Sept. 1, 1936. M. PIPKIN 2,053,164

INCANDESCENT LAMP AND METHOD OF MANUFACTURE

Filed Dec. 31, 1931

Fig 1

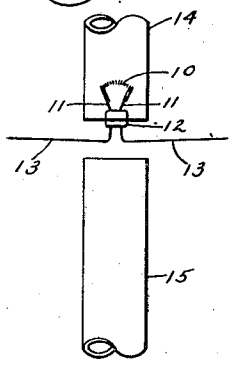


Fig 2

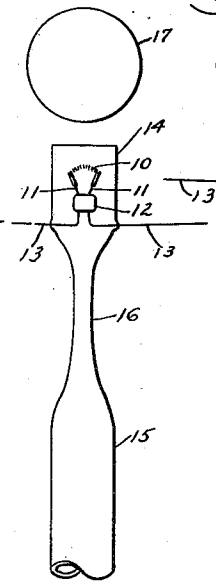


Fig 3

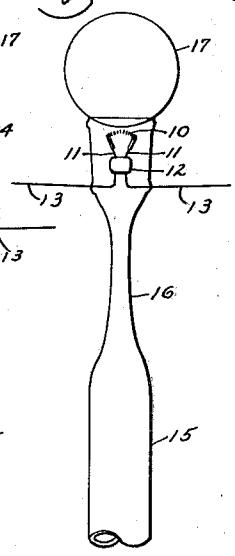


Fig 4

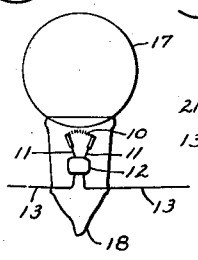


Fig 5

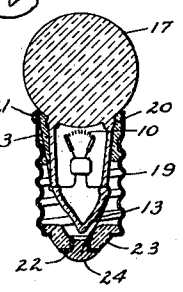
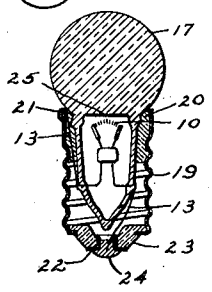


Fig 6



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UNITED STATES PATENT OFFICE

2,053,164

INCANDESCENT LAMP AND METHOD OF MANUFACTURE

Marvin Pipkin, Cleveland Heights, Ohio, assignor to General Electric Company, a corporation of New York

Application December 31, 1931, Serial No. 584,063

4 Claims. (Cl. 176—34)

My invention relates to electric incandescent lamps and to methods of their manufacture. More particularly it relates to electric incandescent lamps comprising a bulb having a thickened or lens portion, and to methods of manufacture of such lamps.

Lamps comprising a bulb having a thickened or lens portion have been made heretofore by fusing the end of a glass tube to form the thickened or lens portion and then sealing the filament mount in the hollow portion of the tube. As distinguished from that method, I first enclose the mount in a tube and then heat the end of the tube and a portion of a solid body of glass to cause them to fuse together. A substantially spherical body such as the ordinary glass marble is preferred for this purpose. As a modification, the marble may be flattened so as to provide a larger space within the completed bulb for the filament. My method provides a very economical and effective method of making lamps of this character. Other features and advantages of my invention will appear from the following description of a species thereof and from the accompanying drawing.

In the drawing, Fig. 1 shows the relative positions of parts before the sealing-in of the filament mount; Fig. 2 shows the position of parts before the sealing of the lens portion to the body; Fig. 3 shows the lens sealed to the body; Fig. 4 shows the lamp after evacuation; Fig. 5 is a section through a completed lamp; and Fig. 6 is a section through a modification thereof.

Referring to Fig. 1, the filament mount comprises a filament 10, inner lead wires 11, the ends of which are preferably flattened and clamped about the ends of the filament, a glass bead 12 into which portions of the lead wires 11 are sealed, and outer lead wires 13. A pair of glass tubes 14 and 15 are brought together so as to enclose the filament in tube 14 while the lead wires 13 are clamped between the adjacent ends of said tubes. A butt seal is then formed by heating the adjacent edges of the tubes, as by a gas flame, while said tubes are revolved to obtain a circumferential heating, thus sealing in the conductors 13 as shown in Fig. 2. The tube 15 is heated sufficiently to allow it to be pulled to form a contraction 16 for the purpose of sealing off the lamp during the exhausting operation. The tube 14 is then cut off to the proper length unless of course it is cut to length before sealing-in the filament mount. The lens portion comprising preferably a glass marble 17 (Fig. 2) is then heated by directing a gas flame thereon and the tube 14 is slowly brought up to said marble thus heating up the edge of said tube 14 and sealing it to said marble, as shown in Fig. 3. The marble and tube are revolved during the heating so as to obtain an even distribution of heat. The lamp is then exhausted through the tube 15 and sealed off at 18 (Fig. 4), after which it is mounted in a base in the usual manner. Said base comprises a shell 19 containing cement 20 into which the bulb portion of the lamp is set. One of the outer lead wires 13 is brought up over the edge of said shell 19 and soldered thereto at 21 while the other lead wire 13 is brought through an eyelet 22 which is embedded in insulation 23 in the bottom of the base. Said lower lead 13 is cut off at the edge of the base and soldered in the eyelet 22 so that said solder forms a contact 24.

While the marble 17 is being heated prior to sealing it to the tube 14 in Fig. 2, it may be flattened slightly so as to provide the shape shown in Fig. 6 where the flattened portion is shown at 25, thus obtaining a modified distribution of light.

As shown in Figs. 5 and 6, the filament of the lamp is located inside of the base thereby obtaining a very rigid construction. The marble or lens 17 may be made of a colored glass in which case the lamp emits a pleasing cold colored light. The lens portion may also be frosted thus providing a lamp of great mechanical strength with a diffused light beam.

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

1. The method of manufacturing an electric incandescent lamp which includes enclosing a filament mount comprising a filament and supports therefor in a glass tube and then uniting the glass tube to a glass lens by fusing the end edge of said tube and said glass lens together.

2. The method of manufacturing an electric incandescent lamp which includes assembling two glass tubes and a filament mount comprising a filament and leading-in wires disposed between the ends of the said tubes, fusing the ends of the said tubes together to form a butt seal enclosing the said lead wires, and then uniting the other end edge of one of said tubes to a solid glass body by fusion.

3. The method of manufacturing an electric incandescent lamp which consists in enclosing a filament mount comprising a filament and leading-in wires in a glass tube, uniting the glass tube to a glass lens by fusing the edge of one of the ends of said tube and said glass lens together, exhausting said tube through the other end thereof and sealing-off said end.

4. The method of manufacturing an electric incandescent lamp which comprises assembling two glass tubes and a filament mount comprising a filament and leading-in wires disposed between the ends of the said tubes, fusing the ends of the said tubes together to form a butt seal enclosing the said lead wires, uniting the edge of the other end of one of said tubes to a glass lens by fusion to form a filament chamber, exhausting said chamber through the open end thereof, and sealing-off said end.

MARVIN PIPKIN.