

[54] LIGHT SOCKET DEVICE

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[58] Field of Search 339/119 L, 128, 154 L, 339/129, 167, 92 R, 180, 126

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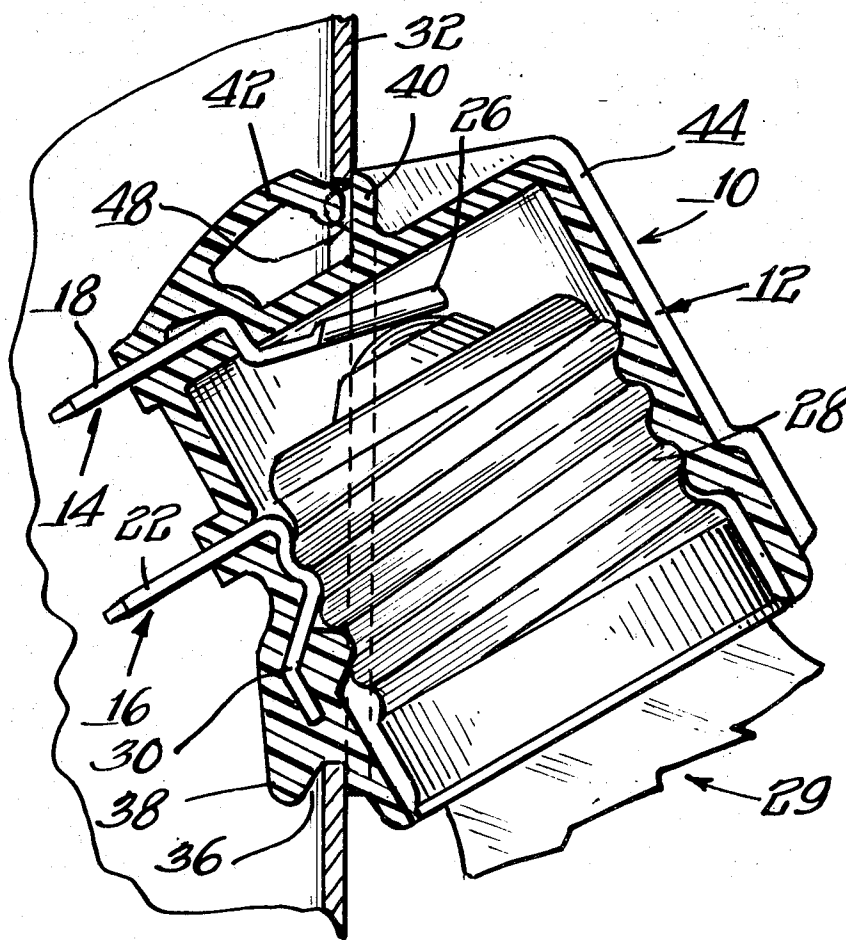
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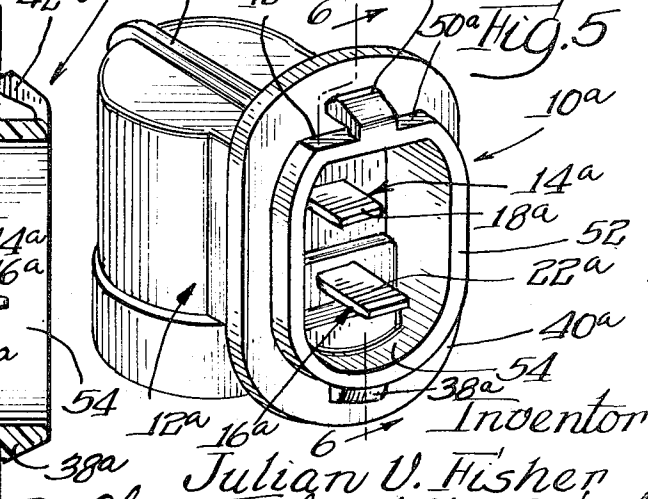
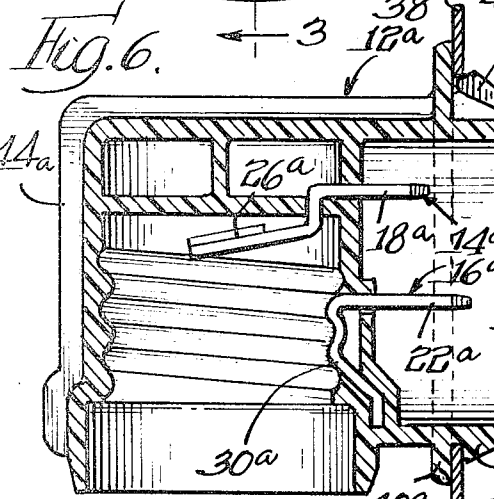
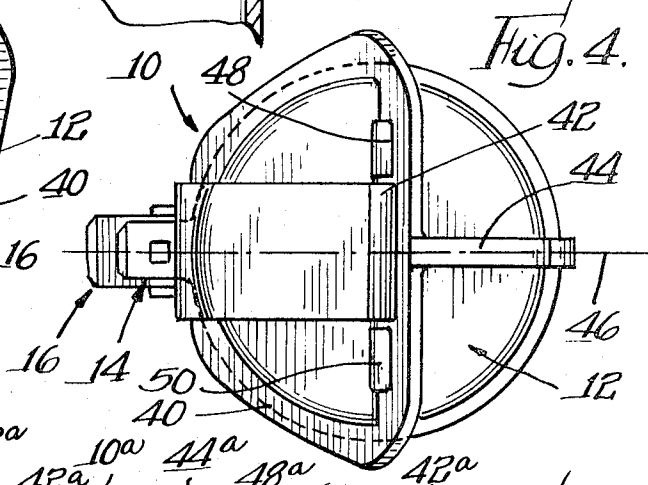
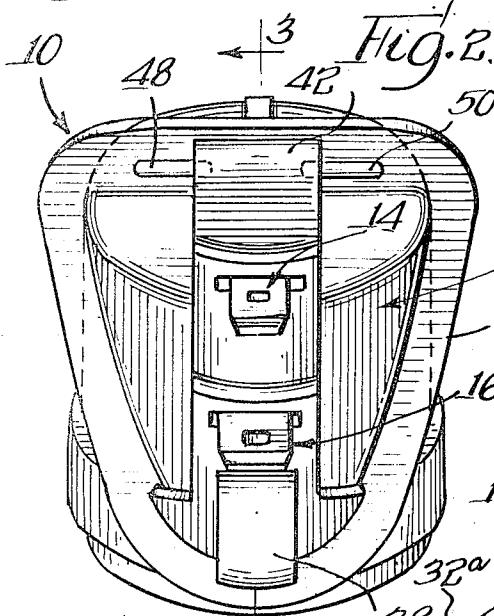
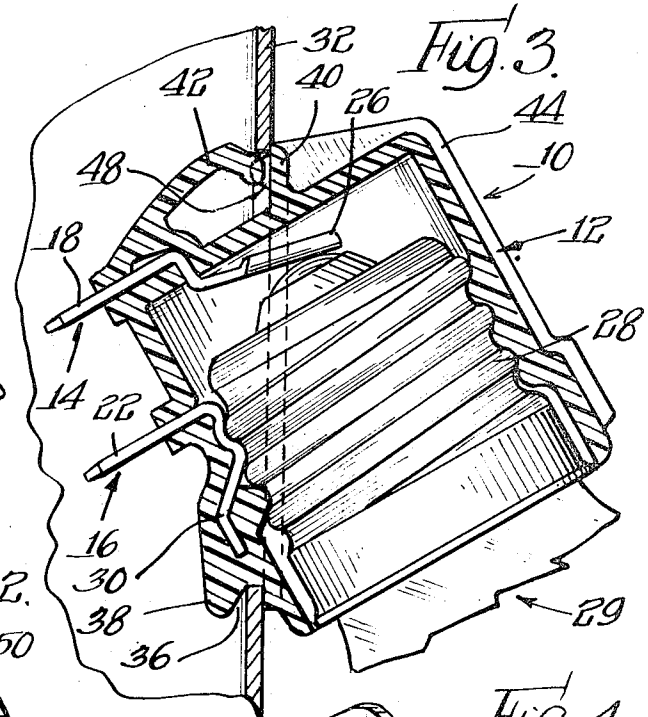
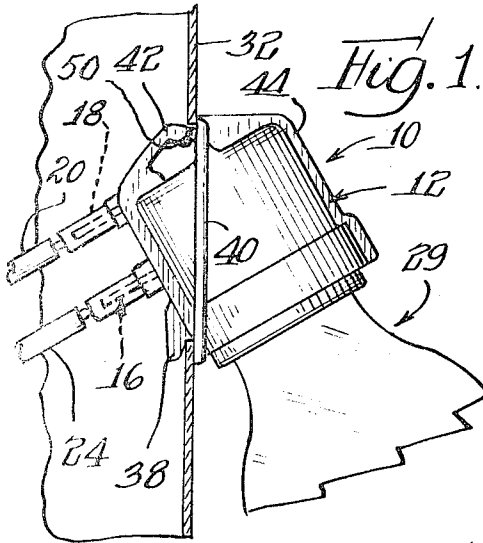
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[57] ABSTRACT

The present invention relates generally to improvements in light sockets of the type adapted for accommodating the metallic threaded base of a conventional electric light bulb and more particularly to a novel molded plastic light socket device adapted for use in refrigerator interiors. The embodiment of the invention disclosed herein comprises a molded plastic light bulb accommodating housing formed of two symmetrical abutting half sections having electrical terminal members projecting therethrough, one for contacting the entering end of a light bulb base and the other for contacting the base periphery. A section of the housing is adapted to interlock with the margin of the supporting panel and an oppositely disposed section is provided with flexible prong means for yieldably engaging said panel.

9 Claims, 6 Drawing Figures





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LIGHT SOCKET DEVICE

SUMMARY OF THE INVENTION

It is common practice in the manufacture of refrigerators to provide a fixture to accommodate a light bulb which will be automatically energized as the door of the refrigerator is opened. It is an important object of the present invention to provide a light bulb accommodating fixture or socket which may be very conveniently mounted in position upon a panel, as for example a panel which forms the inner lining for a refrigerator. To this end, the present invention contemplates a unique socket which may conveniently be snapped in fixed position upon an apertured refrigerator panel lining.

More specifically, it is an object of the present invention to provide a socket device which may be produced by the practice of conventional plastic molding methods with the result that such devices may be produced very economically.

It is a further object of the present invention to provide efficiently operable socket devices of the type referred to above, certain of which are adapted to support a light bulb on a vertical panel with the axis of the light bulb inclined with respect to said panel, and certain others of which are adapted to accommodate a light bulb with the axis thereof extending substantially parallel to the plane of the panel.

The present invention further contemplates a light bulb socket device as set forth above which is of such design as to prevent unauthorized loosening of the socket by forces tending to rotate or withdraw the socket while said socket is mounted upon a supporting panel, such as the lining of a refrigerator.

BRIEF DESCRIPTION OF THE DRAWING

The foregoing and other objects and advantages will be more apparent from the following detailed description when considered in connection with the accompanying drawing wherein:

FIG. 1 is a side elevational view of a socket device of the type contemplated by the present invention, said socket device being shown attached to a vertical wall or panel member;

FIG. 2 is an enlarged elevational view of the socket device disclosed in FIG. 1, said view being taken from the left of FIG. 3;

FIG. 3 is a vertical sectional view taken substantially along the line 3—3 of FIG. 2, with a base of an electric light bulb shown in operative association with the socket;

FIG. 4 is a plan view of the socket device shown in FIG. 3;

FIG. 5 is a perspective view of a modified form of socket device contemplated by the present invention; and

FIG. 6 is a vertical sectional view taken substantially along the line 6—6 of FIG. 5.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to the drawing more in detail wherein, like numerals have been employed to designate similar parts throughout the various figures, it will be seen that a socket device representative of one embodiment of the present invention is designated generally by the numeral 10 in FIGS. 1 to 4, inclusive. The socket device 10 includes a housing 12 formed of suitable non-electrically conductable plastic molded material. In the

fabrication of the housing 12 it is initially formed in two symmetrical halves or sections, the plane of the abutting surfaces being coincident with the section line 3 in FIG. 2. The abutting margins of these two halves may be suitably welded together so that in its final form the housing 12 comprises a single unit.

Before the margins of the two halves of the housing 12 are brought into abutting relation and welded, electrical terminal members 14 and 16 are mounted in position, as illustrated in FIG. 3. The outwardly projecting portion 18 of the electrical terminal 14 is adapted to be electrically coupled with a conductor 20, as shown in FIG. 1, and the outer projecting portion 22 of the terminal member 16 is adapted to be coupled with a conductor 24. The inner extremity 26 of the terminal 14 forms a contact for the entering extremity of a conventional externally threaded light bulb base 28 of a light bulb 29, and the inner extremity 30 of the electrical terminal member 16 is bent and embedded within the housing 12 in such a manner as to electrically contact the thread convolutions of the base 28.

The fixture or socket device 10 is designed so that when mounted in fixed position within a pre-formed aperture of a vertical panel member 32, the axis of the light bulb 29 carried thereby will be inclined with respect to the plane of the panel. This inclined position of the housing is accomplished by initially interlocking a notch at the lower portion of the housing 12 with an adjacent margin of the panel 32 defining a pre-formed aperture in the panel. This notch 36 is defined by a depending protuberance 38 on one side, and the lower portion of a circumferential mounting flange 40 on the opposite side. This structure provides a fulcrum about which the housing 12 may be tilted or swung to the left, as viewed in FIGS. 1 and 3. As the housing approaches the limit of its swinging movement a resilient prong 42 formed integral with the upper extremity of the housing 12 is snapped into position against the margin of the panel defining the upper limits of the panel aperture. The yieldable prong 42, upon complete insertion of the housing, will spring upwardly to the position shown in FIG. 3, so as firmly to hold the flange 40 against the surface of the panel. In order to lend additional strength to the housing 12, an integral peripheral rib 44 extends from the central portion of the flange 40 across the top of the housing and longitudinally of the cylindrical housing periphery. The abutting surfaces of the two half-sections of the housing 12 extend midway of rib 44, said parting line indicated by a dot-and-dash line 46, in FIG. 4, and as previously mentioned, by the section line 3—3 in FIG. 2.

While the above described interlock of the notch 36 and the resilient prong 42 with the panel 32 serve to restrain unauthorized withdrawal of the housing from the panel, means is also provided to resist rotation or twisting of the housing after it has been snapped into position. This is accomplished by employing protuberances 48 and 50. These protuberances are positioned on opposite sides of the prong 42 and extend outwardly from the flange 40. The protuberances 48 and 50 are adapted to be positioned adjacently beneath the edges of the panel 32 which define the upper limits of the housing accommodating opening in the panel 32. Thus, as the resilient prong 42 springs upwardly into clamping engagement with the surface of the panel 32 oppositely disposed from the surface engaged by the flange 40, these protuberances 48 and 50, in cooperation with

the lower notched portion of the housing, prevent said housing from being rotated or twisted after it has once been snapped into position.

In FIGS. 5 and 6, a slightly modified form of socket device is illustrated and is designated generally by the numeral 10a. Structural elements of the socket device 10a corresponding functionally with those of the previously described socket 10 are given corresponding numerals bearing the suffix a. While the previously described socket device 10 is designed to retain the electric light bulb in an inclined position, the socket device 10a is designed to secure a light bulb with the axis thereof in a substantially vertical position. The socket 10a, like the socket 10, is provided with a housing 12a formed of two identical half-sections welded together in the vicinity of a central vertical plane. A flange 40a cooperates with a depending protuberance 38a securing the lower portion of the socket housing in the panel 32a, while a resilient prong 42a cooperates with the flange 40a in securing the upper portion of the socket in position upon the apertured panel. The housing 12a of the socket device 10a is not equipped with the previously described protuberances 48 and 50. Instead, a wall 52 projecting axially from the flange 40a provides two surfaces 48a and 50a which function similarly to the previously described protuberances 48 and 50. It will also be noted that the housing 12a differs from the previously described housing 12 in the provision of a chamber 54 for protectively accommodating outer extremities of the electrical terminals 14a and 22a.

From the foregoing it will be apparent that the present invention contemplates the provision of novel, practical and relatively inexpensive socket devices adapted for convenient attachment to an apertured panel member. Employing the lower portion of the socket housing as a fulcrum member, the device may be tilted so as to effect a yieldable interlock of the upper portion of the housing with a margin of the panel which defines the upper portion of the panel aperture. The above described two-piece arrangement of the socket halves makes it possible to lock the terminal members firmly in position after the abutting surfaces have been united as by welding. The electrically non-conductive housing seals the inner extremities of the electrical terminals against moisture, and this is exceedingly important when the socket device is used in association with the interior panel of a refrigerator. It will be noted that the shape of the plastic housing is such as to enable it to be produced by the practice of conventional molding methods. This enables the device to be manufactured at minimum cost.

It will also be apparent from the foregoing description that the yieldable prongs or fingers 42 and 42a are shaped so as to not only enable the convenient attachment of the socket device to an apertured panel, as previously described, but also to facilitate the ease with which the socket device may be detached from the panel. This may be accomplished by the insertion of a bladed tool between the flange 40 and the outer surface of the panel. The free extremity of each of the prongs is rounded or inclined so as to permit removal of the socket device by the application of sufficient force upon the insertion of a tool blade as previously mentioned.

While the above described plastic socket device has been found particularly adaptable for use in association

with the lining wall of a refrigerator, obviously socket devices constructed in accordance with the teachings of the present invention are not limited to such use but are adapted for general application to apertured panel members.

I claim:

1. An electrical receptacle adapted to be mounted on a support member comprising a housing of electrically insulating material, a light bulb socket secured in said housing for receiving an externally threaded light bulb, a pair of conductors mounted in said housing for supplying electricity to said light bulb socket and said light bulb, said conductors having terminal ends which extend from one side of said receptacle and said aperture when said receptacle is mounted on the support member, a mounting flange disposed on the side of the aperture opposite to the side of the receptacle from which said terminals extend, said flange being constructed to abut the associated surface of the peripheral portion of said aperture in sealing engagement, a relatively rigid protuberance integral with said housing and extending from the same side of said receptacle from which said terminal ends extend, said protuberance being constructed to abut a first area of the associated surface of the peripheral portion along a minor portion of the circumference of the aperture so as to cooperate with said flange along this minor portion to form an interlocking notch for securing said housing to said support member, a relatively resilient prong integral with said housing and extending from the same side of said receptacle as said protuberance, said prong being constructed to abut a second area of the associated surface of the peripheral portion of the circumference of the aperture along a minor portion of the circumference of the aperture and to resistently yield, said first and second areas of the peripheral portion of the circumference of the aperture being aligned along a line on spaced apart portions of said housing and means positioned adjacent said resilient prong for preventing rotation of said housing in the aperture.

2. An electrical receptacle as set forth in claim 1 wherein said means for preventing rotation of said housing in the aperture comprises a pair of protuberances that are positioned on opposite sides of said prong adjacent the inner edge of the aperture in the support member in the vicinity of said prong.

3. An electrical receptacle as set forth in claim 1 wherein said means for preventing rotation of said housing in the aperture comprises a wall integral with said housing and having a flat surface positioned adjacent the inner edge of the aperture in the support member in the vicinity of said prong, said prong and said protuberance being formed integral with said wall, said wall being constructed to partially enclose said terminal ends of said conductors.

4. An electrical receptacle as set forth in claim 1 wherein said terminal ends extend through said housing proximate to said line.

5. An electrical receptacle as set forth in claim 4 wherein said means for preventing rotation of said housing in the aperture comprises a pair of protuberances that are positioned on opposite sides of said prong adjacent the inner edge of the aperture in the support member in the vicinity of said prong.

6. An electrical receptacle as set forth in claim 4 wherein said means for preventing rotation of said housing in the aperture comprises a wall integral with

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said housing and having a flat surface positioned adjacent the inner edge of the aperture in the support member in the vicinity of said prong, said prong and said protuberance being formed integral with said wall, said wall being constructed to partially enclose said terminal ends of said conductors.

7. An electrical receptacle as set forth in claim 4 wherein said terminal ends are substantially flat and rectangular in shape and said terminal ends are located intermediate said prong and said protuberance with the rectangular sides of said terminal ends being aligned substantially parallel along said line between said first and second surface areas on the surface of the peripheral portion of the circumference of said aperture so that said line approximately bisects said prong, said protuberance and said terminal ends.

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8. An electrical receptacle as set forth in claim 7 wherein said means for preventing rotation of said housing in the aperture comprises a pair of protuberances that are positioned on opposite sides of said prong adjacent the inner edge of the aperture in the support member in the vicinity of said prong.

9. An electrical receptacle as set forth in claim 7 wherein said means for preventing rotation of said housing in the aperture comprises a wall integral with said housing and having a flat surface positioned adjacent the inner edge of the aperture in the support member in the vicinity of said prong, said prong and said protuberance being formed integral with said wall, said wall being constructed to partially enclose said terminal ends of said conductors.

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