

Oct. 26, 1937.

E. H. TOMPKINS ET AL

2,097,222

FLASHLIGHT

Filed May 2, 1936

2 Sheets-Sheet 1

Fig. 1.

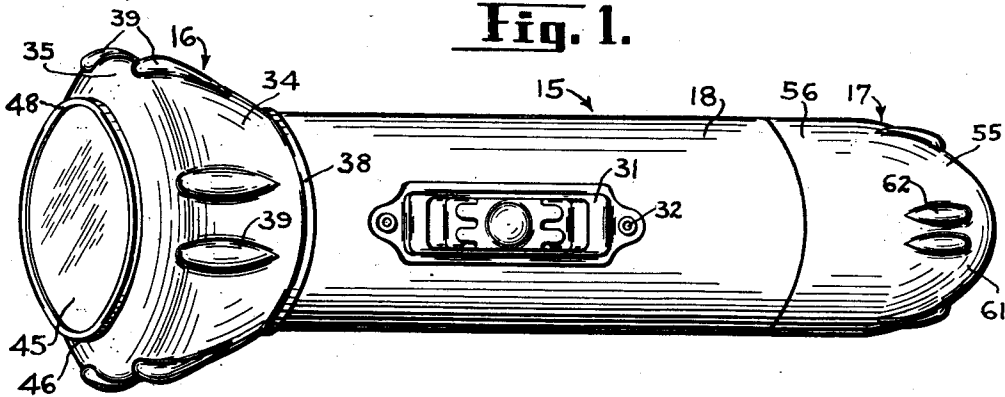


Fig. 2.

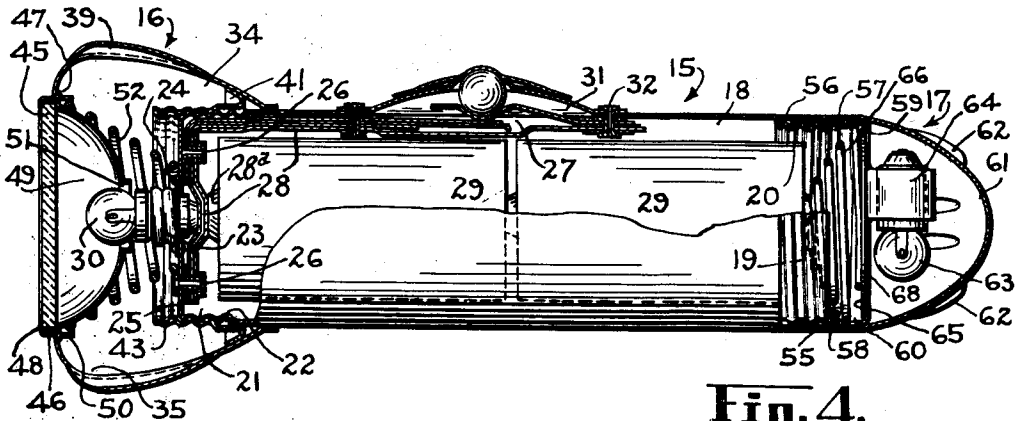


Fig. 3.

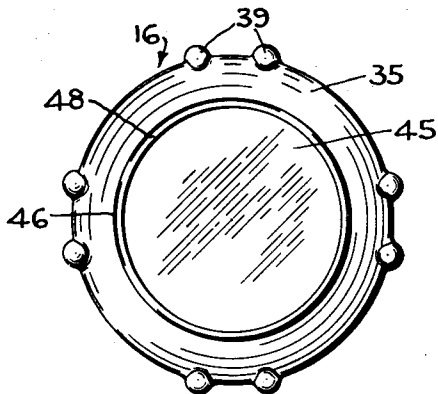
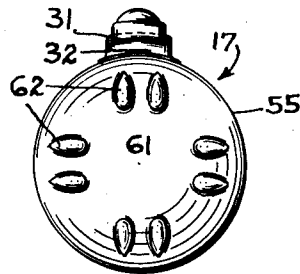


Fig. 4.



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2 Sheets-Sheet 2

Fig. 5.

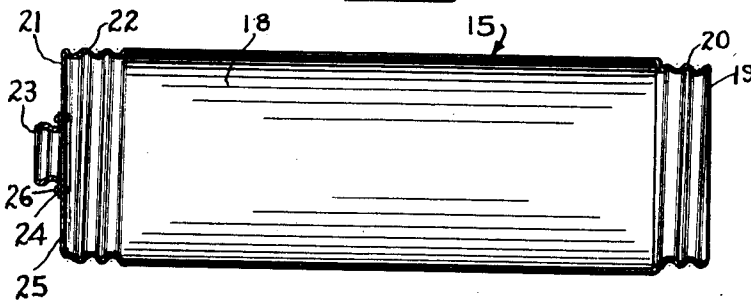


Fig. 6.

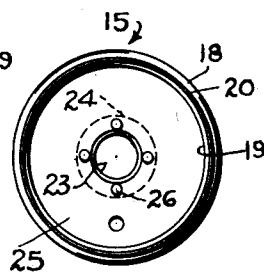


Fig. 7.

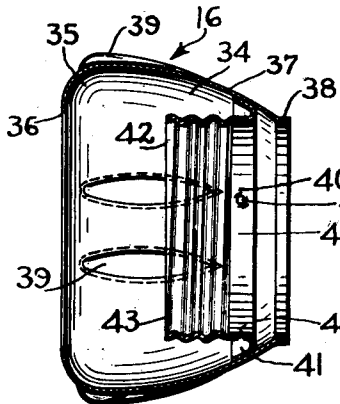


Fig. 8.

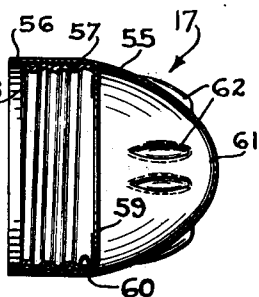


Fig. 9.

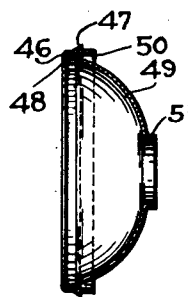


Fig. 12.

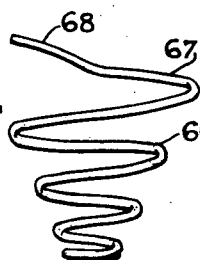


Fig. 13.

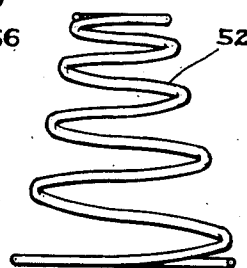


Fig. 10. Fig. 11.

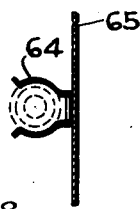
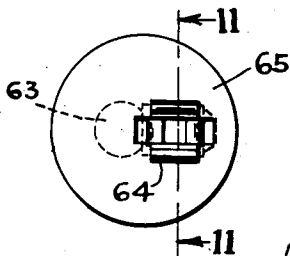
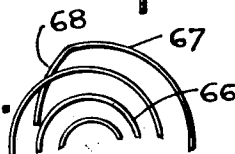


Fig. 14.



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2,097,222

FLASHLIGHT

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Application May 2, 1936, Serial No. 77,579

14 Claims. (Cl. 240—10.66)

This invention relates to electric flashlights of the portable or hand type, and more particularly to such a flashlight in which the head and base of the casing are "streamlined" to reduce the wearing of the pocket of the user, and to facilitate the manipulation thereof.

One object of this invention is to provide a flashlight of the above nature which may be very easily disassembled and assembled, and in which the lens is supported in a shock absorbing mounting.

A further object is to provide a flashlight of the above nature in which the lens, reflector, and associated parts may be removed from the front of the head.

A further object is to provide a flashlight of the above nature having no exterior threaded portions, and having means in the base cap for holding a spare bulb.

A still further object is to provide a flashlight of the above nature which will be simple in construction, inexpensive to manufacture, strong, compact, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view there have been illustrated in the accompanying drawings several forms in which the invention may be conveniently embodied in practice.

In the drawings:

Fig. 1 is a perspective view of a flashlight embodying the features of this invention.

Figure 2 is a longitudinal sectional view of the same.

Fig. 3 is an end view of the head of the flashlight.

Fig. 4 is an end view of the base of the same.

Fig. 5 is a longitudinal sectional view of the flashlight casing.

Fig. 6 is an end view of the same.

Fig. 7 is a longitudinal sectional view of the flashlight head.

Fig. 8 is a similar sectional view of the base cap.

Fig. 9 is a similar sectional view of the front lens holder and reflector in assembled position.

Fig. 10 is a plan view of the spare bulb holding disc.

Fig. 11 is a sectional view of the same, taken on the line II—II of Fig. 10.

Fig. 12 is a side view of the battery-engaging coiled spring employed in the base cap of the flashlight.

Fig. 13 is a side view of the coiled spring employed in the head for pressing against the reflector.

Fig. 14 is a fragmentary bottom view of the coiled spring shown in Fig. 12.

The flashlight selected to illustrate the features of this invention comprises generally a central body unit 15, a head unit 16, and a base unit 17. The body unit 15 (see Fig. 5) comprises a tubular casing or shell 18 having an open rear end 19, which is reduced in diameter and provided with external threads 20, and a closed forward end 21, which is likewise threaded at 22. A lamp bulb receiving socket 23 having a flange 24 is secured to the upper wall 25 of the forward end 21 of the shell 18 by four tubular rivets 26. A manually operated electric switch 27 and a conductor structure 28 are provided, whereby the upper contact 28a of the battery 29 of dry cells may be connected when desired to a lamp bulb 30 disposed in the socket 23. The switch 27 is housed in a domed escutcheon plate 31, suitably secured to the shell 18 as by tubular rivets 32. The particular construction of the switch and conductor is similar to that disclosed in the prior patent to Joseph F. Moran, No. 1,874,788 of August 30, 1932.

Head unit

The head unit 16 includes a pear-shaped cap member 34 which is circumferentially enlarged or bulged outwardly toward the forward end, as at 35, and is provided with a circular front opening 36. The cap 34 has an inwardly tapered rear section 37 terminating in a short cylindrical neck 38 which is adapted to freely encircle the closed forward end 21 of the shell 18. The enlarged forward end 35 of the cap 34 is provided with a plurality of longitudinal substantially bullet-shaped ribs 39, which are pressed outwardly and are herein shown as arranged in four pairs, each pair being spaced apart at substantially 90 degrees from its adjacent pair.

In order to detachably secure the head unit 16 to the shell 18, provision is made of a cylindrical screw sleeve 40 disposed within the rear portion of the cap member 35 and spaced forwardly from the neck portion 38 thereof. The interior screw sleeve 40 is secured to said shell 18 by the instrumentality of an integral outwardly inclined forwardly extending flange 41 soldered or otherwise secured to said cap member. The sleeve 40 has threads 42 rolled into its forward portion 43, which threads are adapted to engage with the threads 22 of the body shell 18, whereby the cap 35 may be connected to the shell 18 and adjusted longitudinally relatively thereto whenever desired. The screw sleeve 40 is provided with an unthreaded rear cylindrical section 40a having a

plurality of inwardly extending nubs 40b for the purpose of frictionally engaging the threaded front section 22 of the central casing 18 to hold the head securely in any desired adjusted position thereon.

A flat glass lens 45 is held at the front of the head unit by means of a resilient holding ring 46 having an annular rib 47 provided upon its periphery disposed substantially intermediate its ends. The ring 46 also has an inwardly directed front bezel flange 48 for engaging the edge of the lens 45 to retain it in position. By means of the above construction, it will be seen that by pushing the lens inwardly and then twisting and slightly distorting the ring 46 elliptically, the lens and holding ring may be removed from the head unit 16. The ring is of such diameter that it loosely fits the circular front opening 35 in the cap 34 and extends partly therethrough with the annular rib 47 abutting the inner surface of the cap 34 surrounding the opening 36. Provision is also made of a reflector 49 having an outwardly projecting annular flange 50 fitted within the ring 46. The front surface of the reflector flange 50 is adapted to engage the inner face of the glass lens 45 for maintaining the front face thereof in contact with the flange 48 of the holding ring 46.

The reflector 49 is provided at its inner end with a cylindrical rear collar 51 of sufficient diameter to clear the bulb 30 when the cap 34 is longitudinally moved relatively to the central shell 18, and by adjusting the position of the head with respect to the shell, the reflected beam of light may be controlled as desired.

A tapered coiled compression spring 52 is also provided with its large diameter end engaging the rear of the reflector 49, and with its smaller end engaging the closed front face 21 of the shell 18. The several parts of the head unit 16 will thus be detachably maintained in assembled position, and sufficient frictional force will be exerted between the cooperating threads 22 and 42 on the shell 18 and the sleeve 39 respectively to hold the head in its adjusted position without looseness. The above arrangement thus provides a cushioned or shock absorbing structure whereby the possibility of breakage will be reduced.

Base unit

The base unit 17 includes a cap 55 having a cylindrical forward portion 56 of the same diameter as the shell 18 and having soldered therein a screw sleeve 57, the threads 58 of which are adapted to fit the external threads 20 on the rear end of the shell 18. The screw sleeve 57 also has an inwardly directed flange 59 at its rear end which is spaced from the threaded portion thereof by a short cylindrical section 60. The base cap 17 has a dome-shaped rear end 61 provided with a plurality of bullet-shaped raised ribs 62. As in the case of the ribs 39 on the head unit, the ribs 62 are arranged in four pairs spaced apart about the cap 55 at 90 degree intervals. The dome-shaped end 61 of the base cap 55 forms a convenient means for housing a spare bulb 63, the bulb 63 being carried in the first form shown in Figs. 2 and 11 by means of a U-shaped spring clip 64 mounted upon a disc 65. The edge of the disc 65 is held against the inturned flange 59, with the clip 64 and spare bulb 63 extending into the dome-shaped end 61, by a tapered coil compression spring 66.

The spring 66 is so shaped that its largest rear

coil 67 will snap behind the threads 58 of the screw sleeve 57 and expand into the annular recess formed by the short cylindrical section 60. The spring 66 will thus be removably secured in position and will prevent said disc and spare bulb 63 from falling out when the base cap 17 is removed as a unit from the flashlight casing 18. As shown in Fig. 12, the bottom end portion 68 of the spring 66 is bent downwardly and inwardly from its true spiral form, whereby when the spring is compressed, as shown in Fig. 2, between the rear end of the battery 29 and the disc 65, the bent end 68 will strongly engage the disc 65, thus insuring a tight engagement thereof with the adjacent flange 59 of the screw sleeve 57. The spring 66 also serves as a conductor for electrically connecting the rear terminal of the battery 29 with the lamp circuit and said spring maintains the front battery terminal 28a in tight contact with the conductor structure 28.

One advantage of the improved flashlight herein described is that no threads are visible from the exterior of the casing. Moreover, the arcuately domed casing of the switch 27 and the streamlined head cap 34, and the base cap 55 give a pleasing appearance to the flashlight and facilitate the convenient use thereof. Of particular importance is the fact that there are no irregular surfaces or abrupt edges which might result in discomfort to or wear the pocket of the user.

The ribs 39 and 62 on the head and base units 16 and 17 respectively, in addition to enhancing the ornamental appearance of the flashlight, provide stiffening means for strengthening its structure, the ribs 39 serving to prevent rolling of the flashlight when it is placed upon an inclined surface. The ribs 39 and 62 also provide finger grips to facilitate the manual turning of the head and base units relatively to the shell 18. The springs 52 and 66 serve to frictionally hold the cap and base firmly in position, as well as forming shock absorbing means to prevent breakage of the parts thereof. The front coiled spring 52 normally presses the glass lens unit forwardly, but is adapted to yield rearwardly whenever pressure is applied thereto. By the distortion of the resilient lens holding ring 46 "out of round", the lens 45, the ring 46, and the reflector 49 may be easily removed from the head cap 34 without unscrewing the head unit or disturbing the battery cells 29 or base cap 55 in any way. By extending the ring 46 outwardly from the cap 34 and providing the flange 48 in front of the lens 45, the latter is protected from breakage by accidentally striking against external objects.

While there has been disclosed in this specification several forms in which the invention may be embodied, it is to be understood that these forms are shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosures but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention, what is claimed as new and for which it is desired to secure Letters Patent is:

1. In a flashlight, a cylindrical casing provided with a threaded front end, a hollow head for attachment to said end and adjustable thereon, said head having a forwardly diverging flared

rear end, a casing attaching sleeve secured within the rear smaller end of said head and extending therinto in spaced relation therewith, said attaching sleeve being threaded for detachable engagement with the head-carrying end of said casing, and said head having at its rear end a smooth sleeve portion adapted to over-lie a section of the casing adjacent the threaded end to conceal the threads thereof.

2. In a portable flashlight, a casing having a threaded front end, a hollow shell adjustable on said casing and having a circular forward opening, a lens retained within said opening, a cylindrical threaded sleeve within said shell having means for permanent attachment to the smaller rear end of said shell, said sleeve having portions projecting from the surface thereof to effect an adjustable frictional engagement between said head unit and said casing to retain said head at any desired adjusted focal position.

3. In a portable flashlight, a hollow head cap open at both ends, a lens and a lens-holding ring disposed in the front opening of said cap, said ring having laterally extending means to engage the edge of said front opening to prevent said ring from passing therethrough, said ring having rearwardly extending means behind said laterally extending means, a reflector behind said lens, a coiled spring behind said reflector, said reflector and coiled spring being interfitted with and centralized by said rearwardly extending means.

4. In a portable flashlight, a cylindrical casing having a closed end and provided with a threaded front portion, a head cap open at both ends and having a flaring forwardly diverging rear end, a threaded sleeve secured within the rear end of said cap and adapted to screw upon the front portion of said casing, a lens-holding ring fitted into the forward open end of said cap and having outwardly projecting means for engaging the inside wall of said shell, a reflector behind said lens, a coiled spring seated on the closed end of said casing for holding the reflector and lens-holding ring in position in the head shell, the rear portion of said ring and the adjacent portion of said reflector defining an annular groove for the reception of the forward end of said spring.

5. In a flashlight, a substantially cylindrical body casing, a hollow head cap detachably secured to the front of said shell, said head cap being enlarged and adjustably mounted on said casing to permit the focus of the flashlight to be varied, a cylindrical sleeve member located within said head cap and spaced inwardly therefrom for detachable engagement with one end of said body casing, said sleeve member having an outwardly-inclined flange permanently secured to the inner surface of said enlarged head cap.

6. In a flashlight having a casing, a hollow head cap for attachment to the front of said casing, said head cap having a forwardly diverging flared rear end, a casing attaching sleeve disposed within and spaced from the inner wall of said head cap, said sleeve secured within said head cap and being adjustable along the front end of said casing to vary the focus of the flashlight.

7. In a portable flashlight, a cylindrical casing for carrying a battery and an electric lamp adapted to be supplied with current from said battery, said casing having a switch for controlling the circuit through said lamp and battery, a longitudinally convex smooth escutcheon

enclosing said switch, and a longitudinally convex manually-operated switch-actuating member slidable over the smooth surface of said escutcheon and movable towards the axis of the flashlight for closing said switch.

8. In a portable flashlight, a cylindrical casing for carrying a battery and an electric lamp adapted to be supplied with current from said battery, said casing having a switch for controlling the circuit through said lamp and battery, a longitudinally convex smooth escutcheon enclosing said switch, and a manually-operated switch-actuating member slidable over the smooth surface of said escutcheon and movable inwardly toward the axis of the flashlight to close said switch.

9. In a flashlight, a cylindrical central shell having a reduced threaded rear section, a hollow base cap having a cylindrical open section fitting over said reduced rear section, said base cap having an interior screw sleeve within said cylindrical section and adapted to engage the threads of said reduced rear section, the exterior surface of said cap being flush with said central shell and the threads of said shell being concealed by said base cap, said cap having a smooth unthreaded collar extending beyond said sleeve.

10. In a flashlight, a battery holding casing, a hollow base cap telescoped over the base end of the casing, a threaded section secured in the open end of the cap and extending a short distance therinto toward the closed end of the cap to provide a closed compartment in the end of the cap for the reception of a spare bulb for the flashlight.

11. In a portable flashlight, a casing having a threaded front end, a hollow shell adjustable on said casing and having a circular forward opening, a lens retained within said opening, a cylindrical threaded sleeve within said shell having means for permanent attachment to the smaller rear end of said shell, said sleeve and casing having interengaging portions to effect an adjustable, frictional engagement between said head unit and said casing to retain said head at any desired focal position.

12. A flashlight comprising a battery box shell having a forward end provided with an exterior thread, a head unit comprising a hollow shell having a forward light transmitting opening and a side wall defining a forwardly diverging flared rear end encircling the forward end of the box shell and merging substantially smoothly with the main body of the box shell rearwardly of said forward end, a cylindrical sleeve supported within the head shell and having a thread with which the thread of the box shell engages to hold the parts adjustably assembled to permit variation of the focus of the flashlight, and an end cap comprising a shell having an exterior surface merging substantially smoothly with the exterior surface of the box shell, the end cap shell and the box shell being united by a threaded extremity on one of said shells, and a cooperating threaded sleeve fitting within the end of the other shell and shorter than the same and within which sleeve the threaded extremity telescopes.

13. In a flashlight, a casing unit, a hollow base cap unit telescoped with the rear end of the casing unit, the outer telescoped unit having a smooth unthreaded exterior surface, a screw threaded sleeve carried within the outer telescoped unit, and the inner unit having a screw threaded portion engaging the sleeve to hold the units together, said base cap unit having a hollow spare

bulb chamber extending beyond the telescoped parts of the units.

14. In a flashlight having a casing, a hollow head cap for attachment to the front of said casing, said head cap having a forwardly diverging
5 flared rear end, a casing attaching sleeve disposed within and spaced from the inner wall of said

head cap, said sleeve secured within said head cap and being adjustable along the front end of said casing to vary the focus of the flashlight, said head cap having an integral inturned forward lens-holding end.

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DISCLAIMER

2,097,222.—*Emerson H. Tompkins* and *Donald L. Spender*, Waterbury, Conn. FLASH-LIGHT. Patent dated October 26, 1937. Disclaimer filed October 3, 1940, by the assignee, *Scovill Manufacturing Company*.

Hereby enters this disclaimer to claims 1, 5, 6, 9, 11, 13, and 14 of said Letters Patent.

[*Official Gazette October 29, 1940.*]

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