L. F. & R. F. JAMES.

PORTABLE ELECTRIC LAMP.

APPLICATION FILED NOV. 2, 1916.

1,223,883.

Patented Apr. 24, 1917.

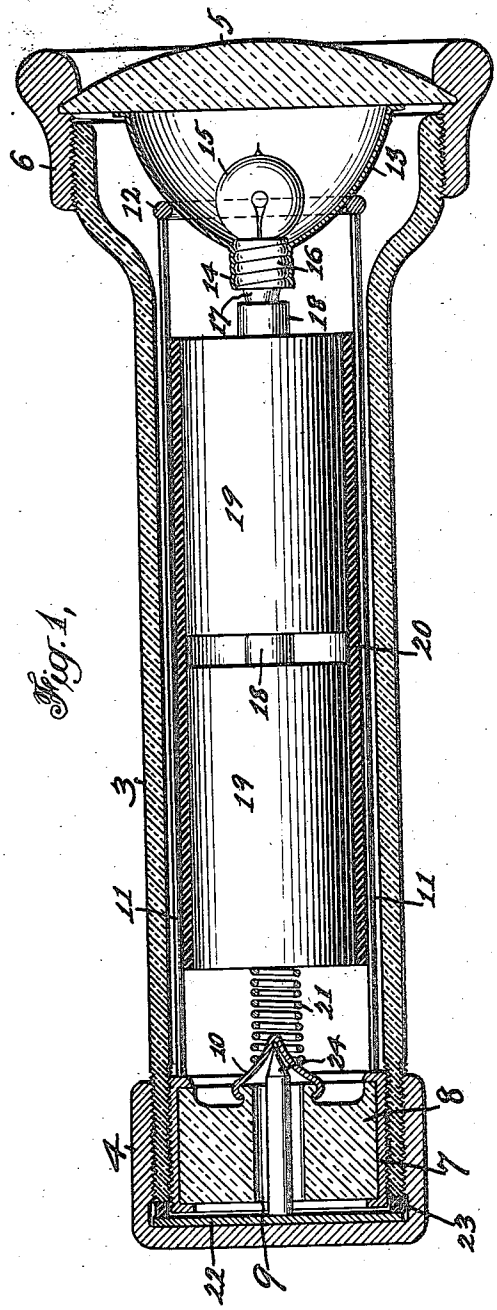


Fig. 1.

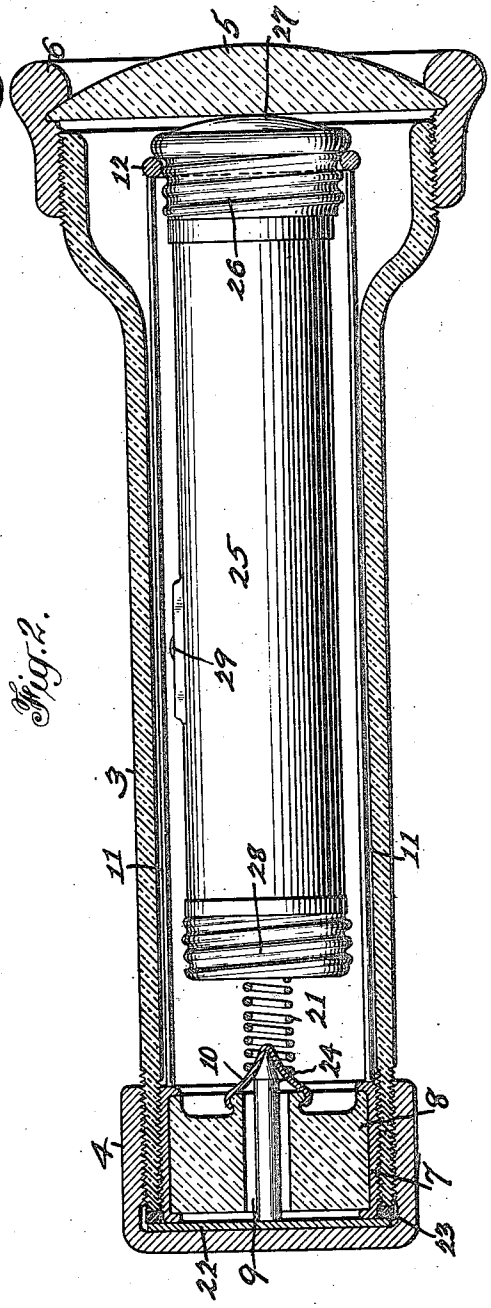


Fig. 2.

WITNESSES

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Application filed November 2, 1916. Serial No. 129,079.

To all whom it may concern:

Be it known that we, LAWRENCE F. JAMES and RICHARD F. JAMES, citizens of the United States, and residents of New York, in the county and State of New York, have invented certain new and useful Improvements in Portable Electric Lamps, of which the following is a specification.

Our invention relates to electric lamps of the hand or self-contained type, and one of the main objects thereof is to provide a casing for such lamps which will be waterproof, our present embodiment insuring this result by the elimination of push-button switches at present employed in these lamps.

A further object is to provide a tail cap for our lamp casing for the protection of the contained lamp and dry-cells, and which cap serves also as the lamp switch.

A still further object is to provide a waterproof casing of the class described which is adapted to receive a conventional lamp, reflector, and dry-cell or cells, and which is also adapted to receive a conventional portable lamp and casing without change in the latter in lieu of the lamp, reflector, and dry-cell or cells aforesaid.

And further objects are to provide such devices which are simple in construction and operation, which are thoroughly practical and cannot readily get out of order, which insure ready accessibility to the contained parts, and which are comparatively inexpensive.

Our invention is fully described in the following specification, of which the accompanying drawings form a part, in which like characters refer to like parts in each of the views, and in which:—

Figure 1 is a longitudinal central section taken through a portable lamp casing constructed in accordance with our invention, and showing its use with a lamp, reflector, and dry-battery; and

Fig. 2 is a similar section but showing the casing as containing a conventional portable electric lamp instead of the lamp, reflector, and dry-battery shown in Fig. 1.

Referring to the drawings, 3 represents a substantially cylindrical casing of waterproof material having a tail cap 4 in screw-threaded engagement therewith to exclude moisture from the casing, and a lens 5 at the other end or head, said lens being illustrated as removably held on the casing 3 by means of a screw-threaded collar 6.

Threaded into the tail of the casing 3 is a bushing 7 of conductive material hollowed to receive an insulating block 8 having a central bore 9 therethrough capped, at its inner end, by a cone 10 of conductive material, and said bushing 7 carries a plurality of inwardly directed rods 11 terminating in a ring 12, both the rods and ring being of conductive material.

Held against the lens 5 by means of said bushing, rods, and ring, is a reflector 13 of conductive material presenting a screw-threaded socket 14 for an electric lamp 15 the shell 16 of which is also of conductive material and in electrical connection with one of the filament terminals of the lamp 15, the other filament terminal being electrically connected with the center contact of the lamp, as at 17, and, therethrough, with one terminal 18 of a dry-cell 19, two of which are shown though only one may be provided.

The dry-cells 19, as is usual, have conductive cases inclosed in insulating jackets 20, shown in section, the latter preventing contact between said dry-cells and the rods 11, and the center contact of the dry-cell is held in normal contact with the center contact 17 of the lamp 15 by means of a conductive spring 21 interposed between the rear end of the dry-cell and the cone 10, the insulating block 8 normally breaking the circuit through the dry-cell and lamp.

The tail cap 4 carries a conductive disk 22, either detachably or as a component part thereof, adapted to make electrical contact with the rear end of the bushing 7 though normally prevented from so doing by means of a yielding or compressible ring 23 of insulating material but, upon screwing the cap 4 forwardly, said disk and bushing will bear one upon the other.

Secured to the disk 22 is a post 24 of conductive material adapted, when the cap 4 is screwed forwardly, to bear against the inner surface of the conductive cone 10, as shown in Fig. 2, thereby jumping the gap normally existing through the block 8 and closing the circuit through the lamp and battery to energize the former and, by unscrewing the cap 4, the circuit is again broken and the lamp deënergized.

If for any reason, as, for instance, the

inability to obtain batteries adapted to the casing 3, it is desired to inclose a complete portable electric lamp 25, Fig. 2, of the well known type having a casing of insulating material and in which the lens holding ring is in electrical connection with the outer terminal of the lamp and the rear end cap is in electrical connection with the battery, the cap 4 is removed as well as the bushing 7 with the ring 12 to permit removal of the reflector 13 and lamp 15, after which the lamp 25 is passed rearwardly into the ring 12 with the spring 21 in the position shown, and the bushing 7 is again introduced into the casing 3 to a point where the ring 12 holds the conductive sleeve 26 and lens 27 against the lens 5, the spring 21 being in electrical connection with the rear conductive sleeve 28.

In this use of the invention the lamp 25 is energized precisely as already described by the inward screwing of the cap 4, and the push-button switch 29 of the lamp 25 need not be actuated nor, indeed can it be, and the lamp 25 is as immune from moisture as were the parts shown in Fig. 1.

One very important feature resides in the fact that the casing 3 is entirely waterproof even with the cap 4 removed because of the bushing 7, block 8, and cone 10, the main function of the cap being to energize and deënergize the lamp by acting as the switch.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is:—

1. The combination with an electric lamp and battery; of a casing therefor, a bushing adjustably held therein and in electrical connection with said lamp, a movable cap on said casing, and means carried by said cap for closing a circuit through said lamp, bushing, and battery.

2. The combination with an electric lamp and battery; of a casing therefor, a bushing in said casing in electrical connection with said lamp, an insulating block carried by said bushing, a movable cap on said casing, and coacting means carried by said block and cap for closing a circuit through said lamp, bushing, and battery.

3. The combination with an electric lamp and battery; of a casing therefor, a bushing in said casing in electrical connection with said lamp, an insulating block carried by said bushing, a conductive cone in electrical connection with said battery carried by said block, a movable cap on said casing, and means carried by said cap for closing an electrical circuit through said lamp, bushing, cone, and battery.

4. The combination with an electric lamp and battery; of a casing therefor, a bushing in said casing, a ring carried by said bushing and in electrical connection therewith and with said lamp, a movable cap on said casing, and means carried by said cap for closing a circuit through said lamp, ring, bushing, and battery.

5. The combination with an electric lamp and battery; of a casing therefor, a bushing in said casing in electrical connection with said lamp, an insulating block carried by said bushing, a conductive cone carried by said block, a conductive spring interposed between said cone and battery, a movable cap on said casing, and means carried by said cap for closing a circuit through said lamp, bushing, cone, spring, and battery.

6. The combination with an electric lamp and battery; of a casing therefor, a lens at one end thereof, a movable cap at the other end thereof, a conductive reflector, a conductive bushing in said casing holding said reflector against said lens, said lamp being carried by said reflector, an insulating block carried by said bushing, conductive means carried by said block in electrical connection with said battery, and means carried by said cap for closing a circuit through said lamp, reflector, bushing, block supported means, and battery.

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