

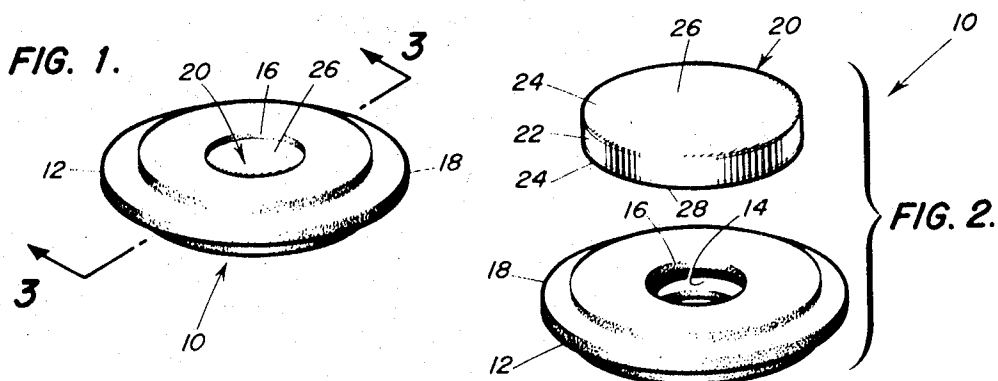
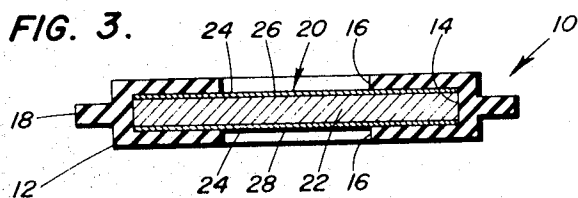
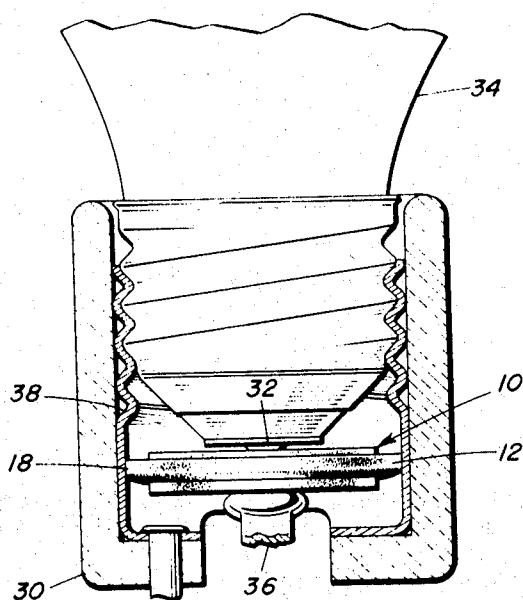
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LAMP SOCKET INSERT

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LAMP SOCKET INSERT

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4 Claims

ABSTRACT OF THE DISCLOSURE

A lamp socket insert is disclosed which serially connects a thermistor disk in the power line circuit to an incandescent lamp bulb to absorb initial current surges whenever the latter is turned on. A rimmed, elastic housing of heat resistive and insulating silicone rubber is provided in thin annular shape and formed with a circular cavity. This housing is distended to receive the disk in the cavity on assembly. The opposing contact surfaces of the thermistor are exposed for contact respectively through the central openings in the housing. The peripheral rim, by interference fit, prevents the device from falling out of an inverted socket when the lamp is removed.

This invention relates generally to electrical devices and more particularly it pertains to a device for extending the life of incandescent lamps.

It has often been observed that a lamp filament will burn out at the instant of turn-on. This is due to the sudden heavy in-rush of current occasioned by the low cold resistance of the filament. This is especially true on AC circuits where the voltage peak of a cycle coincides with the time of turn-on and peak currents then are greatest.

There now are available resistive disks known as thermistors which exhibit a changing resistance which varies inversely with their temperature. It is well known that such a device used in series with an electrical load will cushion the initial turn-on surge of current and then as the disk warms up due to current flow the resistance will drop to a lower constant value.

It is an object of this invention, therefore, to provide a thermistor disk arrangement suitable for incandescent lamp socket use as a life-extending filament protective device.

Another object of this invention is to provide a lamp socket insert which holds a thermistor disk in position for series connection with the tip of the lamp bulb and the corresponding socket contact.

Still another object of the invention is to provide retaining means on a lamp socket insert of this type which when the device is used in inverted installations will not fall out when a lamp bulb is being replaced.

Yet another object of this invention is to provide a thermistor wafer holder which is easily and cheaply made and can be easily assembled.

Other objects and attendant advantages of this invention will become more readily apparent and understood from the following detailed specification and accompanying drawings in which:

FIG. 1 is a perspective view showing a novel filament protective insert for lamp socket use incorporating features of this invention;

FIG. 2 is an exploded view of the filament protective insert of FIG. 1;

FIG. 3 is a cross section drawing taken on line 3—3 of FIG. 1; and

FIG. 4 is an illustration partly in section and partly broken away depicting the filament protective insert installed in a lamp socket.

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Referring now to the details of the drawings as shown in FIGS. 1 to 4, reference numeral 10 indicates generally a lamp socket or filament protective insert embodying features of this invention. This insert 10 consists of an annular flat housing 12 of soft elastic heat resistive insulating material such as silicone rubber. The housing 12 has an internal cavity 14 and smaller diameter opposing axial apertures 16. The rim of housing 12 is provided with a radially extending flange 18 of lesser thickness.

A thermistor disk 20 is provided which corresponds in size to the cavity 14. This thermistor disk 20 comprises a wafer 22 molded from metallic oxide having a negative resistance temperature characteristic. The wafer 22 is plated on each side with a full metal facing 24.

The elastic quality of the housing 12 allows the easy insertion of the thermistor 20 through an aperture 16 by simply stretching operation if desired and thus to position the latter in the cavity 14. Optionally, the housing 12 may be molded integrally about the thermistor 20.

The apertures 16 expose central areas 26 and 28 of the facings 24 to serve as electrical contacts when the insert 10 is in position in a lamp socket 30. One area 26 will make circuit with the tip contact 32 of the lamp 34 as shown in FIG. 4, while the opposing area 28 will make circuit with the socket center spring 36. The entire facing 24, it will be noted, electrically and thermally communicates with the oxide wafer 22 of the thermistor 20 to distribute the electrical flow and temperature rise uniformly. The fact that the areas 26 and 28 are below the surface of the housing 12 aids in locating the insert 10 on the lamp tip contact 32. This also leads to a minimum interviewing thickness between tip contact 32 and center spring 36.

The rim flanges 18 of the housing 12 are somewhat oversize compared to the shell 38 of the socket 30. The resulting gentle interference fit serves to retain the insert 10 in place even in the case of inverted installations when a lamp 34 is being changed. The rim flange 18 flexes easily to adapt the insert 10 to be embossed threads of the shell 38 without forcing the remainder of housing 12 to undesirably tilt in conformation.

Obviously many modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. In combination, an electrical socket, and a protective insert for use in said socket, said insert including a bilaterally symmetrical annular flat housing of soft elastic heat resistive insulating material, said housing having an internal annular cavity and smaller diameter opposing axial apertures provided therein, said housing having a radially extending annular flange of lesser thickness than said flat housing, and a thermistor disk of a size corresponding to said internal annular cavity positioned therein with said disk and housing being received in said socket with an interference fit.

2. The combination as recited in claim 1, wherein said heat resistive insulating material is of a soft elastic type silicone material.

3. The combination as recited in claim 1, wherein said thermistor disk consists of a wafer formed of metallic oxides having a negative resistance temperature characteristic and wherein said wafer is plated on opposite sides with a full metal facing, said opposite sides being plane throughout the disk diameter.

4. The combination as recited in claim 1 wherein said socket has a cup-like member with a center electrical terminal disposed generally at the center of the inside bottom of said cup member, with the sides of said

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cup member comprising a second terminal, and a lamp having a center electrical terminal, with said lamp socket insert being positioned in said socket between said lamp and the center terminal of said socket, said disk being of lesser thickness than said annular flat housing and thereby centrally recessed in the housing on both faces thereof, said insert having its smaller diameter opposing axial apertures receiving said center electrical terminals of said lamp and socket for engagement with the opposite plated sides of said thermistor disk.

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References Cited

UNITED STATES PATENTS

2,483,247 9/1949 Stoffel.
2,675,452 4/1954 McMahan ----- 338—22 X

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REUBEN EPSTEIN, Primary Examiner

U.S. Cl. X.R.

338—22.