July 24, 1934. D. K. WRIGHT 1,967,852

ELECTRIC LAMP

Filed Dec. 8, 1933

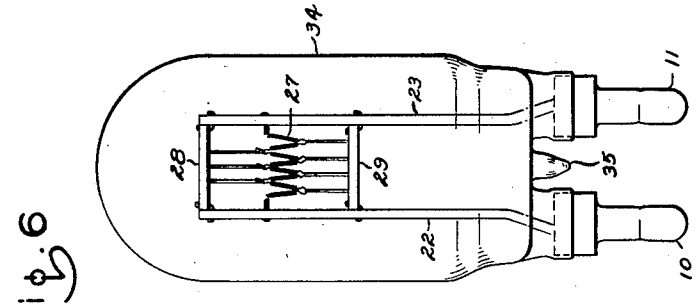


Fig. 6

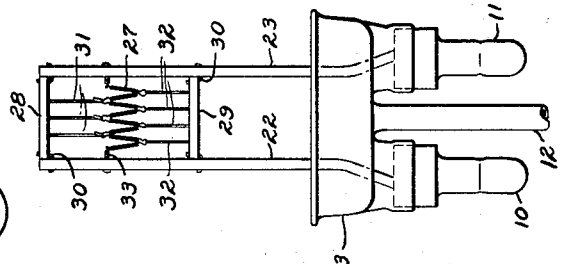


Fig. 5

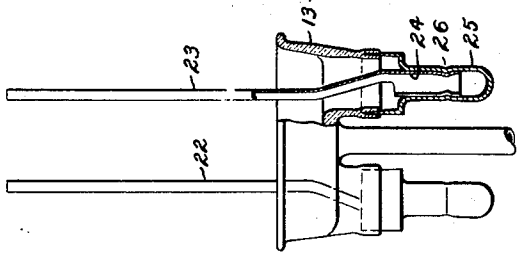


Fig. 3

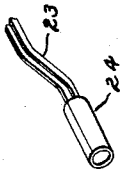


Fig. 4

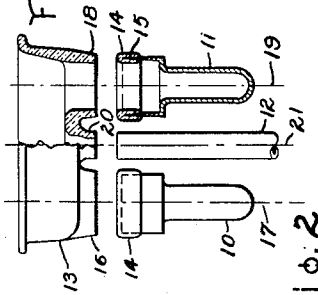


Fig. 1

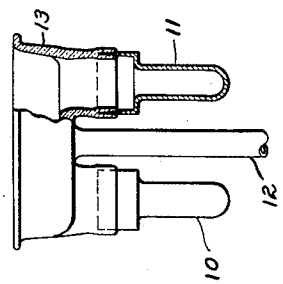


Fig. 2

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UNITED STATES PATENT OFFICE

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ELECTRIC LAMP

Daniel K. Wright, Cleveland Heights, Ohio, assignor to General Electric Company, a corporation of New York

Application December 8, 1933, Serial No. 701,451

6 Claims. (Cl. 176—32)

My invention relates to electric lamps and similar devices and more particularly to such devices comprising a bulb having outwardly extending metal terminal elements, the edges of which are sealed to openings in the walls of the bulb and which support a mount comprising an energy translation element and leads which are attached to said terminal elements. Such a device is shown in my pending application Serial No. 588,485, filed January 23, 1932.

In constructing the device shown in the said pending application, a glass collar is fused to the edge of a thimble-shaped terminal element, after which the said thimble edge is fused to the bottom of a glass body, which is preferably cup-shaped, by heating a portion of said glass cup and blowing a protuberance out into the thimble. The tip of the protuberance is then broken through to form an opening from the cup into the thimble. A mount comprising an electric energy translation element is then mounted on the thimbles by attaching the ends of rigid leads carrying said translation element to said thimbles after which the said cup-shaped glass body is sealed to the neck of a bulb.

An object of the present invention is to provide an improved construction of the type of lamp or similar device described above. To this end, I provide as an important feature of my invention a glass body, preferably in the form of a cup, in the bottom of which are located a plurality of preformed openings to the edges of which are sealed the edges of metal terminal elements preferably in the form of thimbles. In the preferred form the said glass body has a plurality of preformed outwardly projecting tube portions communicating with the said openings, the edges of the said metal terminal elements being fused to the edges of said tube portions. The seal thus formed is very much superior to the seal formed according to the method described above in my pending application, particularly as to strength. The seal also has a better appearance and is less expensive to manufacture than the former seal. The assembly of the lamp is completed by attaching the ends of rigid leads carrying an energy translation element to the said terminal elements and sealing the glass body to the neck of a bulb.

Other features and advantages of my invention will appear from the following detailed description of a species thereof and from the drawing.

In the drawing Figs. 1 to 3 and 5 and 6 represent side elevations of various steps in my method of manufacturing an incandescent lamp; Fig. 4 is a perspective view of the end of a lead wire which is attached to the terminal element.

According to my invention, the first operation as shown in Figs. 1 and 2 is to attach thimbles or terminal elements 10 and 11 and exhaust tube 12 to cup 13 at points having through passages therein. The cup 13 is preferably a pressed glass article having a plurality of outwardly extending tube portions communicating with openings therein. The thimbles which are of the type shown in Kruh and Wolf Patent 1,564,680, issued December 8, 1925, and Houskeeper Patent 1,294,466, issued February 18, 1919, are preferably of copper and having a ring 14 of glass sealed or "wetted" to both the inner and outer edges of rim 15 thereof which tapers down to a thin edge. The operation consists in first heating the tubular projection 16 and thimble 10 by a plurality of fires not shown rotating about axis 17; second, in bringing said parts together; and third, after the fires have been shut off, in pulling said parts in opposite directions to stretch the seal into the shape shown in Fig. 2. The thimble 11 is sealed to the tubular projection 18 in a similar manner as the fires are rotated about axis 19 and the exhaust tube 12 is attached to tubular projection 20 while the fires are rotating about axis 21. This unitary device or structure provides the base or terminal portion of the lamp and as it is complete in itself, the filament may be mounted directly thereon.

The next step consists in mounting the leads 22 and 23 as shown in Figs. 3 and 4. The leads are preferably U or channel-shaped for their entire length except for a portion 24 at one end which is formed into a tubular shape in order to engage the inner walls of the small end 25 of the thimbles. The said end 24 of the lead 22 is slipped into the thimble to the desired position whereupon an annular indentation 26 is made in said thimbles and lead causing them to be rigidly held together. The translation element or filament 27 and its supporting structure are now mounted on the leads. The first operation consists in mounting insulating blocks 28 and 29 which are preferably of an insulating material such as absestos and fit into the channel-shaped leads. The blocks are fastened to said leads by wires 30 which are passed through holes in each and then bent over. The filament 27 preferably consists of a series of coils mounted on support wires 31 extending from block 28 and wires 32 extending from block 29. The ends 33 of said filament, which are preferably uncoiled, are covered by separate tightly coiled

sections of wire and are welded to the respective leads with said coil. The support wires are attached to the filament by loops or open hooks which permit the filament to expand.

By placing a bulb 34 over the mount and sealing it to the rim of cup 13, the lamp is complete except for the evacuation or gas filling. The lamp is preferably evacuated and then filled with an inert gas through tube 12 which is then sealed off, leaving only the tip 35 as shown.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. The method of manufacturing electrical devices which consists in uniting metal terminal elements to the edges of preformed openings in a glass body, uniting the ends of rigid leads supporting an electric energy translation element to said terminal elements and then sealing said glass body to the neck of a bulb.

2. The method of manufacturing electrical devices which consists in uniting metal terminal elements to the edges of preformed outwardly extending tube portions communicating with openings in a glass body, uniting the ends of rigid leads supporting an electric energy translation element to said terminal elements and then sealing said glass body to the neck of a bulb.

3. The method of manufacturing electrical devices which consists in uniting metal sleeves to the edges of preformed outwardly extending tube portions communicating with openings in a glass body, uniting the ends of rigid leads supporting an electric energy translation element to said sleeves and then sealing said glass body to the neck of a bulb.

4. An electrical device comprising a bulb, a glass body sealed to the neck of said bulb, said glass body having preformed outwardly extending tube portions communicating with openings therein, outwardly extending metal terminal elements sealed to the edges of said preformed tube portions in said glass body and a mount supported within said bulb by said terminal elements and comprising an electric energy translation element and rigid leads supporting said translation element, each lead being attached at its opposite end to one of said terminal elements.

5. An electrical device comprising a bulb, a glass body sealed to the neck of said bulb, said glass body having preformed outwardly extending tube portions communicating with openings therein, outwardly extending metal sleeves sealed to the edges of said preformed tube portions in said glass body and a mount supported within said bulb by said sleeves and comprising an electric energy translation element and rigid leads supporting said translation element, each lead having a tubular portion at its opposite end fitting in one of said sleeves, said sleeve and tubular lead end portion having cooperating indentations therein to hold said lead end portion fixedly in said sleeve.

6. In an electrical device comprising a bulb and outwardly depending metal terminal members supporting a mount in said bulb comprising an energy translation element and rigid leads attached to said terminal elements, a preformed intermediate glass body sealed to the neck of said bulb and having outwardly extending tube portions communicating with openings therein, the edges of which are sealed to said terminal elements.

DANIEL K. WRIGHT.