May 24, 1966 L. J. HESS ETAL 3,253,249

BULB SOCKET FOR PANEL MOUNTING

Filed May 3, 1961 4 Sheets-Sheet 1

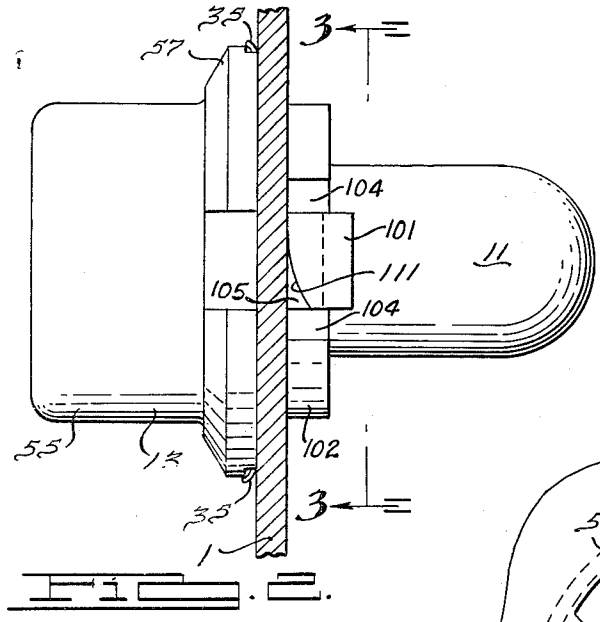


FIG. 2.

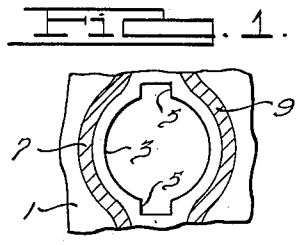
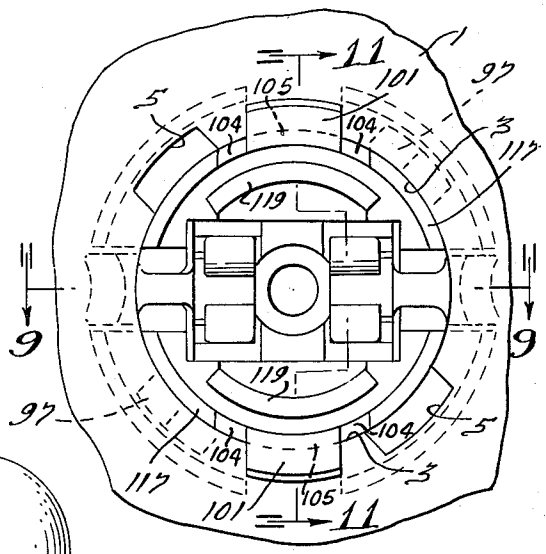


FIG. 1.

FIG. 3.



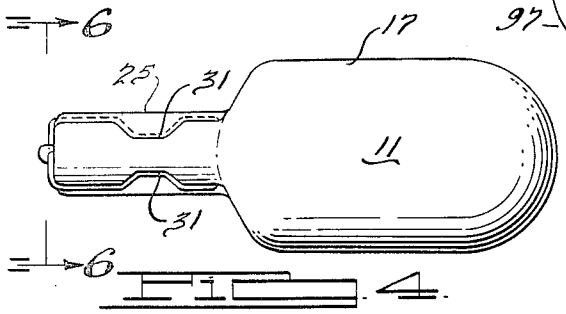


FIG. 4.

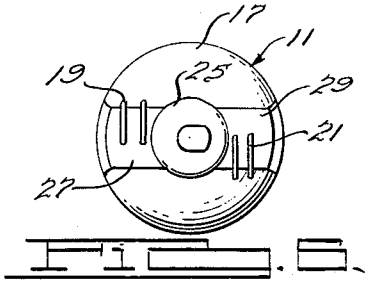


FIG. 6.

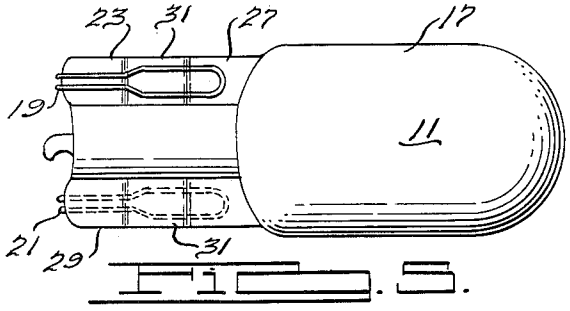


FIG. 5.

INVENTORS.
Lester J. Hess,
Jasper Long,
BY Maurice E. Kennedy.
Harness, Dickey & Pierce
ATTORNEYS.

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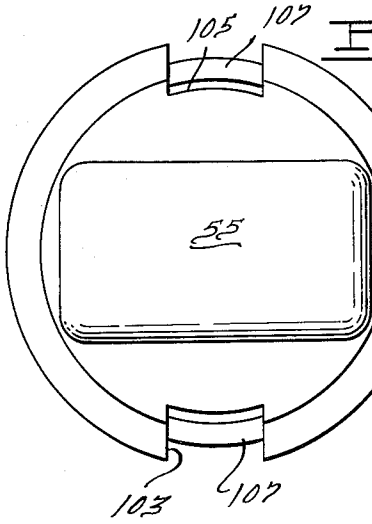
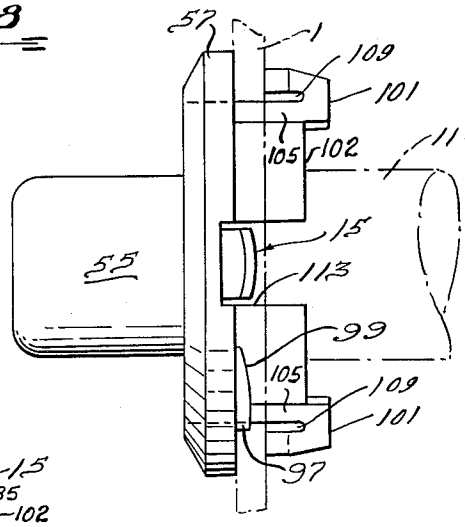


FIG. 7.

FIG. 8.



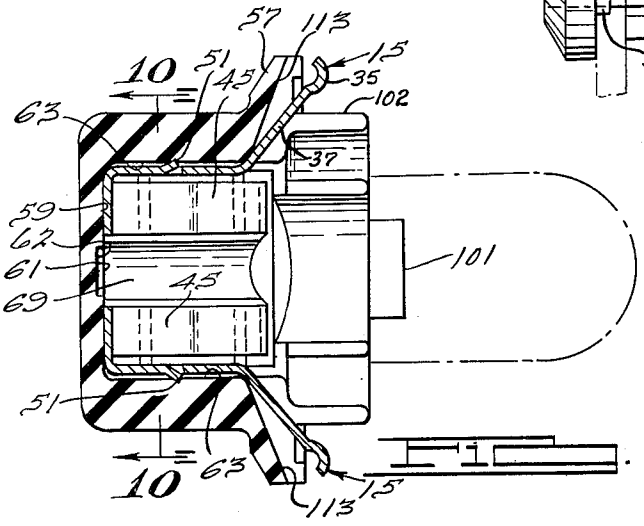


FIG. 9.

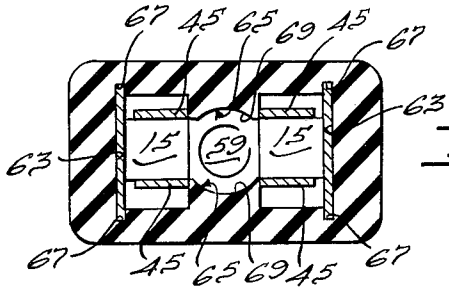


FIG. 10.

INVENTORS.
Lester J. Hess,
Jasper Long.
BY Maurice E. Kennedy.
Harness, Dickey & Pierce
ATTORNEYS.

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FIG. 11.

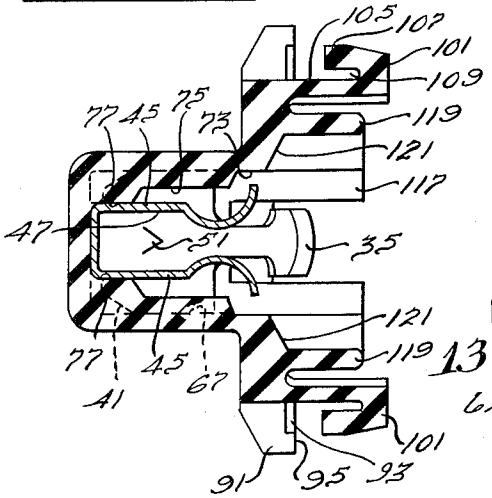
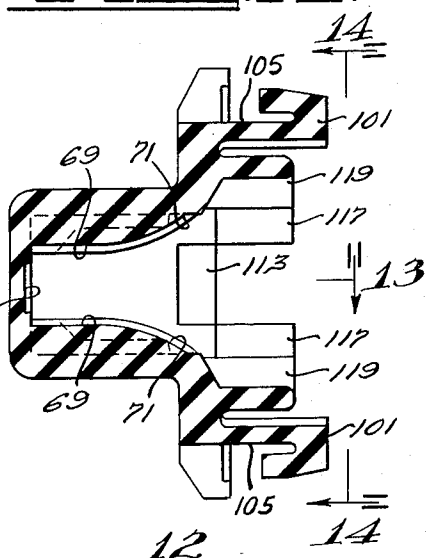


FIG. 12.



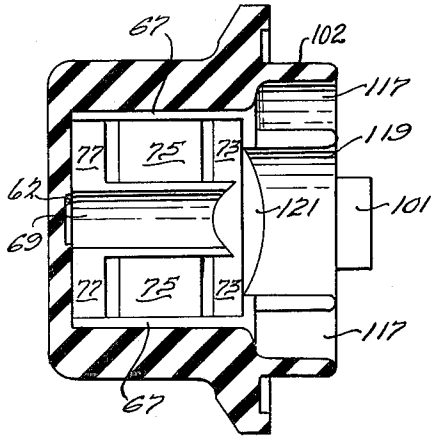


FIG. 13.

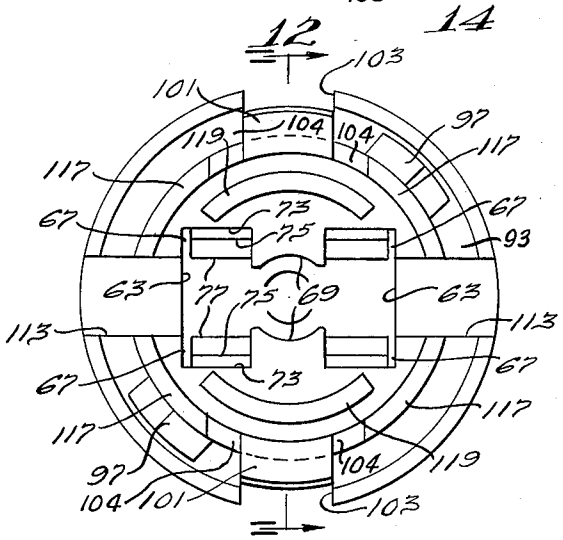


FIG. 14.

INVENTORS.
Lester J. Hess,
Jasper Long,
BY Maurice E. Kennedy
Harness, Dickey & Pierce
ATTORNEYS.

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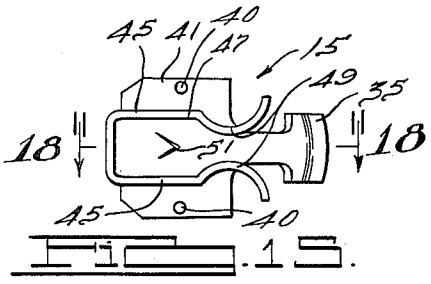


Fig. 15.

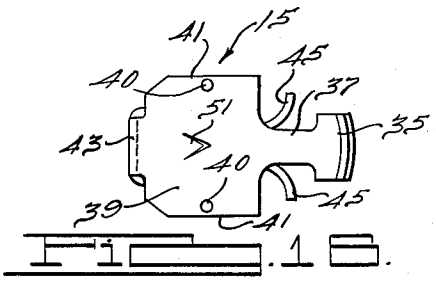


Fig. 16.

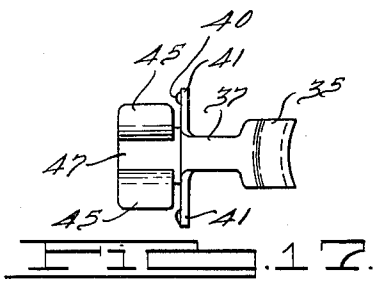


Fig. 17.

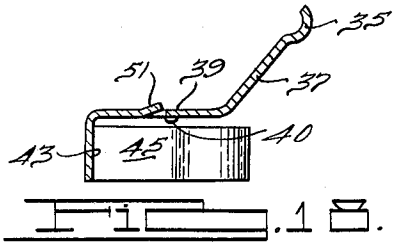


Fig. 18.

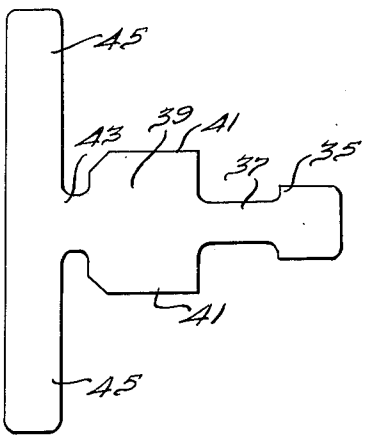


Fig. 19.

INVENTORS
Lester J. Hess,
Jasper Long,
By Maurice E. Kennedy
Harness, Dickey & Pierce
ATTORNEYS.

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BULB SOCKET FOR PANEL MOUNTING

Lester J. Hess, Jasper Long, and Maurice E. Kennedy, Sturgis, Mich., assignors, by mesne assignments, to Republic Industrial Corporation, New York, N.Y., a corporation of Delaware

Filed May 3, 1961, Ser. No. 107,368
20 Claims. (Cl. 339—127)

This invention relates to bulb sockets of the type used to secure the bulb in a desired position on a panel.

It is the purpose of the invention to provide a bulb socket that may be used to attach a new type baseless light bulb to a printed circuit panel.

It is also an object of the invention to provide a bulb socket that may be inexpensively manufactured from readily available thermoplastic or thermosetting materials on a mass production basis, such as is required for the automotive industry.

The invention comprises a plastic socket or receptacle which contains metallic contacts that are separated from each other and adapted to engage the respective terminals on a light bulb of the baseless type. The receptacle has an attaching flange for securing it to a panel and in such position holding the contacts or terminals in electrical engagement with the wiring pattern on a printed circuit board.

The invention is illustrated in a preferred form in the accompanying drawings in which:

FIGURE 1 is a plan view of a portion of a panel having a hole in which the socket of this invention is inserted and mounted;

FIG. 2 is a side elevation showing the socket in position on a panel, the panel being in section;

FIG. 3 is a view taken from the line **3—3** of FIG. 2 with the light bulb removed;

FIG. 4 is a side elevation of the light bulb;

FIG. 5 is a side elevation of the light bulb taken 90° from the position of FIG. 4;

FIG. 6 is a view taken along the line **6—6** of FIG. 4;

FIG. 7 is a view of the socket body taken from position 7 of FIG. 8;

FIG. 8 is a view taken from position 8 of FIG. 7;

FIG. 9 is a section taken along the line **9—9** of FIG. 3;

FIG. 10 is a section taken along the line **10—10** of FIG. 9;

FIG. 11 is a section taken along the line **11—11** of FIG. 3;

FIG. 12 is a section as along line **11—11** of FIG. 3 but through the center of the socket and with the contacts removed;

FIG. 13 is a section taken along the line **13—13** of FIG. 12;

FIG. 14 is a view taken along the line **14—14** of FIG. 12;

FIG. 15 is a side elevation of the contact element or terminal;

FIG. 16 is a side elevation taken from the back of FIG. 15;

FIG. 17 is an end elevation taken from the right of FIG. 16;

FIG. 18 is a sectional view on the line **18—18** of FIG. 15; and

FIG. 19 is a plan view of the blank from which the contacts of FIGS. 15 to 18 are formed.

Referring to the drawings, FIG. 1 shows a section of a printed circuit panel **1** having a generally circular opening **3** including diametrically opposed slots **5**. Adjacent the hole **3** are separated conductive elements **7** and **9** of a printed circuit. It is desired to connect a light bulb **11** across the conductor elements **7** and **9** so as to form a current-carrying circuit between the two elements. This is done by means of the bulb socket **13**. The bulb **11** is

contained within the socket and the terminals of the bulb are in contact with terminal elements **15** inside the socket which are adapted to engage the conductive elements **7** and **9**. The socket **13** also has a means for holding it in position on the panel **1** so that the contacts **15** are maintained in electrical engagement with the panel portions **7** and **9**.

The bulb **11** is of a type that is relatively new but available on the open market, being sold by the General Electric Company, Westinghouse, and others. This bulb has a glass wall chamber **17** which contains the light filaments (not shown) and these receive electric current from wire terminals **19** and **21** that extend as loops out of a fused wedge-type base **23** formed integrally with the chamber **17**. The base **23** is generally rectangular in overall shape and has a roughly cylindrical center portion **25** and more or less flat side sections **27** and **29**, the top and bottom of each of which has a depression or recess **31** with tapered sides. The object of the invention is, of course, to connect the bulb terminals **19** and **21** to the conducting elements **7** and **9** on the panel **1** while also supporting the bulb **11** in position on the panel.

The terminals **19** and **21** are electrically connected to the contact elements **7** and **9** by means of metal terminals **15**, there being one terminal **15** for each of the terminals **19** and **21**. The terminals **15** are shown in detail in FIGURES 15 to 19. They are initially formed from a flat blank of the shape shown in FIG. 19 and comprise a spring finger **37** and contact portion **35** that engages either the conductive element **7** or the conductive element **9**. This is connected through the finger **37** to the enlarged or widened wing section **39** which has oppositely extending guide portions **41** that will serve to hold the contacts **15** in the receptacle **13** as will be brought out hereinafter. Dimples **40** raised from the guide portion **41** of the contact **15** serve to stabilize the guide portions **41** in the grooves **67** of the socket **13** and maintain a wedging pressure on the lock tongue **51** against wall **63** of socket **13**. The lock tongue **51** is substantially triangularly shaped to form a barbed point which is frictionally engageable with the side wall **63** of the socket and which is inclined at an angle to prevent withdrawal of the contact once it is inserted into the socket. A short base section **43** connects the portion **39** to the legs **45** which are bent into a U-shaped section **47** as seen best in FIG. 15. The section **43** also forms a hinge section whereby opposite sides of the terminal are bent toward each other in a U-section so that in the final form, as appears in FIGS. 15–18, the legs **45** and the section **39** are parallel to each other. The contact portion **35** is curved as can be seen in the drawings to provide a more ready engagement with the conductive elements **7** and **9** and increase the spring action. The legs **45** are inwardly formed as seen at **49** to provide C-shaped projections that will engage opposite sides of the bulb base **23** in the recesses **31** to provide a flexible or yieldable means for gripping the bulb **11**. The lock tongue **51** is sheared out of the section **39** to form a means operable upon insertion of the contacts into the socket for holding the contact **15** in place in the receptacle **13** so that it cannot be readily removed.

Referring now to the structure of the bulb socket or receptacle **13**, this comprises generally a socket body or base section **55**, which is provided with socket means in the form of a substantially rectangular cavity that receives and hold the bulb, and a transversely extending flange section **57** having a substantially annular side facing abutment surface which is utilized in attaching the bulb in the receptacle **13** to a panel **1**.

The base section **55** may be rectangular in shape to conform generally to the overall configuration of the socket

means and of the base section 23 of the bulb 11. The socket means in the base 55 is formed by a roughly rectangular recess or chamber 59. The chamber 59 has a flat bottom surface 61 and is provided with a bulb clearance and support means in the form of a circular bulb clearance recess 62. The socket means has minor sides 63 which are identical and major sides 65 are identical. As can be seen best in FIG. 10, the minor sides 63 overlap the major sides 65 so as to provide grooves 67 in the four corners of the chamber 59. The walls of the sides 63 are flat as can be seen in FIG. 10 and the side sections 41 of each of the terminals 15 will fit into the grooves 67 to hold the contacts 15 in place. The lock tongues 51 on each of the contacts 15 will dig into the respective walls 63 after the contact has been inserted so that the bottom of the contact engages surface 59 and will prevent easy removal of the contacts as will be seen in FIG. 9.

Each wall 65 is centrally divided by longitudinally extending ribs provided with inwardly facing arcuate grooves 69 which terminate in an outwardly spaced relationship relative to the recess 62. The rib and groove arrangement 69 comprises a center section which is substantially circular in cross section and has its center located at the central axis of the chamber 59 and corresponds in shape and size to the portion 25 of the bulb 11. The section 69 flares outwardly at the top of the chamber 59 as can be seen in FIG. 12 at 71. On either side of each section 69 the wall has a section made up of a top portion 73, an intermediate portion 75, and a bottom portion 77, and as seen best in FIG. 11, these are stepped with relation to each other so that the bottom sections 77 on opposite walls 65 are spaced just far enough apart to receive the bottom of the terminal gripping section 47 on the contacts 15. The relieved sections 75 and 73 will permit the legs 45 of the contacts 15 to deflect outwardly as is also apparent from FIG. 12.

It will be evident that the two contacts 15 are electrically separated from one another in the base section 55 of the receptacle 13; also, that each of the contacts 15 will be in electrical contact with the terminals 19 or 21 of the bulb 11 when the later is inserted in place. Also, that the sections 49 of the contacts 15 will engage the recesses 31 on the bulb 11 to yieldably hold it in place inside the receptacle.

The flange section 57 of the receptacle 13 includes a portion to engage the panel 1 and inner and outer concentric rim portions to guide and support the bulb 11. Facing the front of the panel 1 is the annular flange 91 (FIG. 11) which is relieved at 93 so as to form a resilient substantially annular abutment surface 95. Locking means are provided to positively locate the socket assembly relative to the panel surface by a pair of tapered cam-like projections 97 with ramp surfaces 99 projecting from the flange surface 93, FIGS. 8 and 14. When the socket 13 is rotated clockwise in the hole 3 the projections 97 drop into slots 5, FIG. 3, and the perpendicular surfaces on projections 97 prevent further rotation in a clockwise direction. The ramp surfaces 99 while partially restricting counterclockwise rotation assist in removal of the socket when sufficient torque is applied in a counter-clockwise direction.

In order to engage the back of the panel 1, abutment means in the form of a pair of J-shaped fingers 101 formed in an outer substantially annular rim 102 extending transversely from the flange 57 are narrow enough in width to project through the slots 5 in the panel opening 3. Longitudinally extending slots 104 separate each of the J-shaped fingers 101 from the outer annular rim to increase the flexibility of the fingers. In order to facilitate manufacture by molding in a simple mold, members 101 are aligned with slots 103 in the flange section 57 (FIG. 14). As can be seen best in FIG. 11, member 101 comprises a section 105 of the outer annular rim 102 that extends from the flange 57 and a reversely bent flange section 107 that extends back toward the flange section 57, this being formed by molding the slot 109 in the section 101 through the use of a core pin extending through

the slot 103. This particular formation of the finger 101 gives a substantial amount of flexibility. Additional flexibility is gained by separating the fingers 101 from other wall sections of the socket. As seen best in FIG. 2, the end surface 111 of each finger 101 is tapered to form a ramp to facilitate its engagement behind the panel 1 after it has been inserted in the slot 5 and the receptacle 13 rotated through a sufficient angle to permit projections 97 to enter slots 5 bringing members 101 behind the panel surface. After such rotation, it will be seen that the member 13 grips the panel 1 around the edges of the hole 3 by means of the outer peripheral surfaces 95 on the front side and the resilient fingers 101 on the back side of the panel.

As can be seen best in FIGS. 9 and 11, the contact ends 35 and the connecting strips 37 of the terminals 33 are provided with flexing room in the flange 57 by way of the tapered recesses 113. The contact ends 35 project beyond the face of the flange 57 and can be flexed back. Thus, when the receptacle 13 is attached to the panel in the manner just described the respective elements 35 contact the conductive elements 7 and 9 of the printed circuit.

The outer annular rim portion projecting from the flange 57 is divided into thin partly circular wall sections 117 which are located on a diameter approximately the same as that of the hole 3, the sections projecting into the hole and serving as lateral guides and supports for the socket 13. Located inwardly of the sections 117 are additional partly circular wall sections 119 formed in an inner substantially annular rim means and separated by the socket means and the tapered recesses, and these are only slightly larger in diameter than the bulb 11 so that these surfaces will serve as guides and supports for the bulb itself to help prevent movement or rattling of the bulb. At the bottom of the sections 119 are tapered surfaces 121 which, as seen best in FIG. 11 or 12, are located on an angle such that extensions of the surfaces 121 would be slightly above the ends of the contact legs 45. The surfaces 121 will act to cam the base of the bulb 11 into the contact's bulb gripping section 47 and help to properly align the bulb when it is being inserted in the socket.

While the operation of the socket is more or less obvious from the preceding description, it will be noted that the bulb 11 can be readily inserted in the socket 13 either before or after attachment of the socket to the panel 1. When the bulb is inserted one side will be in contact with one of the contacts 15 and the other in contact with the other, thus providing an electrical extension of the two bulb terminals 19 and 21. The bulb socket 13 is then arranged so that the fingers 101 are in alignment with the slots 5 in the panel aperture 3 and the fingers are projected through these slots. Thereafter the socket is rotated so that the fingers 101 engage behind the panel 1. In this position the ends 35 of the contacts 15 will engage the conductive elements 7 and 9 to connect the bulb in the electrical circuit. The contact elements 15 through the contact surfaces 35 provide a spring action which will act in conjunction with the action of the resilient fingers 101 and the locking action of the cams 97 to tightly hold the socket 13 in place on the panel 1.

What is claimed is:

1. A bulb socket comprising a molded plastic member having a central recess, means providing grooves on opposite faces of said recess, a pair of contacts seated in said grooves and separated from each other, said contacts comprising U-shaped arms extending lengthwise of the recess and having bulb receiving openings adjacent the top of the recess, said contacts having resilient arms extending out of the recess and transversely thereof at an angle, said socket having a flange spaced from said contact arms, radially outwardly tapered recesses formed in said molded plastic member and extending from the outer peripheral edge of said flange to said central recess and providing flexing room in the flange for said resilient arms, said flange having a pair of diametrically opposite axially projecting fingers, said fingers being resilient.

2. A bulb socket to be projected through an opening in a panel, said opening having opposed slots in the periphery thereof, comprising a molded plastic body having a face adapted to confront one side of the panel, said body having a pair of J-shaped molded arms projecting therefrom and sized to project through the slots in said opening and engage the back of the panel, annular groove means forming an undercut portion in said face and defining a panel abutment surface, the undercut portion of said face of said socket having cams projecting therefrom to engage the front face of the panel and upon rotation of the socket fit into said slots and hold the socket in angular position, said J-shaped arms and said face gripping the panel on opposite sides to prevent removal of the socket.

3. The invention set forth in claim 2 including a substantially circular rim projecting transversely from said face, said arms being formed in said rim and defined therein by longitudinally extending slots, the outer diameter of said rim being approximately equal to the diameter of the opening in the panel and being adapted to project into a panel opening and support the socket therein.

4. A baseless bulb socket comprising a molded plastic member having a substantially rectangular body and a flange at one end of the body extending transversely outwardly from the body, a substantially rectangular recess opening out of the flange end of the body, rib means dividing said substantially rectangular recess into separate contact receiving portions, arcuate groove means provided on the inner side surfaces of said rib means to guide a baseless bulb into the recess, a pair of contact elements in the recess in the body on opposite sides of said rib means and being electrically insulated thereby, shoulder portions in the body engaging the contact elements to hold them positioned within the body, recessed groove means in the recess engageable with the contact elements after predetermined flexing thereof, portions of said recessed groove means extending from said rectangular recess to said flange, and said contact elements having resilient contact portions extending out of the recess and transversely thereof within said portions of said recessed groove means to be spaced from the flange on the body.

5. A socket for a baseless type bulb having external terminals on opposite sides, said socket being adapted to mount the bulb on a printed circuit panel and extend through an opening in the panel having slots on opposite sides, said socket comprising an insulative body having a flange at one end larger than the opening in the panel, a pair of J-shaped resilient fingers projecting from said flange and arranged to extend through the slots in the panel, said fingers having cam-shaped ends adapted to engage the back of the panel upon rotation of the socket in the opening, said flange having cam surface projections adapted to engage the front face of the panel and upon rotation of the socket to enter said slots and act with said fingers to provide means for tightly gripping the panel around the edge of the opening, said body having a rectangularly shaped recess opening out of the flange end thereof and adapted to receive the end of the baseless bulb, central sections of the recess being of reduced width and shaped to conform to the central section of the baseless bulb and form a support for it, tapered sections on opposite sides of the recess tapering toward said central section, circular sections projecting from said flange and located on approximately the diameter of a bulb and acting to support the bulb when said bulb is in said recess, additional circular sections located outwardly of said fingers and of approximately the same size of the panel opening to project therein and suport the socket therein, opposite ends of said recess having slots in the four corners thereof, the long sides of said recess on opposite sides of said central portion being stepped in three sections and having the narrowest section at the bottom of the recess, and a pair of contacts seated in said recess and located respectively on opposite sides of said central portions,

each of said contacts being three-sided and having one side extending in said grooves at the corners of said recess and said side having an end projecting out of the recess and beyond said flange and adapted to resiliently engage a conductive portion of a printed circuit on the face of said panel, the base of each of said contacts being fitted in the narrowest portion of said stepped sides of said recess, the remaining two sides of each of said contacts being parallel to the long sides of said recess and adapted to flex into the space provided by the remaining stepped portions and to engage the opposite exposed terminals on a base of a bulb and resiliently hold such bulb in said recess.

6. A socket for a baseless type bulb having electrical terminals on opposite sides, said socket being adapted to electrically connect the bulb to a printed circuit panel and to be supportingly received within an opening in the panel, said socket comprising an insulating body having a flange at one end larger than the opening in the panel, holding means provided on said socket for tightly gripping the panel around the edge of the opening, said body having a rectangularly shaped recess opening out of the flange end thereof and adapted to receive the end of the baseless bulb, slots formed in the four corners of said recess, a central section of the recess being of a reduced width and shape to conform to the central section of the baseless bulb and form a support for it, tapered sections on opposite sides of the recess tapering toward said central section, circular sections projecting transversely from said flange parallel to the central axis of said recess and providing surfaces located on approximately the diameter of the bulb and acting to support the bulb when the bulb is in said recess, and a pair of contacts seated in said recess and located respectively on opposite sides of said central section, each of said contacts having side portions fastened in the slots at the corners of said recess, and each of said contacts having an end projecting out of the recess and beyond said flange and adapted to resiliently engage a conductive portion of the printed circuit panel.

7. A socket combination for supporting a bulb in an aperture in a panel and electrically connecting the bulb to panel contacts formed on said panel, said bulb having a substantially cylindrical body portion and terminating in a reduced base portion having a substantially rectangular configuration interrupted by longitudinally extending arcuate ribs projecting outwardly on opposite sides of the base portion and dividing the base portion into radially extending flanges having transverse grooves formed therein, the combination comprising: a pair of bulb contacts adapted to electrically connect the bulb to the panel contacts, each bulb contact comprising a central portion, a resilient panel contacting arm extending generally transversely to said central portion, a contact tab formed on the end of said resilient arm for electrical engagement with the panel contacts, snap-in type bulb fastening means integrally connected to said central portion and adapted to receive the reduced base portion of the bulb; a plastic insulating socket body, socket means formed in said body and being adapted to receive and retain the pair of bulb contacts in electrically insulated relationship, retaining means operable upon insertion of said pair of bulb contacts into said socket means to retain said pair of bulb contacts therein, an abutment surface formed about said socket means and extending substantially transversely to the central axis of said socket means for abutting engagement with the panel about the aperture, an outer rim of substantially annular form extending outwardly from said abutment surface in a direction substantially parallel to the central axis of said socket means and the aperture in said panel and surrounding said socket means, said outer rim having an outer diameter approximately equal to the diameter of the aperture in the panel for supporting engagement therewith, inner rim means of substantially annular form extending outwardly from said abutment surface in a direction substantially parallel to the central axis of said socket means and the aperture in said panel and

surrounding said socket means, said inner rim means having an inner diameter substantially equal to the outer diameter of the cylindrical body portion of the bulb for engagement therewith, groove means intersecting said outer rim and said flange and extending transversely from said socket means to a position adjacent said abutment surface, the resilient arm of each bulb contact being received in said groove means when the bulb contacts are secured within said socket means and the tab contacts being located in spaced relationship relative to said abutment wall, and fastening means to secure the socket combination in the aperture in the panel with the contact abutment surfaces in a resiliently deformed position of the electrical engagement with the panel contacts.

8. The invention as defined in claim **7** and wherein said fastening means comprises resilient arms formed in the outer rim, said arms being separated from the rest of the outer rim by substantially longitudinally extending slots, said resilient arms having reversely bent flanges integrally formed on the ends thereof and terminating in abutment surfaces adapted to engage the panel, and said reversely bent flanges being separated from the resilient arms by arcuate slots.

9. The invention as defined in claim **7** and having rib means extending parallel to the central axis of said socket means and dividing said socket means into separate contact receiving portions, and groove means formed on said rib means to receive and support the reduced base portion of the bulb.

10. In a socket assembly for securing a bulb in an aperture in a panel, a plastic body portion, socket means formed in said plastic body portion, a backup flange extending radially outwardly relative to the central axis of said socket means from said body portion, an abutment surface provided on said backup flange for engagement with one side of the panel, an annular rim extending outwardly at right angles from said backup flange away from said abutment surface and said body portion substantially parallel to the central axis of said socket means, said rim having an outer diameter approximately equal to the diameter of the aperture in the panel, contact support means provided in said socket means to receive and support electrical contacts in electrically insulated relationship, longitudinally extending slot means formed in said outer annular rim and extending from the abutment surface to the end of the rim, a plurality of resilient finger means formed between said longitudinally extending slot means, reversely extending flanges formed on the ends of said finger means, groove means extending parallel to said anular rim and separating said reversely extending flanges from said finger means, and panel abutment surfaces formed on the ends of said reversely extending flanges and facing said abutment surfaces on said flange and being spaced therefrom a distance sufficient to frictionally receive portions of the panel surrounding the panel aperture.

11. The invention as defined in claim **10** and having bulb contacting inner rim means located within said outer annular rim and extending substantially parallel thereto away from said abutment surface and said socket means, said bulb contacting rim means having an inner diameter substantially equal to the outer diameter of the bulb and providing bulb support surfaces adapted to engage a substantial portion of the periphery of the body portion of the bulb.

12. The invention as defined in claim **11** and having arcuate groove means provided in said body portion along opposite inner side walls of said socket means and extending longitudinally from a point adjacent the inner rim means of said socket means to slidably receive and support the end of the bulb, and an inwardly inclined approach surface connecting the inner surface of the inner rim to said arcuate groove means.

13. The invention as defined in claim **12** and wherein said arcuate groove means comprises longitudinally extending ribs projecting into said socket means and dividing said socket means into separate contact receiving portions, and the outer surfaces of said ribs being arcuately grooved to provide for mating engagement with the end of the bulb.

14. A socket combination for supporting a bulb in an apertured panel and electrically connecting the bulb to panel contacts formed on the panel, and comprising: a plastic body portion, a backup flange extending radially outwardly from the body portion, an abutment surface provided on said flange for engagement with one side of the panel, an annular rim extending outwardly at right angles from the backup flange away from said abutment surface and said body portion, said rim having an outer diameter approximately equal to the diameter of the aperture in the panel, longitudinally extending slot means formed in said anular rim and extending from the abutment surface to the end of the rim, a plurality of finger means formed between said longitudinally extending slot means, reversely extending flange portions formed on the ends of said finger means and extending radially outwardly beyond the outer surface of said annular rim, arcuate grooves extending parallel to said annular rim and separating said reversely extending flanges from said finger means, panel abutment surfaces formed on the ends of said reversely extending flanges and facing said abutment surface on said flange and being spaced therefrom a distance sufficient to frictionally receive portions of the panel surrounding the panel aperture, a bulb socket formed in said body portion within said annular rim, and a bulb contacting and supporting inner rim means located within said first mentioned rim and extending parallelly thereto away from said abutment surface and said body portion, said bulb contacting and supporting rim means having an inner diameter substantially equal to the outer diameter of the bulb and providing bulb support therefor along a substantial portion of the periphery thereof.

15. A bulb socket, for supporting a light bulb in electrical contact with a printed circuit board or the like, comprising a base portion having a central recess, contact means mounted in said central recess to receive the bulb and to electrically connect the bulb to the printed circuit board, mounting means to secure said socket relative to the printed circuit board, and annular support rim means integral with said base portion and extending outwardly from said central recess and having an inner diameter approximately equal to the width of the bulb and being adapted to receive and support the bulb in electrical engagement with said contact means.

16. The invention as defined in claim **15** and wherein said rim means comprises a plurality of separate annular segments spaced from one another by longitudinally extending slot means.

17. A socket, for supporting a light bulb in an opening in a panel or the like in electrical contact with printed circuitry or the like, comprising a base portion having a central recess, contact means mounted in said central recess to receive the bulb, portions of said contact means extending radially outwardly from said central recess and terminating radially outwardly thereof for resilient engagement with the panel, inclined radially outwardly extending groove means formed in said base portion and extending outwardly and being inclined from said central recess to the outer periphery of the socket, said portions of said contact means being located within said groove means in contact with said socket only at the innermost end of said groove means and in spaced relation to the socket along the rest of the length thereof, and mounting means formed about the periphery of the socket to secure the socket in the opening in the panel.

18. In a socket, for receiving and electrically connecting a bulb in circuit on a panel or the like, said bulb having a longitudinal axis and a conecting base slidably insertable in said socket by axial movement parallel to said axis, said base comprising a substantially cylindrical central portion having radially outwardly extending wing portions with electrical contact means thereon, the invention

comprising: a central recess in said socket defined by side wall portions extending substantially parallel to said axis, rib means formed on said side wall portions and extending substantially parallel to said axis and dividing said recess into separate contact portions, contact means slidably inserted in each of said contact portions, and bulb base support means formed by said rib means and engaging the substantially cylindrical central portion and supporting said bulb in said recess with the wing portions of the bulb base extending into said separate contact portions of the recess for electrical connection of the contact means.

19. The invention as defined in claim **18** and having annular rim means extending outwardly from said recess, said rim means having an inner diameter approximately equal to the diameter of the bulb and adapted to supportingly engage the bulb, and inwardly extending guide means provided between said rim means and said support means to guide said substantially cylindrical central portion of the base of the bulb onto said support means.

20. In a socket, for receiving and supporting contact means for a light bulb or the like, the contact means having a substantially rectangularly U-shaped base portion at one end and C-shaped resilient detent means at the other end, the invention comprising: a stepped contact recess formed by a bottom portion adapted to abuttingly receive the base portion of the contact means, a central portion spaced outwardly of said bottom portion and the adjacent intermediate portion of the contact means, and

a top portion spaced outwardly of said central portion and said detent means, said spacing being such as to permit flexing of said contact means above said base portion sufficient to permit a bulb to be associated with said detent means without further restrictive surface engagement of the contact means with the socket.

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JOSEPH D. SEERS, *Primary Examiner.*

A. S. TRASK, *Assistant Examiner.*