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Nelson et al.

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[45] **June 5, 1973**

[54] **BATON-FLASHLIGHT**

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[73] Assignee: **Kel-Lite Industries, Inc.,** Corvina, Calif.

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[52] **U.S. Cl.**.....**240/6.42,** 240/10.66

[51] **Int. Cl.**.....**F21l 7/00**

[58] **Field of Search** .....240/2 R, 6.42, 10.6 R, 240/10.65, 10.66, 6.4 R

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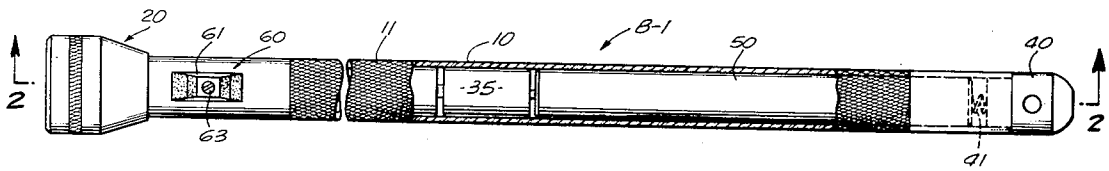
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[57] **ABSTRACT**

A combination baton-flashlight including an elongated metal housing or barrel whose length is at least ten times its diameter, a number of batteries disposed in the housing forming a battery train, and an elongated metallic spacer block in one end of the housing, the spacer block and battery train being coupled in series to form a circuit through which current flows to an associated bulb means.

5 Claims, 8 Drawing Figures



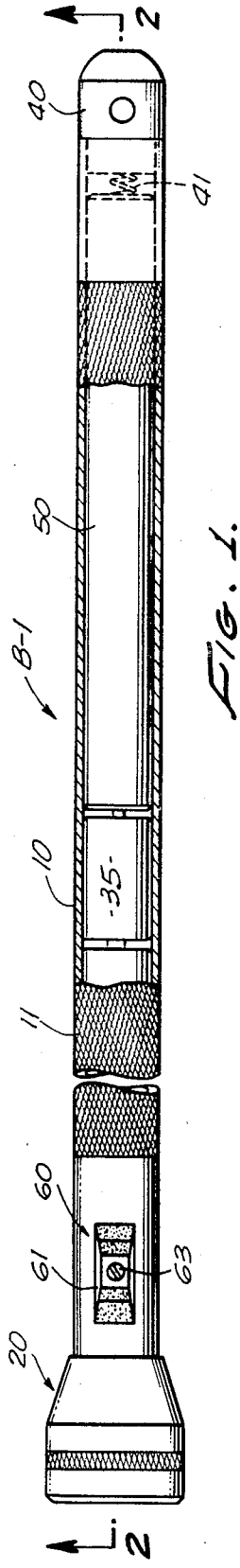


FIG. 1.

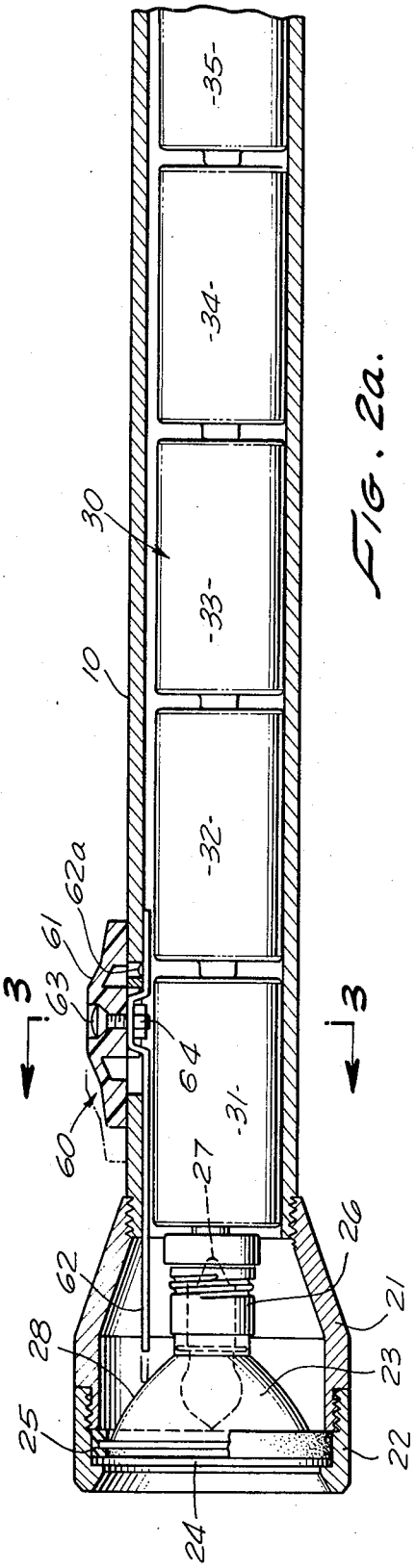


FIG. 2a.

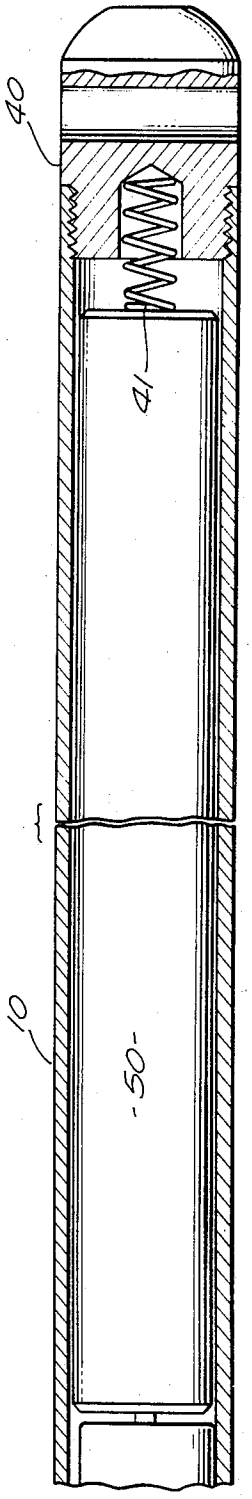


FIG. 2b.

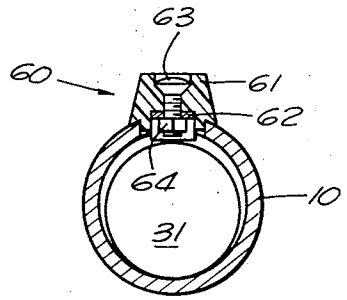


FIG. 3.

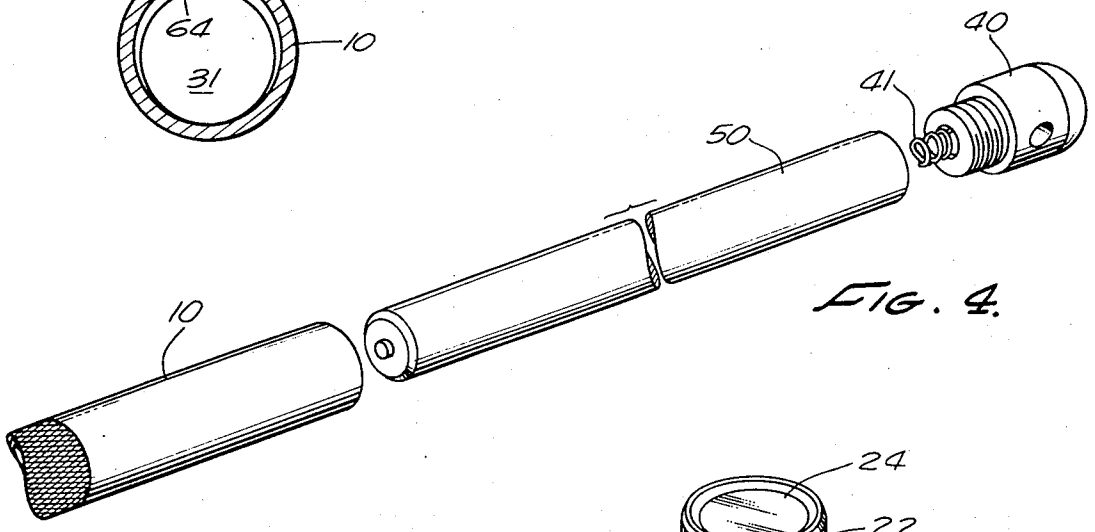


FIG. 4.

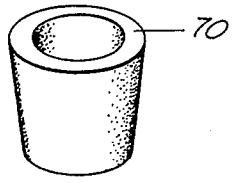


FIG. 5.

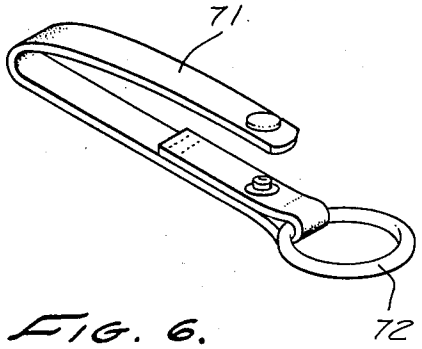


FIG. 6.

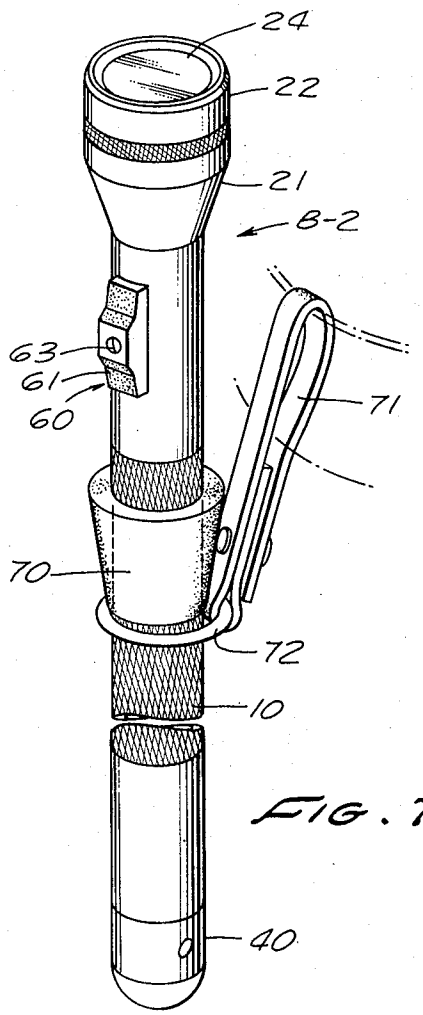


FIG. 7.

BATON-FLASHLIGHT

BACKGROUND OF THE INVENTION

It has heretofore been known to manufacture flashlights of very rugged construction so that they may, for example, be advantageously used in police work. Heavy duty flashlights of this type have heretofore been manufactured by Kel-Lite Industries, Inc. of 1172 East Edna Place, Covina, California, with which the applicants herein have been associated.

The present invention, however, provides an extension in both theory and practice with regard to previously known types of flashlights. The present invention provides an instrument which functions as a baton or billy-club as well as a flashlight. The instrument is particularly well adapted to police work, inasmuch as the policeman can hold the instrument in his hand and use it as a flashlight for viewing purposes, and upon perceiving a need for the use of a billy club or baton he may immediately proceed to use the same instrument in that fashion without having to stop to exchange one instrument for another and without even having to take the time to turn off the switch that controls the illumination.

According to the present invention a hollow, cylindrical, metal housing, or barrel, is utilized which has a total length considerably greater than the length of a series of batteries which will supply the energy for illumination purposes. The interior of the housing or barrel is partially filled with the battery train, but in addition thereto an elongated metallic spacer block is inserted inside the barrel in series with the battery train. The spacer block and the battery train are electrically connected together, so that the current for the illumination flows through both of them in series. Furthermore, when the instrument is wielded as a baton, the spacer block provides both weight and balance which are needed for optimum performance of the baton.

It is, therefore, the object and purpose of the present invention to provide a composite instrument which will function effectively both as a billy-club or baton and also as a flashlight.

DRAWING SUMMARY

FIG. **1** is a side view, partly in cross-section, of a combined police baton and flashlight in accordance with the invention;

FIG. **2***a* is an enlarged cross-sectional view of the forward end portion;

FIG. **2***b* is an enlarged cross-sectional view of the rearward end portion;

FIG. **3** is a transverse cross-sectional view taken on line 3—3 of FIG. **2***a;*

FIG. **4** is an exploded perspective view of the rear end assembly;

FIG. **5** is a perspective view of a support ring;

FIG. **6** is a perspective view of a holding strap and ring; and

FIG. **7** is a perspective view of the upper end of the baton-flashlight with support ring and holding strap.

PREFERRED EMBODIMENT

Reference is now made to FIGS. **1** through **4**, inclusive, illustrating the presently preferred embodiment of the invention. A baton-flashlight B-1 includes an elongated, hollow, matallic housing or barrel **10**, whose length is at least ten times its outside diameter. A forward assembly **20** is attached at one end of the housing or barrel **10**, and a metallic rear end cap **40** is removably attached at the other end.

Contained within the housing or barrel is a battery train **30**, which in the particular illustration includes batteries **31, 32, 33, 34** and **35.** Since it is desired to have the instrument relatively long and narrow, these batteries are preferably of the C size. Also contained within the housing or barrel **10** is a metallic spacer block **50.** The spacer block **50** is preferably a solid, cylindrical block made of aluminum. It has the same outside diameter as the batteries and has a length which is equal to the length of several of the batteries. The spacer block and the battery train are placed in series so that the electrical current flows through both of them serially.

As shown in FIG. **2***b* the rear end cap **40** is threaded for removable engagement with the rearward end of the housing or barrel **10.** End cap **40** also has a recess which receives a spring **41,** which engages the rearward end of spacer block **50** so as to provide electrical conduction between the spacer block **50** and the end cap **40.** An exploded view of the same parts is shown in FIG. **4.**

The construction of forward assembly **20** is best illustrated in FIG. **2***a.* An enlarged metallic head **21** has threads for removable engagement with the forward end of the housing or barrel **10.** A circular, rubber gasket **25** is fitted on the forward end of the head **21.** A lamp and reflector assembly **23,** made as an integral unit, is disposed inside the head **21,** and at the forward and outer extremity of the reflector there is a supporting flange which engages an annular groove in the gasket **25** and is retained in position thereby. A circular lens **24** fits over the forward end of gasket **25.** A circular face cap **22** is screwed on to the forward end of head **21** and hence holds the gasket **25** and lens **24** in place.

The rearward and smaller end of the lamp and reflector assembly **23** contains a bulb and bulb socket, not shown in detail, and these are surrounded by a rubber shock absorber **26.** A first contact **27** protruding from the bottom of the socket (shown in FIG. **2**a in dotted lines) is engaged by the forward end of battery **31** so as to provide an electrical connection therebetween.

The outer metallic surface **28** of the reflector bowl provides a second terminal for the lamp or bulb means, and may be selectively engaged by the forward end of the switching member **62.**

Switch means **60** is located on the housing or barrel **10,** adjacent the forward assembly **20.** The switch means **60** includes a switch cap **61** which for the most part is located external to the housing or barrel **10,** although a small central portion of it protrudes into an opening that is cut in the barrel for that purpose. Switch member **62** is an elongated copper strip which is disposed inside the housing or barrel **10** and occupies the space between the side wall of batteries **31, 32** and the inner side wall of the housing. As previously mentioned, the end of switch member **62** also extends up into the interior of the head **21** where it is able to selectively engage the reflector surface **28.** A small bolt **63** and nut **64** are used to fasten the switch member to the switch cap. Switch cap **61** is made of rubber or other insulating material. Switch cap **61** has a rearward or retracted position in which the flashlight is not on. It also has a forward position in which the flashlight is turned on. A small detent **62***a* is formed on the switch member

62, for engaging one or the other of two different openings in the housing, in order to hold the switch in whichever position the user has placed it in.

Switch member 62 is held in firm sliding contact with the interior wall of the housing or barrel 10, and therefore when the forward end of the switch member engages the reflector bowl, the circuit through the lamp or bulb means is completed.

It should be pointed out that in accordance with our invention the metal spacer block may, if desired, be interchanged with the batteries, putting the spacer block at the forward end of the barrel and the batteries at the rearward end. Alternatively, the batteries may be divided up, putting the spacer in the middle of the barrel and some of the batteries at each end.

It should also be pointed out that in accordance with the invention the weight of the spacer may be selected in order to optimize the characteristics of the instrument as a billy-club or baton. We presently prefer to make face cap 22 of stainless steel, while the barrel 10, end cap 40, head 21, and spacer block 50 are preferably made of aluminum.

Thus, it will be seen that when the flashlight is turned on the current flows through the battery train into one terminal of the lamp or bulb means, thence through the lamp or bulb means and out its other terminal through the switch member 62, thence into the forward end wall of the housing or barrel 10, thence throughout the full length of the housing or barrel 10, thence to the rear end cap 40, thence through the spring 41 then to the rearward end of the spacer block 50, thence through the full length of the spacer block 50, and then to the rearward end of the battery train. The spacer block 50, therefore, serves to conduct electrical current when the instrument is operating as a flashlight, and it also serves to provide a desired amount of mechanical weight (hence improving the balance of the instrument) when the instrument is to be used as a billy-club or baton.

ALTERNATE FORM

Reference is now made to FIGS. 5, 6 and 7 illustrating a modified instrument B-2 in accordance with the invention. The instrument B-2 is precisely identical to instrument B-1 except for the addition of a support ring 70. Support ring 70 is preferably made from a malleable material such as rubber or neoprene. It is then positioned near the forward end of the serrated surface 11 of the housing 10, only a short distance rearwardly of the switch cap 61. This, then, makes it possible to conveniently suspend the instrument from the belt of a wearer by using the holding strap 71 in conjunction with its holding ring 72, the ring 72 slipping over the rear end cap 40 and most of the length of the housing 10 and holding the instrument from the under side of the support ring 70.

PREFERRED DIMENSIONS

According to the illustrated form of the invention the barrel 10 has an outer diameter of about 1-¼ inch and a length of about 14 inches, five C batteries are used, and spacer block 50 is about 4 inches long. According to a second form of the invention barrel 10 has the same diameter and is about 22 inches long, seven C batteries are used, and spacer block 50 is about 8 inches long.

As will be understood by those skilled in the art, what has been described are preferred embodiments in which modifications and changes may be made without departing from the spirit and scope of the accompanying claims.

We claim:

1. A baton-flashlight comprising:
an elongated, hollow, cylindrical, metal housing having a length at least ten times its diameter;
a forward assembly, including bulb means, secured to the forward end of said housing;
a plurality of batteries disposed within said housing in end-to-end relationship forming a battery train whose forward end is electrically connected to a first terminal of said bulb means;
a metallic rear end cap attached to the rearward end of said housing;
an elongated metallic spacer block disposed within the rearward portion of said housing and electrically interconnecting said end cap with the rearward end of said battery train; and
switch means mounted on said housing adjacent the forward end thereof and manually operable for providing an electrical connection between the metallic body of said housing and a second terminal of said bulb means, so as to complete the circuit for current flowing through said bulb means.

2. The device of claim 1 wherein the exterior surface of said housing is serrated.

3. The device of claim 1 wherein said spacer block is an elongated cylindrical block which is longer than one of said batteries.

4. The device of claim 1 wherein said forward assembly includes an enlarged metallic head removably attached to said housing, and within which said bulb means is contained.

5. The device of claim 1 wherein switch means includes a switch cap, and which further includes a support ring encircling said housing immediately to the rear of said switch cap.

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