(No Model.)

T. B. ATTERBURY.

INCANDESCENT LAMP GLOBE.

No. 500,841. Patented July 4, 1893.

Fig. 1.

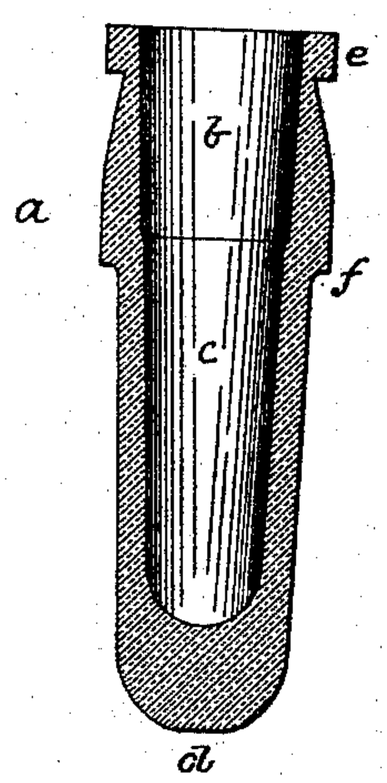
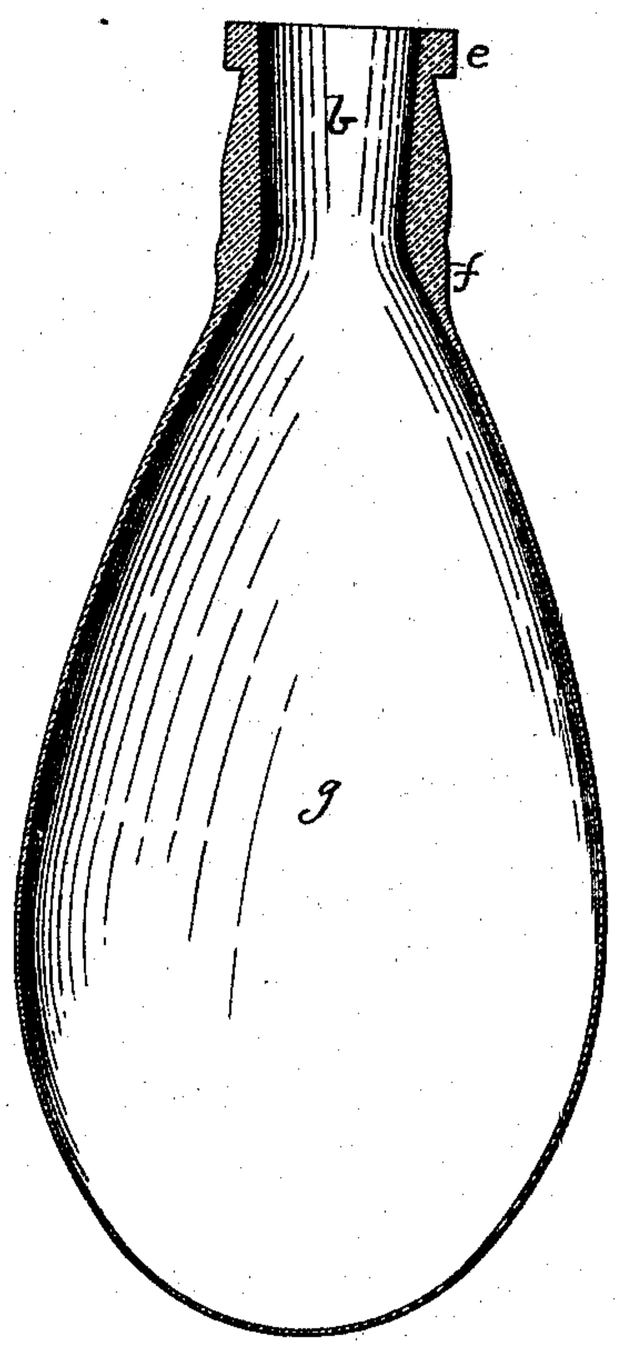


Fig. 2.



WITNESSES

M. L. Dyer.

G. B. Lemo.

INVENTOR

Thomas B. Atterbury

by Kerr & Curtis

his attorneys

UNITED STATES PATENT OFFICE.

THOMAS B. ATTERBURY, OF PITTSBURG, PENNSYLVANIA.

INCANDESCENT-LAMP GLOBE.

SPECIFICATION forming part of Letters Patent No. 500,841, dated July 4, 1893.

Application filed July 26, 1892. Serial No. 441,239. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. ATTERBURY, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Incandescent-Lamp Globes, of which the following is a full, clear, and exact description.

My invention relates to incandescent electric lamps and particularly to the class known as stopper lamps, being lamps in which the globe is provided with an open mouth or end closed by a stopper or removable piece in or to which the conductors are attached, and which is hermetically sealed or cemented into the mouth of the bulb proper.

My improved globe is provided with a molded or uniformly shaped mouth of such strength, thickness and form as to support the bulb, which is of much larger diameter and relatively very fragile, in all the manipulations necessary to its formation and use, and particularly for grinding in the stopper to make an air tight joint, and also to afford a strong and durable part for the attachment of the lamp base or fitting. The stopper must be ground into the mouth of the globe in a manner somewhat similar to that used in making ground glass-stoppered or "salt-mouth" bottles to make the surfaces perfectly true to enable the globe to be hermetically sealed with cement, and also to be used with other stoppers of uniform size, a great desideratum being to make all the globes and stoppers interchangeable, so that they may be used with others interchangeably and that the parts of old lamps in which the illuminating conductors have been destroyed or broken or in which the globes or stoppers have been broken may be refitted for use by replacing the broken or defective parts. All this may be accomplished by the use of my improved globe.

To enable others skilled in the art to make and use my invention, I will now describe it by reference to the accompanying drawings in which—

Figure 1 is a longitudinal sectional view of the pressed glass blank from which my improved stopper lamp globe is made. Fig. 2 is a like view of my improved stopper incandescent lamp globe.

I first form by pressing in a suitable mold by the use of a suitable plunger or glass press, as will be understood by the skilled glass worker, a hollow blank *a* having a molded or permanently formed mouth or open end *b* and a temporary hollow body *c* with a closed outer end *d*. The mouth or open end *b* has a slightly tapered internal bore for receiving a correspondingly shaped stopper in which the conducting wires are molded, sealed or supported. Its external surface is preferably made with a rim or bead *e* and an abrupt shoulder or corner *f* for the attachment of the metallic base or socket in which it is fitted. The inner surface is definitely and uniformly formed as to shape and dimension by the plunger, so as to fit the stopper which is formed in a separate mold, and so that it shall correspond exactly with other globes formed in like or similar molds, thereby securing absolute uniformity of manufacture and interchangeability of parts. In like manner the external surface and the thickness are made uniform in order that they may fit the metallic base or socket with which the globe is used, such bases or sockets being made in quantities and to a definite and uniform size or gage. This definite form and size is secured by molding the mouth as described. It is apparent that in this way the exact strength and thickness requisite for the durability of the globe, the grinding-in of the stoppers and the support of the lamp, can be accurately and certainly secured by forming the mouth to its ultimate shape by pressing the preliminary blank *a* in a mold of corresponding shape by a suitable plunger, as will be understood by the ordinary glass worker. The closed outer end *d* of the blank is then reheated and by the use of a blow pipe is blown or expanded in the open air to a bulb *g* of the required size. This blowing is done in the open air, or without the use of a mold, in order to get the free and unrestrained and natural shape which the glass will assume by being blown in the open air, and also in order to have no mold marks on it, as they cast shadows and are otherwise objectionable. This operation of reheating and blowing a glass article is so well known that it is only necessary to mention it, as thereby all glass

blowers would understand it. An important result of thus forming the bulb is that the sides as they swell out from the thick neck or mouth *b* and merge into the bulb portion *g*, taper down by an easy and gradual taper, so that there is no abrupt passing from the thick sides of the narrow neck to the thin sides of wide bulb, but, on the contrary, the material is so disposed that the different degrees of expansion and contraction of these parts under the variations of temperature to which they are exposed in the use of the lamp, may take place without injurious strain or endangering the safety of the lamp. This end is further assured by the formation of the shoulder or corrugation *f*, which strengthens the point from which the sides of bulb spring, without interfering with their elasticity. I therefore prefer to make the globe with it; but I do not confine myself thereto, because it may be omitted without destroying the utility of the globe. The external surface of the neck may be roughened or made with a screw thread, corrugations, lugs, or other form of attachment surface instead of the plain bead *e*. Or it may be perfectly plain and smooth and secured in the base or socket with which it is used by any suitable means. This is immaterial, but uniformity of size and shape in order to fit the spun or uniformly made metallic fitting is of the utmost practical moment, and this I secure by molding the neck. The narrow thick mouth or neck and wide thin bulb, which together constitute the globe, are formed of one piece of homogeneous glass without joint, seam or weld, and therefore the globe is not liable to fracture on account of differences of structure. It has strength and mass where strength and mass are needed, size and lightness where they are required, and a section of such shape uniting these dissimilar features, that each performs its function without detriment or antagonism to the other. The globe is thinnest at the part exposed to the greatest heat in use, and as it recedes from that point, it gradually becomes thicker, narrower and stronger. The thin wide part receiving the greatest heat radiates it most rapidly, but the narrower and thicker parts while not receiving so much have relatively more mass and less radiating surface, and so the homogeneous structure, although of widely varying dimensions, is exposed to uniform influences, and the globe is not therefore subjected to internal structural strains, and consequently is very durable.

What I claim as my invention is—

1. A glass incandescent lamp, having a neck pressed to standard size within, and having a blown bulb free from mold marks, substantially as set forth.

2. A glass incandescent lamp, having a neck pressed to standard size within, and with the one half, or part, of a fastening device pressed on the outside, and having a blown bulb free from mold marks, substantially as set forth.

3. An incandescent lamp globe, having a pressed neck portion with thick sides and regular form fitted to receive a stopper, a thin blown bulb of larger diameter, and an intermediate portion having sides of tapering thickness; substantially as described.

4. An incandescent lamp globe, having a mouth with thick sides and regular form fitted to receive a stopper, a corrugation at the inner end of the mouth section, a bulb of larger diameter and thin sides, and an intermediate portion having sides of tapering thickness connecting the corrugation and the bulb, substantially as described.

5. An incandescent lamp bulb, having a pressed neck portion with thick sides and regular form adapted to receive a stopper, a corrugation at the end of the neck, the exterior walls of the neck tapering inwardly to the base of the corrugation, and a thin blown bulb; substantially as described.

In testimony whereof I have hereunto set my hand this 22d day of July, A. D. 1892.

THOMAS B. ATTERBURY.

Witnesses:
W. B. CORWIN,
THOMAS B. KERR.