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ATTACHABLE SIGNAL LIGHT FOR DRINKING GLASS

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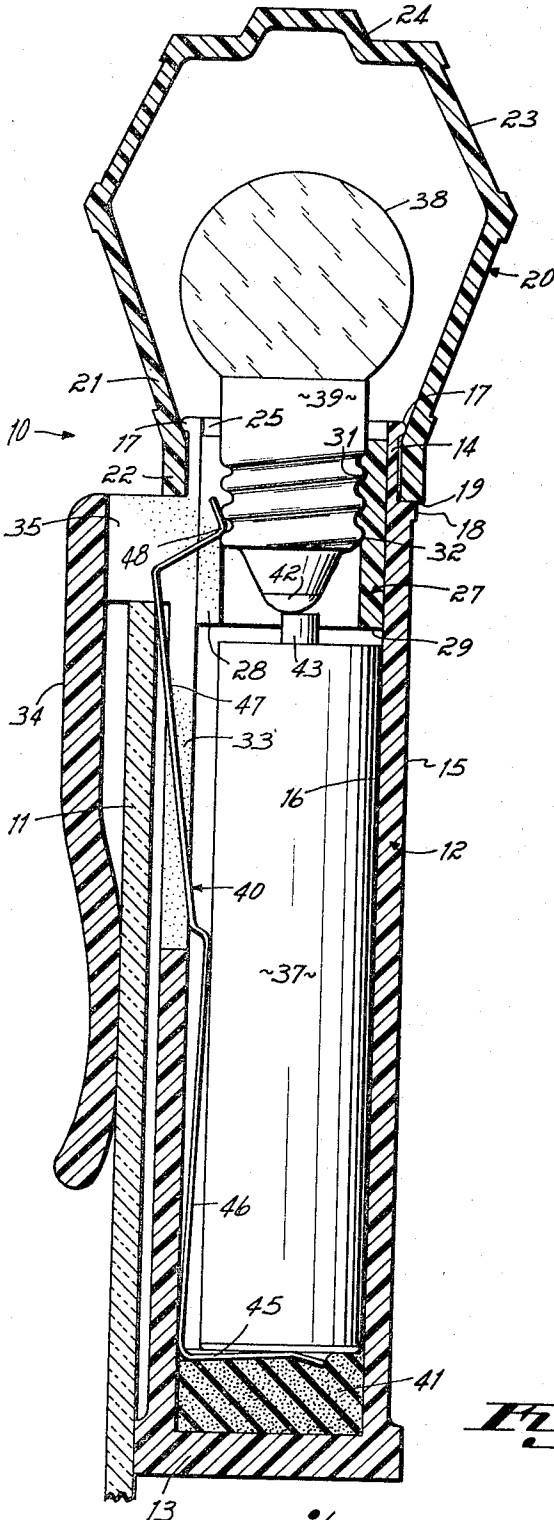


Fig. 2

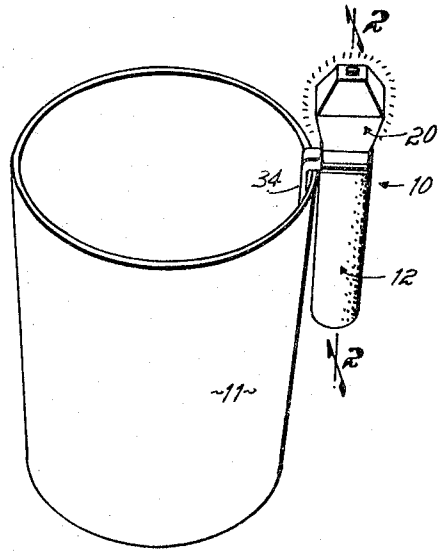


Fig. 1

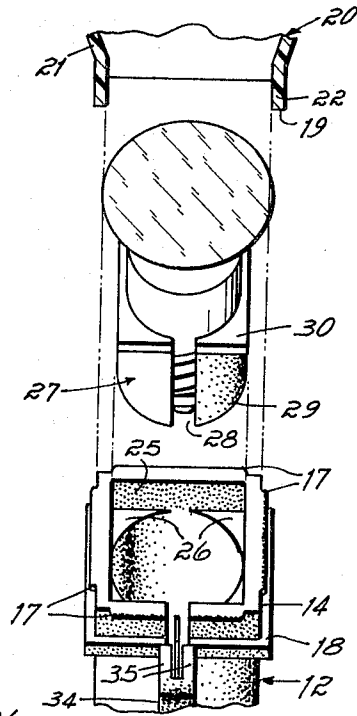


Fig. 3

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ATTACHABLE SIGNAL LIGHT FOR DRINKING GLASS

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This invention relates to a signal light adapted to be clipped to the edge of a supporting structure and in which the engagement of the light with the structure automatically closes a switch to energize the signal light. The invention is particularly useful as a novelty device attachable to a drinking glass to signal the need for a refill.

While there are in the prior art a myriad of illuminating devices such as flashlights of many different types, there is no device which is adapted automatically to produce a signal light when hung on a drinking glass. Further, there are no devices whose designs are of such simplified structure as admit of that economy of manufacture which is required for a novelty item of this type.

The device of the present invention comprises a housing which holds a battery, a light bulb, and means forming an electrical circuit between battery and bulb. The housing has a clip by which it is hung on the edge of a glass. The circuit forming means includes a resilient switch actuator disposed between the clip and the casing in such a position as to be actuated by engagement with the edge of a glass to close the electrical circuit.

The signal light housing is formed of three plastic parts, namely, a casing for a battery, an adapter for a light bulb, and a globe to surround the light bulb. The plastic parts are not only easily moldable but are configured to provide for assembly in a very few seconds merely by snapping them together. A single spring wire provides a switch, a switch actuator, and an electrical conductor between the lower end of the battery and the light bulb. These multiple functions are attained through the configuration of the wire and the cooperating casing and light bulb adapter structure.

As a further feature of the invention, the actuator and clip are so oriented with respect to each other in the assembled structure as to prevent the inadvertent operation of the light.

The several features of the invention will become more readily apparent from the following description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective view showing the light applied to a drinking glass,

FIG. 2 is a cross sectional view taken along lines 2-2 of FIG. 1, and

FIG. 3 is a fragmentary disassembled perspective view of the invention.

The signal light is indicated at 10 in FIG. 1 and is shown mounted on a drinking glass 11. As indicated above, the engagement of the edge of the drinking glass in mounting relation with respect to the signal light causes the completion of an electrical circuit to a light bulb in the signal light, thereby attracting attention to the empty glass.

The signal light structure is best illustrated in FIGS. 2 and 3. The operating elements are mounted in a cylindrical casing 12 which is closed at its lower end by a base 13 and is open at its upper end 14. While the major portion of the length of the casing is cylindrical, having cylindrical outside surface 15 and cylindrical inside surface 16, the upper end 14 is of square cross section. The upper end 14 of the casing 12 has four outwardly projecting lips 17 forming the open upper edge of the casing

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and an external flange 18 spaced below the lip 17. The flange 18 provides an abutment to receive the lower edge 19 of a blow molded globe 20. The globe has vertical walls 22 which are of square cross section and whose height is less than the distance between the lip 17 and flange 18. The walls of the globe flare outwardly as at 21 to provide an inclined surface engaged by the lips 17 to provide for the frictional retention of the globe on the upper end of the casing. The globe has inwardly inclined upper walls 23 which terminate in a top wall 24, thereby giving the globe the appearance of an old fashioned gaslight luminaire.

The casing 12 has an internal surface 25 at the upper end 14 which is also of square cross section, the intersection of the square upper surface with the cylindrical lower surface 16 forming internal shoulders 26. The shoulders 26 and the square internal surface 25 provide a pocket for receiving a light bulb adapter 27. The light bulb adapter has a vertical slot 28 and has a cylindrical lower surface 29 which projects into the cylindrical internal surface of the casing 12. At its upper end, the adapter has corner flanges 30 providing a generally square cross section upper edge which is received in the upper end of the casing 12, the corner flanges 30 resting on the internal shoulders 26 of the casing. The adapter is internally threaded as at 31, the threads terminating at 32 which is a smooth surface whose inside diameter is less than the diameter at the depth of the threads.

The casing itself has a vertical slot 33 which is normally in alignment with the vertical slot 28 of the adapter when the adapter is properly positioned in the casing 12.

Overlying the vertical slot 32 and spaced outwardly therefrom is a clip 34 which is preferably a resilient plastic which permits it to accommodate itself to glasses of varying thicknesses. The upper end of the clip is secured to the upper end of the casing 12 by a bifurcated support formed by two legs 35 which straddle the slot 32.

The three elements described above, that is, the casing 12, the globe 20, and the adapter 27, provide the housing for the operating elements which comprise a dry cell battery 37 disposed in the cylindrical lower end of the casing, a light bulb 38 having its metallic base 39 screwed into the threaded internal surface 31 of the adapter 27, and a metallic conductor 40 which is mounted in the casing 12. A sponge disc 41 may be disposed in the bottom of the casing to provide a resilient support for the lower end of the battery 37.

When the battery 37 and the bulb 38 are located in their normal positions within the casing and adapter respectively, the bulb has a central contact 42 in electrical conductive engagement with a central terminal post 43 of the battery 37. The sponge disc 41 provides a resilient force tending to hold the post 43 in contact with the terminal 42. Further, the adapter has a press fit engagement with the casing walls so as to provide a frictional force of the engagement of the adapter walls with the casing walls which resists the resilient force of the sponge disc to keep the adapter from sliding outwardly and carrying the light bulb away from the battery.

The metallic conductor 40 is configured to provide, serially, a base contact 45 which engages the conductive base of the battery 37, a conductive portion 46, a generally V-shaped conductor actuator 47, and a bulb contact 48. The V-shaped actuator projects outwardly through the slot 33 beyond the external surface of the casing and normally holds the bulb contact resiliently away from the bulb. The bulb contact is permitted to move into engagement with the bulb through the slot 28 in the adapter 27. The lower portion of the actuator 47 provides an inclined surface which is engageable between the upper edge of a glass 11 moving between the

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clip 34 and the casing wall 12, the edge of the glass camming the actuator into engagement with the base 39 of the bulb to provide a complete electrical circuit between the battery and the bulb.

In the operation of the invention, the device is first assembled by placing the conductor in the housing with its base contact lying on top of the sponge disc 41. A dry cell battery 37 is dropped into the housing and secures the metallic conductor in proper position with the actuator portion 47 projecting through the slot 33 of the casing. The bulb 38 may be first screwed part way into the adapter and then the assembled bulb and adapter slid into the casing. In this operation, the bulb is first screwed into the adapter only to the lower limit of the threads and then the adapter is inserted into the casing. Thereafter, the bulb is screwed farther into the adapter so that the bulb threads project below the lower limit of the adapter threads and ride over the lower inside surface 32 of the adapter. The action of the threads on the surface 32 cams or spreads the adapter outwardly into tight engagement with the walls of the casing while at the same time bringing the bulb contact 42 into conductive engagement with the post 43 and slightly compressing the disc 41. Similarly or alternatively, the unthreaded portion of the bulb moving into engagement with the projecting threads of the adapter will cause the adapter to spread to provide the tight fitting engagement. Thus, a very tight fit of the adapter in the casing is effected which will resist the force of the sponge disc 41 to force the battery, bulb, and adapter outwardly.

The globe is then snapped over the lips 17 so that its lower walls 22 embrace the upper end 14 of the casing to hold the globe in place. These assembly steps having been taken, the device is ready for use. All that is required for use is to slide the device onto the open edge of a drinking glass with the edge of the drinking glass projecting between the clip 34 and the side wall of the casing. As indicated above, the presence of the edge of the glass between the clip and the casing wall cams the actuator 47 inwardly, thus bringing the bulb contact 48 into engagement with the metallic base of the bulb.

When the contact is made, the bulb becomes energized and glows through the translucent globe 20. In the preferred form of the invention, the bulb used is of that type having a self-contained bimetallic element in series with the bulb filament, the bimetal moving into and out of contact with another bulb element to open and close the circuit to the filament, thereby providing a blinking light.

When the device is not in use, the clip overlying the conductor actuator 48 blocks any inadvertent engagement with the actuator 48, thereby preventing its inadvertent operation and consequently drain on the battery.

We claim:

1. A signal light adapted to be mounted on a wall of a drinking glass comprising,
 - a tubular casing closed at its lower end and open at its upper end, said casing being adapted to receive a dry cell battery,
 - a clip mounted at its upper end to the upper end of said casing and having a free portion projecting downwardly along the outside of said casing,
 - a light bulb mounted in the upper end of said casing and in electrical contact with a battery mounted in said casing,

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a globe mounted on the upper end of said casing to enclose said light bulb,

said casing having an opening under said clip, a resilient electrical conductor having a lower end in electrical contact with the lower end of said battery and an upper end movable into electrical contact with said light bulb to complete the circuit between said battery and said light bulb,

the upper end of said conductor normally being disposed out of engagement with said bulb, and said conductor having a portion intermediate its upper and lower ends projecting through said opening and outside of said casing, said projecting portion providing a surface which is inclined in the direction of said clip and underlies the free portion of said clip, said inclined surface being engageable by the wall of a drinking glass to force it and the upper end of said conductor into engagement with said bulb upon the application of said signal light to a drinking glass.

2. A signal light in accordance with claim 1 further comprising resilient means in the bottom of said casing for engagement with the lower end of a battery to urge said battery upwardly into engagement with a light bulb.

3. A signal light in accordance with claim 1 and further comprising at least one lip projecting laterally from the upper edge of said casing, said globe having an opening in the lower end thereof adapted to be snap fitted over said lip.

4. A signal light according to claim 1 in which the upper end portion of said casing has a vertical slot forming said opening through which said upper end of said conductor projects, said clip being attached to upper end of said casing by a bifurcated support having legs straddling said slot, the upper end of said conductor normally lying between said legs.

5. A signal light according to claim 1 in which said casing and clip are molded integrally from a plastic material, said plastic material of said clip being resilient to clamp a drinking glass wall between it and said casing with the wall forcing said conductor into engagement with said bulb.

6. A signal light according to claim 1 in which said opening is an elongated vertical slot which extends at least approximately one-half the length of said casing and in which the intermediate portion of said conductor projects out of the lower end of said slot and upwardly to approximately the upper end of said casing, whereby said inclined surface provides a long gradual slope to facilitate the application of said signal light to said drinking glass.

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