

United States Patent

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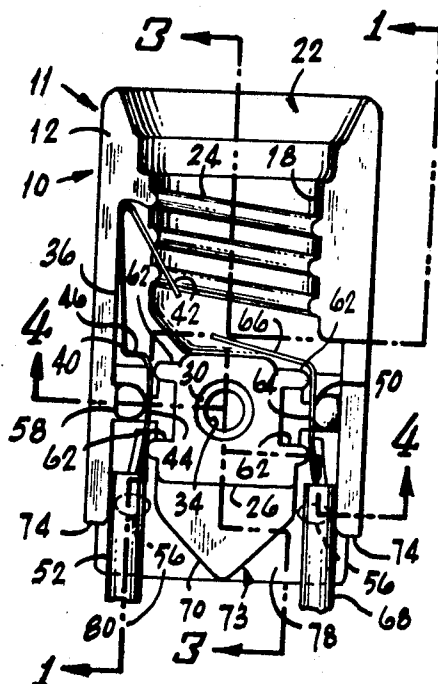
[54] **INCANDESCENT LAMP HOLDERS, ESPECIALLY OF THE CANDELABRA SOCKET TYPE**
4 Claims, 11 Drawing Figs.

[52] U.S. Cl..... 339/107,
339/176 L, 339/210 T
[51] Int. Cl..... H01F 13/58,
H01F 17/20
[50] Field of Search..... 339/170,
103 R, 176 L, 176 P, 177 L, 180, 181, 182 L, 199,
206, 207, 208, 65, 107, 210

[56] **References Cited**
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ABSTRACT: An incandescent lampholder, usually of the miniature or "candelabra" type and designed for use by original equipment manufacturers, is former at its base end with a pair of wiring openings or wireways that are defined by a triangular or wedge-shaped divider, the walls of which converge toward said end. Each wireway opens upon both the bottom and side of the lampholder, so that the wires can exit from the lampholder in a direction normal to the longitudinal axis thereof, parallel or oblique thereto, or in any combination of these directions.



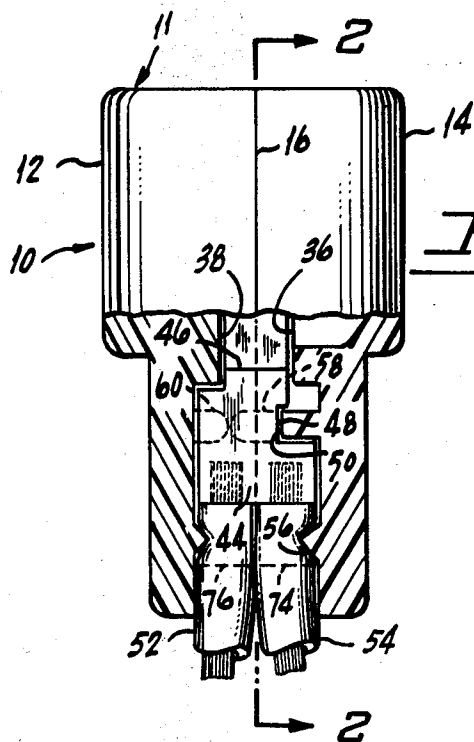


Fig. 1

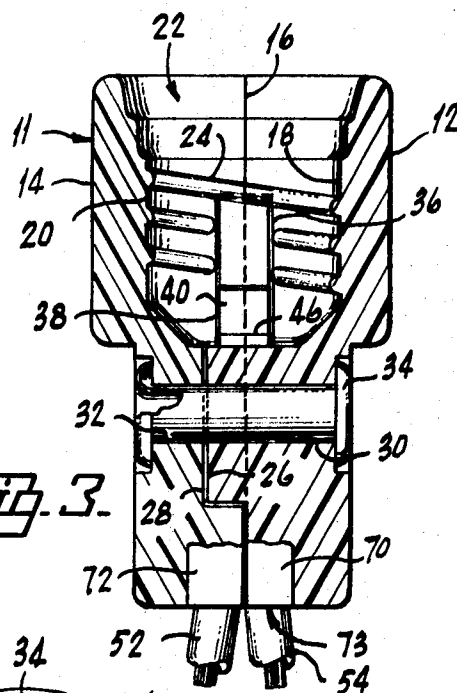


Fig. 3

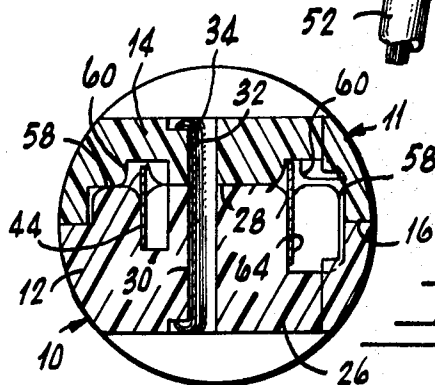


Fig. 4

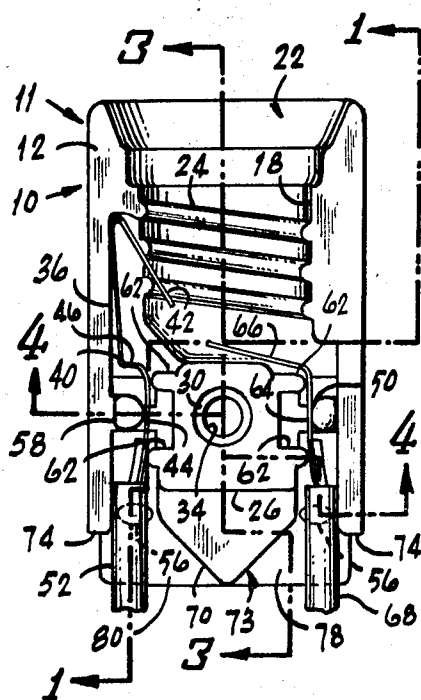


Fig. 2

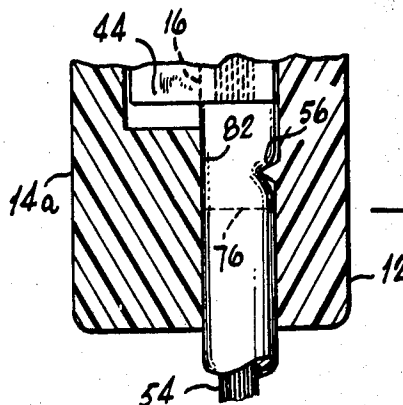


Fig. 5

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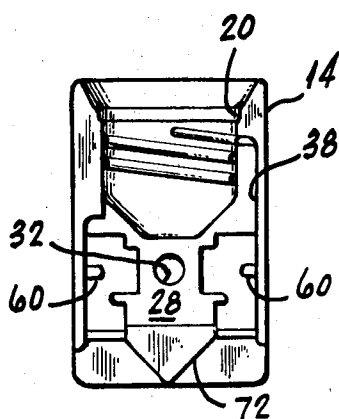


Fig. 6.

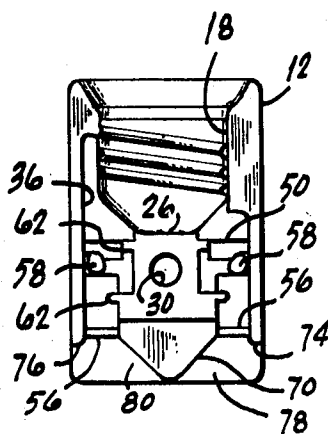


Fig. 7.

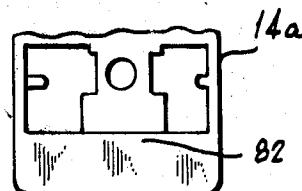


Fig. 8.

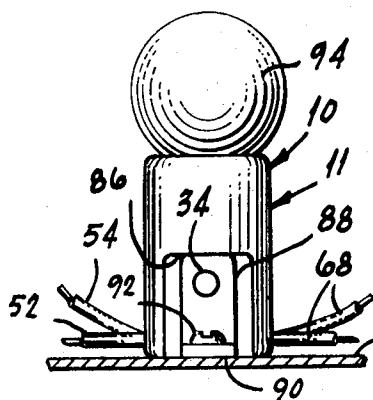


Fig. 9.

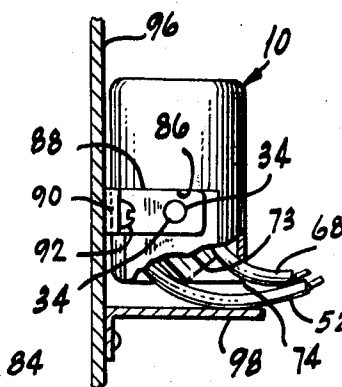


Fig. 10.

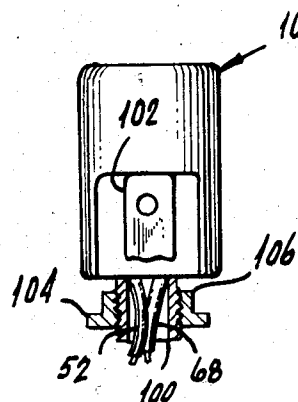


Fig. 11.

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INCANDESCENT LAMPHOLDERS, ESPECIALLY OF THE CANDELABRA SOCKET TYPE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention pertains to the art of incandescent lampholder manufacture, and in particular to the manufacture of inexpensive sockets designed primarily for use by original equipment manufacturers for mounting in a wide variety of positions and upon a wide variety of supporting brackets, in lamps, stoves, ovens, washing machines, and a large number of other appliances or fixtures in which illumination is provided. Usually, the particular lampholder which is the subject of the present invention is of a miniature type known in the industry as a "candelabra-base" socket.

2. Description of the Prior Art

Heretofore, the prior art, particularly as it relates to candelabra-base sockets or lampholders used in equipment or appliances as described above, has customarily provided wireways or wire exit openings that open only upon the bottom of the socket, that is, in a direction parallel to the longitudinal axis of the socket. In many cases, a lampholder of this type is mounted in close quarters, often in very close proximity, at its base end, with a surface lying normally to the longitudinal axis of the socket.

The result is that in order to clear the surface, the exiting wires must take a very sharp bend as they pass out of the socket, with the result that over a period of time, particularly when the wires are subject to extreme temperatures, the insulation of the wire deteriorates and ruptures. The result is that a potentially dangerous situation is presented. Since sockets of this type are almost always used in original equipment, access to the sockets for the purpose of replacing the same is often very difficult if not impossible.

SUMMARY

Summarized briefly, the invention comprises a candelabra-base socket or lampholder of an economical design, comprising in its basic essentials only four parts, namely, cooperating phenolic halves providing a socket body having molded threads; a shell contact and a center contact formed of strip metal material; and an eyelet or equivalent fastener to hold the parts assembled. Two or four wires are connected to the contacts, depending upon whether or not parallel wiring is desired, and these wires may exit in a direction normally to the longitudinal axis of the device, parallel or obliquely to said axis, or in any combination of these directions.

Although it is known to provide a socket of this type made of cooperating phenolic halves with molded threads and strip-type or skeleton contacts, there has not heretofore been a solution to the problem with respect to affording suitable versatility as regards the direction of wire exiting in cramped quarters. The socket of the invention overcomes these problems by providing, in combination, a wedge-shaped or triangular divider at the base end of the socket defining at opposite sides thereof openings or wireways that extend continuously across the bottom and partially up the sides of the socket, to allow each wire to extend away from the socket in any of a wide variety of directions to clear adjacent surfaces, or to reduce the amount of wire needed in a harness or the like having a plurality of the sockets as components thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view of a candelabra-base lampholder according to the present invention, partly in side elevation and partly in longitudinal section, taken substantially on line 1—1 of FIG. 2, as designed for parallel wiring;

FIG. 2 is a longitudinal sectional view through the lampholder substantially on line 2—2 of FIG. 1;

FIG. 3 is a longitudinal sectional wire through the lampholder substantially on line 3—3 of FIG. 2;

FIG. 4 is a transverse sectional view substantially on line 4—4 of FIG. 2;

FIG. 5 is a fragmentary longitudinal sectional view of a modified construction designed for wiring in series, on the same cutting plane as FIG. 1;

FIG. 6 is an elevational view of one of the halves of the socket shown in FIGS. 1—4, showing the interior face of the socket half;

FIG. 7 is a view of the other half of the socket of FIGS. 1—4, similar to FIG. 6;

FIG. 8 is a fragmentary view showing the interior of a socket half or section as used in the modified form of FIG. 5 in place of the half or section shown in FIG. 6;

FIG. 9 is an elevational view of a socket according to the present invention as mounted upon a supporting surface with the wires extending laterally from both sides of the socket; and

FIG. 10 is a view of the socket in another mounting arrangement, wherein the wires extend laterally from the socket in one direction, the socket being shown partially in section.

FIG. 11 is a view of the socket in still another mounting arrangement, wherein the wires extend downwardly from the socket.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

A candelabra socket or lampholder according to the present invention has been generally designated 10 in the several figures of the drawing, and includes an electrically insulative body 11 comprising complementary halves 12, 14 of phenolic fixedly connected in face-to-face, abutting relation along a meeting line 16 lying in a plane bisecting the socket along its longitudinal axis.

At the front end of the socket, halves 12, 14 are formed with confronting recesses, 18, 20 cooperating when the halves are connected to define a forwardly opening socket 22 for the threaded base of an incandescent lamp, not shown. To this end, halves 12, 14 are formed with segments of molded threads 24, cooperating to define a continuous thread adapted to engage the mating thread provided upon the lamp bulb base.

Referring to FIGS. 2 and 3, the lampholder half 12 is integrally formed with a boss 26 intermediate its ends, mating with a complementary indentation 28 of half 14. Halves 12, 14 are formed with coaxial bores 30, 32 respectively defining a through transverse opening receiving an eyelet 34 or equivalent connecting element. Obviously, the connecting means for joining the halves could be a rivet, or a machine screw and cooperating nut, or any other fastening means known to the art.

Formed in the sidewalls of the recesses 18, 20 of halves 12, 14 respectively are communicating longitudinal grooves 36, 38 cooperating to define a longitudinal recess in the wall of the socket 22 in which is seated a shell or side contact 40 formed of electrically conductive strip material folded upon itself at one end to provide a resiliently deflectable contact portion 42 projecting into the socket 22 in position such that a lamp bulb base, threaded into the socket, will engage and deflect said portion, to provide an electrical contact between the lampholder and the lamp bulb base.

At its other end 44, the shell contact 40 is anchored, and is offset inwardly as at 46 from the portion of the contact extending within the longitudinal indentation defined by grooves 36, 38.

As seen from FIG. 1, the anchored end 44 of the shell contact is wider than the remaining portion of said contact, and is formed at one side with a shallow recess or notch 48, receiving a transverse rib 50 integrally molded upon the socket half 12. Referring to FIG. 1, the width of contact end 44 is sufficient to accommodate the stripped ends of side-by-side insulated lead wires 52, 54, and the stripped ends of the leads are welded, in a preferred embodiment, to the contact end 44.

The leads, within the lampholder, are clamped between the connected halves 12, 14 and are pinched between strain relief ribs 56 of the respective lampholder halves.

Referring now to FIG. 2, formed integrally upon the lampholder half 12 are locating pins 58, 58 (see also FIG. 4), abutting against projections 60 integrally formed upon the complementary half 14 of the socket.

Also integrally formed upon the half (see FIG. 2), and projecting laterally outwardly from the boss 26 thereof, are projections 62 cooperating with the pins 58 to clampably engage the end 44 of strip contact 40, and a corresponding end 64 of a resiliently deflectable center contact 66 that engages the center contact of the inserted lamp bulb.

The center contact 66, at the end 64 thereof, is welded to the stripped ends of side-by-side wires 68.

Integrally formed upon the lampholder halves 12, 14 are triangular or wedge-shaped divider elements 70, 72 which, as shown in FIG. 3, are disposed in face-to-face relation in the assembled position of the lampholder halves so as to cooperate in defining a triangular divider 73 having its apex end at the base extremity of the lampholder (see FIG. 2). Divider 73, as seen from FIG. 2, defines at opposite sides thereof wire-receiving openings 74, 76 opening upon the opposite sides of the lampholder adjacent the base extremity, and communicating freely with bottom openings 78, 80 of the lampholder.

Thus, at the base of the lampholder there are defined a pair of wire exit openings separated by the triangular divider, each of said openings extending continuously from the apex end of the divider, across the base of the lampholder, and continuing up the sides of the lampholder a distance slightly greater than a wire thickness.

In the illustrated example of the invention shown in FIGS. 1-4, the lampholder is designed for parallel wiring, that is, a pair of wires is connected to the center contact, and another pair of wires is connected to the shell contact. In this way, the lampholders can be assembled in a harness in which a selected number of the lampholders are wired in parallel, with leads of a required length, according to the particular requirements of the original equipment manufacturer.

The invention is, it may be noted, also designed for series wiring, in which a single wire is connected to each of the center and shell contacts.

When the device is to be assembled with two wires rather than with four wires, a body half 14a is used in place of the body half 14. This is shown in FIGS. 5 and 8, and is identical in all respects to half 14, except for having a solid transverse bottom wall 83 extending over the full width thereof (see FIG. 8), to completely close off the area which, in body half 14, is occupied by wedge-shaped divider element 72 and the wire openings located at opposite sides of said element.

Wall 82 has a flat face lying in the plane of meeting line 16, and as a result, a single wire secured to shell contact 40 and extending through opening 80 will be pinched for strain relief purposes between adjacent strain relief rib 56 and wall 82. The same will be true of another single wire welded to center contact 66 and extending through opening 78.

In both forms of the invention, of course, wires exit from the body of the device at opposite sides of a wedge-shaped divider, through openings that are continuous from each side of said divider across the bottom or base of the body and extending part way up the sides of said body.

In FIGS. 9, 10, and 11, there are illustrated by way of example three typical applications of the invention as it would appear when in use. In FIG. 9, the lampholder 10 is illustrated with its base end in direct, abutting relation to a mounting surface 84. The device extends from said surface 84 with its length perpendicular to the plane of the mounting surface.

Heretofore, such an arrangement was not possible with conventional candelabra lampholders of the type hereinbefore referred to, that customarily have only bottom openings, since the wires of said lampholders had to of necessity extend out of the bottom. Therefore, if the wires were to be disposed above the mounting surface 84, it was necessary that they be given a very sharp turn after coming out of the bottom, to extend laterally from the body 11 of the lampholder. In such instances, the base or bottom of the lampholder had to be

mounted in spaced relation to the surface 84, thus using up space within the instrument panel of an oven or washing machine, or in a lamp or other equipment item, this being a condition which in many instances would add to the cost of the end product.

Typically, a lampholder of the type shown has, at opposite sides of the body 11, shallow external mounting recesses 86, receiving a mounting bracket 88. The eyelet or equivalent fastening element 34 thus assembles the bracket with the body 11, and as shown, the bracket bay have a right angular configuration to provide a laterally extending leg 90 thereon attached to surface 84 by means of a screw or equivalent fastener 92.

Therefore, in FIG. 9, the arrangement permits the wires 52, 54, 68 to extend laterally outwardly from the lampholder, with the lampholder mounted in direct, abutting relation to the surface 84, and with the overall length of the lampholder and its lamp bulb 94 extending a minimum distance from the surface 84.

The arrangement has a further benefit in permitting a smaller mounting bracket 88 to be utilized, since the leg of said bracket that lies in recess 86 would be of a shorter length than has been heretofore necessary. This provides a further reduction in cost, and is a very important consideration in the highly competitive field of industry to which the invention relates.

In FIG. 10, another typical mounting arrangement is illustrated, incapable of being achieved by the typical candelabra lampholder now in use. In this example, there is a mounting surface 96 to which the lampholder 10 is connected by means of the bracket 88. In this instance, the bracket 88 is mounted with its side rather than its end abutting against the end wall of recess 86 of the lampholder, so that the bracket extends laterally from the lampholder to mount the lampholder with its length parallel to the plane of the surface 96.

In FIG. 10 a mounting ledge 98 extends laterally from the surface 96, and in this instance, all the wire leads extend laterally from the lampholder in one direction, away from surface 96. The wires 52, 54, though extending out the bottom, are given a relatively gradual turn as they exit from the body, due to the provision of the sloped, downwardly converging side surfaces of the wedge-shaped divider 73.

Again, the device can be mounted in closely spaced relation to the surface 98, no more than a wire thickness from said surface.

In FIG. 11, still another typical mounting arrangement is illustrated. This shows the lampholder as it would appear when mounted upon the conventional externally threaded lamp-socket-supporting tube 100 of a typical lamp fixture, chandelier, or the like. In such instances, the mounting bracket 102 is provided with a leg 104 that extends directly beneath the body 10, and is formed with an internally threaded, drawn opening 106 receiving tube 100. The wire leads extend from the lampholder into the tube.

Here again space requirements dictate in many instances, that the bracket 102 be as short as possible, and that the tube 100 also be kept to a minimum length, even extending into abutting relation to the bottom of the lampholder. It has not been possible to do this with conventional lampholders, since the wire leads extend out of the bottom of the lampholders in spaced relation, and must be brought together before entering the tube. With the arrangement illustrated, the wedge-shaped dividers permit the wires to be brought together as they come out of the bottom of the lampholder body, so that they can enter the tube abutting directly against the body.

I claim:

1. A lampholder for incandescent lamps comprising:
 - a. an electrically insulative body having a lamp socket at one end;
 - b. spaced contacts in said body for making electrical contact with corresponding contacts of an incandescent lamp mounted in the socket, said body having openings at its other end for wire leads and being formed with a wedge-shaped divider between said openings; and

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- c. wire leads connected to the respective lampholder contacts and extending through said openings, each of the openings extending continuously from the divider across the second-named end of the body and part way up the adjacent side of the body, the portions of the openings extending within the sides of the body being of a size to accommodate the entire thickness of its associated wire lead, said body being formed with wireways extending from the respective lampholder contacts to the openings, the body including strain relief projections within the wireways gripping the leads at locations in advance of the portions of the leads extending within the openings. 5
2. A lampholder for an incandescent lamp, comprising; 10
- a. an electrically insulative body formed as a pair of generally semicylindrical halves formed in confronting relation, each half having a semicylindrical recess at one end formed with thread segments so as to define, in the assembled body, a threaded socket for an incandescent lamp; 15

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- b. a center contact and a shell contact for making electrical contact with said lamp, each of said contacts being formed of a strip metal and being clamped between said halves;
- c. wire leads secured to the respective contacts, said body having at its other end a divider disposed between a pair of wire-receiving openings formed in the body at said other end thereof, said divider having walls that converge toward said other end of the body and define sloped inner sidewalls of said openings, each of the openings extending continuously from the divider across said other end of the body and part way up the adjacent side of the body.
3. A lampholder as in claim 2 wherein one of said halves has, adjacent said recess thereof, a boss mating with a complementary indentation of the other half.
4. A lampholder as in claim 3 wherein said contacts extend along opposite sides of the boss, said halves meeting along a line longitudinally bisecting the contacts.