

(No Model.)

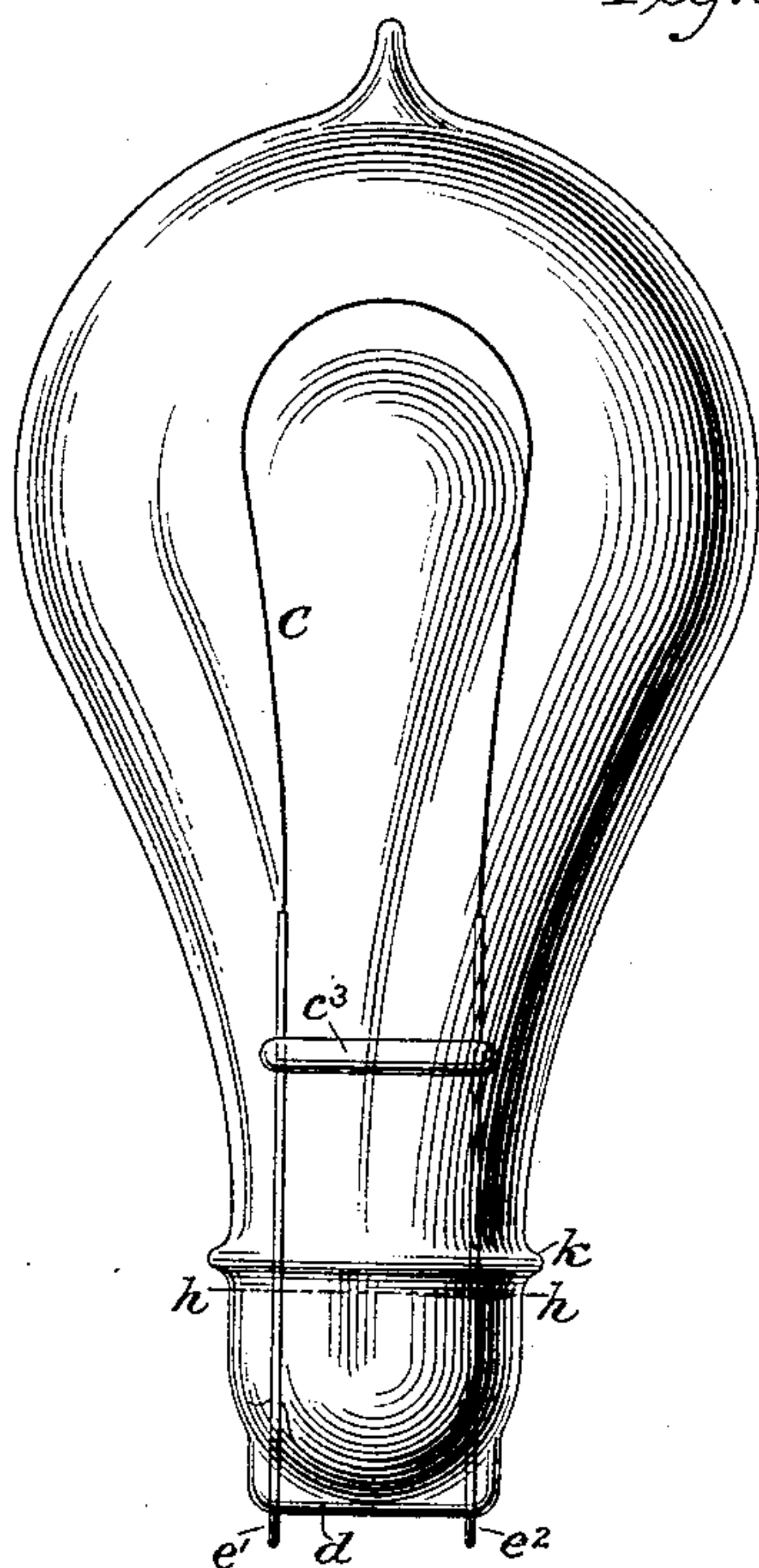
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GLOBE FOR INCANDESCENT ELECTRIC LAMPS.

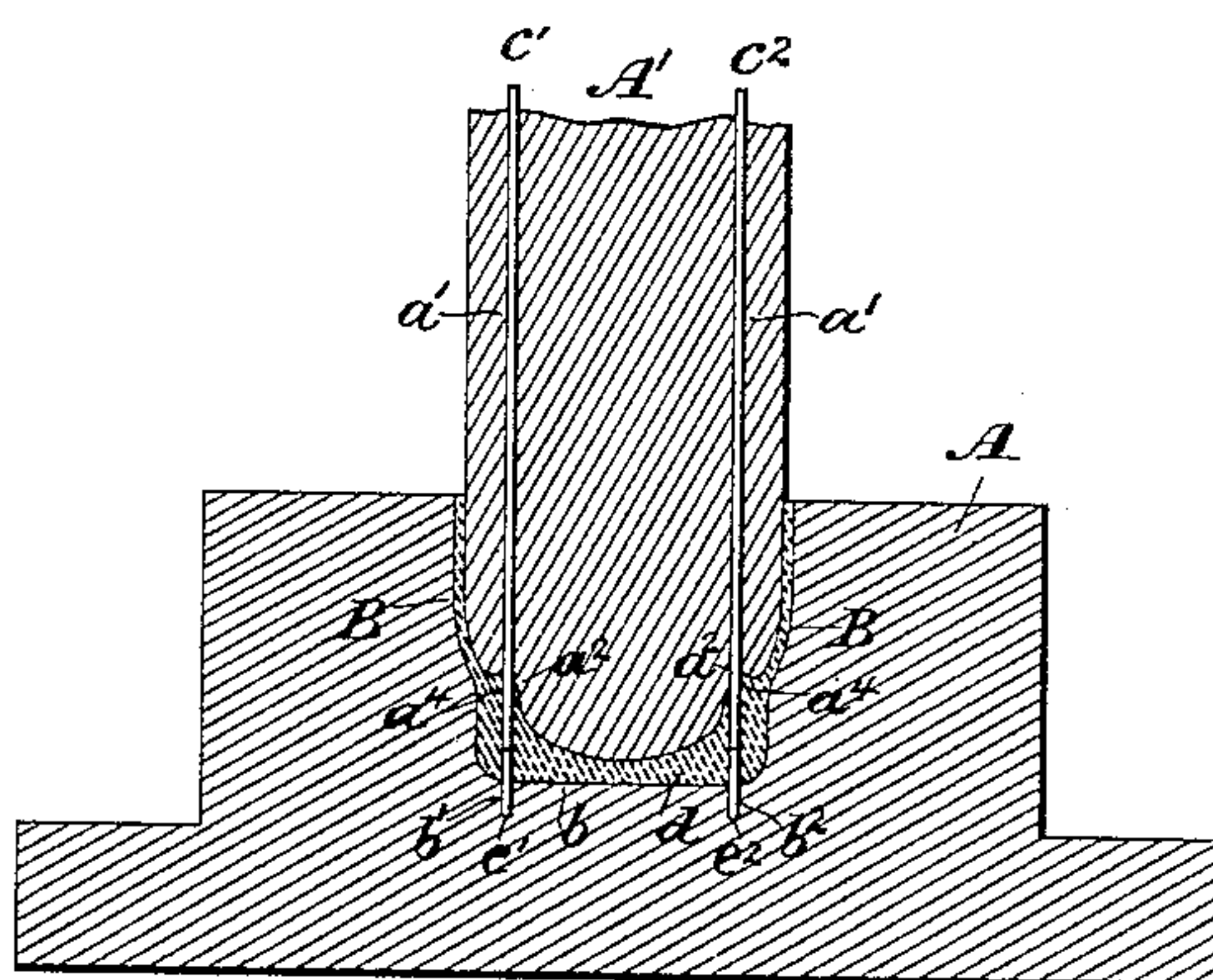
No. 333,028.

Patented Dec. 22, 1885.

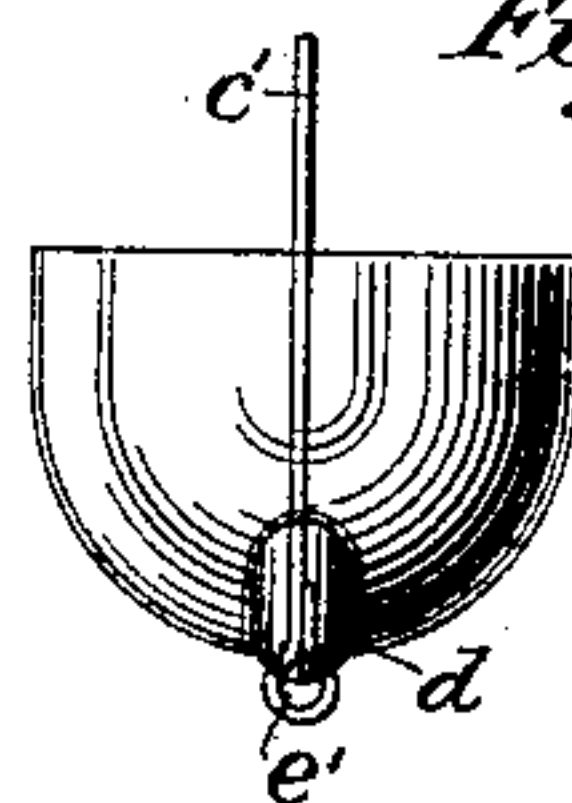
*Fig. 3.*



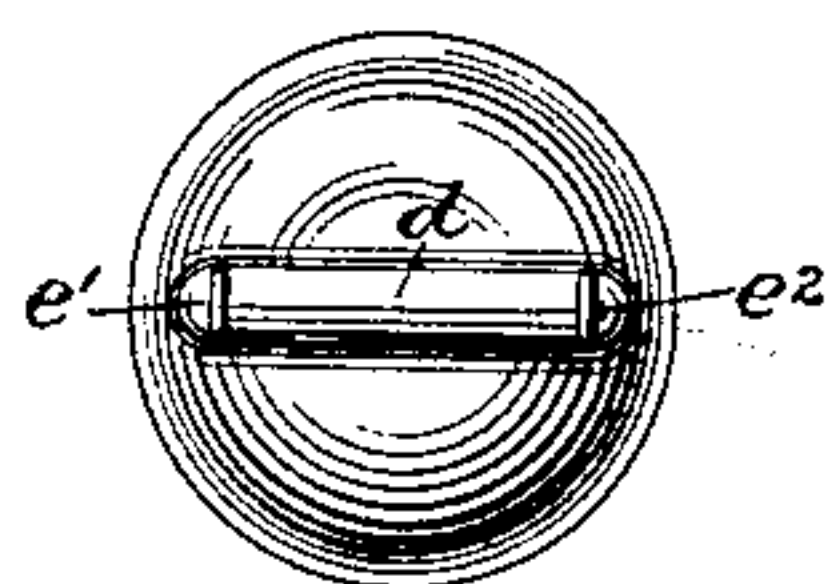
*Fig. 1.*



*Fig. 4.*



*Fig. 2.*



Witnesses

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# UNITED STATES PATENT OFFICE.

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## GLOBE FOR INCANDESCENT ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 333,028, dated December 22, 1885.

Application filed August 31, 1885. Serial No. 175,783. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM STANLEY, Jr., a citizen of the United States, residing in Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Globes for Incandescent Electric Lamps, of which the following is a specification.

My invention relates to certain improvements in the construction of the globes of vacuum-chambers of incandescent electric lamps.

The object of the invention is to simplify the manufacture and lessen the cost of producing incandescent electric lamps, and at the same time to provide a stronger and more serviceable article than has been possible under the methods of manufacture hitherto in use.

Heretofore it has been usual to blow the bulbs of the globe from molten glass, leaving an opening at the neck for the insertion of the filament and its attached leading-in wires. This opening is subsequently closed, either by drawing down the glass of the neck of the globe about the leading-in wires or by applying a separate neck-piece of blown glass carrying the filament or wires, which is then sealed to the globe.

My invention consists in constructing the globe and inserting the wires and filament therein in substantially the following manner: A suitable mold is employed for shaping the lower portion of the neck by the ordinary process of glass-pressing. A movable plunger is properly fitted to the mold, and the leading-in wires are inserted through apertures in this plunger. A proper quantity of molten glass is then placed in the mold, the subsequent operation being the same as in forming ordinary pressed-glass objects—for instance, tumblers or goblets. The plunger forces the glass outward against the walls of the mold and closes it tightly about the conducting-wires and forms a perfectly air-tight joint therewith. Preferably the mold is so constructed that there will be a projection of solid glass extending between the points which the wires pass through. The plunger is then withdrawn, leaving the leading-in wires securely embedded within the glass, they being at the same time drawn out of the plunger. The filament is

then secured to the leading-in wires in any well-known or suitable manner. The pressed glass end thus formed is applied to the open mouth of the globe and united therewith by fusing or welding the glass together in the usual manner. At the line where the two parts unite there is preferably formed an annular fillet, bead, or projection, which serves to attach the globe to a holder of peculiar construction, which is described in an application of even date herewith. It is not necessary, however, that this construction be adopted, except in lamps designed to be used with a holder of such construction.

In the accompanying drawings, Figure 1 is a vertical section of the mold and the plunger. Fig. 2 is an end view of the neck of the lamp. Fig. 3 is an elevation of the completed lamp; and Fig. 4 is a side view of the neck.

Referring to the figures, A represents the wall of the mold, in which there is formed a chamber or cavity, B, of the proper size and shape for forming the lower portion or neck of the lamp-globe. Across the bottom of the opening there is formed a groove, *b*, which is somewhat deeper than the main portion of the opening. This groove is intended to form at the lower end of the neck a transverse ridge or projection, which will be hereinafter referred to. A movable plunger, A', is adapted to fit into the cavity B and to distribute the molten glass which is placed therein by pressure about the surface of the mold. The leading-in wires *c'* and *c''* are inserted through small holes *a'* and *a''* in the plunger, so that when the latter is forced into the mold the wires are pushed through the viscid glass at the bottom of the mold, and they preferably enter small apertures *b'* and *b''*, which are formed there for receiving them. When a quantity of molten glass has been placed in the mold and the plunger thus forced down, the viscid material is pressed out against the sides of the mold. A ridge is formed along the end of the neck, as shown at *d*, by the groove *b* at the bottom of the mold. This ridge insures that the points where the leading-in wires pass through the wall shall be of sufficient thickness to insure perfectly air-tight joints.

The plunger may with advantage be constructed with conical openings *a'* and *a''* at the



lower ends of the holes  $a' a'$ , for the purpose of permitting the glass to extend upward about the wires upon the inside of the neck, as shown at  $a^4 a^4$ . The leading-in wires are  
 5 preferably bent upon themselves at their lower ends before being inserted, so that small loops are formed at the end of the neck, as shown at  $e'$  and  $e^2$ . When the glass has been pressed into the shape and has become cooled, the  
 10 plunger is withdrawn, leaving the wires in the neck. A bridge-piece,  $c^3$ , is applied for the purpose of holding the wires the proper distance apart, and the filament C is attached thereto in any well-known or suitable manner.  
 15 The top of the lower portion of the lamp which has been thus formed is preferably cut or broken off evenly, after which the upper portion of the neck and the globe are applied thereto, the two parts being hermetically  
 20 joined and sealed together by being welded or fused together along the line  $h$ . It will be seen, therefore, that while the globe proper is of blown glass produced in the usual manner the portion of the neck through which the  
 25 leading-in wires pass is of molded glass. A very perfect joint is formed by this method of passing the wires through the walls of the chamber under pressure while the glass is in a molten or viscid state. A ridge,  $k$ , is preferably  
 30 formed along the line where the two sections of the neck unite, as shown at  $h$ . This ridge or projection is useful for securing the lamp to its holder.

Instead of having an outwardly-projecting  
 35 ridge or bead an annular depression may be formed, which will serve the same purpose.

The globe when thus formed with the filament inclosed may be evacuated and sealed in any well-known manner.

The bent or loop ends of the leading-in 40 wires may be covered or filled with drops of solder, if desired, as indicated, for the purpose of rendering them stiffer and more suited to resist the friction and pressure which are applied when the lamp is placed in the socket. 45

I claim as my invention—

1. An incandescent lamp having its globe or chamber formed of two parts united by fusion, substantially as described, the one part being of blown glass and the other of pressed 50 glass.

2. An incandescent-electric-lamp globe constructed of a blown-glass section and a pressed-glass section, in combination with the leading-in conductors passing through the pressed- 55 glass section.

3. The combination, substantially as hereinbefore set forth, with the globe of an incandescent electric lamp, of a neck of pressed glass having conductors passing through its 60 walls, and a transverse thickened portion through which said conductors extend.

4. The combination, substantially as hereinbefore set forth, with the bulb or globe of an incandescent electric lamp, of a neck formed of 65 pressed glass and having a ridge of greater thickness formed across its end, and conductors leading through said thickened portion.

In testimony whereof I have hereunto subscribed my name this 10th day of August, 70 A. D. 1885.

WILLIAM STANLEY, JR.

Witnesses:

DANL. W. EDGECOMB,  
 CHARLES A. TERRY.