

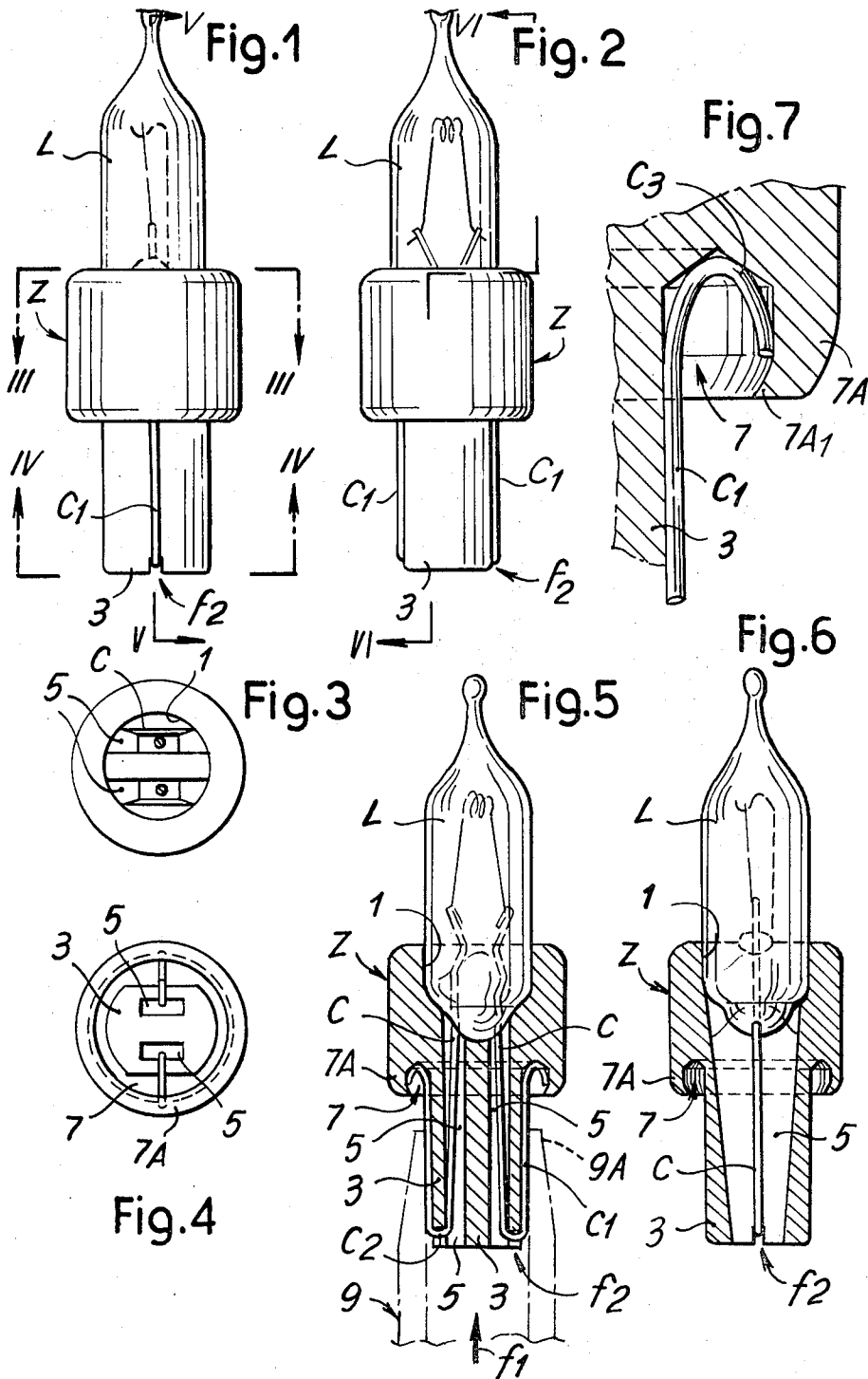
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D. MAGHERINI

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ELECTRIC LIGHT BULB AND TERMINAL CAP ASSEMBLY

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INVENTOR
DINO MAGHERINI

BY *McGraw and Loren*
ATTORNEYS

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ELECTRIC LIGHT BULB AND TERMINAL CAP ASSEMBLY

Dino Magherini, Via Emilio Spinucci 36/38,
Florence, Italy

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8 Claims

ABSTRACT OF THE DISCLOSURE

The terminal cap of a light bulb is anchored to a glass bulb containing a filament and having terminal wires extending therefrom, by passing the wires through longitudinal passages in the terminal cap. Thereafter the portions of the wires extending from the passages are bent over the free end of the cap and pass along the external surface of the terminal cap. Finally the ends of the wires are forced into a groove in the terminal cap which causes those portions of the wires bent over the free end of the cap to cut thereinto.

BACKGROUND OF THE INVENTION

Previously proposed methods of securing a terminal cap to a glass bulb to form a complete light bulb, for example of the "pea" bulb variety, involve the threading of the two terminal wires extending from the glass bulb, through a pair of longitudinal passages in the terminal cap. The passages extend from the glass bulb seating portion of the cap to the tail or socket engaging portion. The wires extending outwardly from the passages are bent over the free end of the tail portion of the cap and pass along the exterior of the tail portion to form the light bulb terminals. The anchoring of the glass bulb to the terminal cap is provided by the frictional engagement of the bent wires. The anchoring however is not satisfactory because of the deformability of the wires and because of the ease with which the wires can be displaced from the outer wall of the tail portion.

The previously proposed arrangement is not sufficient to ensure a secure anchoring of the terminal cap to the glass bulb, as an attempt to pull the glass bulb out of the seat, will not be sufficiently resisted by the frictional resistance provided by the wires which cooperate with the fixed contacts of a socket. Consequently the glass bulb can easily be separated from its terminal cap by an inadvertent or weak tug on the glass bulb.

SUMMARY OF THE INVENTION

In order to set up a firm connection between the glass bulb and the terminal cap in accordance with the invention, end portions of the wires with the aid of a suitable bending tool, are forced into a recess in a portion of the cap adjacent the tail portion to cause the end portions to be retained therein and to prevent the wires being displaced from the position lying along the tail portion and thereby ensuring a better anchoring of the glass bulb to the terminal cap.

The present invention provides an electric light bulb comprising a glass bulb having terminal wires extending therefrom, and a terminal cap, said terminal cap having at one end a seat in which the glass bulb is seated and at the other end a tail portion, a pair of longitudinal passages extending from said seat through said tail portion, said terminal wires extending through said passages about an end of said tail portion remote from said seat and along the external surface of said tail portion to

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form thereon the terminal contacts of said light bulb, said terminal cap also having a groove formed in the external surface thereof in which the ends of said terminal wires are engaged whereby to provide resistance to displacement away from the terminal cap of those portions of the terminal wires lying adjacent to the external surface of the terminal cap.

The present invention further provides a terminal cap for an electric light bulb, the cap comprising a seating portion for receiving a part of the glass bulb having terminal wires extending therefrom, and a tail portion extending from the seating portion, a pair of longitudinal passages extending through said cap from said seating portion through said tail portion, said passages being arranged to receive said terminal wires, and a recess in the external surface of said cap for receiving the end of at least one said terminal wire whereby to secure said one terminal wire to the terminal cap and urge said one terminal wire into contact with the external surface of the tail portion of said cap.

The present invention still further provides a method of securing a glass bulb having terminal wires extending therefrom, to a terminal cap, to form an electric light bulb, said method comprising threading the terminal wires of the glass bulb through respective passages in said cap, bending the portions of said wire extending outwardly from the passages about said terminal cap into contact with the external surface of said terminal cap and forcing the end portions of said wires into a recess in said terminal cap.

BRIEF DESCRIPTION OF THE DRAWING

FIGS. 1 and 2 show front and side views of the light bulb complete with terminal cap;

FIG. 3 is a section on the line III—III of FIG. 1;

FIG. 4 is an end view indicated by the line IV—IV of FIG. 1;

FIG. 5 is a section along the line V—V of FIG. 1 indicating in chain lines an insertion tool;

FIG. 6 is a section on the line VI—VI of FIG. 1; and

FIG. 7 shows fragmentary section to an enlarged scale of a modification of a portion of FIG. 5.

DESCRIPTION OF PREFERRED EMBODIMENTS

In the drawing, a glass bulb L which houses a filament is provided with terminal wires C extending from the glass bulb which are used to mechanically anchor the glass bulb L to a terminal cap Z and also to provide terminal contacts for connection to an electrical supply line. The terminal cap Z is arranged to engage a socket, which socket may, for example, form one of a plurality of sockets connected together in any appropriate way for use in an illumination display.

The terminal cap Z is provided with a seat 1 at one end to accommodate the base of the glass bulb. At the other end, the terminal cap is provided with a tail portion 3 which extends from the body portion of the cap and which is arranged to engage a socket (not shown). Extending from the seat 1 to the end of the tail portion 3 are two passages 5 through which the wires C of the glass bulb L pass. The wires which project from the passages 5 are then bent outwardly and against the tail portion 3 with sections C₁ thereof forming the contacts for engagement with electrical supply contacts which may be for example, blade-like contacts. The body portion of the cap Z is provided with an annular groove or channel 7 at the juncture between the body portion and the tail portion 3. The annular groove 7 is defined in part by an external annular wall 7A.

An assembly or insertion tool 9 indicated by chain lines in FIG. 5 comprises a substantially tubular mem-

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ber which can be sheathed onto the tail portion 3. The end edge 9A of the tool can be urged into the groove or channel 7.

The assembly of the glass bulb and terminal cap will now be described. The wires C of the glass bulb L are inserted into the passages 5, and the base of the glass bulb L is mounted in the seat 1. The sections C₁ of the wires C are bent outwardly and eventually into contact with the outer surface of the tail or socket engaging portion 3. The tool 9 is then sheathed onto the tail portion of the tool to ensure the bending of the sections C₁ of the wires, against the length of the tail portion, to lie therealong. When the end portion 9A of the tool 9 is caused to enter the annular groove 7, the ends of the wires become trapped between the outer edge of the tool 9 and the wall 7A of the groove 7. Thereafter if the tool 9 is advanced a short distance in the direction of the arrow f₁ shown in FIG. 5, the sections C₁ of the wires are also forced to advance with the tool as the ends of the wires are locked between the wall 7A of the groove 7, and the end portion 9A of the tool. Accordingly, a loop portion C₂ of each wire is urged to cut into the material of the tail portion as indicated by the arrow f₂ in FIGS. 1, 2, 5, 6. In this way the glass bulb is firmly and stably secured to the terminal cap even after the withdrawal of the tool 9. The anchoring is provided by the retaining effect of the ends of the wires C₁ in the groove 7, which tends to prevent the sections C₁ of the wires from being pulled away from the outer surface of the terminal cap, and also the stabilizing effect produced by each loop portion C₂ cutting into the base of the terminal cap.

FIG. 7 shows a modification wherein an end portion C₃ of the wire C abuts an inwardly inclined flange 7A₁ extending from the wall 7A. In this way the inadvertent extraction of the portions C₃ from the groove 7 is made even more difficult.

The method of assembly is particularly simple and speedy, and the use of the tool 9 for anchoring the wires C provides a secure and particularly uniform result.

I claim:

1. An electric light bulb construction comprising a glass light bulb having two spaced apart terminal wires extending outwardly therefrom, a terminal cap of tubular form having an opening at one end leading to an interior light bulb seat on which said light bulb is engaged, a terminal wire receiving groove in the external surface of said cap extending on each side thereof, said cap having a tail portion extending beyond said seat and said groove and terminating in an opposite end remote from the groove and having a longitudinal passage extending therethrough from said seat to the opposite end for each of said terminal wires, each of said terminal wires extending through respective passages and around said opposite end of said tail portion, said tail portion defining a flat exterior surface on each side along which said terminal wires extend to form thereon the terminal contacts of said light bulb, the end portions of said wires being directed from the flat exterior surface of said tail portion into said groove at the respective sides of said cap, said wire being held within said grooves in a manner to prevent displacement of the respective portions of the wire forming the terminal contacts from the surface of said tail portion.

2. An electric light bulb according to claim 1 wherein the groove has a wire-engaging-tool receiving mouth directed towards said end of said tail portion whereby a wire-engaging-tool can be guided along said tail portion to engage said groove.

3. An electric light bulb according to claim 1 wherein said groove is of continuous annular form and is defined in part by an annular wall surrounding a part of said tail portion, the end portions of said wires extending from

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the external surface of said tail portion to lie in contact with the internal surface of said annular wall.

4. An electric light bulb according to claim 1 wherein those portions of said wires extending about the said end of the tail portion cut into the end of said tail portion.

5. An electric light bulb according to claim 3 wherein said annular wall includes an abutment-forming inwardly-inclined flange with which the ends of said terminal wires engage.

6. A terminal cap for an electric light bulb comprising a tubular member having a glass bulb receiving seat defined therein and having an opening at one end leading to said seat adapted to receive an electric glass bulb of a type having terminal wires extending out of the bulb, a terminal wire receiving groove in the external surface of said cap extending on each side thereof, said cap having a tail portion extending beyond said seat and said groove and terminating in an opposite end remote from said groove and having a longitudinal passage for each terminal wire extending therethrough from said seat to said opposite end, the exterior of said tail portion defining a flat surface of considerable length at each side extending from said groove to the said opposite end for accommodating the respective terminal wires along the surface in a position in which they form terminal contact areas, said groove providing means for anchoring the terminal wires to hold them in a position stretched across respective one of said flat surfaces of said tail portion.

7. A method of securing a glass bulb having terminal wires extending therefrom, to a terminal cap, said terminal cap having a glass-bulb-receiving seat, a pair of longitudinal passages extending from the seat through the terminal cap and a wire-anchoring recess in the external surface of the cap, to form an electric light bulb, said method comprising the steps of

threading the terminal wires of the glass bulb through respective passages in said cap,

seating the glass bulb in the glass-bulb-receiving seat, bending the portions of the wires extending outwardly

from the passages about the base of said terminal cap into contact with the external surface of said terminal cap, and

forcing the end portions of said wires into said recess in the terminal cap.

8. A method according to claim 7 wherein said step of forcing the end portions of said wires into said recess is accompanied by the step of causing the portions of said wires which pass about the base of the cap to cut into the base of the cap.

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JAMES D. KALLAM, Primary Examiner

A. J. JAMES, Assistant Examiner

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