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METALLIC HEAT SHIELD FOR INCANDESCENT LAMPS

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Fig. 1.

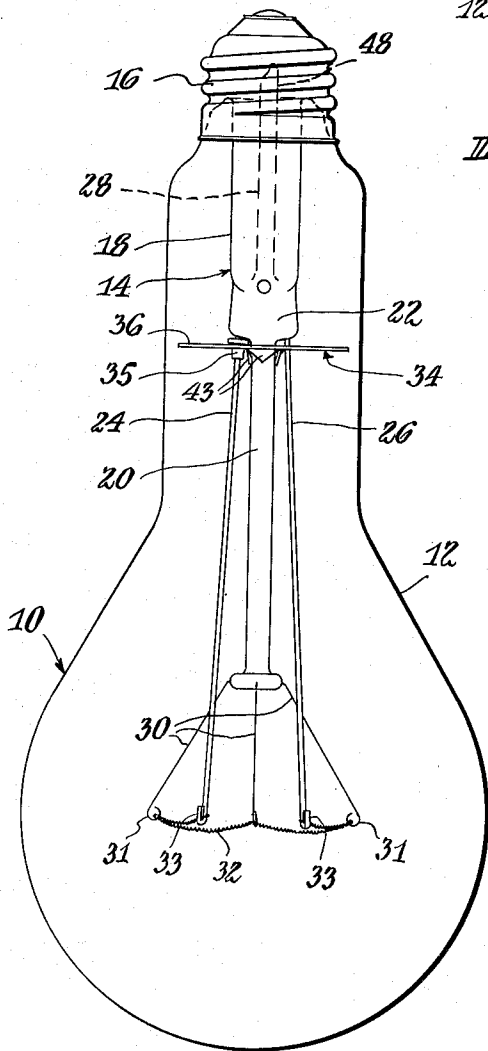


Fig. 2.

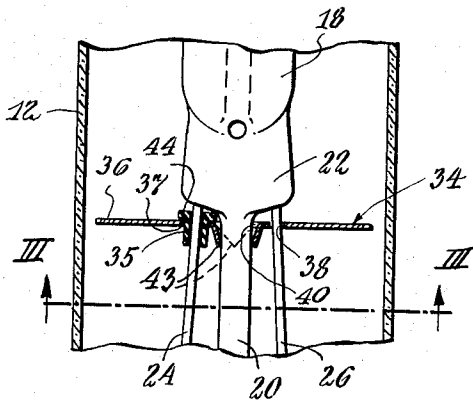
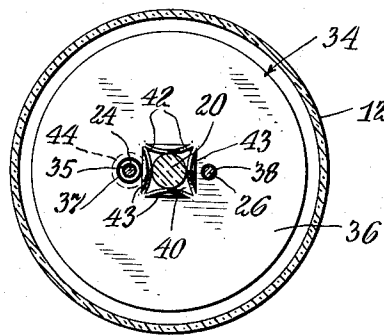


Fig. 3.



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METALLIC HEAT SHIELD FOR
INCANDESCENT LAMPS

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4 Claims. (Cl. 313—43)

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This invention relates to incandescent lamps, and more particularly, to heat shields for incandescent lamps.

The conventional higher wattage incandescent lamps, for example above 300 watts, consist of a vitreous envelope sealed about a filamentary mount having a heat shield assembly to protect the soft glass mount stem and a base cemented to the sealed end of the envelope. The filamentary mount usually comprises essentially a lime glass vitreous stem having an axial vertical arbor with filamentary supports affixed to the top thereof, two leading-in and supporting conductors and an exhaust tubulation, a filament and a heat reflector mica disc assembly consisting of a disc and spring clip retainer for securing the disc about the arbor and conductors on the press. This mica disc of general circular cross-section comprises a series of thin laminations or sheets having leading-in conductor holes therein and a diametrical slit through said holes and extending to one side of the periphery to facilitate the mounting of the disc about the leads and arbor on the stem press. The spring clip retainer of general V-shaped configuration and suitably spring steel fits about the vertical arbor and holds the mica disc in place on top of the stem press. Due to material shortages, it has become increasingly difficult to obtain mica in sufficient quantities to maintain required production rates. Further, the mica is rather expensive and due to its fragile nature, tends to break and peel while handling during mounting.

Hence it has been found advantageous, according to my invention, to eliminate the conventional heat reflector disc assembly comprising the mica disc and the spring clip retainer and to employ a heat reflector assembly comprising an insulating bushing which may be of ceramic, glass or the like, and a metallic disc, suitably spring steel, having two leading-in conductor holes and a center hole with radiating slits therefrom so as to form an orange peel effect. When said disc is slipped over the arbor and the leading-in conductors, the orange peel fingers grip the arbor and secure said disc in place on top of the stem press. One of the leading-in conductor holes is enlarged sufficiently to receive the ceramic bushing, thereby insulating the leading-in conductor one from the other.

In its general aspect, the present invention has as its objective the elimination of the disadvantages and defects of the prior art heat reflector disc assemblies for incandescent lamps.

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Another object of the present invention is the elimination of the mica heat reflected disc and the spring clip retainer.

An additional object is a heat reflector disc assembly which will not peel or crack during handling and will have improved heat reflecting properties.

A further object is a metallic disc or heat shield assembly having two leading-in conductor holes and a ceramic bushing in one of said holes and an arbor or center hole with radial slits radiating therefrom in an orange peel effect.

Other objects and advantages of the invention will appear to those skilled in the art to which it appertains as the description thereof proceeds, both by direct recitation and implication from the context.

Referring to the accompanying drawing, in which like numerals of reference indicate similar parts throughout the several views:

Fig. 1 is an elevational view of an incandescent lamp employing the heat reflector disc assembly of my invention;

Fig. 2 is an enlarged longitudinal cross-sectional view of the heat reflector disc assembly of my invention;

Fig. 3 is a cross-sectional view along line III—III of Fig. 2 in the direction of the arrows.

Referring to the drawing, an incandescent electric lamp is designated by the reference numeral 10. This lamp comprises a pear-shaped vitreous envelope 12, a filament mount 14 sealed to one end of said envelope, and a base 16, suitably cemented about the sealed end of said envelope.

This filament mount 14 comprises a stem 18 having an axial arbor 20 extending from a vitreous press 22, a plurality of leading-in conductors, in this case two conductors 24 and 26, and an exhaust tubulation 28, filament supports 30 and a coiled filament 32. These filamentary support wires 30, suitably refractory metal, such as tungsten, have one end embedded in the top of the arbor 20 and a loop 31 formed in the other end through which the filament 32 is inserted and supported in general circular configuration. The upper extremities of leading-in conductors 24 and 26 are suitably flattened and formed into hooks 33 to secure, as by welding therein, the extremities of filament 32. On press 22 and about arbor 20 and conductors 24 and 26 is provided a heat reflector disc assembly 34 of my invention.

This assembly 34 comprises a ceramic bushing 35 and a disc or heat shield 36, suitably spring

steel. It has a highly polished upper surface, two leading-in conductor holes 37 and 38, and a center or arbor hole 40 from which radial slits 42 are cut to form the desired orange peel arrow-like fingers or strips 43. One of the leading-in conductor holes, in this showing 36, is enlarged to receive a shank 44 of ceramic bushing 35 of inverted T-shaped vertical cross-section having a lower flange 46 resting on the top of stem press 22.

According to my invention, the ceramic bushing 35 with the flange 46 down is slipped over leading-in conductor 24. The heat reflector disc 36 is inserted over the ends and about the arbor 20 and the leading-in conductors 24 and 26 by means of the arbor hole 40 with arrow-like fingers 43 diverging therefrom, and the leading-in conductor holes 37 and 38, into position on top of the press 22 of stem 18. The upper end of arbor 20 is heated to its softening point and the filament supports 30, three in the present showing, are inserted into said softened top in circular arrangement suitably about 60° apart. The outer extremities of these supports are bent vertically upward about 45° from the axis of arbor 20. The filament 32 is slipped through the loops 31 in the outer extremities of supports 30 and has its free ends secured, as by welding, in the hooks 33 on the upper extremities of leading-in conductors 24 and 26, thereby forming filament mount 14.

This filament mount 14 is then sealed to the envelope 12. After a suitable exhaust which may consist of a bake, inert gas flush, and a final fill of an inert gas, such as nitrogen, for dissipating filamentary generated heat, the lamp 10 is tipped off at 48 on tubulation 28 and the base 16 is suitably cemented to the sealed end of envelope 12.

Hence it will be seen from the foregoing description that the heat reflector assembly 34 of my invention comprises a ceramic insulating bushing 35 and a circular metallic heat shield 36 having leading-in conductor holes 37 and 38, and a central or arbor hole 40 with arrow-like fingers 43 diverging therefrom. This reflector assembly 34 eliminates the mica heat reflector disc and spring clip retainer of the prior art. I have provided a highly polished metallic heat reflector surface which will reduce the operating temperature of press 22 of stem 20. Heat reflector disc 36 will not break or peel and its use reduces the cost of the heat reflector assembly. The ceramic bushing 35 is employed to electrically insulate the leading-in conductor 24 from conductor 26.

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

I claim:

1. An incandescent lamp having a vitreous envelope, a filamentary mount sealed to said envelope and an inert gas fill; said filamentary mount comprising a vitreous stem with a vitreous press, an arbor and a plurality of leading-in conductors, a filament and a heat reflector assembly on said stem; said reflector assembly comprising a circular spring steel heat shield provided with slitted spring-tension fingers in the center thereof and frictionally gripping said arbor to prevent movement of said heat shield in a direction away from said vitreous press.

2. An incandescent lamp having a vitreous envelope, a filamentary mount sealed to said envelope and an inert gas fill; said filamentary mount comprising a vitreous stem with a vitreous press, an arbor and a plurality of leading-in conductors, a filament and a heat reflector assembly on said stem; said reflector assembly comprising a metallic heat shield having a polished upper surface and arrow-like fingers diverging from the center thereof for securing said assembly to said arbor, and a ceramic bushing between said shield and one of said conductors.

3. A filamentary mount for an incandescent lamp comprising a vitreous stem with a vitreous press, an arbor and a plurality of leading-in conductors, a filament and a heat reflector assembly on said stem, said reflector assembly comprising a metallic heat shield having a polished upper surface and arrow-like fingers diverging from the center thereof for securing said assembly to said arbor, and a ceramic bushing between said shield and one of said conductors.

4. A heat reflector assembly for a vitreous incandescent lamp stem having an arbor and a plurality of leading-in conductors comprising a metallic heat shield having a polished upper surface and arrow-like fingers diverging from the center of said disc for securing said assembly to said arbor and a ceramic bushing between said shield and one of said conductors.

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