

[54] **LIGHT SOCKET WITH AUXILIARY CONTACT**

[76] Inventor: **Arthur I. Appleton**, 1 Bridlewood Rd., Northbrook, Ill. 60062

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[52] **U.S. Cl.**..... **339/91 L**, 339/154 L, 339/176 L

[51] **Int. Cl.**..... **H01r 13/54**, H01r 17/20

[58] **Field of Search**..... 339/8 R, 8 P, 8 PB, 8 PS, 339/91 L, 93, 119 L, 154 L, 155 L, 176 L, 177 L, 76, 77, 124; 240/143

[56] **References Cited.**

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Primary Examiner—Marion Parsons, Jr.

Assistant Examiner—Lawrence J. Staab

Attorney, Agent, or Firm—Darbo, Robertson & Vandenburg

[57]

ABSTRACT

A light fixture has a fixed base and an assembly releasably affixed to the base. The assembly includes a light shade and a light bulb socket. The end of the assembly adjacent the base has a central electrical contact surrounded by an annular electrical contact. The adjacent portion of the base has a central electrical contact and two contacts in different radial directions from the central contact which bear on the annular contact of the assembly.

3 Claims, 5 Drawing Figures

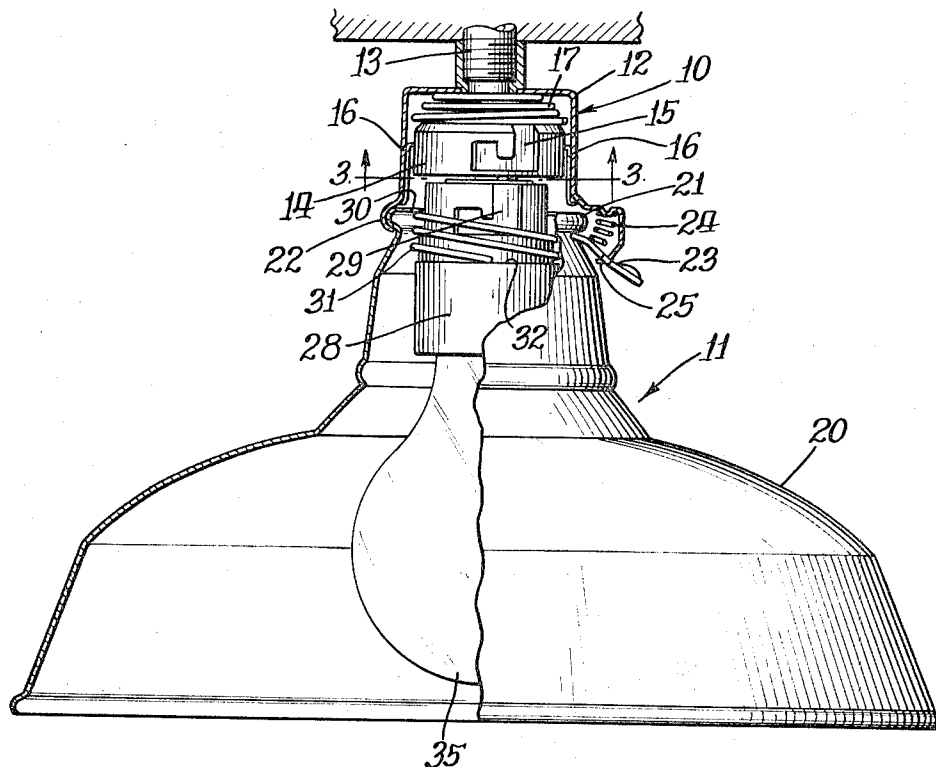


FIG. 1-

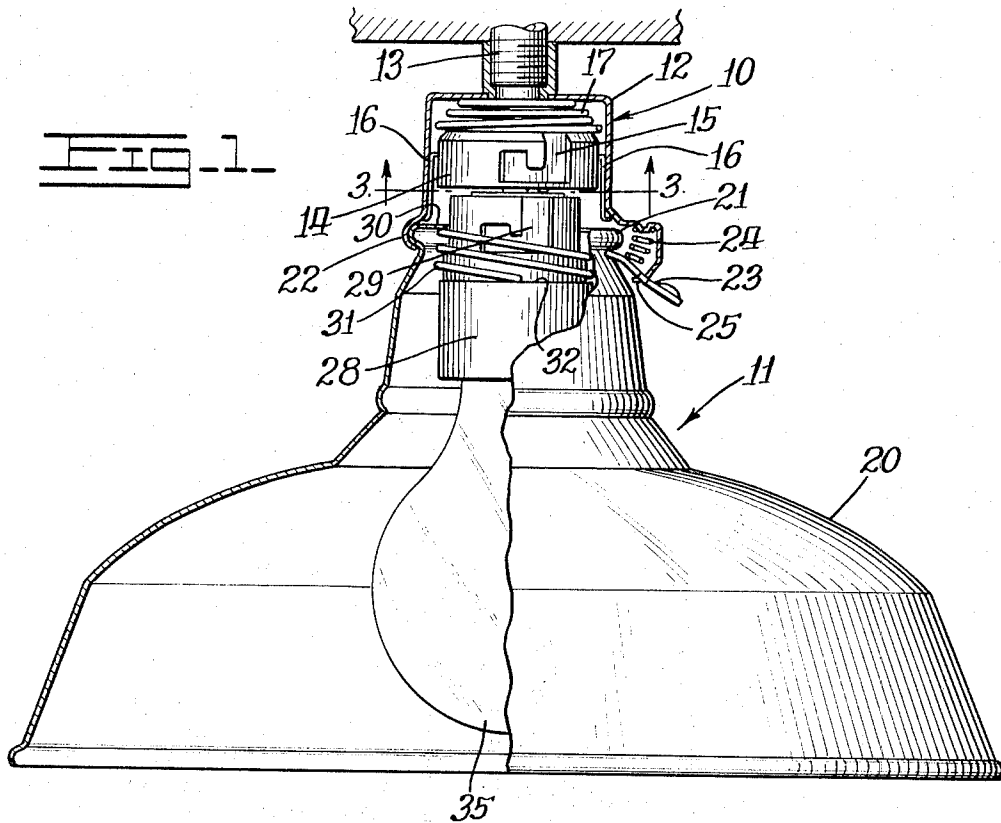


FIG. 3-

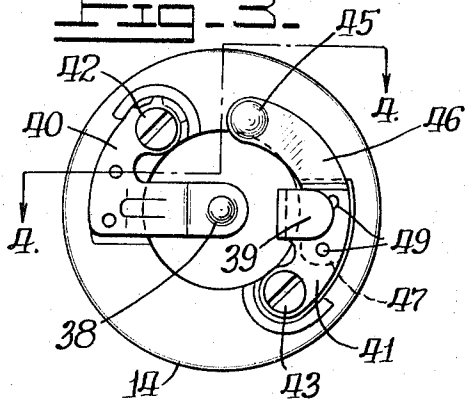


FIG. 2-

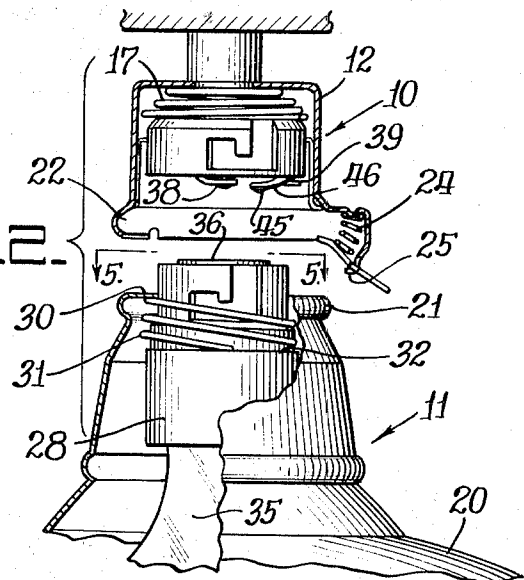


FIG. 5-

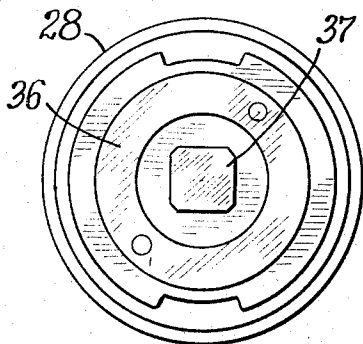
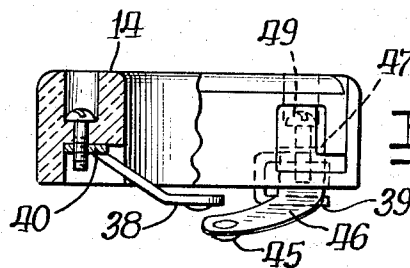


FIG. 4-



LIGHT SOCKET WITH AUXILIARY CONTACT

SUMMARY OF THE INVENTION

The present invention relates to an apparatus for improving the electrical connections in an apparatus of the type described.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevational view, partially broken away, of a light fixture embodying the present invention;

FIG. 2 is a fragmentary exploded elevational view, with portions broken away;

FIG. 3 is an enlarged view of the electrical contacts of the base as seen at line 3-3 of FIG. 1;

FIG. 4 is a partial section as seen at line 4-4 of FIG. 3; and

FIG. 5 is an enlarged view of the electrical contacts of the removable assembly as seen at line 5-5 of FIG. 2.

DESCRIPTION OF SPECIFIC EMBODIMENT

The following disclosure is offered for public dissemination in return for the grant of a patent. Although it is detailed to ensure adequacy and aid understanding, this is not intended to prejudice that purpose of a patent which is to cover each new inventive concept therein no matter how others may later disguise it by variations in form or additions or further improvements.

The light fixture to which the present invention relates is of a type wherein there is a base, generally 10, having an assembly, generally 11, releasably affixed thereto. The base 10 includes an annular shell 12 which is fixedly mounted as by means of being threaded onto a conduit 13 or appropriate threaded fitting. Within the shell is an insulator member 14. The periphery of the member 14 has J-shaped slots 15 positioned 60° apart and adapted to be engaged by prongs 16 secured to shell 12. A spring 17 is interposed between member 14 and shell 12 to resiliently urge the member toward the open end of the shell. This movement is resisted by prongs 16. However, if a member 14 is pushed inwardly and rotated so as to move the prongs 16 into the large sides of the J-slots 15, the member then can be withdrawn from the shell.

The assembly 11 comprises an annular reflector 20. For releasably connecting the assembly to the base, the reflector has a projecting top ring 21. At one side only, the open end of the shell 12 has a mating socket 22. At the opposite side, the shell 12 has a lever 23 pivotally mounted thereon and urged outwardly by a spring 24. The mounting provides stops 25 to limit this outward pivotal movement of the lever. If the inward end of the lever is pivoted upwardly, it will clear the adjacent portion of ring 21, whereupon the ring can move downwardly past the inward end of the lever to thereby permit the assembly 11 to be detached from the base 10. As can be seen in FIG. 1, there is a small clearance between the ring 21 and the shell 12 (except at the opposite side where the socket 22 is located) to allow the assembly to be tipped upwardly and thus permit the inward end of the lever 23 to clear the ring 21 so that it can then be moved downwardly. While this provides a sturdy mounting for the assembly on the base, and a mounting which can quickly and easily be manipulated to remove the assembly from the base, it does permit a minor amount of rocking motion of the assembly 11

with respect to the base 10. Under some circumstances such motion undesirably interferes with the maintaining of good electrical contact between the components, as hereinafter described.

The assembly 11 includes an insulator member 28. This member has J-shaped slots 29 into which extend prongs (not shown) which are in the form of projections from flange 30 at the top of ring 21. A spring 31 bears against an abutment 32 of member 28 and against flange 30. Again, if the member 28 is pushed upwardly to compress spring 31 and then rotated so as to bring the prongs (not shown) into the long side of the J-slots 29, the member then can be withdrawn downwardly from the reflector 20.

The lower end of member 28 has an opening to receive a light bulb 35. Within that opening are electrical elements (not shown) defining a socket for the light bulb. These electrical elements are suitably connected to two contacts 36 and 37 on the upper end of member 28. Central contact 37 is centered on the vertical axis through the assembly. Contact 36 is annular and centered about that axis. Similarly, the member 14 of base 10 has an axially positioned contact 38 and a contact 39 in a given radial direction from contact 38 and spaced from the vertical axis a distance corresponding to the spacing of annular contact 36. These contacts 38, 39 are supported from conductive straps 40 and 41 respectively. The straps are held to member 14 by screws 49. The mounting is relatively inflexible so that, for all practical purposes, the contacts 38 and 39 are rigid with respect to member 14. The straps 40 and 41 are tapped to receive screws 42 and 43 by which electrical supply wires (not shown) are connected. To the extent that some give is necessary in mating contacts 36 and 37 with contacts 39 and 38, this is provided by spring 17.

As thus far described, the structure is prior art. In the main, it provides a satisfactory light fixture having features that are desirable for many installations. However, under some circumstances, it is possible that when the assembly 11 rocks with respect to the base 10, as hereinbefore described, that this causes the electrical contact 39 to not adequately seat against the annular contact 36. This can result in an open circuit or a high resistance circuit. The light 35 will flicker and there may be some pitting of the contacts. The likelihood of this occurring will depend upon the rotational position of the assembly 11 about the vertical axis with respect to the position of the base 10. Since these parts are made so that the assembly 11 can be affixed to the base 10 in any angular position about that axis (a desirable feature) it is a matter of happenstance as to whether when the components are put together in an orientation in which there is a likelihood of inadequate contact.

While the apparent solution to this problem would be to restrict the mounting position of the assembly 11 on the base 10 to one in which the improper electrical connection would not occur, I have devised another solution to eliminate the problem which solution retains the desirable characteristics of the original fixture. This is to add a third electrical contact 45 which is electrically connected to contact 39, but is in a different radial direction from central contact 38 than is the contact 39. Preferably, contacts 39 and 45 are spaced by at least 45°. The radial dimension between contact 38 and 45 is such that contact 45 will also rest on the

annular contact 36. Contact 45 is on a spring arm 46. The base 47 of that spring arm extends below strap 41 where it is trapped between the strap and the insulator member 14 when the screws 49 are tightened to hold the strap securely on the member. Thus the additional contact and its mounting is a relatively inexpensive part to be added to the prior art structure. It hardly adds to the manufacturing operation since it can be affixed in place by the same procedures that would otherwise be required to mount contact 39. In the normal position it projects outwardly farther than do contacts 38 and 39. Thus, should the axis of rock of assembly 11 with respect to base 10 be substantially at right angles to the line connecting contacts 38 and 39 (the situation that is likely to cause the hereinbefore described electrical problems) the supplemental contact 45 will continue to maintain an electrical circuit to annular contact 36 thereby preventing the previously encountered difficulty.

I claim:

1. In a light fixture of the type comprising a fixedly mounted base and an assembly releasably attached to the base both of which are aligned with a vertical axis, said assembly and base each including an insulator member having ends in juxtaposition with each other, the assembly member defining a light bulb socket, each member having means, a portion of which is at said end thereof, for providing an electrical circuit from said base to said socket, said portion of said means on one member including a central contact transverse to and intersecting said axis and an annular contact surrounding and spaced a given distance from said central

contact, said portion of said means of the other member comprising a first central contact transverse to and intersecting said axis and a second single contact spaced from said first contact by said distance in a first radial direction from said axis and covering only a small portion of the area covered by said annular contact, said contacts being relatively rigid, said assembly having means releasably holding said members with their ends so juxtaposed which holding means does not necessarily hold the members rigidly in that position but may permit some rocking of one member with respect to the other whereby a poor electrical circuit may occur between the second single contact and said annular contact, the improvement comprising:

said portion of said means of the other member including a third contact spaced from said first contact by said distance in a second radial direction angularly positioned from said first radial direction, said third contact converging only a small portion of the area covered by said annular contact, said portion of said means of the other member including a spring arm resiliently supporting said third contact from said other member.

2. In a light fixture as set forth in claim 1, wherein said arm has a base, said second contact having a mounting strap which presses said base against the other member.

3. In a light fixture as set forth in claim 1, wherein said one member is a part of said assembly and said other member is a part of said base.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 3,871,732
DATED : March 18, 1975
INVENTOR(S) : Arthur I. Appleton

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 66, "front" should read --from--.
Column 2, line 66, "contact" should read --contacts--.

Signed and sealed this 24th day of June 1975.

(SEAL)
Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents
and Trademarks