Nov. 28, 1961 G. J. O'BRIEN 3,011,048

ILLUMINATED CATCH BALL

Filed July 22, 1959

FIG. 1

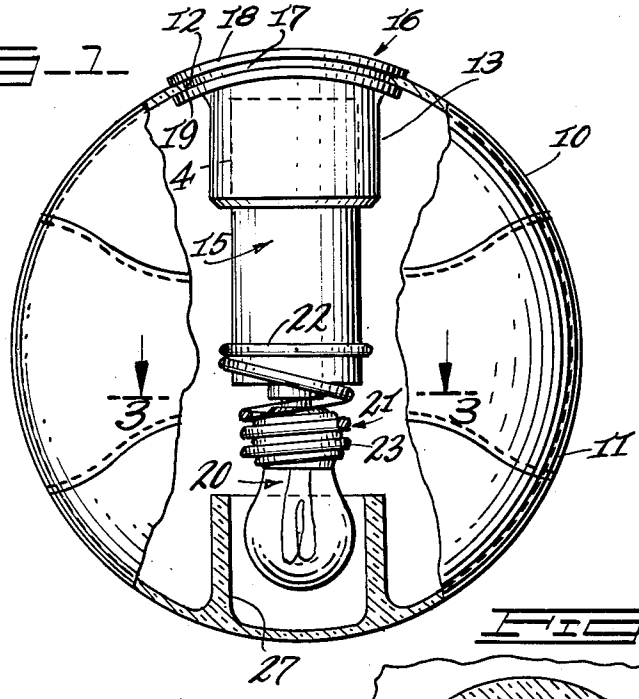



FIG. 2

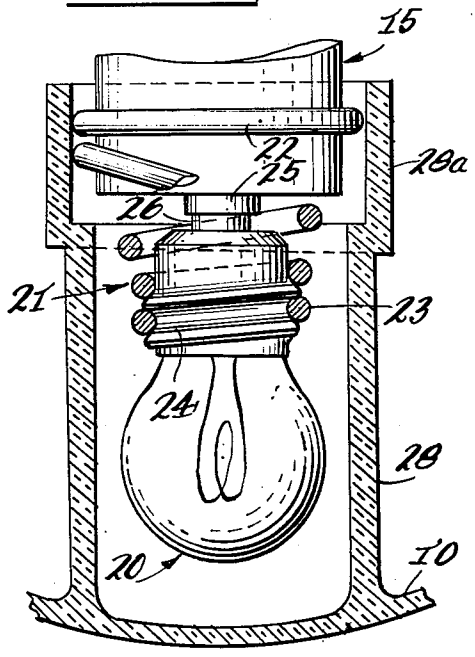



FIG. 3

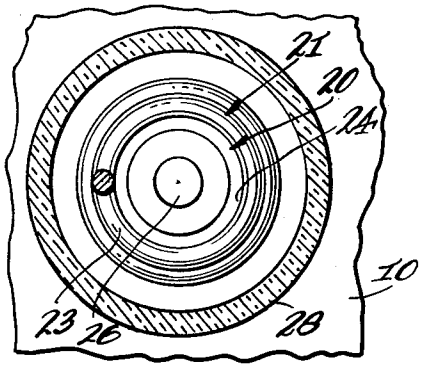
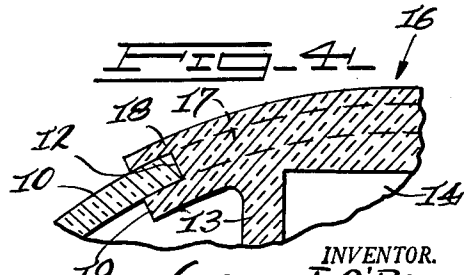



FIG. 4

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3,011,048

# ILLUMINATED CATCH BALL

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1 Claim. (Cl. 240—6.4)

This invention relates to toys and more particularly to an illuminated catch ball. An important object of the invention is the provision of a hollow ball of any desired size such as, for example, a baseball, made of a translucent plastic material in any color or combination of colors, having a small electric battery cell with a light bulb thereon in closed circuit therewith, removably mounted on the ball to illuminate the ball.

A ball so illuminated may be used as a catch ball by children in the dark, and the darker the environment the more clearly visible the ball is. As an accessory to using the illuminated ball in that manner in the dark, each child may have, attached to his belt or shirt pocket by a fountain pen clip, a second small battery cell with a light bulb energized thereby, so that his position in the dark may be observed by the other players.

Another object of the invention is the provision of releasable locking means engaging the cell and the wall of the ball whereby the cell is securely mounted within the ball and yet may be readily removed when, for example, it is desired to replace the cell or the bulb.

A still further object of the invention is the provision of additional securing means within the ball to serve to permit a limited degree of resiliently restrained swinging movement of the bulb with respect to the cell and of the cell itself when the ball is brought to a sudden stop, especially in case the ball should hit the floor or ground or some obstacle in flight. The resilient restraining force in each case prevents damaging shock to, and promptly restores the bulb and/or the cell to their original aligned positions.

The above as well as additional objects will be clarified in the following description wherein reference numerals refer to like-numbered parts in the accompanying drawing. It is to be noted that the drawing is intended primarily for the purpose of illustration and that it is therefore neither desired nor intended to limit the invention necessarily to any or all of the exact details of construction shown or described except insofar as they may be deemed essential to the invention.

Referring briefly to the drawing,

FIG. 1 is a ball of the kind mentioned above, with parts broken away to expose the interior and with parts in section.

FIG. 2 is an enlarged fragmentary sectional view of a modified structure.

FIG. 3 is an enlarged sectional view taken on the line 3—3 of FIG. 1.

FIG. 4 is a fragmentary enlargement of FIG. 1.

Referring in detail to the drawing, the numeral **10** indicates a unitary hollow ball or sphere made of any suitable translucent plastic material which, as is well known, possesses a degree of resiliency or flexibility and is therefore relatively soft. If desired, simulated stitches **11** may be provided on the outer surface of the ball to give it more of the appearance of a baseball.

The ball is provided with an axial opening **12** thereinto; this opening is very considerably smaller than the diameter of a spherical ball, as is illustrated in FIG. 1. A socket **13** made of any suitable material but preferably of a yieldable material such as rubber or plastic, has a recess **13** to receive and snugly hold the base of a small battery cell **15**. On its own base, that is the end opposite the recess **14**, the socket has an enlarged gasket **16** having a spherical conformation of the same radius of



curvature as the ball **10**, composed of an intermediate portion **17** having the same diameter as the opening **12**, and two diametrically opposed portions **18** and **19** having larger diameters than the intermediate portions. It should here be mentioned that the various parts or elements of the structure inserted into or mounted on the ball are shown exaggerated in the drawing for the purpose of clarity. From the above it is apparent that the gasket **16** is sufficiently yieldable to permit of insertion of the cell **15** and its socket **14** into the ball or removal thereof from the ball, in an obvious manner.

A small electric light bulb **20** is secured on the other end of the cell in contact with the positive contact or terminal of the battery, by means of a coiled spring **21** whose base **22** tightly grips the wall of the cell and whose other end **23** is reduced in diameter and tightly grips the metallic cylindrical contact portion **24** of the bulb. The positive terminal of the cell is shown at **25** and the tip terminal of the bulb, which engages the terminal **25** of the cell, is shown at **26**.

As an added means to prevent too wide swinging of the cell and its bulb when the ball is in use in the manner stated above, or is rolled along the ground or on a floor, an internal cylindrical wall or socket **27** may be formed on the inner surface of the ball in axial alignment with the opening **12**, into which the bulb projects.

As a modification which reduces such swinging of the cell and bulb to a minimum, or completely eliminates it in the case of the cell, the provision shown in FIG. 2 may be made. Herein a cylindrical wall **28** in axial alignment with the opening **12** has a greater axial length than the wall **27** and at least its innermost portion **28***a* has a sufficiently large diameter so that the base **22**, that is, the widest portion of the spring **21**, may register therein. Thus the entire structure mounted in the ball is restricted from wobbling.

The plastic ball may be manufactured with one hemisphere thereof white and the other black, in which case the ball in flight or in being rolled will give the effect of a light flashing on and off. In any event, the illumination of the ball makes it clearly visible in flight for a game of catch played in the dark. In actual manufacture an inexpensive way of making the ball is by forming two halves thereof and fusing them permanently together along an equatorial line, not shown.

It is to be noted that the gasket **16** is illustrated in the drawing as being concentric with the sphere formed by the ball **10**. In the case where the cell **15** is thin enough so that the total diameter of the cell and the base of the spring **23** is relatively small compared with the diameter of the sphere, the gasket **16** need not have the curvature of the sphere as the diameter of the area of the gasket will be relatively small so that the gasket may be flat, or lie in a plane at right angles to the axis of the ball through the opening **12**.

It is further to be noted that the gasket as described may be considered as a gasket having a circumferential groove defining an intermediate portion **17** and outer portions **18** and **19**.

When the ball is not being used, the socket with the cell and bulb are readily removed and the cell is easily detached from the bulb so that the cell will not become deenergized uselessly.

The spring **22** which secures the bulb to the cell will obviously permit the bulb **20** to swing out of axial alignment with the cell, as, for example, when a force due to shock is directed upon the ball in a direction at right angles to the axis of the opening **12**. Thus the spring acts as a shock-absorber to slow down the movement of the bulb out of alignment with the said axis. The walls of the sockets or recesses **27** and **28** serve to limit such swinging movement of the bulb to less than to possibly

excessive degrees and thus to prevent twisting of the bulb too far to be restored by the spring. However, the impact of the bulb with either wall **27** or **28** will be at a greatly reduced force so as to leave the bulb intact; this is particularly true when the walls **27** and **28** are also formed of a soft plastic material, as described and illustrated. Thus the circuit between the bulb and the cell remeains unbroken during the application of such shocks, but even if the bulb should be tilted sufficiently to break the contact momentarily the instant restoring of the bulb to its normal position by the spring will again close the circuit. Should such shock impact be directed downward, FIG. 1, along the axis of the opening **12**, the bulb tip **26** may momentarily be separated from the cell terminal again to open the circuit, but here also the spring will instantaneously restore the mutual contacts.

When the cell socket **13** is also made of the same yieldable plastic, as mentioned above, it also permits a limited amount of swinging on its axis so that a lateral shock force on the ball will be greatly reduced by the socket **13** before it is applied to the cell.

Thus both the cell and the bulb are protected against damage, and the bulb maintains its illumination.

The invention having thus been described, what is claimed and desired to be secured by Letters Patent is as follows:

A catch ball comprising a hollow translucent plastic sphere having an axial opening thereinto, a battery cell having an electric light bulb positioned axially thereon, metallic yieldable resilient means engaging the cell and the metallic shell of the bulb and normally maintaining the bulb in axial position with respect to the cell with the contact tip of the bulb engaging the positive terminal of the cell and closing the circuit through the bulb and cell, the cell with the bulb thereon being positioned along a diameter of the sphere entirely within the sphere in alignment with said opening, said resilient means permitting tilting of the bulb out of alignment with the cell owing to shock to the ball upon impact and restoring the bulb to alignment with the cell after such impact, means removably mounted in said opening for securing the cell along said diameter, a cylindrical wall of resilient insulating material on the inner surface of the sphere diametrically opposite said opening, at least the outer portion of said bulb registering in the enclosure formed by said wall, the largest transverse diameter of the bulb being slightly smaller than the internal diameter of said wall whereby a clearance in all radial directions is provided between the bulb and said wall and the wall provides a limit stop to the titing of the bulb out of axial alignment with the cell.



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