

Jan. 16, 1962

R. E. LOESCH

3,017,599

LAMP SOCKET

Filed Jan. 5, 1960

2 Sheets-Sheet 1

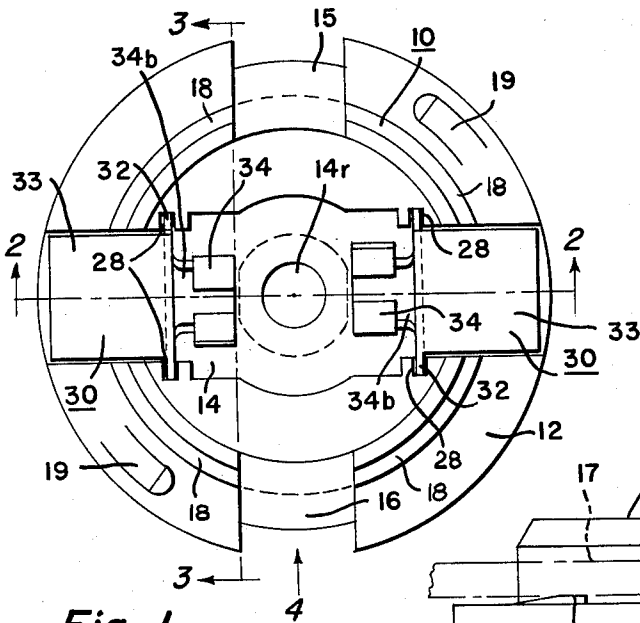


Fig. 1

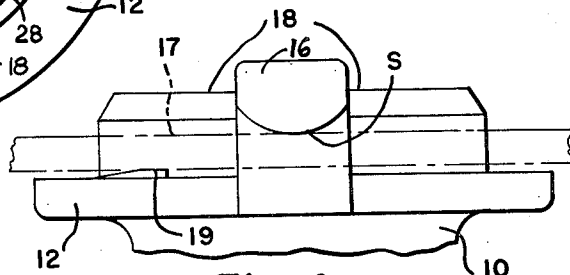


Fig. 4

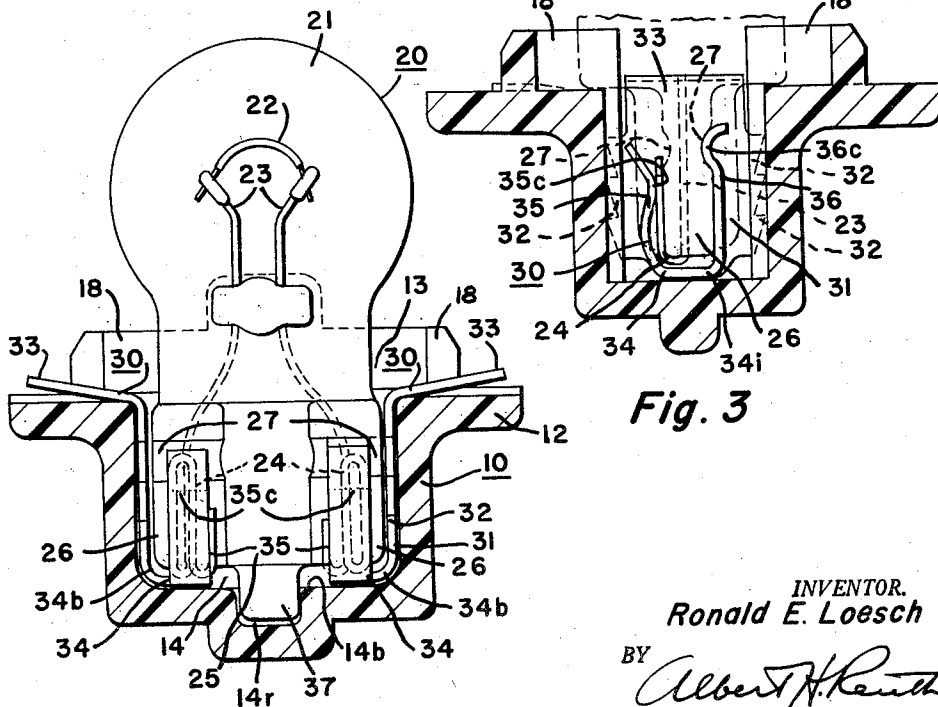


Fig. 2

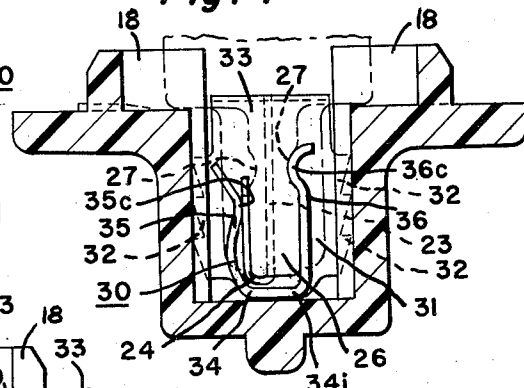


Fig. 3

INVENTOR.  
Ronald E. Loesch  
BY *Albert H. Reuther*  
His Attorney

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2 Sheets-Sheet 2

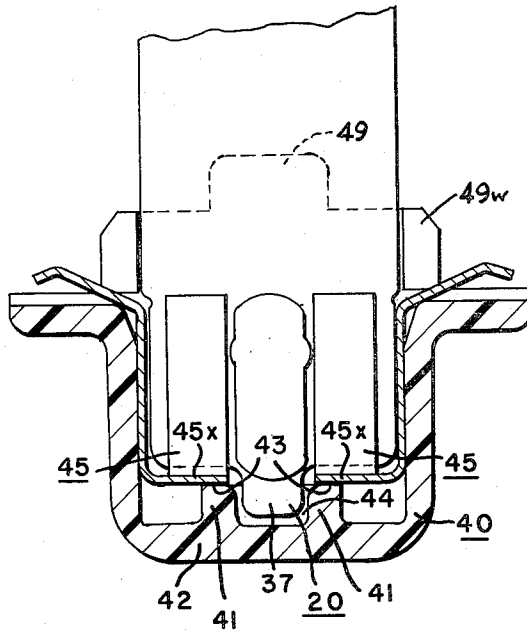


Fig. 5

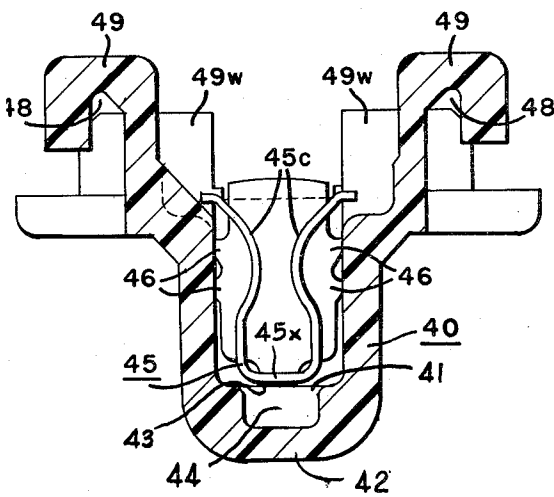


Fig. 6

INVENTOR.  
Ronald E. Loesch  
BY  
*Albert H. Reuther*  
His Attorney

1

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LAMP SOCKET

Ronald E. Loesch, Ravenna, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Jan. 5, 1960, Ser. No. 628

6 Claims. (Cl. 339-91)

This invention relates to lamp socket and terminal means, and particularly, to a terminal and socket assembly adapted for use relative to new "baseless" lamp bulbs.

An object of this invention is to provide a new and improved terminal and socket assembly inexpensive to produce and convenient to use particularly relative to a mounting panel aperture.

Another object of this invention is to provide a lamp socket to accept new "wedge base" lamp bulbs which eliminate metal base portions and have only a glass web-like bottom with contact wires bent to conform to the contours of the glass bottom adapted to fit into a molded plastic socket body and to engage a pair of identical spring metal contacts held in the socket such that one finger portion of each contact has a curved section to complement contour of a notch or indentation in the glass bottom while another finger portion applies spring force directly to a contact wire of the lamp bulb.

A further object of this invention is to provide a lamp socket and terminal means including a body of insulating material having a transverse cavity adapted to receive terminal means provided with a laterally outwardly barbed central portion for tightly engaging a surface of the cavity and having a transverse tab portion integral with one end of the central portion so as to be electrically engageable with a mounting panel and having a transverse generally U-shaped segment centrally integral laterally with an opposite end of the central portion, the U-shaped segment including an intermediate bottom portion that abuts against a bottom surface of the body cavity and that is integral at opposite ends with a pair of identical finger portions one of which includes a C-shaped contact to engage directly exposed contact wire along a transverse glass bottom of a "wedge base" lamp bulb and the other of which includes a C-shaped locking end complementary and engageable relative to a transverse locking notch provided in the glass bottom of the "wedge base" lamp bulb.

Another object of this invention is to provide a lamp socket and terminal means adapted to interconnect electrically a mounting panel and a "wedge base" lamp bulb having a transverse web-like glass bottom having a downwardly depending projection as well as a pair of laterally outwardly projecting glass webs over each of which an exposed wire contact is bent coming from inside the bulb, the lamp socket including a body of insulating material having a transverse cavity with a bottom recess to align and receive the bulb projection as well as to receive terminal means provided with a laterally outwardly barbed central portion for tightly engaging a surface of the cavity and having a transverse tab-end portion integral with one end of the central portion so as to be electrically engageable with a mounting panel and having a transverse generally U-shaped segment centrally integral laterally with an opposite end of the central portion, the U-shaped segment including an intermediate bottom portion that abuts against a bottom surface of the body cavity and that is integral at opposite ends with a pair of identical finger portions one of which includes a C-shaped contact to engage directly exposed contact wire along the transverse glass bottom of the "wedge base" lamp bulb and the other of which includes a C-shaped locking end complementary and engageable relative to a transverse locking notch provided in the glass bottom of the "wedge base" lamp bulb.

2

Another object of this invention is to provide terminal means adapted for use in an insulating socket so as to establish electrical connection directly relative to an exposed wire contact bent coming from inside a "wedge base" lamp bulb having a glass web-like bottom and adapted to include a resilient tab portion laterally attached to a side-serrated central terminal-mounting portion joined at an end remote from the tab portion to an intermediate bottom portion of a central U-shaped segment also having a pair of resilient finger portions one of which includes a C-shaped contact to engage the exposed wire contact along a transverse glass bottom of the "wedge base" bulb and the other of which includes an identical C-shaped locking end complementary and engageable relative to a transverse locking notch provided in the glass bottom of the "wedge base" bulb.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing, wherein a preferred embodiment of the present invention is clearly shown.

In the drawing:

FIGURE 1 is an end view of terminal and socket means in accordance with the present invention.

FIGURE 2 is a cross-sectioned elevational view taken along line 2-2 in FIGURE 1.

FIGURE 3 is a cross-sectioned elevational view taken along line 3-3 in FIGURE 1.

FIGURE 4 is a fragmentary side view taken in the direction of arrow 4 in FIGURE 1.

FIGURES 5 and 6 are fragmentary sectional views of terminal and socket means also in accordance with the present invention.

The objects are accomplished according to the present invention by the provision of a lamp socket formed of nylon, Teflon, Bakelite, rubber-like plastic material and the like adapted to be engaged relative to a periphery of an aperture in a mounting panel of sheet metal or having a printed circuit material on one side thereof as illustrated in U.S. Patent 2,825,038, Woofler, issued February 25, 1958, and belonging to the assignee of the present invention. Availability of a new "wedge base" lamp bulb will eliminate use of previously known metal base portions currently used on bulb and provided with screw threads or bayonet-type projections as noted in Patent 2,825,038, will effect simplification and facilitate use of terminal and socket structure relative to a mounting panel aperture. In addition to convenience, there will also be an appreciable reduction in cost of lamp bulbs per se as well as cost of terminal and socket means adapted to receive such "wedge base" lamp bulbs in accordance with the present invention.

The socket, as shown in FIGURE 1, includes a body of insulating material generally indicated by numeral 10 having an integral, laterally outwardly extending flange 12 located adjacent to an open end 13 of a transverse cavity or longitudinally extending chamber 14 ending adjacent to a bottom surface 14b. Extending to one side of the bottom surface 14b, there is a recess or auxiliary annular chamber 14r provided for a purpose more apparent in view of the following description.

The body of insulating material 10 further includes a pair of substantially diametrically opposite locking projection arms or lugs 15 and 16 visible in FIGURE 1 and having an arcuate surface S engageable relative to a mounting panel 17 having an aperture therein and made of sheet metal, a printed circuit carrying insulating board and the like. The panel 17 is apertured so that a pair of semi-circular walls 18 extending longitudinally from the insulating body 10 can protrude transversely relative to the panel 17. A small ramp 19 is provided on each of opposite sides in locations angularly displaced

from the lugs 15 and 16 and integral with the flange 12 of the body of insulating material 10. These ramps serve to limit the twist of the socket body 10 in an aperture or hole of the mounting panel as the bayonet-like lugs 15 and 16 are engaged relative to peripheral slots of the mounting panel aperture.

Shape and structure of a "wedge-base" bulb means generally indicated by numeral 20 is indicated in FIGURE 2. The "wedge base" bulb include a glass envelope 21 hermetically sealed and containing a filament 22 supported by wire elements 23 which terminate at opposite ends with a loop of exposed wire contact means or contact wires 24 visible in FIGURES 2 and 3. In place of a previously-used metal base portion, the "baseless" bulb 20 has only a transversely extending web-like glass bottom 25 integral with the glass envelope 21 as well as with opposite laterally extending glass webs 26. The contact wire 24 is bent to lie on a surface on one side of a glass web 26 as the contact wires 24 emerge from the sealed glass envelope and integral webs. A fragment of the web 26 is visible in the cross-sectioned elevational view of FIGURE 3. The glass bottom 25 of the "wedge base" bulb 20 includes a pair of transversely extending indentations or notches 27 semi-arcuate in shape and shown in views of FIGURES 2 and 3. These indentations or notches 27 are located intermediate the glass envelope 21 and contact wires 24 bent to conform to the contours of the glass bottom 25 and particularly the webs 26 thereof. The hollow interior 14 is generally rectangular in shape and extends transversely as well as longitudinally relative to the body of insulating material 10. Along opposite lateral sides of the hollow interior 14 there are two pairs of under-cut grooves 28 adapted to receive terminal means generally indicated by numeral 30.

In accordance with the present invention, the terminal means 30 are identical to each other and are mounted relative to the lateral ends of the body cavity 14 along under-cut grooves 28. The serrations or barbs 32 are used to retain the spring contacts or terminal means 30 in the body 10. Each terminal means 30 includes a generally laterally extending tab portion 33 resiliently engageable relative to a metal mounting panel or printed circuit on an insulating board. Each tab or end portion is located longitudinally adjacent to flange 12 of the insulating body 10 and is integral along a laterally inner end with the central portion 31 adjacent to opening 13. The terminal means 30 further includes a generally U-shaped segment 34 which has an intermediate or bottom portion 34i joined by a laterally off set and central bend 34b to an end of the central portion 31 remote from the open end 13 of the insulating body 10. Each of the intermediate portions 34i is adapted to abut against the bottom surface 14b of the insulating body 10. The intermediate portion 34i also serves to joint spring contacts or fingers 35 and 36 respectively. These contacts are made of spring metal used generally for the terminal means 30 and provided with a C-shaped contact or end 35c directly engageable relative to the exposed contact wire 24 of the "baseless" bulb 20. The resilient finger 36 has a substantially C-shaped end 36c adapted to fit in locking engagement and complementary relative to the indentations or notches 27 in the glass bottom 25 of the "wedge base" bulb 20. The bulb 20 is further provided with a projection or extension portion 37 integral with the glass web-like bottom 25 and adapted to fit into the recess 14r of the insulating body 10. It is noted that the fingers 35-36 of the pair of terminal means 30 as well as the recess 14r receiving the projection 37 are located substantially coplanar relative to each other such that alignment of the bulb 20 is maintained in a predetermined position relative to the transverse hollow interior 14 of the insulating body 10. Cooperation of the C-shaped locking ends 35c and 36c of finger portions 35 and 36 relative to notch 27 assures

retention of the bulb 20 relative to the socket that is mountable relative to the panel 17.

FIGURE 5 shows a fragment of terminal and socket means also in accordance with the present invention. There is shown a body of insulating material 40 in FIGURES 5 and 6. FIGURE 5 is similar to FIGURE 2 and differs in that upwardly-extending flange means 41 integral with a bottom 42 have an upper surface 43 against which U-shaped portions of terminal means 45 abut to one side of recess 44 for stabilization of a glass bottom 37 of a bulb. FIGURE 6 is similar to FIGURE 3 and shows terminal means 45 having identical C-shaped contact portions 45c one of which is engageable in a groove such as 27 of the glass bottom of a bulb such as 20. Barbs 46 are directly engageable relative to inner surfaces of walls of body 40. Bayonet locking portions 47 are improved and more spring-like and resilient due to provision of a slot-like cut-out portion 48 adjacent to an underside of each arm or lug 49. Semi-annular wall portions 49w are provided extending axially to one side of the body 40. Each terminal means includes a central portion 45x that abuts against the surface 43.

While the embodiments of the present invention as herein disclosed constitute preferred forms, it is to be understood that other forms might be adopted.

What is claimed is as follows:

1. A lamp socket and terminal means assembly, comprising in combination, a lamp bulb free of any metal base though having a web-like glass bottom including a transverse notch as well as a pair of exposed wire contacts bent along one side of the web-like bottom, a socket body of plastic material having a transverse cavity open at one end to receive the web-like bottom and a pair of terminal spring contact means including a laterally extending tab projecting from the open end of the hollow interior, a side-serrated central portion which is integral with said tab as well as a substantially U-shaped segment and which fits into engagement with said body in diametrically opposite locations inside the cavity, and a pair of identical spring fingers included in the U-shaped segment of which one finger has a C-shaped contact engageable directly relative to the exposed wire contact of the glass bulb along one side of the web-like bottom and of which the other finger has a C-shaped locking end complementary and engageable relative to the transverse notch of the glass bulb for holding the latter in a fixed position relative to the socket body.

2. The assembly of claim 1 wherein the web-like glass bottom includes a depending projection adapted to fit complementary to a central socket body recess remote from the open end of the hollow interior and in conjunction with the fingers of each terminal means to establish triangular substantially coplanar support of the glass web-like bottom of the lamp bulb.

3. A multi-function one-piece terminal means adapted for use in an insulating socket so as to establish electrical connection directly relative to an exposed wire contact bent coming from inside a "wedge base" lamp bulb having a glass web-like bottom with a transverse notch, comprising, a side-serrated central terminal-socket mounting portion, a substantially laterally extending tab portion for engaging one side of a mounting panel and integral with one end of said mounting portion, and a laterally central U-shaped segment including an intermediate bottom portion integral with an end of said mounting portion remote from said tab portion, said segment also including a pair of spring fingers one of which includes a C-shaped contact to engage the exposed wire contact along the web-like glass bottom of the "wedge base" bulb and the other of which includes a C-shaped locking end complementary and engageable directly relative to the transverse notch provided in the glass bottom of the "wedge base" bulb.

4. For use to interconnect a wedge-base lamp bulb having a transverse web-like glass bottom with a depending

5

central projection in between exposed wire contacts extending from inside thereof to a location adjacent to a transverse notch in the web-like glass bottom as well as an apertured mounting panel such as a printed circuit board, metal sheet and the like, an improved terminal and socket assembly including a socket body of insulating material having a transverse cavity open at one end adjacent to a laterally outwardly extending flange portion thereof, said body including a centrally located bottom recess to receive the projection and including a pair of bayonet-like locking flange portions integral with said body and adapted for engaging the mounting panel, and a pair of terminal spring contact means each including a laterally extending tab projecting from the open end of the cavity, a side-barbed central portion integral with said tab to engage the body inside the cavity as well as a substantially U-shaped segment of which one finger has a C-shaped contact engageable directly relative to the separate exposed wire contacts laterally spaced from each other as insulated by the glass bulb along one side of the web-like bottom and of which the other finger has a C-shaped locking end complementary and engageable relative to the transverse notch of the glass bulb for holding the latter in a fixed position relative to both said socket body and mounting panel.

5. The assembly of claim 4 wherein said locking flange portions themselves are made more resilient by slot-like cutout portions along an underside thereof, and said socket body has flange means extending inwardly along a bottom surface so as to form the recess for a portion of the transverse glass bottom of a bulb to be held in triangular substantially coplanar support thereby together with said laterally spaced pair of spring contact means.

6

6. In a lamp socket of insulating material and terminal means adapted to receive a lamp bulb free of any metal base though having a web-like glass bottom, the improvement which comprises having transverse notch portions as well as a pair of separate exposed wire contacts bent along the web-like glass bottom on opposite sides of a central depending projection integral with the glass bottom, a pair of terminal spring contact means centrally serrated to engage the socket in diametrically opposite inside locations so as to position integral laterally-extending outwardly-projecting contact tabs and laterally offset integral U-shaped segments opposite C-shaped contact fingers electrically to engage the separate exposed wire contacts and simultaneously to hold the glass bottom in place by complementary fit each in at least one transverse notch portion, and recess-forming means centrally located in the socket of insulating material to complement said central depending projection integral with the glass bottom such that said pair of terminal spring contact means engaging said transverse notch portions as well as said depending projection engaging said recess-forming means cooperate to provide positioning of the bulb in triangular substantially coplanar supported relation.

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