June 11, 1963 R. J. AYRES 3,093,768

ELECTRIC LAMP BASE END STRUCTURE

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Fig. 1.

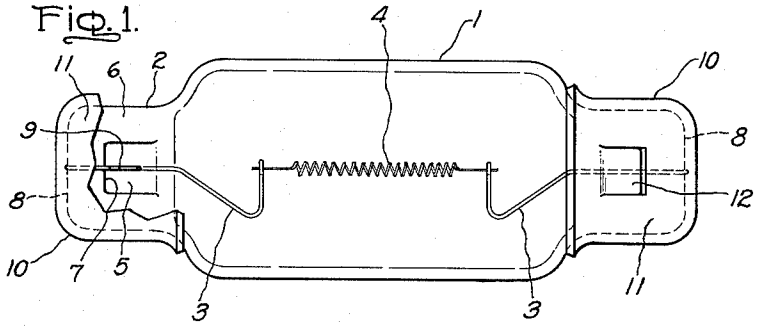


Fig. 2.

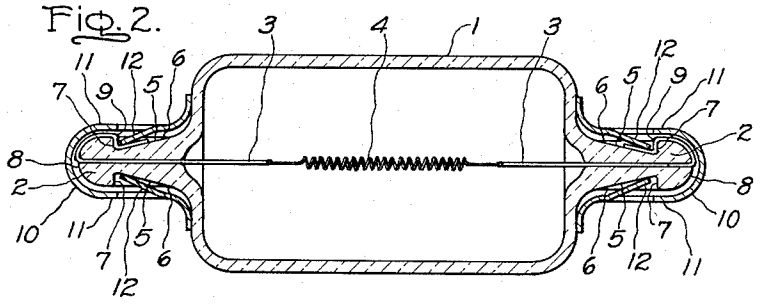
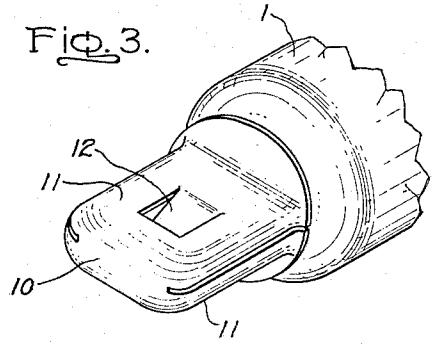


Fig. 3.



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ELECTRIC LAMP BASE END STRUCTURE

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This invention relates to electrical devices such as incandescent lamps and gaseous discharge devices, and more particularly to a base end construction for such devices.

Double-ended miniature incandescent lamps of the type having terminal contact means or a base structure at each end are in general use at present for various applications, such as automotive dome and dash lighting and tail lamps. Such double-ended lamps are adapted for use with simple spring-clip type sockets similar to those commonly used for cartridge fuses, for example.

One form of such double-ended miniature type incandescent lamp is of the so-called baseless type disclosed and claimed in co-pending United States application Serial No. 848,282, Ayres et al., filed October 23, 1959 and assigned to the assignee of the present invention. The baseless lamp therein disclosed comprises an elongated glass bulb or envelope provided at its opposite ends with protruding glass stem press portions through which the lead-in wires of the lamp are sealed. The lead-in wires are bent around the ends of the lamp stem press portions to extend back along one of the flat sides of the respective stem press to thereby serve as the terminal contacts for the lamp. For certain applications, however, it may be desirable to provide such type lamps with metal end caps or bases at their opposite ends to serve as the terminal contacts for the lamp.

It is an object of my invention, therefore, to provide a simple and inexpensive base end structure for electric lamps or similar devices of the type having protruding stem press portions through which are sealed the lead-in conductors of the lamp.

Another object of my invention is to provide a double-ended electric lamp or similar device of the type having protruding flat glass stem press portions at its opposite ends and having metal end caps or base structures which can be quickly and easily assembled in place on the stem press ends of the lamp and electrically connected to the lead-in conductors thereof.

Briefly stated, in accordance with one aspect of the invention, a lamp of the type having a protruding glass stem press portion through which one of the lamp lead-in wires is sealed, is provided with a shallow indentation in one or both of the flat sides of the stem press, each indentation forming a sharp lateral shoulder on the stem press facing inwardly of the envelope. The lead-in wire is bent around the outer end of the stem press to extend back alongside one of the flat sides thereof and across the indentation therein. A hollow base member or metal end cap, having flat sides corresponding to the flat sides of the stem press and provided with an inward spring tongue or detent in one or both of its flat sides, is slip-fitted over the end of the stem press and pushed back until the spring tongue or tongues snap into the respective indentation in the stem press so as to cause their free ends to be caught behind the lateral shoulder or shoulders on the stem press, thereby locking the base securely in place on the stem press against endwise removal therefrom. During this assembly of the base onto the stem press of the lamp, the spring action of the spring tongue automatically acts to deform and resiliently clamp the lead-in wire firmly against the bottom of the respective indentation in the stem press to thereby form a good electrical connection with the lead-in wire.

Further objects and advantages of my invention will appear from the following detailed description of a species thereof and from the accompanying drawing.

In the drawing, FIG. 1 is an elevation of an electric incandescent lamp provided with a base end structure comprising my invention, a part of the base structure at one end of the lamp being shown partly broken away to more clearly illustrate the invention.

FIG. 2 is a longitudinal section of the lamp comprising my invention on the line 2—2 of FIG. 1, and

FIG. 3 is a fragmentary perspective view of one end of the electric incandescent lamp shown in FIGS. 1 and 2.

Referring to the drawing, the invention is there illustrated as applied to an electric incandescent lamp of the double-ended type such as disclosed in the aforementioned co-pending Ayres et al. application Serial No. 848,282 and comprising a sealed elongated glass bulb or envelope 1 preferably of tubular shape and closed off at its opposite ends. The envelope 1 is provided at its opposite ends with protruding flat glass stem press portions 2 through which lead-in conductors or wires 3 are sealed so as to protrude endwise therefrom. Interiorily of the envelope 1, the lead-in wires 3 are connected to the opposite ends of an electrical energy translation element or filament 4 of a suitable refractory metal such as tungsten, and preferably in the form of a straight coil of tungsten wire supported by the lead-in wires 3 in a position extending more or less axially of the tubular envelope 1. The envelope 1 contains a suitable inert gas filling such as argon, for example, at a pressure below atmospheric.

As shown in FIG. 2, the protruding flat stem press portions 2 at the opposite ends of the envelope 1 are disposed in the same axial plane of the lamp envelope and they are formed with shallow indentations or notches 5 in one or both of their flat side faces 6 to provide sharp lateral shoulders 7 on the stem press portions facing inwardly of the envelope. As shown, the said indentations 5 are located more or less centrally across the width of the respective stem press portions 2. The lead-in wires 3 project outwardly from the outer ends 8 of the stem press portions 2 at points likewise located more or less centrally across the width of the stem press portions, and their outwardly projecting portions 9 are bent back around the said ends 8 of the stem press portions to extend back alongside one of the flat sides 6 thereof and across the respective indentation 5 therein.

Mounted on and enclosing each stem press portion 2 is a hollow base shell member or metal cap 10 having flat sides 11 corresponding to the flat sides 6 of the stem press portion. The base shell or metal end cap members 10 are made of thin sheet metal of suitable spring character, such as brass for instance, and they are provided with inwardly deflected spring tongues or detents 12 in one or both of their flat sides 11 which are adapted to snap into the respective indentations 5, when the base members 10 are slip-fitted over the ends of the stem press portions and pushed the full distance back thereonto. The free ends of the spring tongues 12 are thereby caught behind the lateral shoulders 7 on the stem press portions 2 so as to lock the base shell member securely in place on the stem press portion against endwise removal therefrom. The spring tongues or detents 12 are preferably formed as an integral part of the base shell members 10 by simply pressing or punching the spring tongues out of the flat sides 11 of the base shell members.

During the assembly of each base shell or end cap member 10 onto the stem press portion 2, the spring action of the spring tongues 12, in snapping into the indentations 5, acts to deform the portions 9 of the lead-in wires, overlying the indentations, downwardly thereinto and against the bottom wall thereof so as to resiliently clamp the lead-in wire portions 9 firmly against the bottom of

the respective indentation to thereby form a good electrical connection with the lead-in conductor.

It will be apparent from the above description, therefore, that I have provided a simple and easily assembled base end construction for an electric lamp or other similar electrical device wherein the assembly and fastening of the base shell member onto the lamp envelope, and the formation of the electrical connection of the base shell member to the lead-in wire of the lamp or other device, is automatically effected by a simple push-on movement of the base shell member onto the end of the lamp envelope, without the need of any additional manufacturing operations. Also, because of the use of metal end caps **10** such as shown at the opposite ends of the lamp, it is possible to utilize the lamp with sockets of the type in which the electrical connection to the lamp is made to its opposite end extremities.

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

1. An electrical device comprising a sealed glass envelope provided with a protruding flat stem press portion having a shallow indentation in one of its flat sides forming a sharp lateral shoulder on the stem press facing inwardly of the envelope, a lead-in conductor sealed into said stem press portion and protruding endwise therefrom, said conductor being bent around the outer end of said stem press portion to extend alongside the said one of its flat sides and across the said indentation therein, and a hollow metal base member slip-fitted over the end of said stem press and provided with an inward spring tongue caught within the said indentation behind the said lateral shoulder thereof to lock the base securely in place on the stem press against endwise removal therefrom, said spring tongue resiliently clamping the said lead-in conductor firmly against the bottom of said indentation to form a good electrical connection with said conductor.

2. An electrical device comprising a sealed glass envelope provided with a protruding flat stem press portion having shallow indentations in its opposite flat sides forming sharp lateral shoulders on the stem press facing inwardly of the envelope, a lead-in conductor sealed into said stem press portion and protruding endwise therefrom, said conductor being bent around the end of said stem press portion to extend alongside one of its flat sides and across the said indentation therein, and a hollow metal base member slip-fitted over the end of said stem press and provided with inward spring tongues caught within the said indentations behind the said lateral shoulders thereof to lock the base securely in place on the stem press against endwise removal therefrom, one of said spring tongues resiliently clamping the said lead-in conductor firmly against the bottom of the respective indentation to form a good electrical connection with said conductor.

3. An electrical device comprising a sealed glass envelope provided with a protruding flat stem press portion having a shallow indentation in one of its flat sides forming a sharp lateral shoulder on the stem press facing inwardly of the envelope, a lead-in conductor sealed into said stem press portion and protruding endwise therefrom, said conductor being bent around the outer end of said stem press portion to extend alongside the said one of its flat sides and across the said indentation therein, and a hollow metal base shell mounted on and enclosing the said stem press and having flat side portions corresponding to and disposed closely alongside the said flat sides of the stem press, one of the said flat side portions of said base shell being provided with an inward spring tongue portion pressed out therefrom and having its free end snap-caught within the said indentation behind the said lateral shoulder thereof to lock the base shell securely in place on the stem press against endwise removal therefrom, said spring tongue resiliently clamping the said lead-in conductor firmly against the bottom of the said indentation to form a good electrical connection with said conductor.

4. An electric lamp comprising a sealed tubular glass envelope provided at its opposite ends with protruding flat stem press portions disposed in a common plane, each of said flat stem press portions having shallow indentations in its opposite flat sides forming sharp lateral shoulders on the respective stem press portions facing inwardly of the envelope, lead-in wires sealed through respective ones of said stem press portions and extending into said envelope, a filament disposed within said envelope and connected at its opposite ends to said lead-in wires, said lead-in wires protruding endwise from said stem press portions and being bent around the outer ends thereof to extend alongside one of their flat sides and across the respective indentation therein, and hollow metal base shells mounted on and enclosing the respective stem press portions and having flat side portions corresponding to and disposed closely alongside the flat sides of the stem press portions, each of the flat side portions of said base shells being provided with an inward spring tongue portion pressed out therefrom and having its free end snap-caught within the respective indentation in the stem press behind the said lateral shoulder thereof to lock the base shell securely in place on the stem press against endwise removal therefrom, one of the said spring tongues of each base shell resiliently clamping the respective lead-in wire firmly against the bottom of the indentation in the respective stem press portion to thereby form a good electrical connection with said lead-in wire.

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