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Sinclair

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[54] **ELECTRIC LAMP OR FUSE SOCKET**

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[52] **U.S. Cl.**..... **339/41,** 339/180, 339/274

[51] **Int. Cl.**.. **H01r 13/44,** H01r 33/08, H01r 33/54

[58] **Field of Search** ... 338/36, 40, 41, 43, 178–180, 338/274; 200/51.09

[56] **References Cited**

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[57] **ABSTRACT**

An electrical socket member is provided and includes an inner end center contact and contact shielding structure is mounted within the socket and shiftable laterally thereof between a first position overlying and thus shielding the contact and a second position disposed to one side of and thus exposing the contact. The contact shielding structure is spring-biased to the contact shielding position thereof and a centrally apertured abutment is mounted in the socket for inward and outward shifting therein and is operatively connected to the contact shielding structure for swinging the latter toward its contact exposing position in response to inward shifting of the abutment in the socket, the abutment being engageable by the base of a bulb being threaded into the socket for inward displacement of the abutment and thus shifting of the shielding structure to the contact-exposing position thereof as the bulb base approaches a fully seated position in the socket.

9 Claims, 4 Drawing Figures

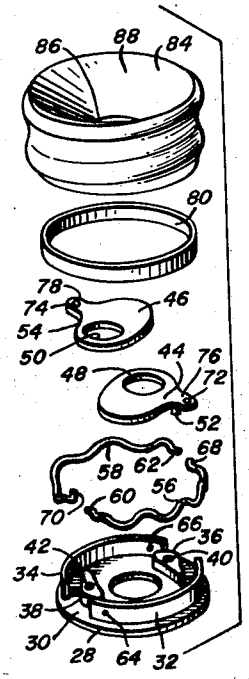


FIG. 1

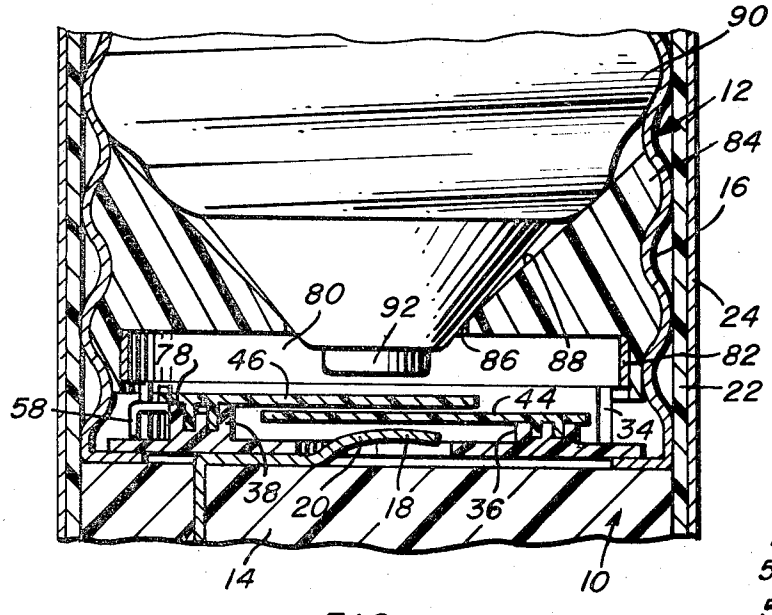


FIG. 2

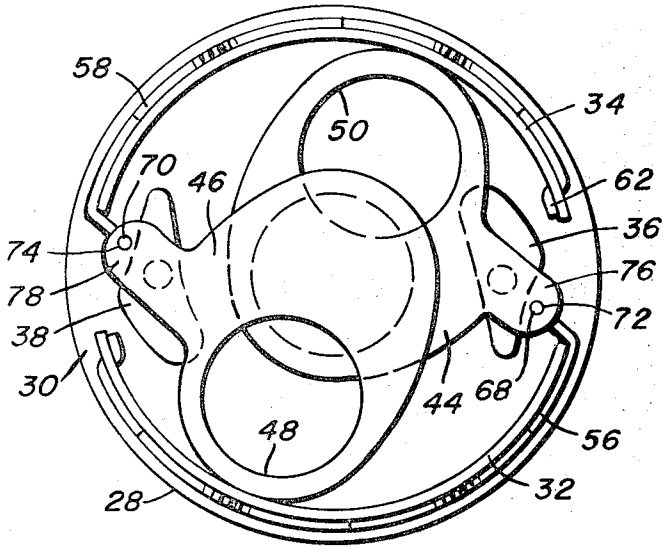


FIG. 3

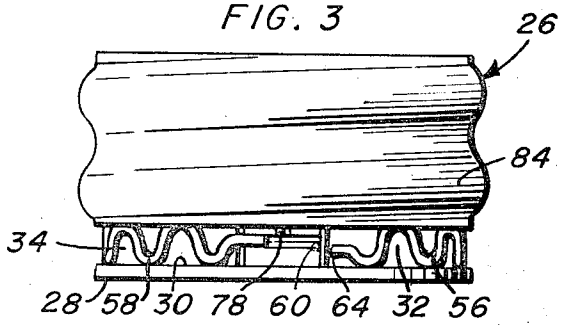
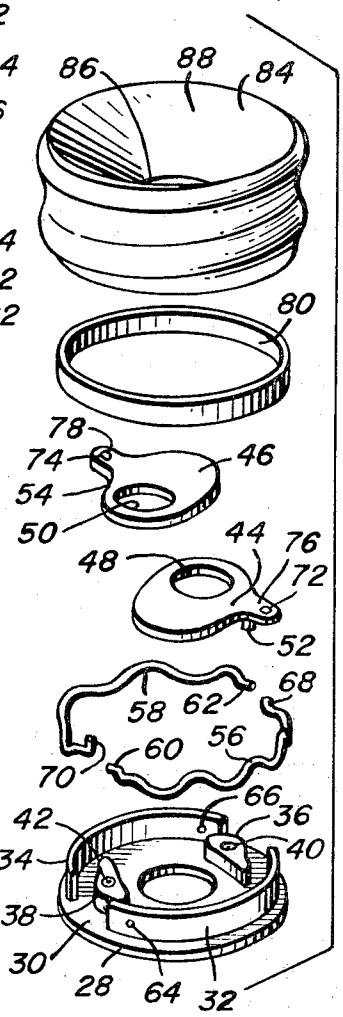


FIG. 4



ELECTRIC LAMP OR FUSE SOCKET

This invention relates to a novel and useful electric lamp or fuse socket and more specifically to a socket member of the type defining an elongated outwardly opening socket and including at least one side wall portion defining first electrical contact portion and a second center contact portion disposed in the inner end of the socket with the first and second contact portions adapted for electrical connection with corresponding contact elements of the base portion of a lamp or fuse positioned within the socket member.

The socket member of the instant invention includes shielding means disposed within the socket member between the center contact portion thereof and the outer end of the socket defined by the socket member and movable between a first out-of-the-way position and a second center contact portion shielding position preventing accidental engagement of the shielded second contact portion by the fingers of a person attempting to insert a lamp or fuse base within the socket.

Many persons have received minor as well as lethal shocks as a result of unintentionally bridging the contacts of an electric socket with their fingers while trying to replace an electric bulb or fuse within the socket. It is accordingly the main object of this invention to provide means whereby it will be substantially impossible for a person to insert a finger into an electric socket member in a manner bridging the two contact portions of the socket member so as to receive a shock.

Another object of this invention is to provide an improved socket member including means for shielding the center contact portion thereof and which is shiftable between a first inoperative out-of-the-way position and a second operative contact portion shielding position with means operatively associated therewith and engageable by the base portion of an electric lamp or fuse socket being properly engaged within the socket member to automatically shift the shielding means from the operative position to the inoperative position thereby enabling the center contact of the socket to be engaged by the base portion being axially inserted into the socket member.

Another object of this invention, in accordance with the preceding objects, is to provide an improved socket member which may be utilized in the construction of conventional threaded sockets as well as other types of sockets such as those adapted to receive a bayonet-type base of a fuse or electric light bulb.

A final object of this invention to be specifically enumerated herein is to provide an improved socket member in accordance with the preceding objects which will conform to conventional forms of manufacture, be of simple construction and automatic in operation so as to provide a device that will be economically feasible, long lasting and relatively trouble-free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is an enlarged longitudinal vertical sectional view taken substantially upon a plane passing through the centerline of the socket member of the instant invention and illustrating the base portion of an electric light bulb partially inserted into the socket member, portions of the bulb and socket member being broken away;

FIG. 2 is a top plan view of the contact shielding assembly of the socket member;

FIG. 3 is a side elevational view of the contact shielding mechanism or assembly and the sleeve-like abutment member constituting the improvement of the instant invention which may be readily inserted into conventional socket members of the type illustrated for modifying existing socket members in accordance with the present invention; and

FIG. 4 is an exploded perspective view of the assemblage illustrated in FIG. 3.

Referring now more specifically to the drawings the numeral **10** generally designates a conventional form of electric light socket such as that found on conventional lamps. The socket **10** includes a socket member referred to in general by the reference numeral **12** and including a dielectric base **14** and a metallic threaded sleeve **16** secured to the base **14** in any convenient manner and defining a first contact portion of the socket **10.** In addition, a center contact portion **18** of the electrical socket **10** extends upwardly through the base **14** and includes an arcuate portion **20** centrally disposed in the lower end of the socket member **12** and spaced slightly above the upper surface of the base **14.**

An insulative sleeve **22** is conventionally disposed about the base **14** and the sleeve **16** and a further metallic sleeve **24** is also conventionally telescoped over the sleeve **22** to form a portion of the outer housing of the socket **10.**

The socket **10** includes an automatic shielding assembly generally referred to by the reference numeral **26** for the center contact portion **18** and which may be readily inserted into the socket member **12.** The assembly **26** includes a base **28** in the form of a panel-like disk and from whose upper surface **30** a pair of upstanding partial cylindrical walls **32** and **34** project, the base **28** and walls **32** and **34** preferably being constructed of a single unit of dielectric material. Further, the base **28** includes a pair of different height support blocks **36** and **38** including annular bores **40** and **42,** respectively.

A pair of panel-like shielding members **44** and **46,** apertured as at **48** and **50,** respectively, are provided and include depending pivot sleeve portions **52** and **54,** respectively, telescopically and rotatably received in the corresponding annular bores **40** and **42,** the undersurface portions of the panels or panel members **44** and **46** being slidably disposed on the upper surface portions of the support blocks **36** and **38.**

Disposed outwardly of the upstanding walls **32** and **34** are a pair of arcuate wave springs **56** and **58** with end portions **60** and **62** anchored in apertures **64** and **66** formed in the walls **32** and **34,** respectively. The other end portions of the wave springs **58** and **56** include laterally directed end portions **68** and **70** anchored in suitable apertures **72** and **74** formed in arm portions **76** and **78** of the panel members **44** and **46,** respectively.

The wave springs **56** and **58** are disposed outwardly of the walls **32** and **34** and position the panel members **44** and **46,** when in unbiased positions, in the manner illustrated in FIG. **2** of the drawings with the unaper-

tured portions of the panel members **44** and **46** centrally disposed relative to the sleeve **16** and over the center contact portion **18.** However, a thrust sleeve **80** is also disposed about the walls **32** and **34** and rests upon the upper surfaces of the springs **56** and **58.** The thrust sleeve **80** is seatingly disposed in a counterbore **82** formed in an annular abutment sleeve **84** constructed of dielectric material and threadedly engaged in the threaded sleeve **16.** The abutment sleeve **84** is centrally apertured as at **86** and defines a conical seat **88** for engagement by the base **90** of an electric bulb or fuse body being threadedly secured in the sleeve **16.** The base **90** includes a center contact **92** adapted for engagement with the center contact portion **18** and upon threaded movement of the base **90** further inwardly of the sleeve **16,** the abutment sleeve **84** will be threaded inwardly of the sleeve **16** with the base **90** and thereby urge the thrust sleeve **80** downwardly so as to compress the wave springs **56** and **58** axially of the socket **10** and thereby increase the effective length of the springs **56** and **58** effecting swinging movement of the arm portions **76** and **78** so as to swing the apertures **48** and **50** into registry with each other and the second contact portion **18** enabling the center contact or element **92** to project through the apertures **48** and **50** and engage the center contact portion **18.** Accordingly, it may be seen that the shielding panels **44** and **46** will normally shield the center contact portion **18** from contact by a person's fingers or finger disposed within the socket **10.** Although the threaded engagement of the abutment spring **84** with the sleeve **16** insures that the second socket portion **18** will not be uncovered until a member such as the base **90** is threaded into the sleeve **16,** the outer surface of the abutment sleeve **84** could be cylindrical and of a diameter slightly smaller than the minimum diameter of the sleeve **16** thereby not requiring it to be rotated in the manner of being threaded through the sleeve **16** but only that further engagement of the base **90** within the sleeve **16** cause inward axial displacement of the abutment sleeve **84** toward the base **14.**

It is of course to be understood that the wave springs **56** and **58** normally bias the abutment sleeve **84** outwardly of the socket **10.** However, outward movement of the abutment sleeve **84** is prevented by the further engagement of the abutment sleeve **84** with the sleeve **16.** However, inasmuch as the springs **56** and **58** do bias the sleeve **84** outwardly, the sleeve **84** is maintained in frictional contact with the base **90** so as to be threaded outwardly of the sleeve **16** until such time as the wave springs **56** and **58** approach their unbiased conditions.

Further, it is to be noted that the assembly **26** illustrated in assembled position in FIG. **3** of the drawings and with the components thereof in exploded relative positions in FIG. **4** of the drawings may be readily placed within a conventional electric light socket such as the socket **10.**

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A safety electrical socket member defining an elongated outwardly opening socket and including means defining side wall portions of said socket, at least one of which side wall portions defines a first electrical contact portion for engagement by a first contact element of a body including first and second electrical contact elements adapted to be at least partially received in said socket, a second electrical contact portion supported from said socket member within the inner end of said socket and insulated relative to said first contact portion, and second electrical center contact portion shielding means supported from said socket member for movement between a first out-of-the-way position adapting said second contact portion for engagement by a second contact element carried by said body upon longitudinal advancement of said body and thereby said second contact element into said socket and a second position overlying said second contact portion disposed between the latter and the open end of said socket and thereby shielding said second contact portion against being contacted by a person's finger inserted into said socket, means yieldingly biasing said shielding means toward said second position, and abutment means mounted in said socket for shifting longitudinally of the latter between inner and outer positions therein and engageable by said body for movement toward the inner position upon inward movement of said body in said socket, said abutment means being operatively associated with said shielding means to urge the latter, against its biasing means, toward its out-of-the-way position upon movement of said abutment means toward its inner position.

2. The combination of claim **1** wherein said abutment means is normally biased toward its outer position.

3. The combination of claim **1** wherein said abutment means comprises a sleeve member generally concentrically disposed in said socket.

4. The combination of claim **3** wherein at least some of said side wall portions define threads for threadingly receiving said body in said socket.

5. The combination of claim **1** wherein said shielding means includes at least one panel member pivotally supported from said socket member in the inner end of said socket for rotation about an axis extending generally normal to the medial plane of said panel member and extending longitudinally of said socket.

6. The combination of claim **5** wherein said abutment means comprises a sleve member generally concentrically disposed in said socket, said panel member including an operating arm portion shiftable generally circumferentially of said socket during pivotal movement of said panel member, and an arcuate wave spring disposed in said socket beneath said sleeve member and extending at least partially circumferentially thereabout, one end of said spring being anchored to said socket member and the other end being connected to said arm portion, said wave spring normally biasing said sleeve member toward its outer position and being compressible axially of said socket, upon inward movement of said sleeve member, to increase its effective length and swing said arm portion to pivot said panel member from its second position to its first position.

7. In combination with an electrical socket member of the type defining a socket including an inner end extremity and a center contact portion spaced slightly outwardly of said inner end extremity, an automatic contact shielding assembly comprising panel-like base

having an opening formed therethrough and seated in said socket with said center contact projecting at least slightly through said opening, contact shielding means supported from said base above the latter and movable transversely of said base between a first position out of axial alignment with said opening and a second position in axial alignment with said opening so as to be positioned to shield said center contact, means operatively connected between said base and said contact shielding means yieldingly urging the latter toward said second position, actuator means connected to said shielding means and disposed in said socket member above said base and movable toward and away from the latter, said actuator means being adapted for engagement by a bulb or fuse base being displaced into said socket and operable, upon displacement toward said base, to effect movement of said shielding means toward said first position.

8. In combination an electrical socket member defining an elongated socket including an inner end extremity and a center contact portion spaced slightly outwardly of said inner end extremity, contact shielding means supported from said base for lateral shifting between an active position overlying said center contact slightly outwardly of the latter and an inactive position disposed to one side of a line containing said contact and extending longitudinally of said socket, a centrally apertured abutment mounted in said socket for shifting longitudinally thereof outwardly of said contact shielding means between inner and outer positions, means biasing said abutment toward said outer position, said abutment being operatively connected with said contact shielding means for shifting the latter between said active and inactive positions in response to shifting of said abutment between its inner and outer positions.

9. The combination of claim **8** wherein said socket is internally threaded and said abutment is threadedly engaged in said socket.

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