E. L. FRENOT.

COMBINATION ELECTRIC LAMP BULB AND DIFFUSER.

APPLICATION FILED JUNE 26, 1912.

1,067,599. Patented July 15, 1913.

Fig. 1

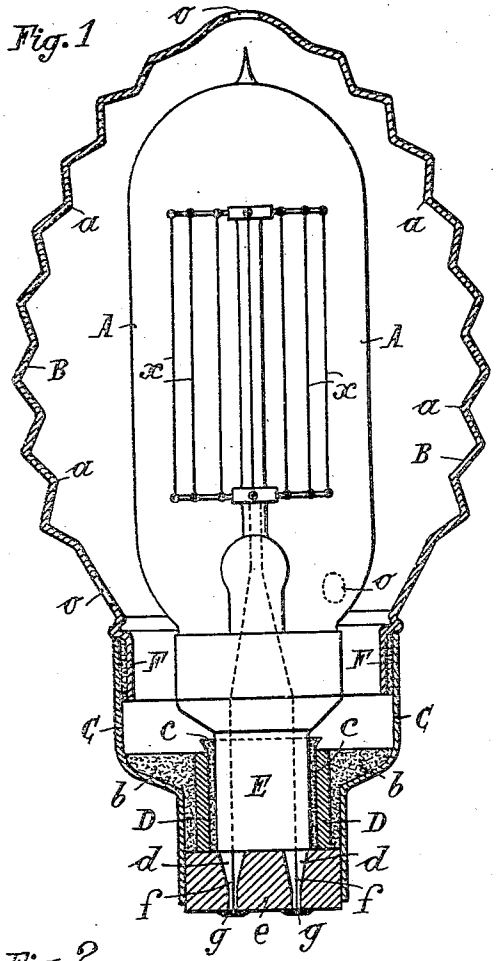


Fig. 2

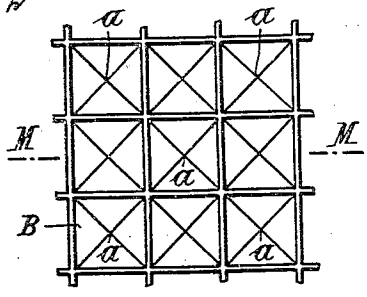


Fig. 3

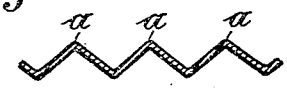


Fig. 4

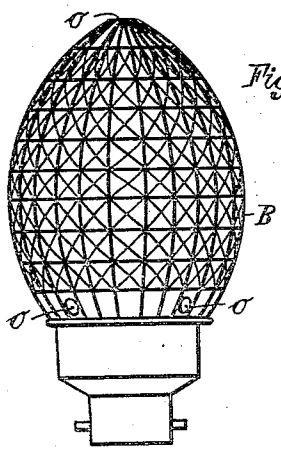


Fig. 5

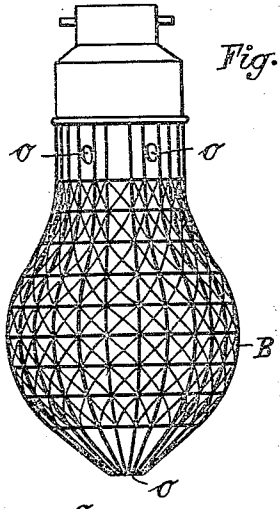
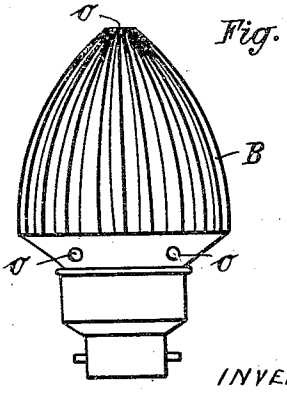


Fig. 6



WITNESSES:

Fred Whitt

J. F. Wallace

INVENTOR:

Ernest Léon Frenot,

By his Attorneys:

Fraser, Burke & Myers

UNITED STATES PATENT OFFICE.

ERNEST LÉON FRENOT, OF PARIS, FRANCE, ASSIGNOR TO SOCIÉTÉ LA MONDAINE, OF PARIS, FRANCE.

COMBINATION ELECTRIC-LAMP BULB AND DIFFUSER.

1,067,599. Specification of Letters Patent. Patented July 15, 1913.

Application filed June 25, 1912. Serial No. 705,782.

To all whom it may concern:

Be it known that I, ERNEST LÉON FRENOT, a citizen of the Republic of France, residing in Paris, Seine, France, have invented certain new and useful Improvements in Combination Electric-Lamp Bulbs and Diffusers, of which the following is a specification.

This invention consists in the combination with an incandescent electric lamp bulb of a diffuser globe surrounding the same and having its base fixed, together with the cap of the lamp bulb, in an outer cap serving for fitting the electric lamp in a lamp holder similarly to an ordinary electric lamp.

The diffusion of the light is effected by the globe surrounding the bulb, for which purpose the globe is made with internal projections or facets of prismatic shape, or in the form of ribs or ridges, said projections, ribs or ridges being produced by blowing the globe in a mold in such manner that the thickness of the glass is uniform throughout. By this means loss of efficiency is avoided, and the light rays are refracted and diffused by the interior surfaces of the globe before being distributed in the room or other space.

The cap of the bulb and the base of the globe are so mounted in the outer cap as to insulate the globe thermally from the lamp and to preserve the lamp.

The protecting globe is formed with holes which provide for a current of air between the globe and the lamp bulb, so that the air heated by the bulb escapes and is replaced by cool air, which further contributes to the preservation of the lamp.

The accompanying drawings illustrate by way of example, various forms of electric bulbs combined with protecting diffuser globes in accordance with the invention.

Figure 1 shows on an enlarged scale an incandescent electric lamp with its diffuser globe, the latter being in section. Fig. 2 is a fragmentary view of the cutside of the diffuser. Fig. 3 is a horizontal section on line M, M, Fig. 2. Figs. 4, 5 and 6 illustrate different forms of lamps.

The electric lamps employed are preferably of the tubular cylindrical type, as shown at A, and of sufficiently small diameter to be inserted through the base of the diffuser globe B. This globe which may advantageously be of frosted glass, white or colored, has internal pyramidal projections *a*, preferably quadrangular, produced by blowing the glass in a mold having internal projections. The thickness of the glass is therefore uniform throughout, so that a hollow on the outer surface of the globe corresponds to a projection on the interior surface of the globe. The rays of light have not therefore to pass through different thicknesses of glass and thus the refraction and diffusion of the rays does not result from different thicknesses of glass as would be the case, for example, with globes having projections molded or cut on their outer surface; the refraction and diffusion are due solely to the geometrical distortion of the material of the globe. This globe of thin glass is very cheap, whereas globes with projections molded or cut on their face are very expensive.

The lamp bulb and its globe are fitted in an outer metal cap C, with the aid of a ring D of fiber, compressed asbestos or other heat insulating material disposed in the outer cap C inside a packing of cotton *b*. The cap E of the lamp bulb A has likewise a packing ring or collar of cotton *c*. The cap of the bulb with its collar *c* is forced into the fiber ring D, and the bulb is thus firmly held coaxially with the globe B.

In fitting the lamp in the cap C as explained, the metal conductors *f* to which the ends of the lamp filament *x* are fixed are passed through the holes *d* formed in the insulating end or plug *e* of the cap C, and these conductors are afterward secured by drops or beads of solder *g* for contacting with the terminals of the lamp holder. Direct contact of these terminals with the conductors of the lamp is thus provided for. The base F of the diffuser globe B is also fixed in the cap C by simply applying a little plaster to the outside of the base before inserting it in the cap C. The cotton surrounding the cap of the lamp prevents the existence of moisture liable to cause short circuits, and moreover the lamp thus mounted is not liable to become hot, so that it lasts longer.

The globe inclosing the lamp bulb is formed with holes *c*, for example, there may be three at the base and one at the top; these admit the air freely and allow the hot air in the space between the bulb and the globe to escape readily. The lamp is thus ventilated, cooled and preserved in whatever

position it may be fitted, as shown, for example, in Figs. 4 to 6.

The globe may be of ovoidal, spherical, pear-shaped or any other suitable form. Instead of making the interior of the globe with pyramidal projections, I may form it with longitudinal ridges or ribs as seen for example, in Fig. 6.

Claims:

1. An incandescent lamp comprising a cap or base adapted to fit into an electrical socket-piece of ordinary construction, said cap having a socket therein for an ordinary incandescent lamp having a bulb of greater diameter than the socket-piece in which the cap or base is adapted to fit, and a larger socket for a surrounding globe.

2. An incandescent lamp comprising a cap or base adapted to fit into an electrical socket-piece of ordinary construction, said cap having a socket therein for an ordinary incandescent lamp having a bulb of greater diameter than the socket-piece in which the cap or base is adapted to fit, and a larger socket for a surrounding globe, and means for thermally insulating said incandescent lamp from said cap.

3. An incandescent lamp comprising a cap or base adapted to fit into an electrical socket-piece of ordinary construction, said cap having a socket therein for an ordinary incandescent lamp having a bulb of greater diameter than the socket-piece in which the cap or base is adapted to fit, and a larger socket for a surrounding globe, said lamp having its filament-leads projecting through and attached to said cap.

4. An incandescent lamp comprising a cap or base adapted to fit into an electrical socket-piece of ordinary construction, said cap having a socket therein for an ordinary incandescent lamp having a bulb of greater diameter than the socket-piece in which the cap or base is adapted to fit, and a larger socket for a surrounding globe, and means for electrically and thermally insulating said lamp from said cap.

5. An incandescent lamp comprising a cap or base adapted to fit into an electrical socket-piece of ordinary construction, said cap having a socket therein for an ordinary incandescent lamp having a bulb of greater diameter than the socket-piece in which the cap or base is adapted to fit, and a larger socket for a surrounding globe, and means for uniting said globe to said cap.

6. An incandescent lamp comprising a cap or base adapted to fit into an electrical socket-piece of ordinary construction, said cap having a socket therein for an ordinary incandescent lamp having a bulb of greater diameter than the socket-piece in which the cap or base is adapted to fit, and a larger socket for a surrounding globe, and a moisture-repellent packing between said globe and said lamp on the interior of the cap.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

ERNEST LÉON FRENOT.

Witnesses:
H. C. Coxe,
Renè Bardy.