No. 805,282. PATENTED NOV. 21, 1905.

G. GERMANI.

INCANDESCENT LAMP.

APPLICATION FILED OCT. 13, 1904.

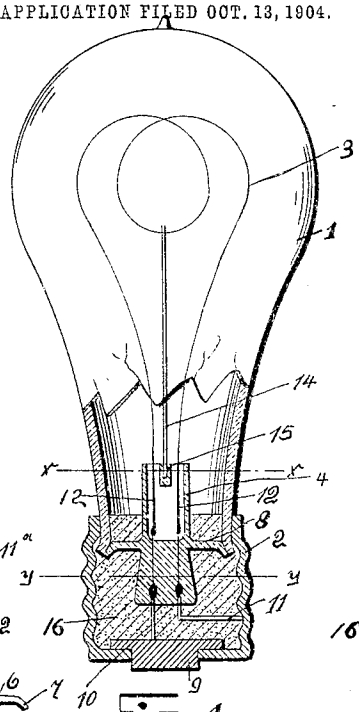


Fig. 1.

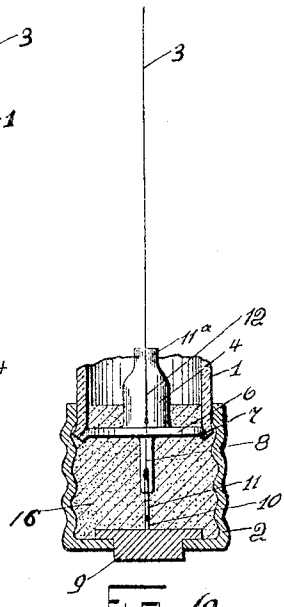


Fig 6.

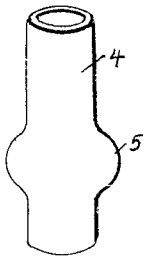


Fig. 4.

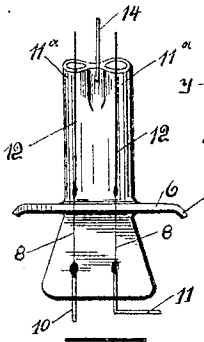


Fig. 5.

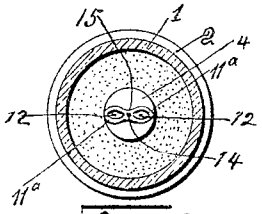


Fig. 2.

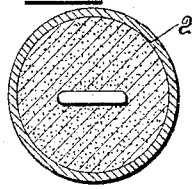


Fig. 3.

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UNITED STATES PATENT OFFICE.

GUSTAVO GERMANI, OF PITTSBURG, PENNSYLVANIA.

INCANDESCENT LAMP.

No. 805,282. Specification of Letters Patent. Patented Nov. 21, 1905.

Application filed October 13, 1904. Serial No. 228,269.

To all whom it may concern:

Be it known that I, GUSTAVO GERMANI, a subject of the King of Italy, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Incandescent Lamps, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to certain new and useful improvements in incandescent lamps; and the object of the invention is to secure a better adhesion of the platinum wires which convey the current to the filament to the glass through which they pass when entering the bulb of the lamp, thereby increasing the length of time that said lamp can be used.

Another object of this invention is to provide a novel form of glass tube in which the platinum and copper wires are generally embedded. I have so constructed this glass tube that the position of the platinum wires and the glass through which they pass will be such that when used in connection with an incandescent bulb the wires and glass will be protected and less affected by the high temperature of the incandescent filament. By this construction I have been able to produce a shorter coefficient of expansion and contraction of the wires and glass of the lamp at the opening and closing of the circuit, and will thereby greatly diminish the entrance of air into the bulb through the open space caused by the dissimilar expansion and contraction of the platinum and glass.

With the above and other objects in view the invention consists in the novel construction, combination, and arrangement of parts which will be hereinafter more fully described and, then specifically pointed out in the claims, and, referring to the drawings accompanying this application, like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a side elevation of an incandescent lamp, partly shown in vertical section. Fig. 2 is a horizontal sectional view taken on the line *x x* of Fig. 1. Fig. 3 is a similar view taken on the line *y y* of Fig. 1. Figs. 4 and 5 are detail views of the glass tube used in connection with my improved lamp, and Fig. 6 is a vertical transverse sectional view of Fig. 1.

In the accompanying drawingss I have illustrated the ordinary type of incandescent-lamp, wherein a glass bulb 1 is employed which is supported in a brass screw-casing 2.

The reference-numeral 3 designates the filament of the lamp, and my invention resides in the small glass tube commonly used in this type of lamp.

The reference-numeral 4 designates the glass tube, which is of a peculiar construction that will now be described. When forming this tube by blowing the same, an enlarged bulb portion 5 is formed upon said tube, and when it is heated the ends of the tube are pressed toward each other, which will collapse said bulb and form an annular flange 6. The edges of the flange are then bent downwardly, as indicated at 7. By referring to Figs. 1 and 4 of the drawings it will be observed that the flange has almost been formed centrally of the length of said tube, and the tube is now ready to receive the wires which are to convey the current to the filament 3 of the lamp.

Heretofore in lamps of this type the leading-in or platinum wires have been placed or embedded in the upper end of the tube 4, which necessarily subjected said wires to the highest temperature of heat of said lamp. In my improved construction I embed the leading-in wires 8 in the lower portion of the tube outside of the lamp-bulb, and the flange 6 is hermetically sealed to the neck portion of the incandescent-lamp bulb. One of the leading-in wires is connected to the brass contact-piece 9 by a wire 10, while the other of said leading-in wires is to be connected by a wire 11 to the brass screw-casing 2. That portion of the tube lying above the annular flange is molded in compartments 11^a, and from these compartments the ordinary seals 12 of an electrolytic deposition extend out into the neck of the bulb to prevent the incandescent wires or filament from contacting with the tip of the support-tube. The filament 3 is supported from the tip of the support-tube by a rod 14, embedded in the neck portion 15, formed between the compartments 11^a of the glass tube.

By the construction of my improved lamp it will be seen that the platinums of leading-in wires are located outside of the lamp-bulb and said leading-in wires will be considerably better protected from the heat of the incandescent filament. By the disposition of the wires within the tube that portion of the glass and said wires will be less affected by the high temperature of the incandescent fila-

ment and the coefficient of expansion and contraction of the glass and wires will be much shorter, thereby greatly reducing the entrance of air through the opening caused by said dissimilar expansion and contraction of the platinum wires and glass. It will thus be seen that the life and service of the lamp constructed in accordance with my invention are considerably lengthened and the many advantages derived from this construction will be apparent to those skilled in the art.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with an incandescent-lamp bulb, of a glass tube prolonged outside of the lamp-bulb and having leading-in wires mounted therein in the outside of the prolonged portion, whereby the expansion and contraction of said wires and glass tube are reduced, substantially as described.

2. The combination with an incandescent-lamp bulb, of a glass tube having an annular flange formed intermediate of its ends, said tube having leading-in wires embedded therein between one end of said tube and said flange and outside of said bulb to better protect the leading-in wires and the portion of glass wherein they are embedded from the internal heat of said bulb, substantially as described.

3. The combination with a lamp-bulb and a filament arranged within the bulb, of a glass tube extending into the bulb, leading-in wires sealed in said tube and an electrolytically-deposited material connecting said leading-in wires and said filament, said material extending into the vacuum-space in the bulb and serving to maintain said filament out of contact with said tube.

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

GUSTAVO GERMANI.

Witnesses:

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