Sept. 2, 1958 R. C. MURPHY ET AL 2,849,819

INTERMITTENTLY ILLUMINATED TOY

Original Filed Oct. 17, 1955

FIG. 1.

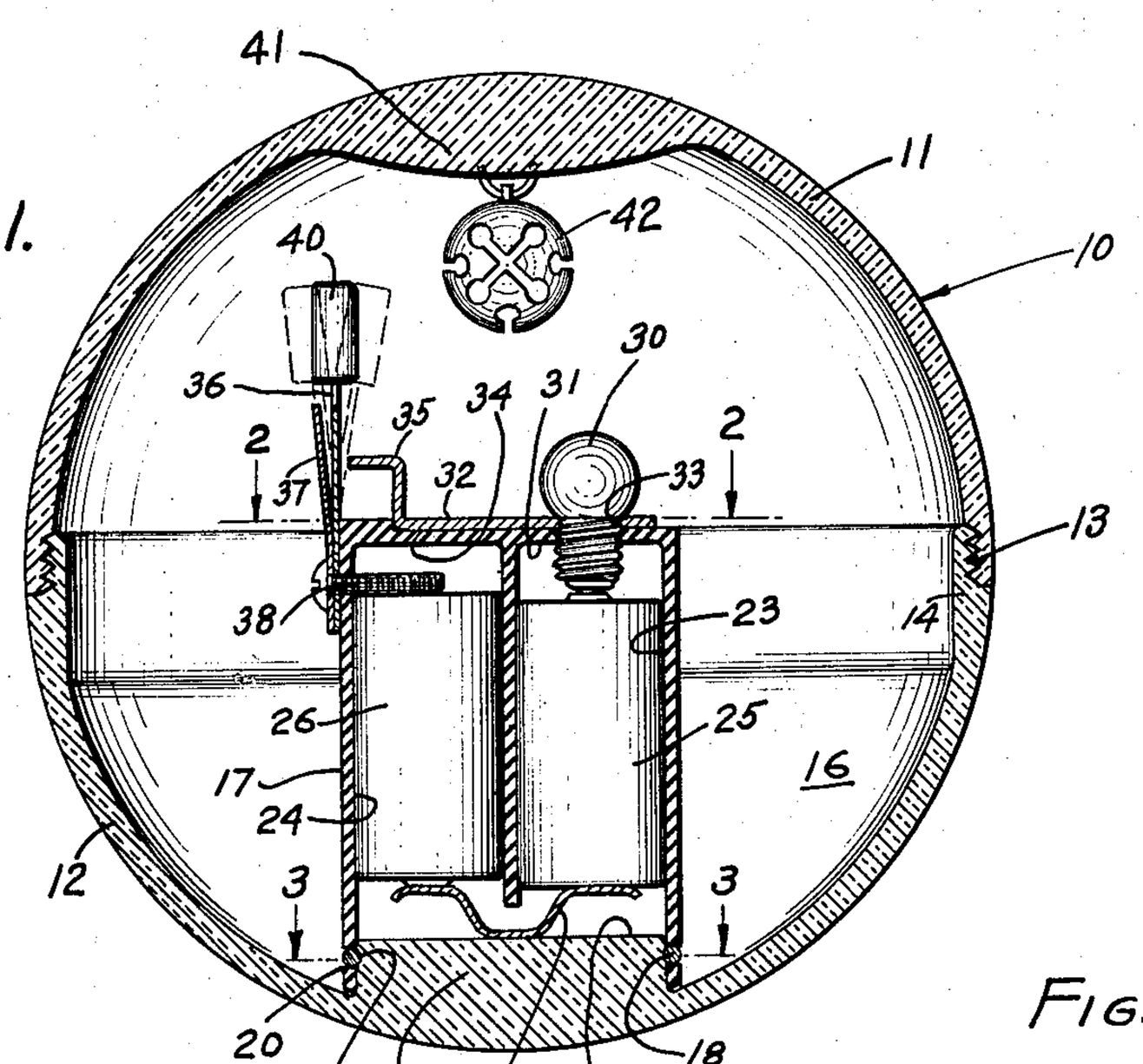


FIG. 2.

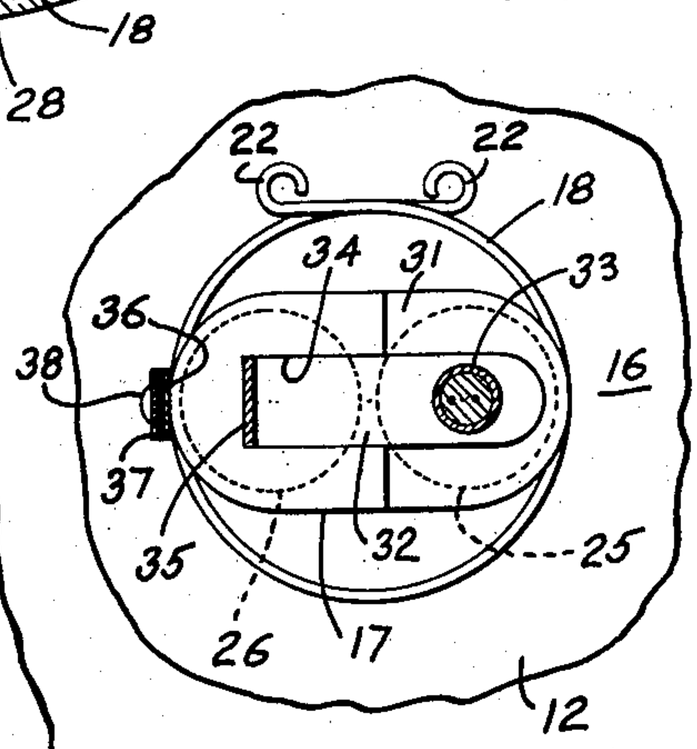
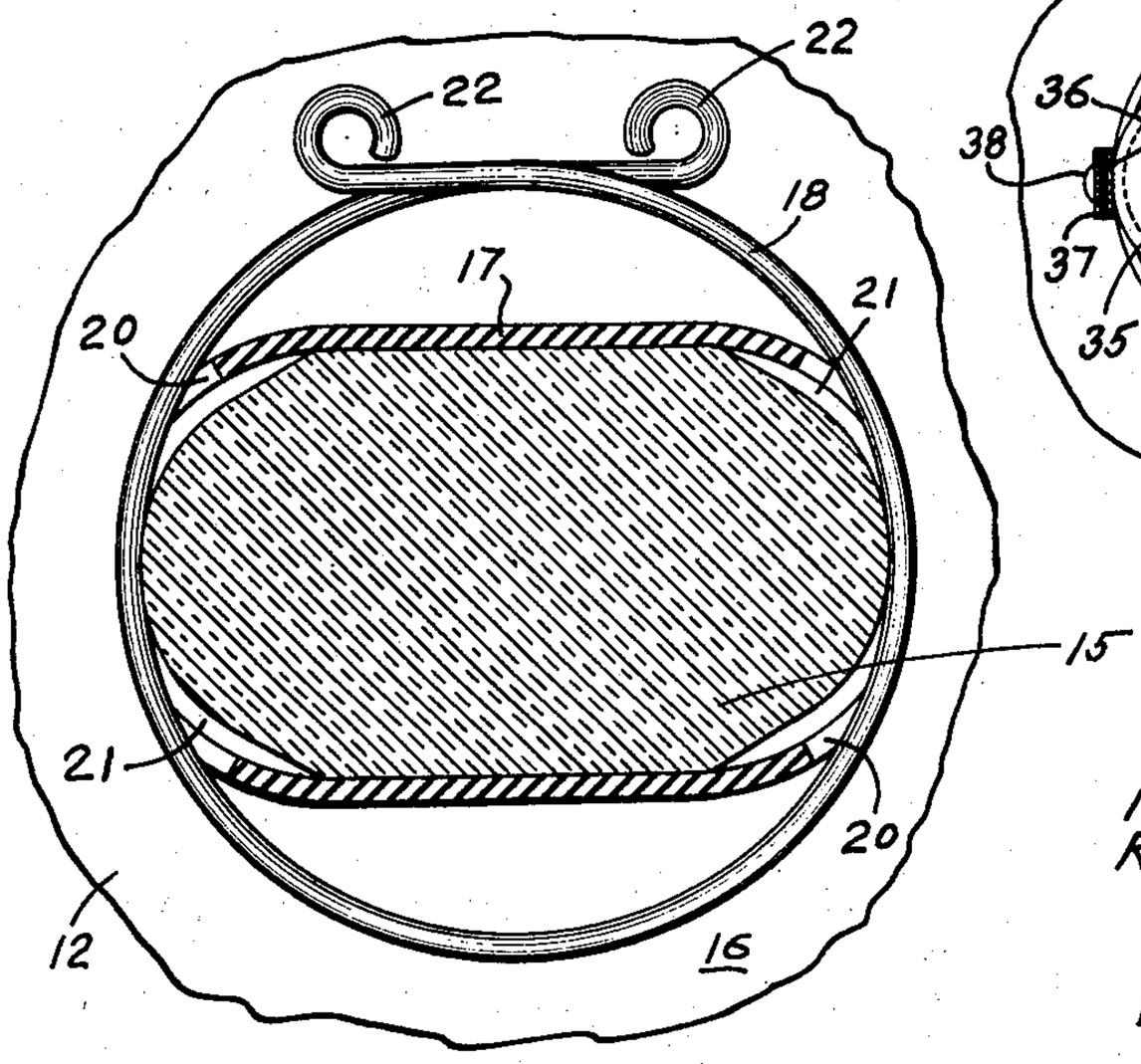


FIG. 3.



MEREDITH W. REYNOLDS
RUSSELL C. MURPHY
INVENTORS

BY Donald A. Rogers

AGENT

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INTERMITTENTLY ILLUMINATED TOY

Russell C. Murphy, Altadena, and Meredith W. Reynolds, Pasadena, Calif.

Substituted for abandoned application Serial No. 540,935, October 17, 1955. This application September 12, 1957, Serial No. 683,920

1 Claim. (Cl. 46—230)

This invention relates to intermittently illuminated devices and relates more specifically to a toy or warning device in the form of a sphere, having means intermittently to energize an electric bulb.

This is a substitute of application, Serial No. 540,935, filed October 17, 1955, now abandoned.

While intermittently illuminated devices, particularly toys, have been known heretofore, prior like arrangements have been unduly complex, unreliable in use when subjected to shock or heavy service, costly to manufacture and difficult to maintain and repair. Devices of this character may be employed as toys, but serve equally as well as advertising or ornamental structures. When used as a toy, devices of this character are adapted to be rolled or pushed on a surface, means being provided to effect intermittent electrical energization of an electric bulb without the provision of the usual switching mechanisms.

The present device finds further applicability in the field of distress signals as may be employed by individuals at sea, as an intermittently illuminated buoyant structure providing a self-contained source of electrical energy.

In order that structures of the present variety may be manufactured and sold for an amount commensurate with other like toys, it is important that construction features and specific details thereof be such as to enable reliability in operation, coupled with as few components as possible, simplicity of these components, ease of assembly and ease of battery replacement.

It is accordingly one important object of the present invention to provide an intermittently illuminated device.

Another important object of the present invention is to provide an intermittently illuminated toy device having relatively few components, economy in manufacture and relatively low cost for sales thereof, reliability in operation and simplicity in construction.

A further object of the invention is to provide an intermittently illuminated toy arrangement including a translucent sphere having positioned therein a source of electrical energy, an electric bulb and an oscillating switch guiding structure.

Other and further important object of the invention will become apparent from disclosures in the following detailed specification, appended claim and accompanying drawing, wherein:

Figure 1 is a transverse sectional view through the device of the present invention;

Fig. 2 is a fragmentary sectional view of a portion of the top of the illuminating unit employed with the present device, as taken substantially as indicated by line 2—2, Fig. 1; and

Fig. 3 is an enlarged fragmentary sectional view taken substantially as indicated by line 3—3, Fig. 1, and showing the manner of removable attachment of one portion of the illuminating unit to an integral base portion of one-half of the translucent sphere.

With reference to the drawing, the device of this invention includes a translucent sphere indicated generally at 10 and formed with an upper half 11 and a lower half 12. The halves 11 and 12 are jointed together as by any suitable means such as for example, annular threads 13 formed in a thickened portion 14 of the lower sphere half 12. The sphere 10 and the halves 11 and 12 thereof may be formed from any suitable translucent material such as for example, glass, plastic or other substances and may further be colored as, for example, red in order to add to the attractiveness and effect thereof.

In one typical form of the invention, the sphere half 12 is formed with an integral boss 15 in the central area therefrom and disposed within the semispherical interior portion 16 of the sphere 10. A light unit including a housing 17 of any suitable dielectric material is mounted on and connected to the boss 15 by means of a snap ring 18 which lies in slots 20 in the housing 17 and in grooves 21, Fig. 3, in the boss 15. The snap ring 18 is provided with finger engaging portions 22 in order that it may be manually expanded to remove the housing 17 from the boss 15.

The housing 17 is provided with a pair of spaced longitudinal recesses 23 and 24 that are arranged in parallel relationship therein and adapted for reception of dry cell batteries 25 and 26, respectively. A spring clip 27 is disposed on an upper surface 28 of the boss 15 and communicates between the recesses 23 and 24 to provide electrical connection between opposite poles of the batteries 25 and 26. The spring clip 27 also serves to maintain the batteries in a spring loaded condition within the recesses 23 and 24 against other components of the device to be hereinafter more fully described. An electric bulb 30 is threadably positioned through an upper wall 31 of the housing 17, with one contact thereof being adapted for engagement with one pole of the battery 25. Another contact of the bulb 30 is adapted for connection with a clip or contact member 32 which has an opening 33 in one end thereof that is adapted for tight engagement by the outer metallic surface of the bulb 30 for connection therewith. The clip 32 is preferably disposed in a laterally extending groove or recess 34 in the housing upper wall 31 in order to prevent rotation thereof and to position the clip 32. One end of the clip 32 is bent upwardly and laterally as at 35 to provide one element of a switch-contact arrangement.

A flexible arm 36 and a rigid arm 37 are secured to an outer surface of the housing 17 by means of a screw 38 which threadably engages the housing 17, projects within the recess 24 and provides contact with one pole of the battery 26. The flexible arm 36 may be made from any suitable material such as spring steel, for example, while the rigid arm 37 that is disposed at a slight angle to a normal position of the arm 36, may be made from any rigid material and serves to limit the amplitude of oscillation of the flexible arm 36. The free end of the flexible arm 36 is adapted to carry a weight 40.

It may thus be seen that upon slight movement of the sphere 10, the flexible arm 36 will be oscillated whereby to close the switch between one pole of the battery 26, the contact portion 35 of the clip 32, the bulb 30 and one pole of the battery 25. The rigid arm 36 serves to prevent too much or undue opening of the flexible arm 36 in the event of shock, as when the sphere is dropped.

As shown in Fig. 1, the sphere half 11 may be disposed with a counterweight by thickening one portion thereof as at 41. Additionally, a sound-making device, such as a bell 42, may be suspended within the sphere half 11 in order audibly to add to the interest of the device when used as a toy.

When it is desired to replace the batteries 25 and 26, it becomes only necessary to split the sphere halves 11 and 12 by means of the threads 13, remove the snap ring 18 to separate the housing 17 from the base 15. The batteries 25 and 26 may thereafter be removed easily

and replaced without undue difficulty. Assembly is carried out in the reverse order of the above described disassembly.

Having thus described the invention and the present preferred embodiment thereof, it is desired to emphasize the fact that many modifications may be resorted to in a manner limited only by a just interpretation of the following claim.

We claim:

An intermittently illuminated toy device comprising, in combination: a spherical translucent housing, said housing being of insulating material and being formed by hollow semi-spherical portions having a threaded joint therebetween; a boss formed integrally with and disposed into one of said halves of said housing; a battery retainer of insulating material and having a portion about said boss; snap ring means disposed in circumferential openings in said retainer for removably securing said retainer to said boss, said boss having groove means for receiving said snap ring means; a pair of batteries positioned within said retainer, said batteries having oppositely faced poles; leaf spring means positioned in contact with said boss for interconnecting poles of said batteries adjacent said boss; a bulb threadably positioned through said retainer with a base contact thereof disposed in contact with one pole of said pair of batteries; a clip tightly surrounding

sides of said bulb and positioned against an end of said retainer remote from said boss; groove means in said end of said retainer for receiving said clip and preventing rotation thereof about said bulb; an integral end on said clip, said clip end being spaced from said end of said retainer; a flexible arm mounted on one side of said retainer; a screw for retaining one end of said arm threadably engaging said retainer and positioned in contact with another pole of said pair of batteries; a weight carried by a free end of said arm, said arm being adapted for oscillation as said housing is rolled or disturbed to effect intermittent closure of said circuit to said bulb by engagement of said arm with said raised end of said clip; and a rigid arm mounted on said screw and overlying said flexible arm in spaced relationship thereto for limiting amplitude of oscillation of said flexible arm.

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