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[21] Appl. No. **20,727**
[22] Filed **Mar. 18, 1970**
[45] Patented **Dec. 7, 1971**
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3,122,962 3/1964 Angelis..... 85/1
3,191,021 6/1965 Berry et al. 240/11.2

FOREIGN PATENTS

901,813 11/1953 Germany..... 240/54
568,407 4/1945 Great Britain..... 240/54

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[54] **LAMP**
2 Claims, 6 Drawing Figs.

[52] U.S. Cl..... **240/47,**
240/54, 240/92, 240/112
[51] Int. Cl..... **F21v 29/00**
[50] Field of Search..... 240/52, 47,
151, 106, 54, 100, 11.2, 51.11, 102, 92

[56] **References Cited**
UNITED STATES PATENTS
3,004,144 10/1961 Agrell..... 240/11.2
3,009,053 11/1961 Shaw et al..... 240/11.2
2,829,242 4/1958 Koch..... 240/46.59
2,871,343 1/1959 Whitney..... 240/10

ABSTRACT: An incandescent lamp device is disclosed as including a cylindrical cagelike shell and a cylindrical socket housing at the top thereof, said cagelike shell encircling an inverted incandescent lamp bulb depending from a socket in the socket housing. A cylindrical diffuser base attached to a diffuser is removably attached to the lower end of the cylindrical cagelike shell such that the diffuser surrounds the incandescent lamp bulb to a point slightly removed from the base of the bulb, thereby providing a convenient means for ready removal of the bulb and cooling air emission. A further cooling construction is also described for providing longer bulb life and protecting the plastic parts of the device from excessive heat.

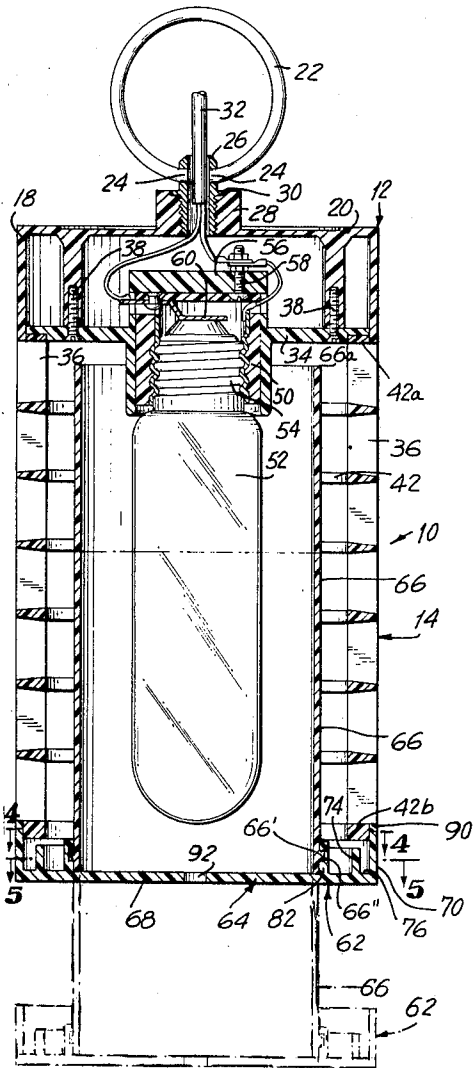


FIG. 3

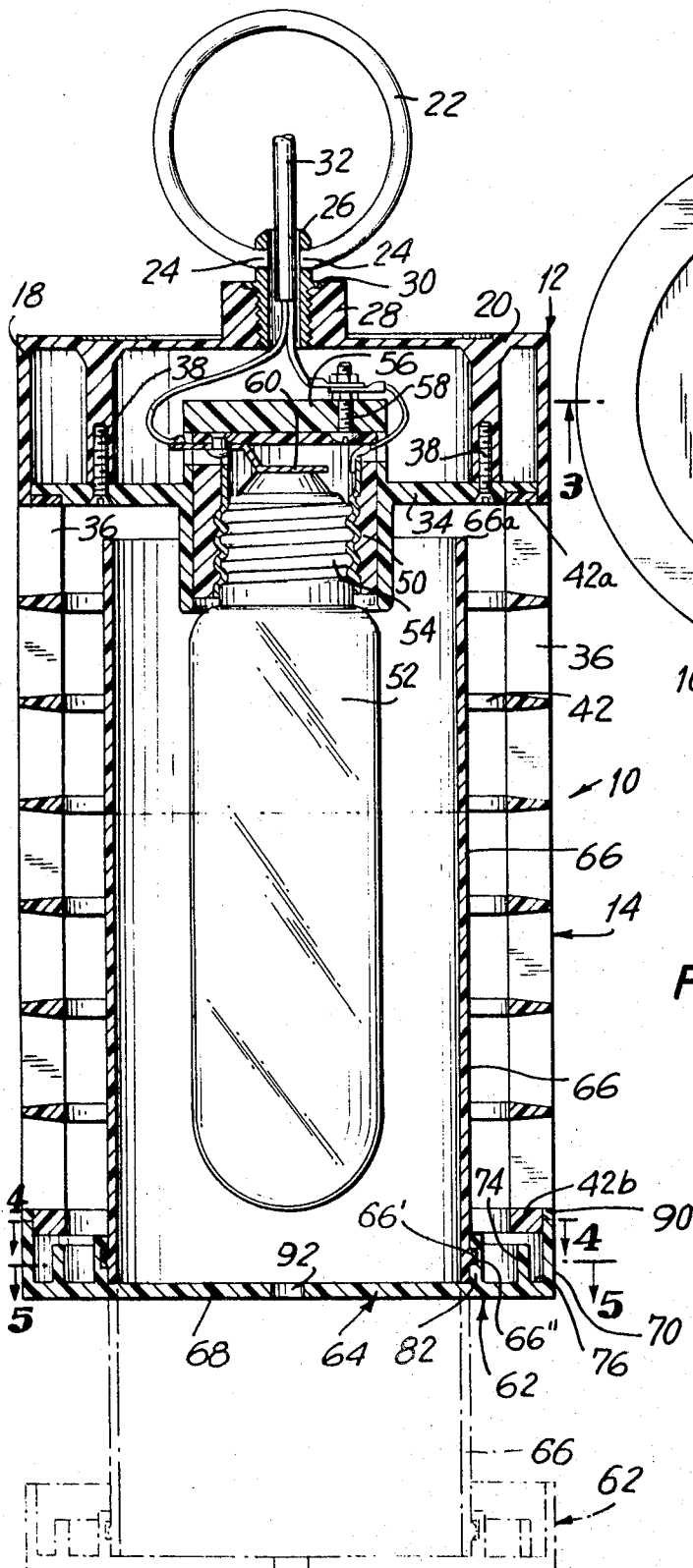


FIG. 1

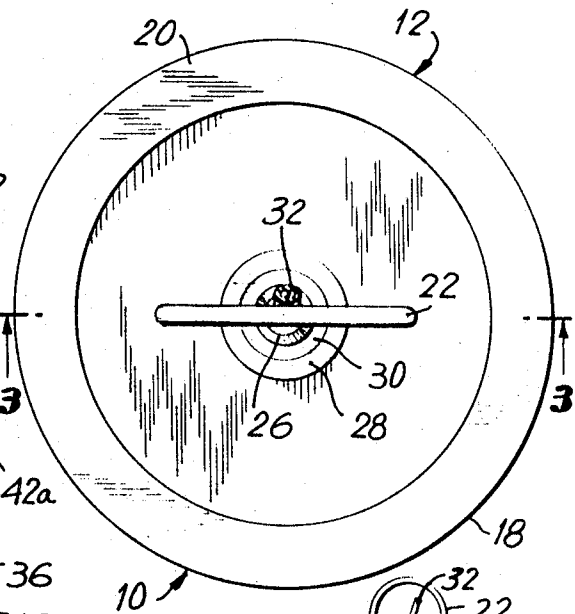
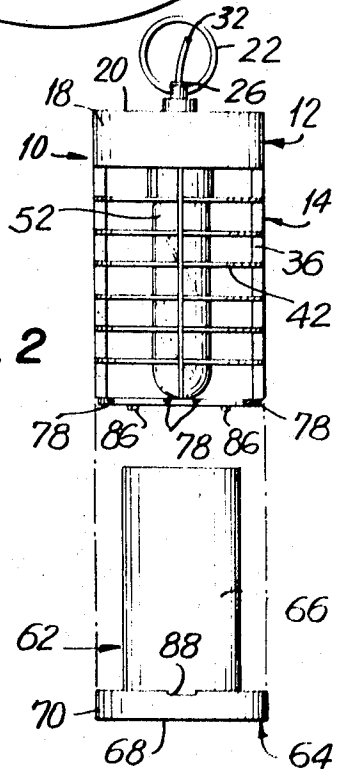


FIG. 2



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FIG. 4

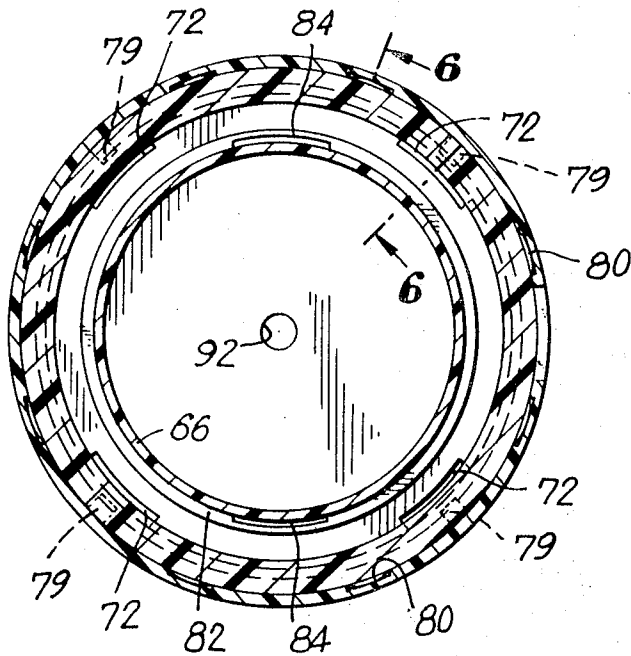


FIG. 6

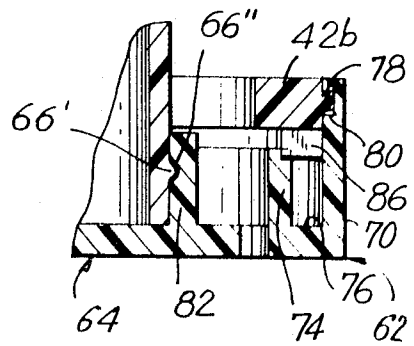
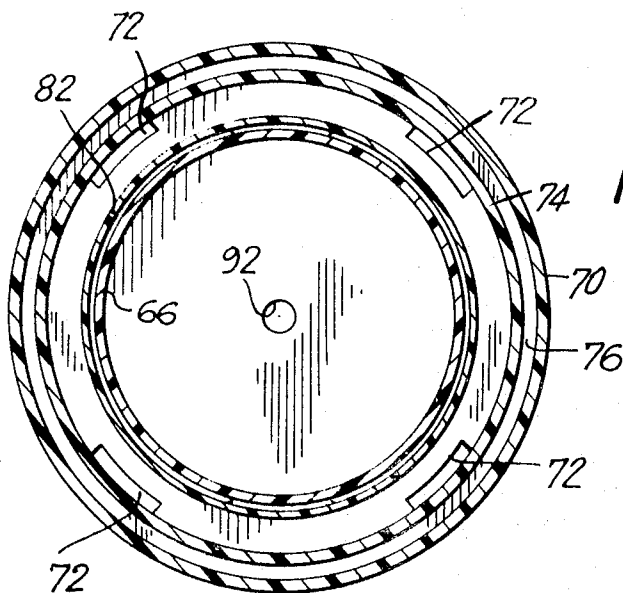


FIG. 5



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LAMP

This invention relates to a lamp device for providing incandescent light and more particularly to an incandescent lamp device whose construction provides convenient access for bulb removal and cooling.

Fluorescent lighting fixtures require special bulbs, special sockets and starters and further require a particular voltage source for operation. Therefore, it would be convenient to provide a lamp device for providing a fluorescentlike quality of light without the drawbacks of fluorescent devices. For instance, an incandescent light source is operable from a 12 volt source found in automobiles and other places. Furthermore, in many prior art lamp devices, the removal of the bulb is inconvenient due to the construction of the device. Also, in prior art plastic lamp housings there is always the danger of excessive heat exposure for the plastic parts of the construction.

Accordingly, it is a primary object of this invention to provide a lamp device with a construction enabling ready access to the bulb for removal.

It is a further object of the present invention to provide a lamp device for producing a fluorescentlike quality of light which may be operable from a standard 12 volt source as well as a 110 volt source without the necessity for special structures required by fluorescent devices.

A still further object of the present invention is to provide a lamp device having certain parts of the construction of a plastic material, which device in its construction provides sufficient cooling and ventilation to prevent excessive heat exposure for the plastic material.

These and other objects of the present invention are accomplished in accordance with one illustrative embodiment of the present invention by a lamp device and construction therefor which includes mounting an upstanding diffuser on a diffuser base for providing a fluorescentlike quality of light from a bulb depending in an inverted position from a socket housing. A cylindrical cagelike shell arranged coaxially with and below the socket housing is provided to surround the diffuser and to removably mount the diffuser base at the bottom thereof in order to enable access to the bulb for ready removal thereof. The diffuser is constructed and arranged to provide with the socket housing, ventilation space therebetween for cooling the device. Ventilating air is admitted to the diffuser by a cooling opening provided in the construction of the diffuser base to cause a flow of air around the depending bulb, the air flowing upward and being emitted from the housing proximate the base of the bulb at the top of the diffuser.

The above brief description, as well as further objects, features, and advantages of the present invention will be more fully appreciated by reference to the following detailed description of a presently preferred, but nonetheless illustrative embodiment in accordance with the present invention, when taken in conjunction with the accompanying drawings, wherein:

FIG. 1 illustrates the lamp device of the present invention in top view;

FIG. 2 is a front view of a lamp device according to the present invention, showing parts thereof in unassembled representation;

FIG. 3 is a front sectional view taken along the line 3—3 of FIG. 1 illustrating the construction of a lamp device according to the present invention;

FIG. 4 is a top sectional view of the lamp device taken along the line 4—4 of FIG. 3;

FIG. 5 is a top sectional view of a lamp device according to the present invention taken along the line 5—5 of FIG. 3; and

FIG. 6 is a partial, sectional view of a lamp device according to the present invention taken along the line 6—6 of FIG. 4 showing particularly the diffuser base construction and removable attachments thereof to the diffuser and cagelike shell of the lamp device.

Referring now in detail to the drawings, the lamp device of the present invention includes a generally cylindrical housing 10 which has at its upper end a cylindrical socket housing 12

and at its intermediate portion a cylindrical cagelike shell 14. The socket housing 12 includes a cylindrical sidewall 18 and a top wall 20. The interior of the socket housing is hollow to house other components, as will be described subsequently.

The lamp device is hung at any convenient location by a circular metal loop 22 secured to the top wall 20 of the housing 12. More specifically, the loop 22 has a pair of spaced ends 24 which protrude into aligned apertures in a ferrule 26. The ferrule 26 projects through a raised hub 28 located centrally of the top wall 20. The lower end of the ferrule is externally threaded for attachment to the internal part of the raised hub 28, which is cooperatively threaded. Flange 30, radially extending from the ferrule 26, seats the ferrule at the top of the hub 28 at a predetermined height. The loop 22 can swivel with respect to the ferrule about a horizontal axis and the ferrule can rotate in the hub about a vertical axis. A powerline 32 passes through ferrule 26 to electrical components within the socket housing and the powerline is adapted to be connected to a source of power (not shown) typically a 110 volt outlet (or a 12 volt battery by use of an AC to DC converter). The socket housing has an internal partition 34 which spans its lower periphery and defines with the sidewall 18 and the top wall 20 a cavity in which the electrical components are housed. The partition 34 is fixed to the socket housing 12 by screws 38. The socket housing 12 is attached at its lower edge to the upper periphery of the cagelike shell 14. The cagelike shell 14 is, as has been said, cylindrical and is formed of lattice work construction. The cagelike shell comprises a number, desirably four, circumferentially spaced uprights 36 intersected by a number, desirably eight, rings 42, the rings being spaced uniformly along the vertical axis of the shell 14. The upper ends of the uprights are integral with the uppermost ring 42a and this ring is fixed to the partition 34 by rivets or the like. The rectangular openings in the cagelike shell, as defined by the uprights and the rings, permit the maximum light emission and a pleasing aesthetic appearance.

A female socket 50 depending from the center of the socket housing 12 is provided in the device to receive a vertically oriented, depending, inverted elongated incandescent bulb 52, the bulb being the light-producing element of the lamp device. The socket 50 is conventional in design and mates with the threaded base 54 of the bulb 52. The socket 50 is situated within a hub 56 formed centrally in the partition 34 and is fixed to the hub wall by a screw 58. The bulb is coaxial with the cylindrical housing 10 and is of any suitable power rating depending upon the light to be provided by the lamp device. The power supply to the lamp device through powerline 32 is applied to the threaded base 54 of the bulb 52 through contact 60.

The diffuser element, generally designated 62, (FIG. 2) is designed for removable attachment to the lower end of the cagelike shell 14 and includes a diffuser base 64 with a cylindrical diffuser 66 projecting upwardly therefrom. The diffuser base has a flat circular bottom wall 68 and an outer sidewall 70. The outside diameter of the outer sidewall 70 is substantially the same as the outside diameter of the cagelike shell 14. The diffuser base has a number of through slots 72 (FIG. 5) defined by its bottom wall 68 for the purposes of water drainage (in the event of outside use) and ventilation. Desirably, the slots 72 are four in number and are evenly spaced adjacent the outer periphery of the bottom wall 68.

The diffuser base 64 mates with the lower periphery of the cagelike shell 14, and to this end, the diffuser base has an inner wall 74 protruding upwardly from the bottom wall 68 internally of the sidewall 70. The walls 74 and 70 define a circumferential channel 76 therebetween. The inner wall 74 is lower in height than the sidewall 70. The lowermost ring 42b of the cagelike shell 14 has an inner diameter which is substantially the same as the inner diameter of the inner wall 74 and has an outer diameter less than that of the rings 42, the outer diameter of the lowermost ring 42b being slightly less than the inner diameter of the diffuser base sidewall 70. Accordingly, as seen in FIGS. 1, 4, 5 and 6, the ring 42b overlies the inner

wall 74 and the channel 76, and fits within the sidewall 70. Further, the radially outer portion of the lower edge of each upright 36 abuts the sidewall 70.

For the purpose of retaining the diffuser base 64 on the lower portion of the cagelike shell 14, the lowermost ring 42b carries a number of radially and outwardly protruding nibs 78 (see FIGS. 2 and 6 particularly) which are received in small grooves 80 (FIGS. 2 and 4) in the inner face of the sidewall 70 of the diffuser base 64. Desirably, there are eight such nibs 78 on the lowermost ring 42b and eight such grooves 80 on the inside of the sidewall 70.

To further orient the cagelike shell 14 with respect to the diffuser base 64, the lowermost ring 42b carries a number of downwardly depending lugs 86. To receive these lugs, the inner wall 74 includes a number of cutouts 79 (FIG. 4) and when the diffuser base 64 is in place, each lug fits into a cutout 79 and extends across the channel 76.

As was mentioned previously, the diffuser base 64 is removably secured to the cagelike shell 14. For this purpose, and as is seen most clearly in FIG. 2, the sidewall 70 of the diffuser base 64 has a slot 88 formed therein, the slot being sufficiently wide to accommodate a coin, such as a nickel or a dime. A radially outer portion of the lower edge of any one of the uprights 36 comprises a shoulder 90 (FIG. 3) which overhangs the slot 88 and for purposes of strength, each upright 36 may be flared outwardly at its shoulder 90 to increase the strength of this connection. Accordingly, when a coin is placed into the slot 88 and is twisted to a small extent, the bottom face of the coin pivots on the wall of the slot 88 while the upper face of the coin pries the shoulder 90 of the upright 36 upwardly, thereby forcing the nibs 78 upwardly out of their grooves 80 and separating the diffuser base from the cagelike shell. With outwardly flared bases at the shoulders of the uprights, it is insured that this prying action does not break the shoulder 90 and its strut from the ring 42b. Since the housing 10, including the socket housing 12, the cagelike shell 14 and the diffuser base 64 are all formed from a synthetic resin, these parts are somewhat resilient. Accordingly, the upward prying of the cagelike shell 14 with respect to the diffuser base 64 may take place without failure of any parts. The nibs 78 as well as the lugs 86 are so located with respect to the grooves 80 and the cutouts 79 respectively, that a shoulder 90 of an upright 36 always is situated over the slot 88. The diffuser base

is snapped back into position by the application of a small amount of force.

In order to retain the diffuser 66 to the diffuser base 64, the outer surface of the diffuser is constructed to define a radially and outwardly projecting single thread 66', which is insertable to a mating, thread-receiving groove 66'' in an upwardly projecting, diffuser-retaining wall 82 (FIGS. 3, 4 and 6). The wall 82 is further constructed to define thread entry openings 84 (FIG. 4) to facilitate entry of the thread 66' in the thread-receiving groove 66''.

The heat dissipation construction for a lamp device constructed according to the present invention includes an air-receiving opening 92 defined by the bottom wall 68 of the diffuser base 64 and a ventilation opening defined by the space between the top edge 66a (FIG. 3) of the diffuser 66 and the bottom surface of the partition 34. Cooling air is thereby caused to flow upwardly from the opening 92, around the bulb 52 and upwardly to the ventilation opening at the top of the diffuser. By constructing the diffuser 66 such that its upper open end terminates short of the underside of the socket housing 12, this annular ventilation port is conveniently provided to conserve bulb life and to prevent the exposure of various parts of the unit to excessive heat.

What is claimed is:

1. An incandescent lamp device comprising a housing including a socket housing portion, a shell attached to said socket housing portion and a diffuser base portion removably attached to said shell, a bulb attached in said socket housing portion, a diffuser disposed within said shell and attached to said diffuser base portion such that removal of said diffuser base portion achieves removal of said diffuser permitting ready access to said bulb for removal, said shell depending from said socket housing portion, said diffuser base portion being attached to the base of said shell, said bulb being inverted and depending from said socket housing portion and said diffuser being upstanding from said diffuser base portion, said diffuser including an upper end terminating short of the underside of said socket housing portion to define an annular ventilation opening.

2. The invention according to claim 1 wherein said diffuser base portion defines an opening for providing a flow of air around said bulb for emission from said ventilation opening to dissipate excessive heat from said lamp device.

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