Nov. 14, 1939. I. FLORMAN 2,180,228

PORTABLE ELECTRIC LAMP

Filed Sept. 1, 1938

Fig. 1.

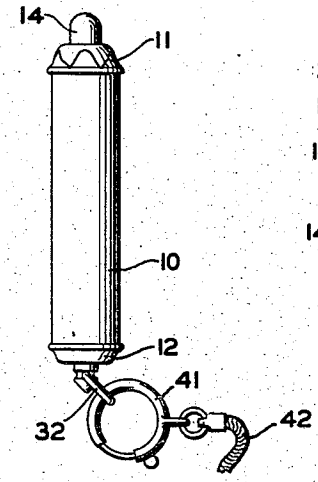


Fig. 2.

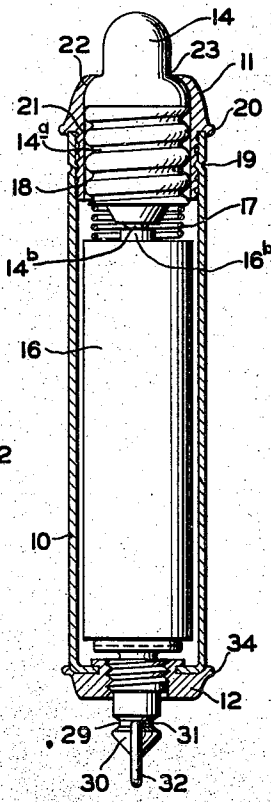


Fig. 3.

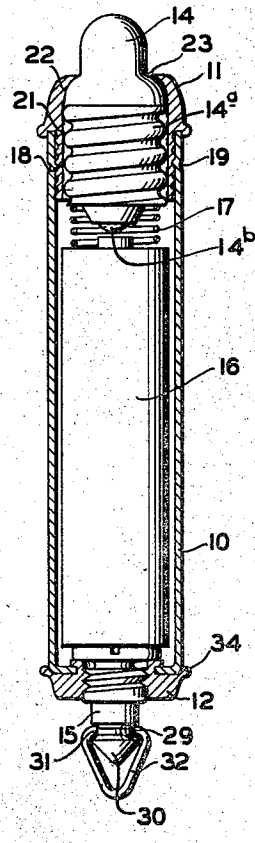


Fig. 5.

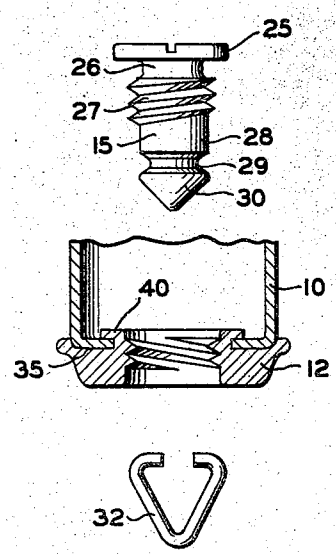
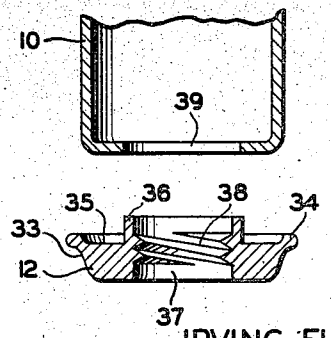


Fig. 4.



Inventor

IRVING FLORMAN

By Bailey & Karen

Attys.

Patented Nov. 14, 1939

2,180,228

UNITED STATES PATENT OFFICE

2,180,228

PORTABLE ELECTRIC LAMP

Irving Florman, New York, N. Y.

Application September 1, 1938, Serial No. 228,048

3 Claims. (Cl. 240—10.68)

This invention relates to portable electric lamps. In particular, this invention relates to portable lamps adapted, by reason of their small weight, size, extreme compactness and illuminating efficiency to be used as an accessory to be conveniently carried in pockets or handbags or attached to key cases or key chains for use as keyhole finders, etc.

It is an object of this invention to provide such a structure which is of extreme strength and compactness and decorative appearance.

It is a further object of this invention to provide such a structure wherein, by extension of a substantial portion of the illuminating bulb outwardly beyond the casing, the utmost efficiency of illumination is achieved, while the production of a marginal penumbra in the produced light beam is totally obviated.

It is a further object of this invention to provide such a structure wherein the casing is possessed of the utmost degree of strength and rigidity, for its weight, by reason of the reinforcement provided at opposite ends of the cylindrical body portion thereof.

It is a further object of this invention to provide such end reinforcements for the cylindrical body portion of the casing as will extend therebeyond in such a manner as to prevent damage by scratching or defacement of the surface of the cylindrical body portion of the casing.

It is a further object of this invention to provide in such structure a single rotatable member, which in addition to performing the function of a switch provides also means for attachment of the lamp to a key ring, key chain or conventional key case.

It is a further object of this invention to provide such a member having secured thereto a loop member for attachment to key hooks, chains, rings or the like, and which, in addition, facilitates rotation of the member in performing its function as a switch or switching device.

It is a further object of this invention to provide in such a lamp structure a casing and reinforcement members adapted to impart rigidity to the casing structure, to provide protection for the body portion thereof while at the same time providing support for the rotatable switch member.

It is a further object of this invention to provide such a casing and reinforcement member which, in addition to performing the above functions, provides also stop means cooperating with a portion of the switch member to limit motion thereof in one direction.

It is a further object of this invention to provide a casing structure adapted to expose substantially all of the filament-enclosing portion of a tapered electric bulb and which casing, due to its opaqueness throughout will prevent the production of a marginal beam penumbra.

These and other objects and advantages of the invention will appear from the following description, taken in conjunction with the drawing:

In the drawing:

Fig. 1 is a view in elevation of a portable electric lamp structure constructed according to the principles of this invention and showing a fragment of a key chain attached thereto;

Fig. 2 is an enlarged longitudinal section of the lamp structure with the electric bulb and cell in elevation, the parts being in the "on" or operable position;

Fig. 3 is a view similar to Fig. 2 but showing the parts in "off" or inoperative position;

Fig. 4 is an exploded view, in section, of the casing end reinforcement member and a portion of the casing proper before their attachment together; and

Fig. 5 is a view similar to Fig. 4 but showing the casing proper and casing reinforcement member attached together and showing in elevation the switch screw and attachment loop member before assembly.

Referring to the drawing in detail, the main or cylindrical portion of the casing is designated 10 and is of a tubular or cupped form having an open end to which is screw threadedly attached the bulb-holding or head member 11, while the opposite end thereof is provided with an aperture by means of which the casing and reinforcement member 12 is attached as shown in Figs. 2, 3, 4 and 5. The bulb-holding or head member 11 is provided with a suitable aperture, hereinafter described, through which the reduced end portion of the bulb 14 extends as shown in Figs. 1, 2 and 3. The end reinforcing member 12 is provided, as hereinafter described in detail, with screw threaded means for supporting the switch screw 15 with its enlarged head portion extending within the main cylindrical casing portion 10, where it engages the rear or lower end of the electrical cell 16, as shown in Figs. 2 and 3. The compression spring 17 is disposed between the inner, rear or lower end of the bulb 14 and the insulated portion of the upper or forward end of the cell 16 as shown in Figs. 2 and 3. This compression spring 17 maintains the cell 16 in engagement with the enlarged head portion of the switch screw 15 at all times and due to

the screw threaded engagement of the switch screw 15 with the casing and reinforcement member 12, by rotation of the switch screw 15 throughout a quarter turn or 90°, the cell 16 may be moved from the "off" position as shown in Fig. 3 to the "on" position as shown in Fig. 2, and vice versa.

An important feature of the invention resides in the construction of the bulb-holding or head member 11, both with regard to the opaqueness thereof, which prevents the production, by the bulb, of a marginal penumbra, and also with regard to the manner in which it encloses the thick or base portion of the bulb 14 while providing for extension of the reduced outer end portion thereof through the aperture in the head 11 in such manner that the major portion of the filament-enclosing glass envelope of the bulb 14 is disposed outside the head 11. This materially increases the illuminating efficiency of the structure and insures substantially uniform intensity of illumination throughout the beam area thereof.

The head member 11 is provided with an inner threaded portion which cooperates with bent in portions 19 provided in the casing portion 10 for screw threaded attachment of the member 11 to the portion 10. Outwardly or forwardly of the threaded portion 18 the member 11 is provided with an annular exterior integral flange 20 which extends outwardly beyond the annular wall of the portion 10 for a purpose which will hereinafter more clearly appear. The outer exterior surface of the member 11 is tapered inwardly and forwardly or outwardly and may be provided with any suitable decorative design as shown in Fig. 1. While the member 11 may be constructed of any suitable opaque material, it is preferably formed of metal. Interiorly the member 11 is provided at its inner end with a cylindrical bore 21 adapted for close engagement with the threaded base of the bulb 14, and this cylindrical bore 21 terminates forwardly or outwardly in a tapered bore portion 22 adapted for close engagement with the thick portion of the glass envelope of a tapered bulb as shown in Figs. 2 and 3. At its outer end the bore portion 22 terminates in a circular aperture 23 of suitable size to permit extension of substantially all of the reduced end portion of the glass envelope of the bulk 14 beyond the head member 11 as shown in Figs. 1, 2 and 3, and as described above.

As will be clearly understood from the showing of Figs. 2 and 3, the bulb 14 is always maintained in position in the head 11 by the spring 17 both in the "on" position as shown in Fig. 2 or the "off" position as shown in Fig. 3. As the bulb 14 is of conventional construction, one filament terminal thereof is electrically connected to the metallic threaded base jacket 14*a*, while the other filament terminal thereof is electrically connected to the base contact 14*b*. The base contact 14*b* is adapted for selective engagement with the contact 16*b* of the cell 16 as shown in Fig. 2, whereby an electrical circuit extends from the terminal or contact 16*b* through contact 14*b*, through the bulb filament and thence through jacket 14*a*, the head member 11, the casing portion 10, and reinforcement member 12, and switch screw 15 to the casing of the cell 16. This circuit is opened by suitable movement of the switch screw 15 from the position shown in Fig. 2 to that shown in Fig. 3.

As shown particularly in Fig. 5, the switch screw is provided with an enlarged screw head 25 at its upper, or inner, end below which is a reduced cylindrical portion 26 which is adjacent the screw threaded intermediate portion 27. Below the screw threaded portion 27 is a second or outer cylindrical portion 28 which is separated from the tapered outer end portion 30 by the annular groove 29. The annular groove 29 is provided with a transverse bore 31 which is adapted to receive the ends of the attachment loop 32 upon assemblage of the parts as shown in Fig. 3. The dimensions of the attachment loop 32 are preferably such that when the attachment loop 32 is secured to the switch screw 15, the over-all transverse dimensions of the loop member 32 are greater than the diameter of the screw threaded portion 27, which relationship totally prevents accidental loss of the switch screw 15 because this member may not be removed from the casing and reinforcement member 12 without removal of the attachment loop member 32 therefrom.

The casing end reinforcement member 12 is of the general configuration of a dome shaped annular washer having curved or arcuate side walls 33 which are preferably tapered inwardly and downwardly and which may be of any desired decorative contour and which terminate upwardly at the annular flange 34 which is of similar diameter to the flange 20 of the head member 11, which is described above. At its upper end the reinforcement member 12 is provided with a countersunk annular groove 35 which is disposed between the flange 34 and the annular attachment flange or sleeve 36. The member 12 is also provided, as shown in Fig. 4, with a central axial bore having an intermediate threaded portion 38 which is provided with screw threads which are complementary to the screw threads of the screw threaded portion 27 of the switch screw 15 and which cooperate therewith, as shown in Figs. 2 and 3, to provide firm support therefor, while the extent thereof is such as to provide for smooth and substantially frictionless engagement with the screw threads of the portion 27 of the switch screw 15. The manufactured form of the reinforcement member 12, before assembly, is shown in Fig. 4 where it will be noted that the attachment flange or sleeve 36 presents a cylindrical outer surface. This cylindrical outer surface is adapted for close engagement with the annular side walls of the aperture 39 provided in the end wall of the cylindrical casing portion 10, as shown in Fig. 4. In order to secure firm attachment of the casing end reinforcement member 12 with the main or cylindrical casing portion 10, the outer surface of the end wall of the casing portion 10 is engaged with the counter-sunk groove 35, while the outer cylindrical surface of the attachment flange 36 is engaged with the walls of the aperture 39 and thereafter the upper end of the attachment flange 36 is expanded outwardly or spun over in such manner as to secure the end wall of the casing portion 10 between this outwardly bent or spun-over portion 40 and the wall of the counter-sunk groove 35, as shown in Fig. 5, whereby rigid attachment of the casing end reinforcement member 12 to the main or cylindrical casing portion 10 is secured.

When the members 10 and 12 are thus rigidly secured together, as shown in Figs. 2, 3 and 5, the switch screw 15 may be assembled to the casing end reinforcement member 12 by being dropped into and centered in the interior of the casing with the portions 28, 29 and 30 thereof disposed in the bore 37 and then, by engagement of a screw driver with the enlarged screw head

25 thereof, the switch screw 15 may be rotated to engage the screw threaded portion 27 with the screw threaded portion 38 of the casing end reinforcement member 12. Thereafter, the ends of the attachment loop 32 are inserted in the bore 31, as shown in Figs. 2 and 3.

The flange 20 of the bulb-holding or head member 11 and the flange 34 of the casing end reinforcement member 12 are similar and the exterior surfaces thereof are offset outwardly from the exterior cylindrical surface of the main or cylindrical casing portion 10. It will thus be seen that when the casing proper rests upon a flat or planar surface the annular surface of the portion 10 is protected from scratching, abrasion or defacement, whereby the appearance of the lamp will be protected substantially from damage irrespective of the type of exterior covering provided for the cylindrical casing portion 10. This portion may, of course, be provided with any desired decorative covering such as leather, fabric, lacquer, paint or the like.

In addition to the protecting function performed by the casing end reinforcement member 12 by reason of the cooperation of the flange 34 thereof with the flange 20 of the bulb-holding or head member 11, this member 12 also provides for material increase of the strength and rigidity of the casing proper due to the firm attachment of the member 12 to the portion 10 of the casing. Furthermore, the provision of screw threads 38 throughout a substantial zone provides a firm and substantially frictionless bearing surface for the screw threads of the portion 27 of the switch screw 15, and, as shown in Fig. 3, the cooperation of the portion 40 thereof with a lower or outer surface of the enlarged screw head 25 provides means for accurately determining the outward extent of movement, or, in other words, provides stop means for the switch screw 15. The inward or upward movement of the cell 16 is limited by engagement of the contact 16b thereof with the contact 14b of the bulb 14, as shown in Fig. 2.

In addition to the above described cooperation of the enlarged head 25 of the switch screw 15 with portion 40 of the member 12, and in addition to the function of the switch screw 25 as means for moving the cell 16 from the position of Fig. 3 to the position of Fig. 2, the provision of the attachment loop 32 on the switch screw 15 materially facilitates rotation of the switch screw 15 from "off" and "on" position, and vice versa, while also providing means for attaching the lamp to any suitable hook, ring or the like, such as the ring 41 of a conventional key chain 42, shown in Fig. 1.

From the above description it will clearly appear that the illustrated portable lamp, embodying the principles of this invention, is compact, efficient, of light weight and of such small size as to permit its use in relationships where the size of prior constructions has prevented their use. For instance, the attachment loop 32 may be secured to a ring of a conventional key case, and the lamp may be carried therein.

It is of course to be understood that the above described structure is merely illustrative of one application of the principles of my invention and that I desire to comprehend within my invention such modifications as are within the scope of the appended claims, and the invention.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent is:

I claim:

1. In a portable lamp, a casing supporting a bulb at one end and enclosing an electric cell movable therein for closing and opening the electric circuit in said lamp, said casing including a cylindrical casing member having an apertured end wall, and an end reinforcement member rigidly secured to said apertured end wall and comprising an annular body having a diameter at least as great as the diameter of the casing member and having a screw threaded central aperture and having a central sleeve extending from its upper surface and surrounded by an annular recess engaging the exterior of said apertured end wall, said sleeve extending through the aperture in said end wall and being bent outwardly over the interior of said apertured end wall, a switch screw screwthreadedly secured in the screwthreaded aperture in said annular body, and means attached to said switch screw for rotating said switch screw.

2. In a portable lamp casing, a cylindrical casing member having an apertured end wall, and an end reinforcement member rigidly secured to said apertured end wall and comprising an annular body having a screwthreaded central aperture and having a central sleeve extending from its upper surface and surrounded by an annular recess engaging the exterior of said apertured end wall, said sleeve extending through the aperture in said end wall and being bent outwardly over the interior of said apertured end wall, and a cell moving switch screw supported in said switch screw aperture, said switch screw having an enlarged head disposed in said casing, a screw threaded portion engaging said screw threaded aperture, and attachment means secured to the outer end thereof and having its transverse dimension greater than the diameter of said screw threaded aperture, the engagement of said enlarged head with said bent over sleeve of said end reinforcement member limiting outward movement of said switch screw and the cooperation of said attachment means with said end reinforcement member preventing accidental removal inwardly of said switch screw.

3. In a portable electric lamp, a casing supporting a bulb at one end and enclosing an electric cell movable therein for closing and opening the electric circuit in said lamp, said casing including a cylindrical casing portion having an integral inturned end wall with a central aperture therein, an end wall reinforcing member secured on the end wall having a portion within said aperture and a flange around said aperture on the inside of the end wall, said end wall reinforcing member having a threaded aperture therethrough, and a switch operating member having a portion threadedly engaged in said threaded aperture, and a portion of greater diameter within the casing having an inner surface adapted to engage the bottom of the cell to move the same when the switch operating member is turned in one direction and an outer surface adapted and arranged to engage said flange when the switch operating member is turned in the other direction to limit the outward movement of the switch operating member, said switch operating member having means thereon outside the casing for manual turning thereof.

IRVING FLORMAN.