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2,398,595

ROUGH SERVICE ELECTRICAL DEVICE

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Fig. 1.

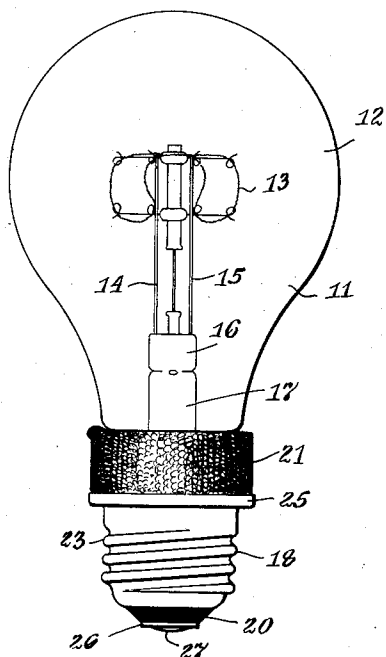


Fig. 2.

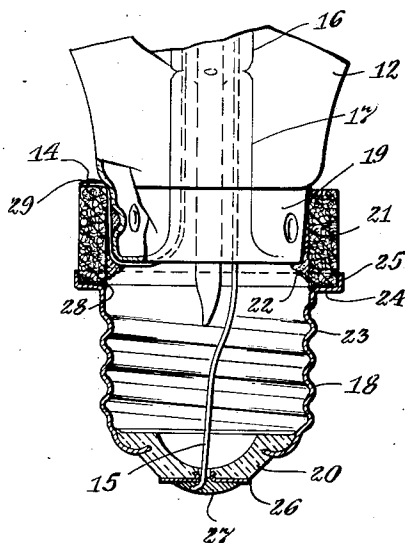


Fig. 4.

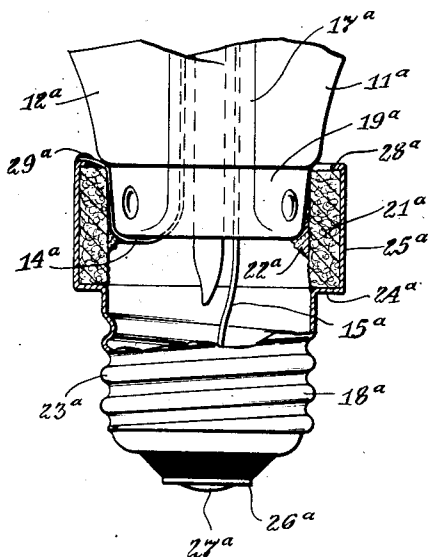
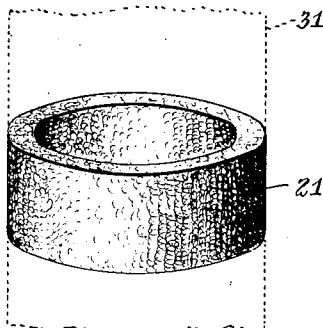


Fig. 3.



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ROUGH SERVICE ELECTRICAL DEVICE

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10 Claims. (Cl. 176—32)

This invention relates to electrical devices and, more particularly, to such provided with shock-absorbing means adapting them for rough service use.

The principal object of our invention generally considered is to provide an electrical device, such as a lamp, in which a shock-absorbing supporting element is disposed between the neck of the bulb and the energy-supplying base, thereby damping shocks which are impressed on the base and minimizing their effect on the fragile elements in the envelope.

Another object of our invention is to provide an electrical device, such as an incandescent electric lamp, with a compressed wire-mesh cylinder in which the neck of the envelope nests and is supported, and which is in turn connected to the base, to effect a damping action on shocks transmitted to said base, thereby adapting said device for rough service lamp usage.

Other objects and advantages of the invention will become apparent as the description proceeds.

Under present conditions of modern warfare, with lamps and other electrical devices such as radio tubes which are subjected to concussion from high power explosives, present means for attaching such devices to the power supply, such as a base rigidly secured to a lamp bulb and firmly secured to a socket rigidly mounted on the frame of the battleship or other fighting vehicle, all too readily transmit the force of the concussion to the filament and other internal delicate parts, as well as to the glass or other internal or external supporting members. This all too frequently results in the destruction of the lamp or other device at the very moment when it is most needed.

Various attempts have been made to eliminate or dampen shock transmitted to the bases of such devices, but in most instances the shock absorbing means has been disposed in the socket for the devices. This, however, necessitates considerable expense in replacing all existing sockets. Consequently, we propose to provide a rough service energy-translation device, such as an incandescent electric lamp, which can be readily installed in any existing socket without expense other than the cost of the device itself.

Referring to the scale drawing:

Fig. 1 is a full size elevational view of an electrical energy-translation device, in the form of an incandescent lamp provided with shock-absorbing means associated with the base, in accordance with our invention.

Fig. 2 is a vertical sectional view of the base,

shock-absorbing means, and neck portion illustrated in Fig. 1, on an enlarged scale.

Fig. 3 is a perspective view on an enlarged scale of a shock-absorbing element of our improved device.

Fig. 4 is a view corresponding to Fig. 2 but showing a modification.

Referring to the drawing in detail, like parts being designated by like reference characters, and first considering the embodiment of our invention illustrated in Figs. 1, 2 and 3, there is shown a form of incandescent electric lamp 11 which comprises a vitreous envelope 12 having suitably mounted therein a conventional filament 13 supplied with electrical energy through lead-in conductors 14 and 15, passing through a press 16 and the stem portion 17 of the envelope.

The customary procedure in lamp manufacture is to cement a metal base 18 directly to the envelope after fitting it over the outer end of the neck portion thereof. In the present instance, we interpose between the base 18 and neck 19 of the envelope, a wire-mesh cylinder, providing both axial and radial resiliency which is more than usually effective for absorbing shocks, desirably formed of fine brass wire woven when elongated as indicated at 31 in Fig. 3, and then compressed axially to the form 21 represented in Fig. 3, where it is likewise a cylinder having a moderately thick wall, of internal dimension snugly receiving the neck portion 19 of the envelope 12, to which it is connected in a conventional manner, as by means of basing cement 22. The dimensions of one embodiment which has been used and is designated 21 in Fig. 1 is about 1 3/8" outside diameter, 1" inside diameter and 1/2" long, but we are not limited to these dimensions. The shock absorbing cylinder 21 may be of the type manufactured by the Metal Textile Corporation, of 4 Central Avenue, West Orange, N. J., and designated "Lamp shock ring."

The other, or in this instance the lower, end of the cylinder 21, is desirably seated on and secured to the open end portion of the base 18. In the present embodiment, the screw-threaded metal shell 23 of the base 18 is spaced from the eyelet 26 by glass or other suitable insulation 20, and has an annular extension 24 terminating in a short cylinder extension 25, providing an annular seat and protective flange, to which the lower end of the wire mesh cylinder is secured, as by means of solder 28. As is customary, one of the leads such as 14 is secured to the shell 23, in this instance desirably through the wire-mesh

cylinder 21, as by means of solder 26, and the other numbered 18 is secured to the customary base eyelet 28, as by means of solder 27.

Referring now to the embodiment of our invention illustrated in Fig. 4, there is shown a form of incandescent electric lamp 11, which as in the preceding embodiment, comprises a vitreous envelope 12 having suitably mounted therein a conventional filament (not shown) like the filament 13 of the preceding embodiment, supplied with electrical energy through lead-in conductors 14 and 15, passing through a press (not shown) and the stem portion 17 of the envelope.

In the present instance, we interpose between the base 18 and the neck 19 of the envelope, a wire mesh cylinder 21 like that of the preceding embodiment, in one end of which the neck 19 snugly fits and is connected as by basing cement 22, and the other end of which is secured to the screw threaded metal shell portion 23, as by forming an annular extension 24 on said shell portion, terminating in an elongated cylindrical portion 25 in which the mesh cylinder 21 loosely fits. After placing the cylinder 21, it may be permanently held in place by bending over the free or upper edge of the cylindrical portion 25, as indicated at 28. The lead 14 is, in this instance, secured to the bent-over portion 28 as by means of solder 29, and the lead 15 is secured to the center contact 26, as by means of solder 27.

From the foregoing disclosure, it will be seen that we have provided for effectively damping the shocks or vibrations transmitted from the base to the envelope of an electrical device, such as a lamp, radio tube, or other evacuated device, by a woven wire-mesh cylinder, which is adapted to exert a damping or shock-absorbing action radially as well as axially, thereby effectively protecting the fragile elements of the device.

Although preferred embodiments of our invention have been disclosed, it will be understood that modifications may be made within the spirit and scope of the appended claims.

We claim:

1. An electrical device comprising an envelope having fragile elements therein, a base therefor, and a wire-mesh hollow cylinder of substantial wall thickness for absorbing shocks between said base and envelope, one end of said envelope fitting within one end of said cylinder, connected thereto and supported thereby, the other end of said cylinder being connected to said base.

2. An electrical device comprising an envelope having a neck and enclosing fragile elements, a base for said device, and a shock absorbing compressed wire-mesh hollow cylinder of substantial wall thickness within one end of which a portion of said neck nests and is supportingly connected, the other end of said cylinder being connected to said base.

3. An electrical device comprising an envelope enclosing fragile elements, a base for said device, said base having an extension providing an annular seat, a wire-mesh hollow cylinder of substantial wall thickness engaging said seat and connected thereto, the neck of said envelope fitting within the free end of said cylinder and supportingly connected thereto, to provide for the absorption of shocks transmitted to said base to

prevent them from damaging the fragile elements in said envelope.

4. An electrical device comprising an envelope enclosing fragile elements, a base for engaging an energy-supplying socket, said base having a cylindrical extension, a compressed wire-mesh hollow cylinder of substantial wall thickness nesting within said extension and in turn supportingly receiving the neck of said envelope, means cementing said neck within said cylinder, and means holding said cylinder in place within said extension.

5. An electrical device comprising an envelope having fragile elements therein, a base therefor, and a hollow wire-mesh cylinder of substantial wall thickness and length for absorbing shocks between said base and envelope, one end of said envelope fitting within one end of said cylinder, connected thereto and supported thereby, the other end of said cylinder being connected to said base.

6. An electrical device comprising an envelope having a neck and enclosing fragile elements, a metal base for said device, and a shock absorbing compressed wire-mesh hollow cylinder of substantial wall thickness within one end of which a portion of said neck nests and is supportingly connected, the other end of said cylinder being soldered to the open end portion of said base.

7. A necked electrical device comprising an envelope enclosing fragile elements, a base for said device, said base having an extension providing an annular seat, a hollow wire-mesh cylinder of substantial wall thickness engaging said seat and soldered thereto, the neck of said envelope fitting within the free end of said cylinder and cemented thereto, to provide for the absorption of shocks transmitted to said base to prevent them from damaging the fragile elements in said envelope.

8. An electrical device comprising an envelope enclosing fragile elements, a base for engaging an energy-supplying socket, said base having a cylindrical extension, a compressed wire-mesh hollow cylinder of substantial wall thickness nesting loosely within said extension and in turn supportingly receiving the neck of said envelope, means cementing said neck within said cylinder, and overlying flange means on said extension holding said cylinder in place therewithin.

9. An electrical device comprising an envelope enclosing fragile elements, a base for said device, said base having an extension providing a seat in a transverse plane, a wire-mesh tube of substantial wall thickness and length, having one end engaging said seat and secured thereto, and the neck of said envelope fitting within the other end of said tube and secured thereto, to provide for the absorption of shocks transmitted to said base, as a protection to the fragile elements in said envelope.

10. An electrical device comprising an envelope enclosing fragile elements, a base for said device, said base having an extension, a compressed wire-mesh tube of substantial wall thickness nesting loosely within said extension and with its outer end receiving the neck of said envelope, means securing said neck within said tube, and flange means overlying said extension and holding said tube in place therewithin.

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