

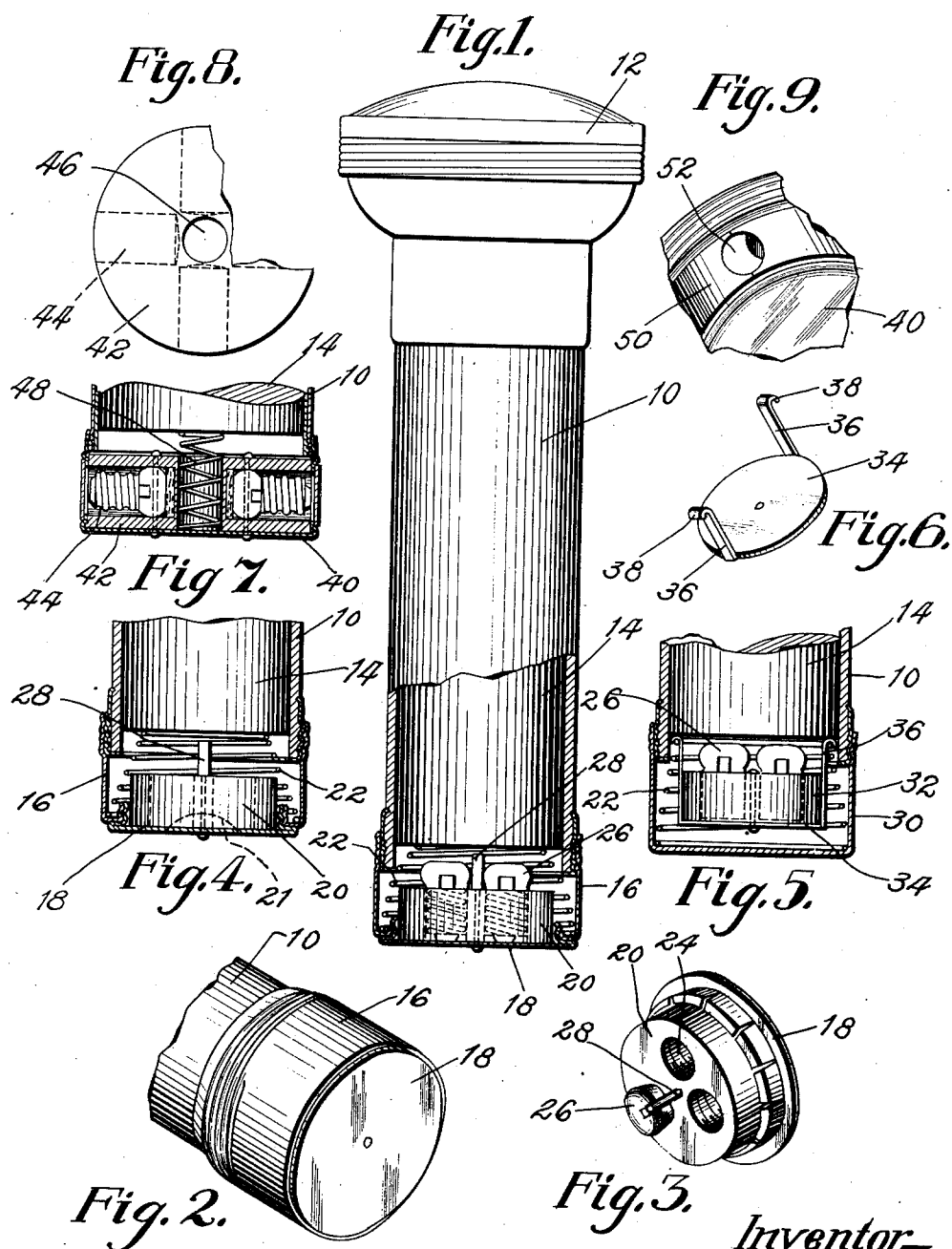
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C. TURNER

ELECTRIC FLASH LIGHT

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Inventor—
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ELECTRIC FLASH LIGHT.

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To all whom it may concern:

Be it known that I, CAMERON TURNER, a citizen of the United States, and resident of Beverly, in the county of Essex and State of Massachusetts, have invented certain Improvements in Electric Flash Lights, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to flashlights, and is illustrated as embodied in a well-known type of hand flashlight or torch employing dry batteries.

As flashlights of this character become more and more a necessity, to automobilists and others, the inconvenience caused by burning out or breakage of the bulb becomes constantly greater, and attempts have been made to provide for carrying one or more spare bulbs. Heretofore such spare bulbs have not been held firmly enough to withstand the rough usage given to flashlights of this type, and moreover the special receptacles heretofore provided add undesirably to the length of the flashlight casing.

One object of the present invention is to obviate the latter difficulty by providing a compact arrangement for carrying one or more spare bulbs. From this point of view the invention may be regarded as comprising a casing carrying the usual light on one end, a battery within the casing, a cap on the other end of the casing, and a spring engaging the cap and urging the battery forward, together with a spare-bulb carrier nested within the spring in such a manner as in no wise to render it necessary to increase the over-all length of the casing. A bumper may be provided to prevent injury to the bulb in case the spring is excessively compressed. Conveniently the carrier may be mounted on an auxiliary cap seated within an outer annular cap to permit removal of the carrier without disturbing the spring or battery.

A further object of the invention is to provide for firmly holding the bulbs to prevent breakage. This is accomplished by providing one or more threaded sockets in a carrier, e. g. such as described above, to receive the threaded stems of the spare bulbs. I prefer to arrange such sockets with their axes parallel to the axis of the casing, so

that most of the jars and strains will come longitudinally of the bulbs. According to one feature of the invention, from this point of view, the bulb-carrier is made of resilient or elastic material, as for example rubber, which acts as a cushion.

From another point of view, the invention may be regarded as contemplating the use of improved means for holding a plurality of spare bulbs. As will be clear from the drawings, a plurality of sockets is arranged symmetrically about the axis of the casing and spring.

Other objects and features of the invention, including improved constructions and novel combinations of parts, will be apparent from the following description of several embodiments of my invention illustrated in the accompanying drawings, in which:

Fig. 1 is a view, partly in side elevation and partly in section, showing a first modification;

Fig. 2 is a perspective view of the end of the flashlight shown in Fig. 1;

Fig. 3 is a perspective view of the auxiliary cap carrying the spare-bulb carrier of Fig. 1;

Fig. 4 is a sectional view of the end of a second modification;

Fig. 5 is a similar sectional view of a third modification;

Fig. 6 is a perspective view of the support for the spare-bulb carrier of Fig. 5;

Fig. 7 is a sectional view of the end of a fourth modification;

Fig. 8 is a partial plan view of the spare-bulb carrier of Fig. 7; and

Fig. 9 is a partial perspective view showing the means for removing the spare bulbs of Fig. 7.

The flashlight in each modification comprises a casing 10, which may be formed of fiberboard or metal in the usual way, and which carries a light in an enlarged end 12. The light carries a terminal, and a battery 14 within the casing has a corresponding terminal and is yieldingly urged forward to keep the terminals in contact. These parts of the flashlight may be of any suitable form and are illustrated as ordinarily constructed in commercial flashlights.

In the modification illustrated in Figs. 1, 2, and 3, the end of the casing 10 is closed by a screw cap 16 of annular shape and an

auxiliary cap 18, on which is mounted a cylindrical spare-bulb carrier 20, frictionally seats therein. I prefer that the bulb carrier be made of elastic or resilient material, such as rubber, felt, etc., which will cushion the bulbs against shocks and jars. A battery-engaging member, such as a coil or helical spring 22, or an equivalent hollow spring, surrounds carrier 20 and engages the annular cap 16. This spring urges the battery forward in the casing in the usual way. The carrier 20 is provided with a series (e. g. three) of sockets 24 arranged symmetrically about the axis of the casing and spring. Each socket is threaded, firmly to hold the threaded stem of a spare bulb 26. A bumper 28 prevents the bulbs from being injured if spring 22 is excessively compressed.

The modification shown in Fig. 4 is like that shown in Fig. 1 except that the auxiliary cap 18 is screw-threaded in place in the annular cap 16. To facilitate its removal, it may conveniently be provided with a transverse slot 21 to receive the edge of a coin.

In the modification illustrated in Fig. 5, a single threaded cap 30 is provided, and the spare-bulb carrier 32 is mounted on a support 34 having arms 36 terminating in hooks 38 (Fig. 6) to hook over spring 22. In this modification the bulbs are yieldingly supported. Carrier 32, like carrier 20, is provided with several (e. g. three) threaded sockets arranged symmetrically about the axis of spring 22 and casing 10.

In the modification shown in Figs. 7, 8, and 9, a screw cap 40 carries a spare-bulb carrier 42 formed with a series of radial sockets 44 symmetrically arranged about its axis. A central hole 46 is provided for a spring 48, which has the same function as the above-described spring 22. A ring 50 surrounding cap 40 has a hole 52 which can be brought into registration with any one of the sockets 44. Sockets 44 are not screw threaded, the bulbs resting on pieces of felt at the bottoms of the sockets.

While various forms of my invention have been illustrated and described, it is not my intention to limit its scope thereby, or otherwise than by the terms of the appended claims.

I claim:

1. A flashlight comprising, in combination, a cylindrical casing, a cylindrical battery in the casing, an annular cap over the end of the casing, a helical spring engaging the cap and urging the battery forward in the casing, a spare-bulb carrier nested within the spring, and an auxiliary cap carrying the spare-bulb carrier and seated within the annular cap to be separately removable.

2. A flashlight comprising, in combina-

tion, a cylindrical casing, a cylindrical battery in the casing, an annular cap over the end of the casing, a helical spring engaging the cap and urging the battery forward in the casing, and an auxiliary cap seated in the annular cap and having a support for a spare bulb within the helical spring.

3. A flashlight comprising, in combination, a cylindrical casing, a cylindrical battery in the casing, an annular cap over the end of the casing, a helical spring engaging the cap and urging the battery forward in the casing, and an auxiliary cap seated in the annular cap and having a support for a plurality of spare bulbs arranged within the spring and about the axis of the spring.

4. A flashlight comprising, in combination, a cylindrical casing, a cylindrical battery in the casing, an annular cap over the end of the casing, a helical spring engaging the cap and urging the battery forward in the casing, and an auxiliary cap seated in the annular cap and having a support for a spare bulb within the helical spring, and a bumper to protect the bulb from the battery when the spring is excessively compressed.

5. A flashlight comprising, in combination, a casing, a battery longitudinally movable in the casing, a cap over the end of the casing, a hollow spring engaging the cap and the battery and urging the battery forward in the casing, and a spare-bulb carrier inside the spring and supported by the cap.

6. A flashlight comprising, in combination, a casing, a battery longitudinally movable in the casing, a cap over the end of the casing, a spring engaging the cap and urging the battery forward in the casing, and a spare-bulb carrier within the spring and having a bumper to prevent injury to the bulb when the spring is excessively compressed.

7. A flashlight comprising, in combination, a casing, a battery longitudinally movable in the casing, a cap over the end of the casing, a hollow spring engaging the cap and the battery and urging the battery forward in the casing, and a spare-bulb carrier inside the spring.

8. A flashlight comprising, in combination, a casing, a battery longitudinally movable in the casing, a cap over the end of the casing, a hollow spring engaging the cap and the battery and urging the battery forward in the casing, and a carrier inside the cap formed with a series of sockets for spare bulbs arranged symmetrically about the axis of the spring and casing.

9. A flashlight as defined by claim 8, having the sockets threaded to receive the threaded stems of the bulbs and arranged with their axes parallel to the axis of the spring.

10. A flashlight as defined by claim 8 having the carrier inside of the spring.

11. A flashlight comprising, in combination, a cylindrical casing, a battery in the casing, a cap over the end of the casing, a hollow spring engaging the cap and urging the battery forward in the casing, and a carrier inside of the spring having a threaded bulb socket.

12. A flashlight comprising, in combination, a cylindrical casing, a battery in the casing, a cap over the end of the casing, a hollow spring engaging the cap and urging the battery forward in the casing, and a carrier inside of the spring having a threaded bulb socket with its axis parallel to the axis of the spring and casing.

13. A flashlight comprising, in combination, a cylindrical casing, a battery in the casing, a cap over the end of the casing, a hollow spring engaging the cap and urging the battery forward in the casing, and a carrier inside of the spring having a threaded bulb socket and a bumper to prevent injury to a bulb in the socket when the spring is excessively compressed.

14. A flashlight comprising, in combination, a cylindrical casing having a light at one end, a battery in the casing, a cap over the other end of the casing, a spring engaging the battery and cap and urging the

battery forward in the casing, and a carrier in the longitudinal space defined by the spring between the battery and the end of the cap and mounted on the cap and having a threaded socket for a spare bulb.

15. A flashlight comprising, in combination, a casing, a battery within the casing, a cap on the end of the casing, and a cylindrical spare-bulb carrier and a hollow spring concentrically arranged within the cap with the spring engaging the cap and the battery and urging the battery forward in the casing, the carrier being in the space longitudinally of the flashlight defined by the spring.

16. A flashlight comprising, in combination, a casing, a battery in the casing, a cap for the end of the casing, a coil spring engaging the battery and the cap and urging them apart, and a spare bulb carrier inside of the cap and constructed and arranged to hold a plurality of spare bulbs angularly spaced about the axis of the spring, the carrier being in the space longitudinally of the flashlight defined by the spring.

In testimony whereof, I have signed my name to this specification.

CAMERON TURNER.