

Oct. 27, 1925.

1,559,481

L. J. VOORHEES

FLASH LIGHT

Original Filed June 29, 1920

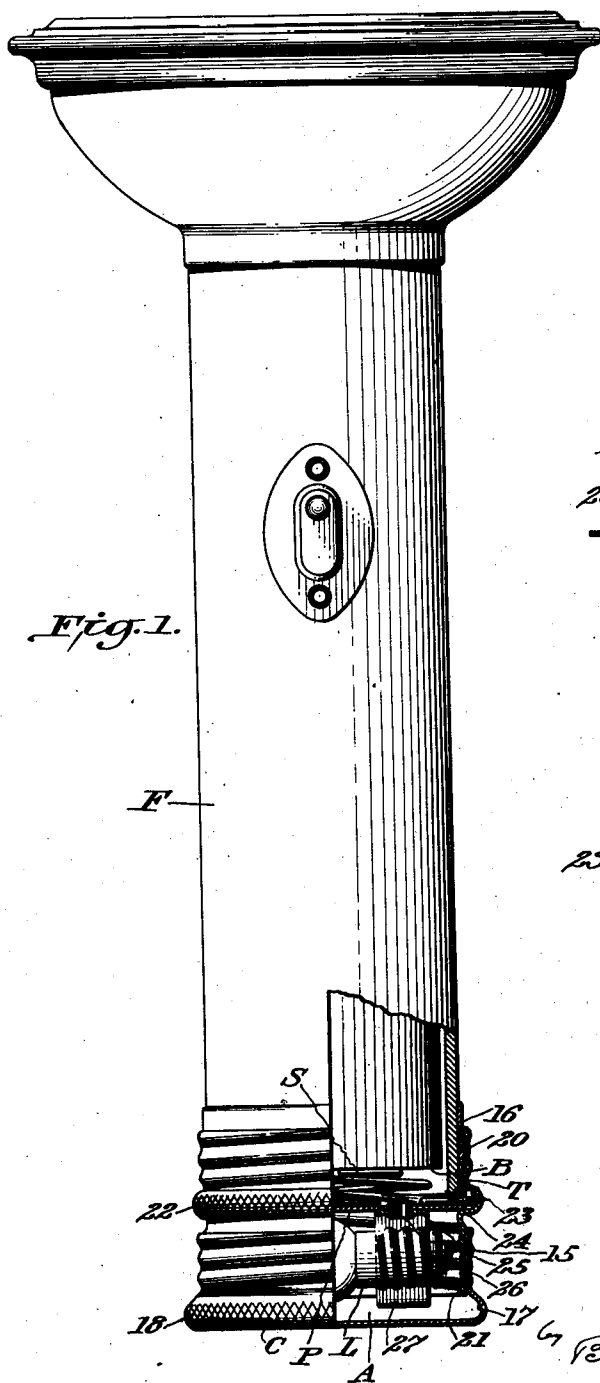


Fig. 2.

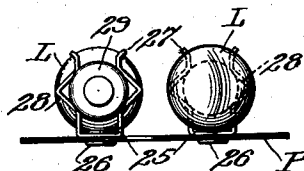
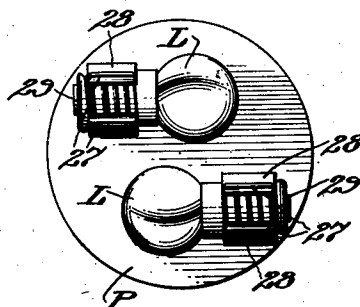


Fig. 3.



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UNITED STATES PATENT OFFICE.

LEE J. VOORHEES, OF NEW YORK, N. Y., ASSIGNOR TO NATIONAL CARBON COMPANY, INC., A CORPORATION OF NEW YORK.

FLASH LIGHT.

Application filed June 29, 1920, Serial No. 392,708. Renewed January 10, 1925.

To all whom it may concern:

Be it known that I, LEE J. VOORHEES, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Flash Lights, of which the following is a specification.

This invention relates to flashlights and more particularly to an attachment for a pocket flashlight whereby one or more spare miniature incandescent lamps for the flashlight may be conveniently carried therewith.

Occasionally in using flashlights, the miniature lamp thereof burns out or is otherwise rendered inoperative and it is usually very desirable to have immediately available a new lamp that may be quickly replaced for the old one. Accordingly, the principal object of this invention is to provide a simple and inexpensive spare lamp holder that shall be readily attachable to the standard types of flashlights now generally in use without requiring changes in any of the essential parts of such standard flashlights and without materially increasing the size or length of the casing thereof.

In the illustrated embodiment, the objects and desirable results are obtained by providing a compartment at the rear end of the well known type of flashlight, which compartment is formed by an extension applied to the end of the casing and serves as a receptacle for one or more spare lamps for the flashlight.

The above and other objects and the novel features of the invention will be apparent from the following description taken in connection with the accompanying drawing, in which

Fig. 1 is a view, partly in side elevation and partly in section, showing a flashlight carrying a lamp holder attachment embodying the present invention, and

Figs. 2 and 3 are, respectively, side and plan views of the mounting means for supporting the lamp or lamps in the shell of the lamp holder attachment.

Referring to the drawing, F designates the tubular fiber or metal casing of a well known type of flashlight which at its forward

end is provided with the usual means for carrying a miniature incandescent lamp, reflector, lens and removable screw cap.

The rear end of the casing F is open and adapted to permit the removal and replacement of a battery B which furnishes the current for lighting the lamp at the front end of the casing. The open end of the casing F is normally closed in the usual manner by means of a cap C which is detachably connected to the casing F in any suitable manner, and desirably by a threaded portion 15 on the cap C that interfits with a corresponding threaded portion 16 on the exterior of and adjacent the open end of the casing F, such threaded portion 16 being either formed in the wall of the casing or by means of a threaded ferrule secured to the casing.

The battery B is yieldingly held in place by suitable means such as a spiral spring S which at one end bears against the rear end of the battery and at its other end has a coil that is adapted to fit in a groove 17 in the cap C, such cap when attached to the casing pressing the inner end of the spring against the battery B. The spring holds the battery in operative position in the casing and is a conductive portion of a lighting circuit including the battery. The cap C has a knurled portion 18 whereby it may be gripped to readily attach or detach it.

The foregoing features are well known elements of the usual pocket flashlight and require no additional explanation.

In accordance with the objects and principles of the present invention, I provide an attachment for the above described type of flashlight which may be readily applied thereto without altering any of the elements of the flashlight now on the market and without materially or objectionably increasing the size or length of such flashlight. These objects are most readily obtained by providing a compartment at the rear end of the flashlight casing which serves as a receptacle for one or more extra lamps. In the present advantageous arrangement these desirable results are most readily obtained by providing a lamp holder attachment or carrier that is adapted to be inserted between the rear end of the flashlight casing and the

cap thereof and detachably connected to both the flashlight casing and the cap. Such extension of the flashlight casing is obtained by means of the tubular member or shell T which is made of metal or other suitable material and is provided adjacent its opposite ends with means whereby it may be respectively detachably connected to the casing and to the cap, such detachable connecting means most desirably consisting of a thread 20 adjacent one end of the shell T adapted to fit the thread 16 on the casing and a threaded portion 21 adjacent the other end of the shell T, to which the threaded portion 15 of the cap C may be detachably connected. A knurled bead 22 is provided intermediate the ends of the shell T to facilitate the connection and disconnection of the shell T to the casing and cap.

The shell T constitutes the receptacle for carrying the spare lamps and may be provided with suitable means therein for supporting such lamps so that they will not be readily damaged by jars or otherwise. The simple arrangement herein illustrated comprises a mounting plate or diaphragm P of thin sheet brass or other suitable material, and of substantially the same diameter as the interior of the shell T. The marginal edge portion of the mounting plate P fits into the interior groove 23 formed by the bead 22 and against the shoulder 24 thereat and may be held against such shoulder by the end coil of the spring S which is also fitted in the groove 23, and when the attachment is in place on the casing F, the compression of said spring serves to securely hold the plate P and the battery B in position.

Suitable means may be provided on the plate P for removably holding one or more extra lamps, and as herein shown, such means comprises U-shape spring clips having their bases 25 secured to the outer face of the mounting plate by suitable means, such as rivets or eyelets 26. The upstanding spaced spring fingers 27 are provided with opposed bends or depressions 28 adapting them to yieldingly grip the base 29 of a miniature incandescent lamp L and securely hold the same. The spring fingers 27 of each clip are arranged to receive the bases of the lamps, which may be readily inserted and removed therefrom at will. The spring clips extend into the spare part or lamp receptacle or compartment A formed between the top of the cap C and the plate or wall P and may be arranged in any suitable manner upon the outer face of the plate P, but in order to economize space and only slightly increase the length of the ordinary flashlight casing, such clips are arranged so that they support the lamps or bulbs in position with their axes parallel to the plane of the plate P. Furthermore, it will be noted that the

clips are arranged so that the bulbs supported thereby are in such position that the bulb and base of one lamp are respectively opposite the base and bulb of the other lamp, thereby holding the bulbs at a distance from the wall of the shell T and preventing breakage of the bulbs.

The application of the attachment to an ordinary flashlight will be readily understood from the drawing and the foregoing description. Assuming that a mounting plate P carrying lamps is in position in the shell T and it is desired to apply the attachment to an ordinary flashlight, it is merely necessary to detach the usual cap at the rear end of the flashlight, remove the usual spiral spring therein and insert the end of the coil of such spring in the groove 23 of the attachment. Thereupon the attachment may be screwed onto the rear end of the flashlight case, with the spiral spring pressing against the rear end of the battery. The cap of the flashlight may then be screwed onto the outer end of the shell T to enclose and conceal the spare lamps. To obtain a spare lamp from the compartment A it is, of course, merely necessary to detach the cap C, and in order to remove or replace a battery it is merely necessary to detach the shell T, the cap and shell being removable as a unit.

While I have shown and described the invention in detail, it will be understood that the principles of the invention may be applied in other ways and that various changes may be made in the structure herein disclosed without departing from the spirit of the invention or sacrificing any of the advantages thereof.

I claim:

1. A spare lamp-holder for flashlights comprising a threaded shell removably attachable to a flashlight casing, a wall intermediate the ends of said shell providing a spare lamp compartment, lamp holding means carried by said wall, and a removable cap closing said compartment.

2. A spare lamp holder for flashlights comprising a tubular member threaded adjacent its opposite ends to respectively fit a threaded portion of a flashlight casing and a threaded portion of a cap for such casing, and spare lamp carrying means within said member.

3. An attachment for holding spare lamps for flashlights comprising, in combination, a member having means whereby one part thereof may be connected to a flashlight casing and whereby the cover of such casing may be connected to another part of said member, and spare lamp supporting means carried by said member.

4. A combined end cap and spare lamp holder for flashlights comprising, in combination, a shell having means for coupling it to a flashlight casing, spare lamp holding

means in said shell, means in said shell arranged to bear against the bottom of a battery in said casing, and a cover for said shell.

5 5. A spare lamp holder for flashlights comprising, in combination, a shell having threads for coupling it to a flashlight casing, spare lamp holding means in said shell, and conductive means secured in said shell and arranged to engage the bottom of a battery in said casing whereby said means is in circuit with said shell and battery and bears against the latter to hold it in place.

10 6. An attachment for flashlights comprising a tubular member having means whereby one end thereof may be detachably connected to a flashlight casing, a cap detachably connected to the other end thereof, the arrangement being such that said cap and member may be detached from said casing as a unit and said cap may be detached from the assemblage without detaching said member from said casing, and a wall intermediate the ends of said tubular member adapted to form a spare-part-receiving compartment between said wall and said cap.

20 7. The combination with a flashlight casing open at the rear end thereof for the insertion and removal of a battery, and a cap normally attachable to said casing and adapted to close such open end, of receptacle means for a spare part or the like comprising a tubular shell having means at its opposite ends whereby it may be interposed between the rear end of said casing and said cap, and means within said shell and intermediate the ends thereof for supporting such spare parts or the like.

30 8. A pocket flashlight comprising the combination with the usual flashlight casing open at the rear end thereof for the insertion and removal of a battery, the spring adapted to retain the battery in place and the cap normally attachable to said casing and adapted to close such open end and cooperate with said spring, of receptacle means for one or more spare lamps or the like, comprising a tubular shell having an exteriorly knurled portion, an interior shoulder, and threaded at its opposite ends whereby it may be interposed between and detachably secured to said cap and to the rear end of said casing, a mounting plate fitting loosely in said shell and held against said interior shoulder by said spring and adapted to cooperate with said cap and shell to form a compartment, and spring clips secured to said mounting plate and projecting into said compartment and arranged to carry one or more spare lamps or the like in a position with the axes thereof substantially parallel to the plane of said plate.

55 9. A spare lamp holder for flashlights comprising a threaded shell adapted to be removably coupled to a flashlight casing,

and spare lamp holding means comprising a spare lamp carrier mounted in said shell and conductive means engaging said lamp carrier and arranged to engage the bottom of a battery to hold the latter in place in said casing.

10. A spare lamp holder for flashlights comprising a shell attachable to a flashlight casing and having a recess, and spare lamp holding means carried by said shell and having a part thereof projecting into and retained in said recess.

11. A spare lamp holder for flashlights comprising a threaded shell attachable to a flashlight casing, lamp holding means carried by said shell, and means in said shell for retaining said lamp holding means in place and adapted to bear against the bottom of a battery to retain it in place in said casing.

12. A spare lamp holder for flashlights comprising a threaded shell removably attachable to a flashlight casing and having a groove, lamp holding means in said shell, and means engaging in said groove to retain said lamp holding means in place and adapted to bear against and retain a battery in place in said casing.

13. A spare lamp holder for flashlights comprising a shell having means at one end for detachably coupling it to a flashlight casing, said shell having an interior groove, spare lamp holding means comprising a plate having a portion fitting in said groove, and a spring bearing against said lamp holding means and adapted to bear against the bottom of a battery in said casing.

14. A spare lamp holder for flashlights comprising a threaded shell adapted to be detachably coupled to a flashlight casing, said shell having an interior groove, a mounting plate having a portion fitting in said groove, and lamp holding means secured to said plate.

15. A spare lamp holder for flashlights comprising a shell having means at one end for detachably coupling it to a flashlight casing, said shell having a groove, a mounting device having a portion fitting in said groove, lamp holding means carried by said device, and a removable cap cooperating with said device to form a lamp enclosing compartment.

16. The combination with a flashlight comprising a battery and a casing therefor, of a spare lamp holder comprising a shell attachable to said casing, spare lamp holding means in said shell, and means bearing against said lamp holding means and against the bottom of said battery to hold the latter in place.

17. The combination with a flashlight comprising a battery and a casing therefor, of a spare lamp holder comprising a shell attachable to said casing, spare lamp hold-

ing means in said shell, and a conductive battery-supporting member bearing against said lamp holding means and engaging the bottom of said battery.

18. The combination with a flashlight comprising a battery and a casing therefor, of a spare lamp holder comprising a shell attachable to said casing, spare lamp holding means in said shell, and a spring bearing against said lamp holding means and against the bottom of said battery.

19. A spare lamp holder for flashlights comprising a plate fitting within a flashlight and U-shape spring clip means carried by said plate.

20. The combination with a flashlight, of a spare lamp holder therein comprising a plate disposed substantially coaxial with

said flashlight, and resilient spare lamp holding means carried by said plate.

21. In a flashlight, the combination with a battery and an electric lamp in circuit therewith, of a flashlight casing housing the battery, and a spare lamp carrier in the casing comprising a supporting member, and two spare lamp holders mounted on the supporting member at opposite sides of the casing and arranged to hold two spare lamps side by side with their axes extending in opposite directions and at opposite sides of the casing axis, whereby the base and bulb of one lamp are located opposite the bulb and base, respectively, of the other.

In testimony whereof, I affix my signature.

LEE J. VOORHEES.