

April 4, 1961

J. R. KELLER ET AL

2,978,696

ILLUMINATED HAT

Filed Sept. 8, 1958

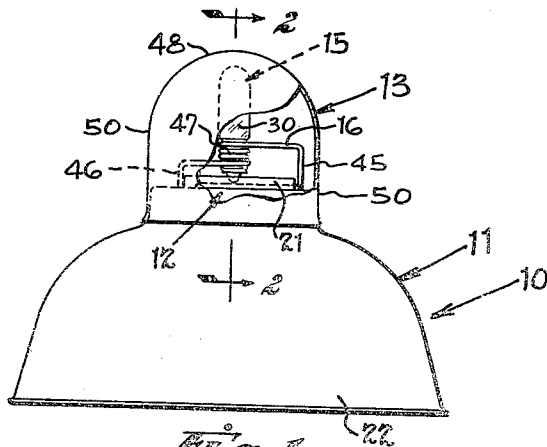


Fig. 1

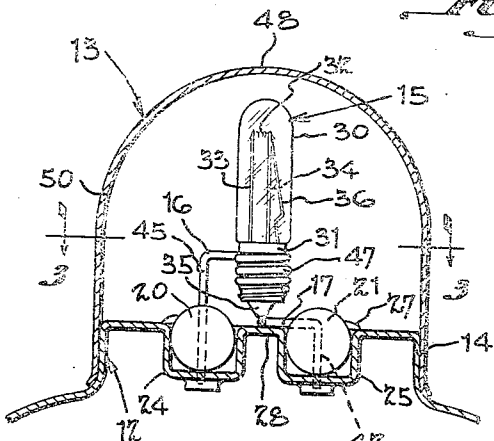


Fig. 2

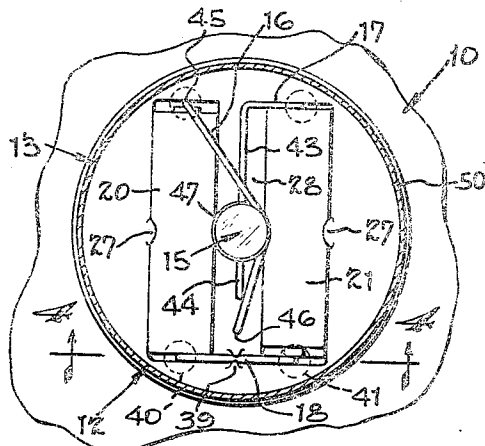


Fig. 3

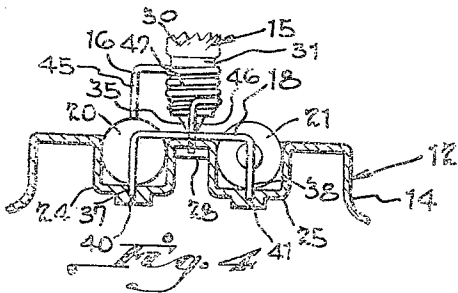


Fig. 4

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1

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ILLUMINATED HAT

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Filed Sept. 8, 1958, Ser. No. 759,609

4 Claims. (Cl. 340—366)

This invention relates to children's toys and is particularly directed to a novel hat having an intermittently flashing dome.

The principal object of the present invention is to provide a toy hat having a translucent dome which glows intermittently. The flashing occurs automatically; that is, it does not depend upon any manually operated buttons, or the like. In fact, the entire flashing mechanism is mounted within the hat and is concealed from view so that an extremely unusual effect is achieved.

Another object of the present invention is to provide a flashing hat construction which is extremely simple and inexpensive to produce. The illumination for the dome is provided by a small self-flashing bulb operated by a pair of dry cells. This bulb automatically turns itself on and off and thus glows in an intermittent manner, so long as it is connected to a source of current. In addition to the bulb, the present hat comprises a minimum number of easily fabricated parts, i.e., two small batteries, three wires, and two plastic members.

More particularly, the present invention is predicated upon the concept of providing a hat construction including a cap member, the upper portion of which is provided with means to support one or more batteries, a self-flashing bulb and electrical conductors for interconnecting the battery and bulb. The hat is further provided with a removable translucent dome which is frictionally held over the top portion of the cap member and conceals the batteries, conductors and light bulb but which is completely illuminated by the flashing light bulb.

One of the advantages of the present construction is that it is extremely economical to produce. In the preferred embodiment, the cap portion and dome are unitary plastic moldings which are held together by simple frictional engagement. The electrical components of the device comprise two small dry cells which nest within suitable recesses formed in the top portion of the cap member. A self-flashing bulb and three copper wires complete the assembly. The copper wires perform four functions. In the first place, they provide an electrical interconnection between the batteries and bulb. In the second place they form a mechanical mounting for the bulb. In the third place, they cooperate with the bulb to perform a switching function, permitting the bulb to be disconnected, since the wires are adapted to support the bulb either in a closed or open circuit condition; and finally, the wires help to frictionally lock the batteries within the recesses.

These and other objects and advantages of the present invention will be more readily apparent from a consideration of the following detailed description of the drawings illustrating a preferred embodiment of the invention.

In the drawings:

Figure 1 is an elevational view of a hat constructed in accordance with the present invention, the dome portion of the hat being partially broken away to show details of construction.

2

Figure 2 is a cross-sectional view taken along line 2—2 of Figure 1.

Figure 3 is a cross-sectional view taken along line 3—3 of Figure 2.

Figure 4 is a cross-sectional view taken along line 4—4 of Figure 3.

As is shown in Figure 1, a hat 10 constructed in accordance with the principles of the present invention comprises a dish shaped cap member 11 adapted to fit over the head of a child. The upper portion of the cap member 11 is provided with an upstanding cylindrical base section 12 which is covered by a translucent dome 13, the lower portion of the dome frictionally engaging the side wall 14 of base 12. Dome 13 encloses a self-flashing bulb 15 which is interconnected through wires 16, 17, and 18 to a pair of dry cells 20 and 21. When the device is assembled and the circuit is completed, only the cap portion and dome are visible and the dome emits a flashing light which gives the hat a highly unusual appearance.

More particularly, cap portion 11 is preferably a unitary plastic molding formed of polyethylene, or other suitable plastic and includes a curved downwardly opening wall adapted to embrace a child's head. If desired, the lower rim 22 of the cap portion can be provided with two opposed openings for receiving the ends of a resilient chin strap (not shown). The upper portion of cap member 11 carries base 12 which is preferably molded integrally with the cap portion and comprises a circular upstanding wall 14 adapted to receive and frictionally engage a wall of dome 13.

Base 12 further comprises two parallel recesses 24 and 25 for receiving dry cells 20 and 21. These recesses are preferably of the same width as the diameter of the dry cells and are provided with resilient integral lugs 27 for engaging the dry cells to help retain them in their position. Each end of the recesses 24 and 25 is also provided with a small bore 40—41 for receiving and frictionally engaging the end of a wire. Additionally, web 28 extending between the two cells is provided with two spaced bores for receiving and frictionally supporting the ends of two wires.

Wires 16, 17, and 18 perform several functions, one of which is to electrically interconnect batteries 20 and 21 in series with one another and with self-flashing bulb 15. The exact details of construction of bulb 15 constitute no part of the present invention. It will suffice here to state that bulb 15 comprises a glass envelope 30 and a base 31 joined in a conventional manner. Glass envelope 30 encloses a filament 32 which is supported between the two rigid wires 33 and 34. Wire 33 is connected to an insulated terminal 35 provided at the bottom of the bulb base in the usual manner. Lead 34, however, is insulated from the second terminal constituted by the base sleeve. This lead is adapted to be connected to that terminal through a bimetallic strip 36.

As is diagrammatically indicated in Figure 2, the free end of this bimetallic strip normally engages the upper end of lead 34 adjacent to filament 32. Consequently, when the lamp bulb is initially energized, a circuit is completed through the bimetallic strip to the filament. However, when the filament heats up, the bimetallic strip bends and the filament circuit is broken so that the lamp is extinguished. This in turn causes the bimetallic strip to cool off and return to its original position in contact with wire 34, whereupon the lamp filament is again energized. In this manner, the lamp bulb 15 continues to glow intermittently so long as it is connected to the dry cells 20 and 21 through wires 16, 17, and 18.

Wire 18 is generally U-shaped, the ends 37 and 38 of this wire being inserted within bores 40 and 41 so that the wire is frictionally held in place within the bores.

Wire 18 interconnects the negative terminal of cell 20 with the positive terminal of cell 21.

As is best shown in Figure 3, the center portion of wire 18 is held in place by two resilient lugs 39—39. These lugs are molded as an integral part of the base section. The ends of the lugs are spaced apart slightly while the base portions of the lugs have sufficient clearance between them to accommodate wire 18. Thus, wire 18 can be placed downwardly between the ends of the lugs which are sufficiently resilient to be displaced, permitting the wire to pass into the clearance space between the lug bases. After the wire has entered this space, the resilient ends of the lugs return to their original position and function to hold wire 18 in place.

Wire 17 comprises a foot portion 42 disposed at the opposite end of recess 25 in frictional engagement with a suitable opening provided in that recess. This wire engages the negative terminal of dry cell 21. Wire 17 also includes a contact arm portion 43 disposed to lie along the upper surface of web 28 and including a downwardly extending end portion 44 inserted in an opening formed in the web.

Wire 16 comprises a first upstanding leg 45 inserted in an opening formed in the end of recess 24 and a second upstanding leg 46 inserted in an opening in web 28. The intermediate portion of this wire is coiled to form a socket section 47 adapted to threadably receive base section 31 of lamp bulb 15.

Socket section 47 is disposed directly over contact arm portion 43 of wire 17 so that when bulb 15 is threaded downwardly, the insulated terminal on the lower section of the base is in electrical contact with arm portion 43. Since wire 16 is slightly resilient when the bulb is tightened, the wire is bent slightly upwardly and functions to firmly hold the bulb in contact with wire 17. No switch is required in the light bulb circuit since to turn the bulb off it is merely threaded a turn within socket portion 47 so that the contact in the tip of the bulb is spaced from wire 17 and the circuit to the bulb filament is thus broken. The frictional engagement between the bulb and socket is effective to hold the bulb in this position. To light the bulb, it is merely threaded inwardly to bring its insulated contact back into engagement with the contact segment 43 of wire 17.

The hat assembly is completed by means of a translucent dome 13. This dome is preferably molded from a slightly resilient material, such as polyethylene, or the like, and is translucent so that light from bulb 15 appears to light the dome. In the preferred embodiment, dome 13 has a curved upper end 48 and straight side walls 50 defining a skirt which fits over the vertical wall 14 of base section 12 and frictionally engages that wall so that the dome is firmly held in place.

It is believed that the operation of the present hat is clearly apparent from the foregoing description. It is further believed apparent that those skilled in the art will readily comprehend various modifications to which the present invention is susceptible. For example, it is contemplated that the skirt of dome 13 can frictionally engage a rib formed on the outer surface of the base section 12 rather than the entire outer wall of the base section. Moreover, the cap portion could be of different configuration so that it would look like a helmet for example. Accordingly, we desire to be limited only by the scope of the following claims.

Having described our invention, we claim:

1. A molded toy hat comprising a unitary plastic cap portion, said cap portion having a base formed integral therewith and disposed adjacent to the top thereof, said base having recess formed therein, a dry cell disposed in said recess, a self-flashing light bulb, a wire coiled for threadably engaging and supporting said bulb and interconnecting said bulb and one terminal of said dry cell, a conductor in electrical connection with the other termi-

nal of said dry cell, said conductor being spaced from said wire and disposed for contact with said bulb when said bulb is threaded into said coiled wire, and a translucent plastic dome mounted over said base in frictional engagement therewith, said dome enclosing said light bulb, battery, wire and conductor, whereby when said light bulb is threaded inwardly in said coil into engagement with said conductor said light bulb is effective to cause said dome to glow intermittently, and whereby said light bulb can be completely disconnected by threading it outwardly in said coiled wire to disengage the light bulb from said conductor.

2. A toy hat comprising a cap portion, a translucent dome adapted to be mounted upon said cap portion, said cap portion having a base section formed adjacent to the top thereof, said base section comprising two spaced recesses, two dry cells, one of said dry cells being disposed in each of said recesses, openings formed adjacent to the ends of said recesses, a first generally U-shaped wire having ends inserted in an opening formed in each of said recesses in electrical connection with each of said dry cells, a second wire having a first end inserted in an opening in one of said recesses in electrical connection with the dry cell disposed therein, said second wire also including a conductor portion disposed intermediate said dry cells, and a third wire having a first upstanding leg inserted in an opening in one of said recesses in electrical connection with the dry cell disposed therein and having a coiled socket forming portion disposed above the conductor portion of said second wire, a self-flashing light bulb threadably engaging said socket portion, and having an insulated terminal in engagement with the conductor portion of the second wire.

3. A toy hat comprising a cap portion, a translucent dome adapted to be mounted upon said cap portion, said cap portion having a base section, including an upstanding peripheral wall formed adjacent to the top thereof, said base section being provided with two spaced recesses separated by a web, said web having two recesses formed therein, two dry cells, one of said dry cells being disposed in each recess, openings formed adjacent to the ends of said recesses, a first generally U-shaped wire having ends inserted in an opening formed in each of said recesses, the ends of said first wire being in electrical connection with each of said dry cells, a second wire having a first end inserted in an opening in one of said recesses in electrical connection with the dry cell disposed therein, said second wire including a conductor portion disposed over said web intermediate said dry cells and a second end disposed in an opening in said web, and a third wire having a first upstanding leg inserted in an opening in one of said recesses in electrical connection with the dry cell disposed therein, said third wire including a coiled socket forming portion disposed above the conductor portion of said second wire, and a second upstanding leg disposed in an opening in said web, a self-flashing light bulb threadably engaging said socket portion and having an insulated terminal in engagement with the conductor portion of the second threaded wire.

4. A toy hat comprising a cap portion, a translucent dome adapted to be mounted upon said cap portion, said cap portion having a base section, including an upstanding peripheral wall formed adjacent to the top thereof, said base section being provided with two spaced recesses separated by a web, said web having two recesses formed therein, two dry cells, one of said dry cells being disposed in each recess, openings formed adjacent to the ends of said recesses, a first generally U-shaped wire having ends inserted in an opening formed in each of said recesses in electrical connection with each of said dry cells, a second wire having a first end inserted in an opening in one of said recesses in electrical connection with the dry cell disposed therein, said second wire including a conductor portion disposed over said web intermediate said dry cells and a second end disposed in an opening in said web, and a third wire having a first upstanding leg inserted

in an opening in one of said recesses in electrical connection with the dry cell disposed therein, said third wire including a coiled socket forming portion disposed above the conductor portion of said second wire, and a second upstanding leg disposed in an opening in said web, a self-flashing light bulb threadably engaging said socket portion and having an insulated terminal in engagement with the conductor portion of the second threaded wire, said translucent dome having a skirt portion frictionally embracing the upstanding peripheral wall of said cap portion.

5

10

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