provision of a bulb of this character possessing novel structural characteristics whereby the same may be adequately ventilated to prevent damage of the parts incident to the heat generated within the bulb as well as undue radiation of such heat without the bulb.

The invention also comprehends the provision of a relatively large bulb and therewithin a relatively small bulb, producing, in effect, what I may term a "double" bulb, each containing a filament, whereby either a brilliant or subdued light may be afforded. The inner bulb is so arranged that it is not dependent for the preservation of its filament upon the vacuum of the outer bulb, so that the former will be maintained in operative condition even though the outer bulb or its contained filament become impaired. The subdued quality of the light emanating from the smaller bulb is preferably, though not essentially, enriched by a coloration of this bulb when the outer bulb is white, as is ordinarily the case.

The invention still further embraces a bulb provided with interiorly-disposed means for effecting a more complete deflection or reflection of the light-rays outwardly from within the innermost pats of the bulb.

The novel details in the construction and arrangement of the several parts of a practical embodiment of the invention capable of successfully attaining the ends above enumerated will be apparent from the detailed description when read in connection with the accompanying drawings, forming part hereof, and wherein such embodiment is illustrated.

In the drawings, Figure 1 is a perspective view of the bulb. Fig. 2 is a longitudinal sectional view, parts being shown in elevation. Fig. 3 is a cross-sectional view of Fig. 2 looking in the direction of the arrows, the full transverse formation of the bulb being shown rather than one-half thereof, as would be the case were Fig. 2 strictly adhered to; and Fig. 4 is a detail elevation.

Referring more specifically to the drawings, A designates a glass bulb, preferably of standard size, and B the vacuum-chamber therein. This bulb is formed with an air-passage therethrough, running longitudinally thereof, the same being represented at C and being formed by a tube formed integral with the bulb A and constituting the interior wall thereof. Coiled around this tube and within the vacuum-chamber is a carbon or other filament D, spaced a suitable distance from the tube to avoid contact therewith. The filament is bent upon itself intermediate its ends, as at *d*, and wound upwardly, the respective ends thereof passing through the sealed end *a* of the bulb and the insulator-ring E to an annular contact member *d'*, the contact member being of course exposed, whereby a continuous circuit may be secured upon the insertion of the bulb into a suitable socket provided therefor, which latter it is not necessary to herein define, inasmuch as it more properly constitutes subject-matter for a companion application. It is sufficient to here refer only to the threaded ferrule F, which affords the attaching means for the socket.

The air-passage C has been referred to as passing through the bulb and also as running longitudinally thereof; but it will be appreciated that the underlying principle of the invention is sufficient in scope to include ventilating-passages formed in the bulb irrespective of their arrangement and whether or not such passages pass entirely through the bulb, although in the latter instances the passages could probably be more appropriately termed "air-pockets" and the like. The unobstructed passage, however, is by far the more advantageous, inasmuch as a continued circulation is insured. This ventilation of the interior portions of the bulb, however attained, is highly beneficial for many reasons. It not only cools the interior of the bulb, thereby

preventing damage of the parts incident to the excessive heat generated within the bulb, but it also overcomes in a great measure that objection so common in most illuminating devices—the radiation of objectionable heat therewithout.

The surface of the tube surrounding the passage C (it being borne in mind that said tube is formed of glass) is coated with an amalgam of tin or silver with mercury, thereby constituting said tube a cylindrical reflector or looking-glass facing outwardly in all directions from within the bulb. This enables the tube to perform the additional function of deflecting or reflecting the light-rays outwardly from within the innermost parts of the bulb. The result is that the efficiency of the light is greatly enhanced and a most artistic and pleasing effect produced.

Within the bulb A, I provide a relatively small auxiliary bulb G, conveniently, though not essentially, formed integral with the bulb A and upon the tube surrounding the passage C, said smaller bulb having an independent vacuum-chamber g as well as an independent carbon filament g', similar in formation to the filament D heretofore referred to and likewise coiled about the tube. The ends of this last-described filament also pass through the end a of the bulb A, the insulator-ring E, and terminate in electrical connection with an annular contact member g'', arranged concentrically with the corresponding contact member d' and within the same, these two contact members being separated from each other by insulation d'' interposed therebetween.

It is to be noted that the peculiar formation and arrangement of the inner bulb relative to the outer bulb is such that the inner bulb is not dependent for the preservation of its filament upon the vacuum of the outer bulb. Therefore the former will be maintained in operative condition even though the outer bulb or its contained filament become impaired.

I desire it understood that in any future interpretation as to the scope of the present invention the same is not to be limited to any special features of structure herein disclosed and that equivalents may be freely resorted to—as, for instance, referring to the inner globe, which has been described as colored to subdue the light, it is obvious that the glass may be frosted or otherwise treated to attain the same result.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. As an article of manufacture, a double incandescent-electric-light bulb one arranged within the other, and having a tubular reflector passing through both.

2. A double incandescent-electric-light bulb comprising an outer bulb, a filament therein, a relatively small bulb within said outer bulb, and a filament in said smaller bulb, said bulbs having a continuous ventilating-passage extending longitudinally therethrough.

3. A double incandescent-electric-light bulb having a pair of vacuum-chambers and independent filaments therein, said bulb having a continuous ventilating-passage extending through both said chambers.

4. A double incandescent-electric-light bulb having a pair of vacuum-chambers and independent filaments therein, said bulb having a continuous tubular ventilating-passage extending through both said chambers, and said filaments being coiled around said tube.

5. As an article of manufacture, a double incandescent-electric-light bulb one arranged within the other, and a reflecting device extending into both.

6. A double incandescent-electric-light bulb comprising an outer bulb, and a relatively small bulb within said outer bulb, said bulbs having a ventilating-passage extending into both.

7. A double incandescent-electric-light bulb comprising an outer bulb, a relatively small bulb within said outer bulb, said bulbs having a ventilating-passage extending through both and opening at both ends.

8. A double incandescent-electric-light bulb comprising an outer bulb having a tubular interior portion, and a relatively small bulb on said tubular portion, the tube constituting the interior wall of said small bulb.

9. A double incandescent-electric-light bulb comprising an outer bulb having a tubular interior portion, a relatively small bulb on said tubular portion, the tube constituting the interior wall of said small bulb, in combination with filaments in both of said bulbs.

In testimony whereof I affix my signature in presence of two witnesses.

MARTIN C. BURT.

Witnesses:
K. E. MONTAGUE,
J. DONALDSON.