

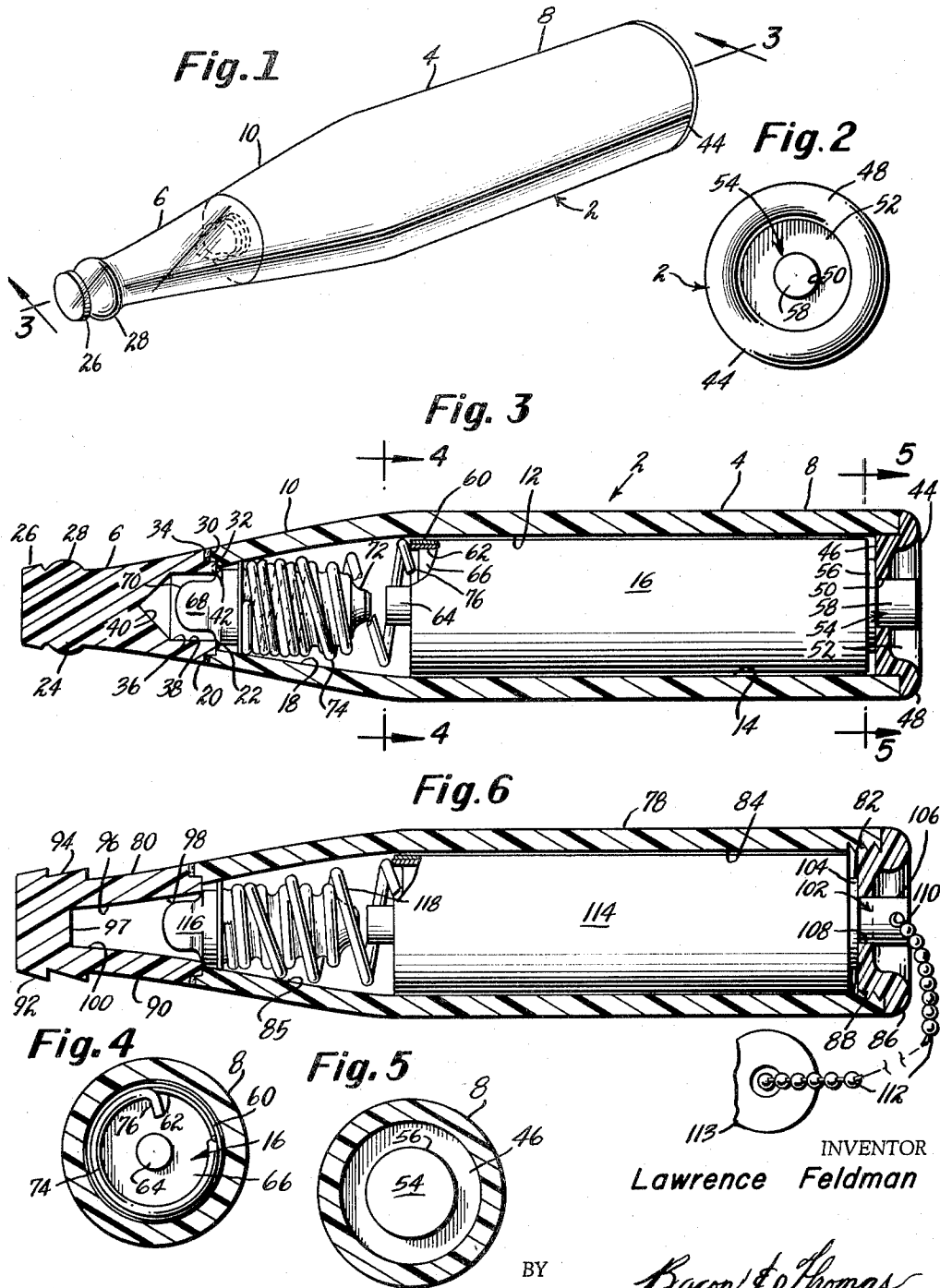
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POCKET FLASHLIGHT

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1

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POCKET FLASHLIGHT
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This invention relates generally to flashlights, and more particularly to an improved, small, bottle-shaped pocket flashlight having a minimum number of structural components, and constructed to provide good light diffusion, and to be especially adaptable for use as an advertising novelty item.

The pocket flashlight of the present invention is constructed from easily fabricated components, and hence is both compact and economical to manufacture. One of the problems frequently associated with small flashlights of the pocket or penlight type is that the light diffusion characteristics thereof are usually less than is desirable. The unique construction of the bottle-shaped flashlight of the invention provides good light diffusion, without the use of complicated or difficult to manufacture components.

The present flashlight is preferably constructed of a plastic material, and includes a substantially rigid body having a battery receiving bore therein. A dome constructed of transparent plastic material is secured to project forwardly from said body, and has a recess therein for receiving the filament-end of a flashlight bulb, whereby said filament-end projects axially beyond the forward end of the body. It has been found that this arrangement, coupled with the unique configuration of the transparent dome, results in a compact pocket flashlight having superior light diffusion characteristics.

The flashlight bulb has a threaded base that is received within the forward end of the flashlight body, and one end of a coiled spring is engaged thereabout. The other end of the coiled spring normally extends beyond the base of the bulb and into engagement with the end of the casing of a battery disposed within the flashlight body, and functions to keep the bulb spaced from the battery while establishing electrical contact therewith.

The end of the flashlight body opposite the dome has a cover secured therein, and the operating shaft of a floatingly mounted pushbutton projects through a bore in said cover; the inner end of the floating pushbutton is positioned between the bottom of the battery and the inner face of the cover. The flashlight is operated by merely depressing the shaft of the floating pushbutton, which moves the battery forwardly in the flashlight body, against the strength of the coiled spring, into engagement with the base of the bulb to establish electrical contact; when the pushbutton is released, the spring returns it and the battery to their initial positions.

In the flashlight construction of the invention, the transparent dome can assume configurations different from those normally associated with flashlight lenses. Thus, the pocket flashlight of the invention can assume the configuration of a soft drink bottle, or the like. This makes the flashlight of the invention ideally suited as an advertising novelty item, especially for use by companies which bottle soft drinks.

In another embodiment, the present flashlight is provided with a key chain, for use as a combined pocket flashlight and key holder. The casing is especially constructed to provide the structural integrity required for this use, and the advertising novelty characteristics of the invention are enhanced by the addition of the key chain.

It is an object of this invention to provide a compact flashlight which has good light diffusion characteristics, and which can be economically constructed.

2

Another object is to provide a compact flashlight constructed in a manner to simulate a bottle.

A further object is to provide a flashlight incorporating a minimum number of structural elements.

It is also an object to provide a flashlight dome constructed to diffuse the light from a flashlight bulb over a fairly wide angle of view.

A further object is to provide a compact flashlight capable of being carried in one's pocket, and incorporating means to hold a plurality of keys or the like.

Another object is to provide a bottle-shaped flashlight especially suitable for use as an advertising novelty item for bottlers of soft drinks and the like.

Other objects and many of the attendant advantages of this invention will become readily apparent from the following detailed description, when considered in connection with the accompanying drawings, wherein:

FIG. 1 is a perspective view of one embodiment of the bottle-shaped flashlight of the invention;

FIG. 2 is an elevational view of the pushbutton, or bottom, end of the flashlight of FIG. 1;

FIG. 3 is a vertical longitudinal sectional view, taken along the line 3—3 of FIG. 1, showing in detail the construction of the flashlight;

FIG. 4 is a vertical sectional view, taken along the line 4—4 of FIG. 3, showing the manner in which the base of the coiled spring engages the top of the flashlight battery;

FIG. 5 is a vertical sectional view, taken on the line 5—5 of FIG. 3, showing the disk portion of the pushbutton in full end elevation; and

FIG. 6 is a fragmentary, vertical, longitudinal sectional view of a modified embodiment of the invention.

Referring now to the drawings, a first embodiment of the flashlight of the invention is indicated at 2, said flashlight having an external configuration simulating that of a conventional capped soft drink bottle, or the like. The flashlight 2 includes a body 4 and dome 6, the body preferably being constructed from an opaque, substantially rigid plastic material, and the dome 6 being constructed from a transparent plastic material, such as Lucite.

The flashlight body 4 includes a cylindrical base portion 8 and a relatively short, downwardly tapering neck portion 10, and has a bore 12 extending therethrough. The bore 12 includes a cylindrical aft portion 14 of a diameter to readily receive a flashlight battery 16, and a downwardly tapering, relatively short forward portion 18; the cylindrical aft portion 14 has a length greater than that of the battery 16, whereby the latter can shift axially a short distance. The front end face 20 of the body 4 has an annular, rectangular in cross-section socket 22 therein for the reception of the aft end of the dome 6.

The flashlight dome 6, or lens, has a configuration similar to that of the neck of a soft drink bottle, or the like, and tapers downwardly from its aft end toward a generally cylindrical forward end, or tip 24; the neck portion 10 on the body 4 and the aft end of the dome 6 have corresponding tapers, whereby a smooth transition occurs between the body 4 and the dome 6. The cylindrical end 24 of the dome 6 has a relatively short, annular ring 26 at the end thereof, and a relatively long, annular ring 28 positioned immediately adjacent said annular ring 26; the annular rings 26 and 28 are rounded in profile, and the ring 26 is preferably shaped to simulate the cap or stopper of a bottle.

The rear face 30 of the flashlight dome 6 has an annular, cylindrical collar 32 projecting rearwardly therefrom, said collar 32 being receivable within the socket 22. Cement 34 is deposited between the confronting, mating

3

surfaces of the dome 6 and the body 4, and functions to secure said two members together.

The flashlight dome 6 has an axially extending, centrally positioned recess 36 therein, disposed to confront the bore 12 in the flashlight body 4. The recess 36 includes a cylindrical portion 38 and a conical, forward portion 40, the entrance 42 to the cylindrical portion 38 being chamfered. The recess 36 is intended to receive the filament end of a flashlight bulb, and is shaped to facilitate proper diffusion of light emanating from said bulb.

A cover 44 is press fitted within the aft end of the bore 12, and preferably is constructed of a somewhat pliable plastic material. The cover 44 includes a cylindrical body 46 having a radially directed flange 48 on the aft end thereof, said flange 48 being rounded on its rear face, and having an external diameter corresponding to that of the body 4. The body 46 has a centrally positioned, axially extending opening 50 therethrough, and the rear face of said body has a generally cylindrical recess 52 formed therein about said opening 50.

Disposed within the flashlight body 4 is a floating pushbutton 54, said pushbutton including a disk 56 having an external diameter substantially less than that of the aft bore portion 14. An integral shaft 58 projects rearwardly from the center of the disk 56, and extends through the axial opening 50 in the cover 44. The shaft 58 in FIG. 3 has a length no greater than the axial length of the cover 44, and the recess 52 in the cover 44 is sufficiently deep to insure that when the shaft 58 is depressed, the flashlight will be operated.

Received within the cylindrical, aft bore portion 14 in the body 4 is the flashlight battery 16, said battery being of the conventional type, and including an outer insulative casing 60, an inner metallic casing 62, and a centrally positioned forwardly-extending contact 64; a dielectric material 66 extends between the contact 64 and the outer casing 60.

Received within the aft end of the recess 36 and the front of the forward bore portion 18 is a conventional flashlight bulb 68, said bulb including a filament-containing globe 70 on its forward end, and a threaded, metallic base 72 on its aft end; the base 72 is seated within the forward end of the frusto-conical bore portion 18. The globe 70 and the recess 36 are dimensioned so that the forward end of the bulb 68 will be received within said recess 36, with the bulb projecting forwardly a short distance beyond the forward edge of the body 4. One end of a coil spring 74 is engaged about the threaded base 72, and the other end thereof extends rearwardly into engagement with the battery 16.

The coil spring 74 has a length and strength sufficient to urge the battery 16 against the pushbutton 54, and to insure that the contact 64 on the battery 16 will remain spaced from the base 72 of the bulb 68, except when the floating pushbutton 54 has been depressed. When it is desired to light the bulb 68, the shaft 58 is depressed, causing the battery 16 to shift forwardly within the body 4 against the force of the spring 74. When the contact 64 engages the base 72 on the bulb 68, an electric circuit will be completed from said contact, through the base 72, through the coil spring 74 and back to the metallic battery casing 62. The coil spring 74 is constructed of a conductive material, and the base coil 76 thereof is disposed to contact the metallic casing 62 at least at one point.

The cover 44, as has been mentioned, is somewhat pliable, and the diameter of the cylindrical body 46 thereof is about equal to the diameter of the aft bore portion 14 within the flashlight body 4. Thus, the cover 44 has a press fit within the bore 12, and is held in position by friction forces. The pliable characteristics of the cover 44 help to insure that it will remain in position within the bore 12, and also facilitate removal of the cover when it is desired to change either the battery 16 or the bulb 68.

4

A modified embodiment of the flashlight of the invention is illustrated in FIG. 6, and incorporates a body 78 and a dome 80. The flashlight body 78 and the dome 80 are connected in a manner identical to that described for the body 4 and the dome 6, and the body 78 is identical to the body 4, except that the aft end 82 of the bore 84 therewithin is internally threaded. A cover 86 having external threads 88 thereon is receivable within the threaded bore end 82, and except for said threads 88 is identical to the cover 44.

The dome 80 includes a downwardly tapering rear portion 90, which terminates at its forward end in outer and inner annular rings 92 and 94, respectively. The outer annular ring 92 is axially shorter than the ring 94, and simulates a frusto-conical soft drink bottle cap. The inner annular ring 94 has a greater axial length than the ring 92, and has a downwardly tapering, frusto-conical configuration.

The dome 80 has an axially extending, axially positioned, elongated recess 96 therein, which terminates at its forward end in a radial wall 97, located in the region of the outer annular ring 92. The recess 96 includes a rear tapering portion 98 and a front tapering portion 100, the front tapering portion 100 tapering downwardly uniformly throughout its length; the aft tapered portion 98 has a taper which increases continuously, moving from the front portion 100 to the rear end of the recess 96, and thus has an arcuate profile.

Received within the body 78 is a floating pushbutton 102, including a disk 104 having an integral shaft 106 projecting therefrom through an axial opening 108 in the cover 86. The disk 104, like the disk 56, has a diameter substantially less than that of the bore within which it is received, and the outer end of the shaft 106 has a transverse bore 110 extending therethrough. A conventional key chain 112, or some other suitable holder, is passed through the bore 110, and functions to retain a plurality of keys 113, or other like objects.

A flashlight battery 114 is disposed within the cylindrical portion of the bore 84, and the filament end of a flashlight bulb 116 is received within the aft end of the elongated recess 96, and projects forwardly a short distance from the forward edge of the body 78; the base of the bulb 116 is seated within the forward, frusto-conical portion 85 of the bore 84. A coil spring 118 is positioned to extend between the bulb 116 and the battery 114, and functions in a manner identical to that hereinabove described for the spring 74. The operation of the flashlight embodiment of FIG. 6 is similar to that hereinabove described for the embodiment of FIG. 3.

It will be noted that the external configuration of the flashlights of FIGS. 3 and 6 is that of a bottle. The bodies 4 and 78 are preferably constructed of a rigid, opaque material, whereas the domes 6 and 80 are constructed of a suitable transparent material, such as Lucite. Because of the well-known light diffusing characteristics of transparent materials, such as Lucite, and because of the position of the flashlight bulbs 68 and 116 within their dome recesses, it is possible to shape the transparent domes 6 and 80 to conform to any one of several different configurations, without too greatly affecting the lighting characteristics of the resultant flashlights. This important feature, derived from the unique structure of the present invention, permits the construction of bottle-shaped flashlights for advertising novelty and other uses.

The two domes 6 and 80, while structurally similar, have different light diffusing characteristics. More specifically, the conical recess portion 40 within the dome 6 tends to diffuse light from the bulb 68 over a relatively wide angle, with no significant concentration along the axis of the flashlight. By contrast, the elongated recess 96 and the frusto-conical annular rings 92 and 94 cooperate to diffuse a portion of the light, emanating from the bulb 116, and to focus another portion thereof along the axis of the flashlight to define a spotlight directly in

front of the dome 80. It is apparent that other configurations for the domes of the flashlights of the invention are possible, the forwardly-projecting light bulb in each instance facilitating the obtaining of a desirable diffusion of the light emanating from the flashlight bulbs.

Obviously, many modifications and variations of the present invention are possible in the light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

I claim:

1. A flashlight, comprising: an integral, opaque body made of plastic and having a bore therethrough, said bore being generally cylindrical near the rear end thereof to accommodate at least one flashlight battery and including a downwardly tapering portion at the front end thereof; a transparent, integral dome made of plastic secured to the front end of said body, said dome having a recess therein which is closed at the front end thereof and which has an open rear end positioned to confront said bore, said recess extending axially forwardly from the front end of said body; a bulb, the base end of said bulb being received and seated within the tapered front end of said bore in said body, and at least a portion of the filament-end of said bulb being received within said recess in said plastic dome and projecting beyond the forward end of said body; a coil spring, one end of said spring being in engagement with the base of said bulb, and the other end thereof projecting rearwardly from said base to engage with a battery received within the cylindrical rear portion of said bore, said cylindrical portion being longer than said battery so that said battery can be slid forwardly against the force of said coil spring to engage the base of said bulb; a cover at least partially received and detachably secured within the rear end of said bore, said cover having an axially extending opening there-through; and a pushbutton floatingly received within said bore and including a disk portion disposed between said cover and said battery, and a shaft portion received within and which is of sufficient length to project through said cover opening.

2. A flashlight, as recited in claim 1, wherein said body is constructed of relatively rigid material and said cover is constructed of a relatively pliable material, and wherein said cover fits tightly within said bore and is detachably secured in position by friction, said cover including: a cylindrical portion received within said rear end of said

bore; and an annular flange on the outer end of said cylindrical portion disposed to abut the rear end of said body.

3. A flashlight, as recited in claim 1, wherein said cover includes an axially extending recess in the outer face thereof, said recess being positioned to extend about said opening.

4. A flashlight, as recited in claim 1, wherein said recess in said dome includes a rear, cylindrical, bulb-receiving portion, and a generally conical portion extending forwardly from said cylindrical rear portion.

5. A flashlight, as recited in claim 1, wherein said dome has an external, downwardly tapering, frusto-conical annular ring near the forward end thereof, and wherein said recess in said dome has a generally downwardly tapering, frusto-conical configuration from the rear end to the front end thereof, and terminates at the front end thereof in the region of said annular ring.

6. A flashlight, as recited in claim 1, wherein said integral plastic body includes an externally cylindrical base portion, and a relatively short, downwardly tapering external neck portion, and wherein said dome tapers downwardly from said neck body portion, and has at least one annular ring near the forward end thereof, whereby said body and said dome taken together generally have the external configuration of a bottle.

7. A flashlight, as recited in claim 1, wherein the outer end of said shaft has a transverse bore therethrough, and including additionally: means receivable within said bore, and adapted to retain a plurality of objects.

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