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ANNE-MARIE GOLAZ NÉE PETROFF ETAL

PROTECTIVE DEVICE SUCH AS UMBRELLA, SUNSHADE OR THE LIKE

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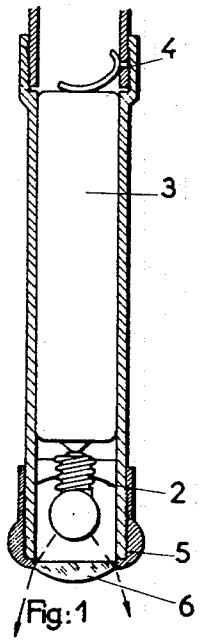


Fig:1

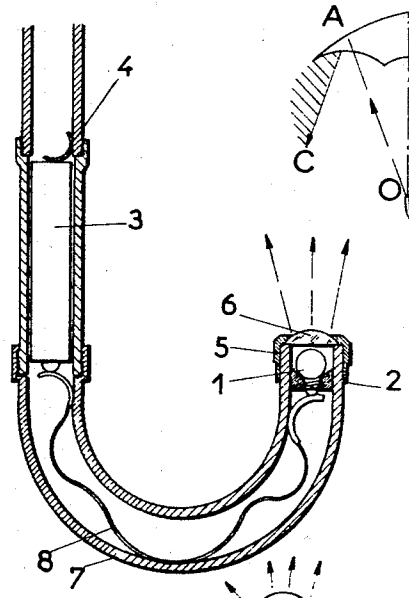


Fig:2

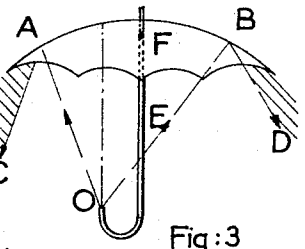


Fig:3

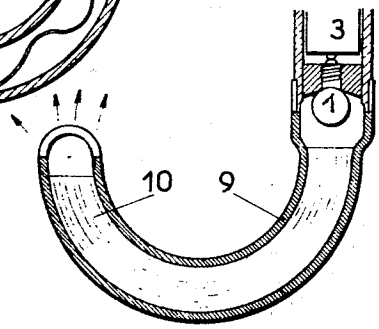


Fig:5

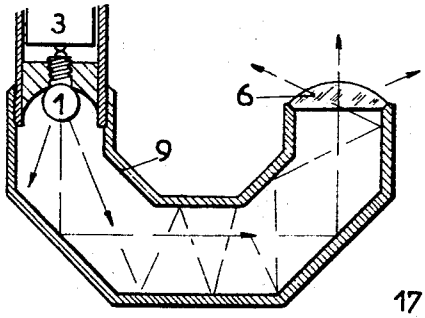


Fig:4

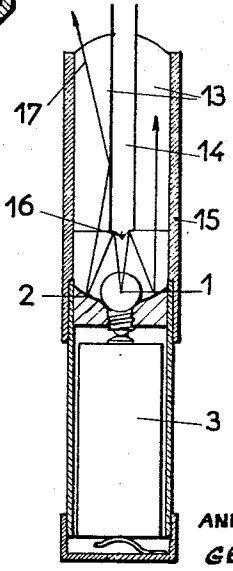


Fig 7

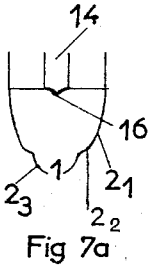


Fig 7a

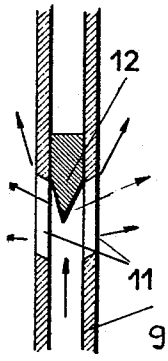


Fig 6

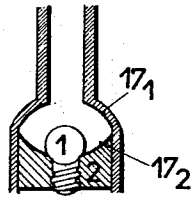


Fig 6a

INVENTORS

ANNE-MARIE GOLAZ NÉE PETROFF

GERARD A.F.M.J. CORDONNIER

Imrie & Smiley

Attys.

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PROTECTIVE DEVICE SUCH AS UMBRELLA, SUNSHADE OR THE LIKE

Anne-Marie Golaz, née Petroff, Le Barroux, France, and Gérard Anatole François Marie Joseph Cordonnier, 3 Rue de la Marne, Ville d'Avray, France

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6 Claims. (Cl. 240—6.42)

One of the objects of the invention is to produce a protective device, such as an umbrella, which accords suitable lighting so as to facilitate the user's movements and to announce his presence, for instance, to motorists.

Another object of the invention is to provide a lighting source incorporated in the protective device, this source being so arranged as to illuminate the fabric of this protective device such as an umbrella, so as to obtain, by diffusion, the lighting up of an area surrounding the user and that the beams diffused by the fabric announce the presence of the user, more particularly to motorists.

Another object of the invention is to place the lighting device inside the handle of the protective device so that the light beam emerges from the lower end of the handle so as to obtain suitable lighting, whether the handle be straight or curved.

Other objects and advantages of the invention will be revealed by the description and claims hereafter and the attached drawings, in which:

FIGURE 1 shows the device placed at the end of an umbrella or the like with a straight handle,

FIGURE 2 shows the device according to the invention placed at the end of a curved handle,

FIGURE 3 shows the light beam lighting up the fabric of an umbrella.

FIGURES 4 and 5 show other methods of embodiment of the lighting device incorporated in the end of a curved handle.

FIGURE 6 shows another form of embodiment of the lighting device,

FIGURE 6*a* shows the reflecting surfaces utilized in the lighting device of FIGURE 6,

FIGURES 7 and 7*a* show another form of embodiment of the device according to the invention.

The present invention relates to an umbrella provided with an independent battery or accumulator light source enabling direct or indirect lighting for multiple purposes. It also relates, by extension, to parasols and sunshades or other light protective articles, dismountable and transportable, for instance.

The utilizing of an umbrella by night, during rainy weather, is very often accompanied by walking along sodden roads, covered with puddles that can hardly be seen, and it would be highly appreciated if it were possible to be surrounded by a lighted area enabling one to see "where you are stepping." Furthermore, the visibility of automobile drivers being greatly limited during wet weather, it is most desirable to increase the safety of the pedestrian by making his presence luminous, without dazzling, however.

For these two reasons, the pedestrian might think of providing himself with an electric torch, but very often his hands are not free suitably to hold an additional object, and the main object of the invention is to incorporate a light source of this kind in the umbrella. Moreover, an ordinary flash light cannot simultaneously throw a beam to the right and left, front and rear. And, in a direction where it is visible, when seen from afar it only appears like a dazzling luminous point, whose distance away cannot be judged.

This may cause wrong movements, according to the reactions of drivers: premature braking involving collisions, or braking too late, on the assumption that a distance headlight is seen. The interest of lighting up the pedestrian himself or the fabric of the umbrella with a diffused light is thus obvious, and this is the purpose of the luminous umbrella, the object of the invention.

In a first form of embodiment, the umbrella handle (FIGURE 1) made up of several dismountable parts, contains an electric bulb **1** with mirror **2** supplied by a battery or rechargeable accumulator **3** with a spring contact such as **4**. An end part **5** made, for example, in the shape of an internally threaded ring and framing a lens **6** will enable the luminous field to be limited to an area considered suitable. Screwing in more or less tightly **5** can eventually enable this field to be regulated by altering the distance of the lens **6** from the bulb **1**. The switch is not shown, any type of switch being able to be combined with the present invention. In this first form of embodiment, the umbrella used normally will light up the ground, but also part of the pedestrian's clothing which is also made visible.

In a second form of embodiment (FIGURE 2), the umbrella comprises a dismountable curved handle **7** eventually containing a conducting wire **8** connecting the electric source **3** to the bulb **1**. The bulb **1** combined with the mirror **2** and the lens **6** lights the interior of the stretched fabric of the umbrella upwards (FIGURE 3). The latter can be more or less lit up (zone AB), but preferably, the light beam will be concentrated in such manner that it will not be uselessly wasted outside of the screen made by the stretched fabric. The latter can be more or less reflecting, but preferably, it should be selected light and semi-transparent, so that one part of the beam descends towards the ground in a field CD, whereas the other part is diffused by transparency, making the umbrella luminous from all sides, even when sloping owing to the slant of the rain.

In a third form of embodiment (FIGURE 4), an alternative of the second, the bulb **1** is placed in the immediate vicinity of the electric source **3** as in FIGURE 1, but the dismountable end of the handle **9** either curved or of polygonal shape, will be hollow and reflecting inside, except in the transparent end part and eventually made by a lens **6**.

In a fourth form of embodiment (FIGURE 5), the dismountable end of the handle **3** is filled with a cluster of glass or plastic fibers conducting the light to the transparent end part.

In a fifth form of embodiment (FIGURE 6), a hollow handle **9** reflecting inside channels the light upwards towards a reflecting cone **12** installed opposite windows **11**. The latter can be actually cut out, or be the transparent parts of the tube **9** not made reflecting. The angle of the cone should be chosen so as suitably to direct the beam reflected annularly towards the fabric of the umbrella. FIGURE 3 shows two regions E and F more or less high on the handle staff, where the annular optical device of FIG. 6 could be mounted. The light beam could be rising, if the light source is in the handle, or descending if the component **12** is placed with the battery in the upper end point of the umbrella staff above the shade, outside of the fabric, for example, and dismountable. FIGURE 6*a* also diagrams an arrangement of the bulb enclosed between two annular mirrors 17_1 and 17_2 with a view to directing all the light beam into the hollow tube.

In a sixth form of embodiment (FIGURE 7) another annular optical device is used. By way of example, a battery **3** is placed in the lower end of the handle and surmounted by a bulb **1** and a reflecting device **2** specially

regulated for sending the light rays into an annular vertical mean orientation through a transparent block **13** made in one or more portions embedded between a cylindrical support **15** and a rod **14** both reflecting on their cylindrical facing parts. The end of the rod **14** is terminated by a part **16** also reflecting, preferably conical, for sending the reflecting light of the bulb on to the annular zone of the mirror **2**, thus recuperating the light beam which will finally come out upwards by the annular surface **17** which is made with a suitable curvature. The device **2** can thus be made up of several different curvature and orientation zones, spherical or otherwise. Thus in FIGURE 7*a* the reflecting surface **2** consists of three reflecting portions 2_1 and 2_2 and 2_3, the portion 2_3 embracing the lower part of the bulb **1** whereas the middle portion 2_2 will be more particularly intended to receive the beam sent by the cone **16** (projecting or hollow) whose rounded edge will concentrate on this zone 2_2 an annular image of the source. Its orientation will be such that the beam coming directly from the source, and the beam reflected will both be introduced into the annular zone **13** with a suitable slope.

Lastly, the zone 2_1 is intended to send the lateral beam of the bulb **1** directly into the annular zone.

The six preceding forms of embodiment are only given by way of examples of embodiments, and by no means limit the generality of the invention which could, for instance, comprise several bulbs, and on the fabric, various reflecting or diffusing zones enabling various aesthetic or other decorations to be added to the essential object of the invention. Also, a lateral window can be provided in the stick or handle, close to the bulb, for instance, so that part of the beam may be used to light up sundry objects close at hand, such as purse, note-book, etc.

What we claim is:

1. A protective device such as an umbrella, sunshade and the like, comprising a hollow handle assembly including a staff having a handle at its lower end and supporting an openable dome shaped shade formed of translucent fabric at its upper end, said staff having a bore whose wall surface is a reflector, means for passage of light out of said staff located in an upper portion of the staff, a light source including a lamp disposed coaxially in said hollow handle, a reflector assembly surrounding the lamp and directing light upwardly through said bore and a conical reflecting element located in said staff adjacent said means for passage of light out of the staff and directing light outwardly and upwardly against the underside of substantially the entire fabric dome when opened whereby the fabric diffuses part of the light downwardly and the remaining part is diffused through the fabric to render the protective device visible from a distance without the lamp being directly visible in a bright and dazzling manner.

2. A protective device as set forth in claim **1** wherein said means for passage of light out of said staff comprises one or more windows in the staff.

3. A protective device as set forth in claim **1** wherein said means for passage of light out of the staff comprises a portion of said staff formed of transparent material.

4. A protective device such as an umbrella, sunshade and the like, comprising a handle assembly including a rod-like staff having a hollow handle at its lower portion and supporting an openable dome shaped shade formed of translucent fabric at its upper end; at least one annular transparent block mounted in said handle around the lower portion of said staff; a light source including a lamp disposed coaxially in the lower portion of said hollow handle; a reflector assembly surrounding the lamp and directing light upwardly to and through said annular block, said rod-like staff having a reflective surface at its lower end above said reflector assembly to redirect light thereto, whereby the fabric reflects part of the light downwardly and the remaining part is diffused through the fabric to render the protective device visible from a distance without the lamp being directly visible in a bright and dazzling manner.

5. A protective device as set forth in claim **4** wherein said reflective surface of the lower end of the rod-like member has a conical section and focuses light downwardly and outwardly, said reflector assembly comprising a reflector having a first, second and third adjacent portions of different curvatures and orientations; said third portion surrounding the lamp, said first and third portions reflecting the light coming directly from the lamp, said second portion being an annular portion which is substantially smaller than said first portion and connects said first and third portions, said second portion both reflecting the light coming directly from the lamp and the light reflected from the said reflective surface of the lower end of the staff.

6. A protective device as set forth in claim **5** wherein said annular transparent block has inner and outer cylindrical surfaces formed as light reflectors.

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NORTON ANSHER, *Primary Examiner.*

EVON BLUNK, *Examiner.*

C. C. LOGAN, *Assistant Examiner.*