



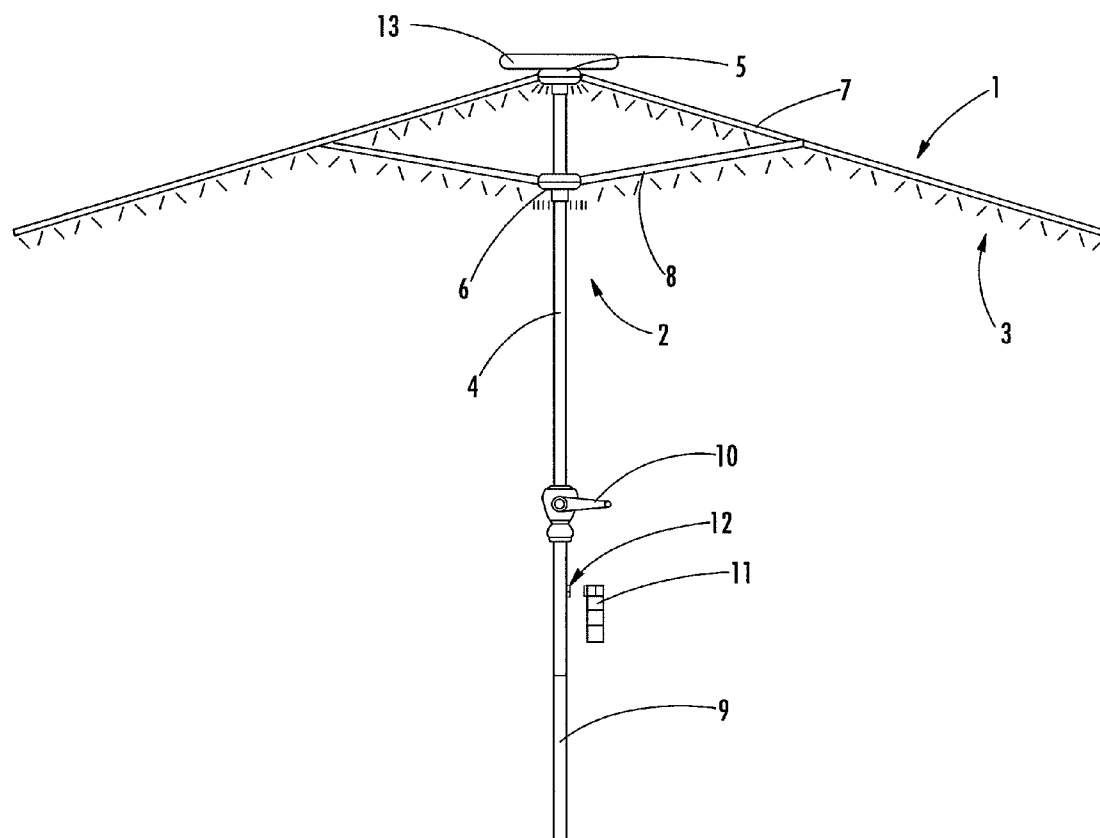
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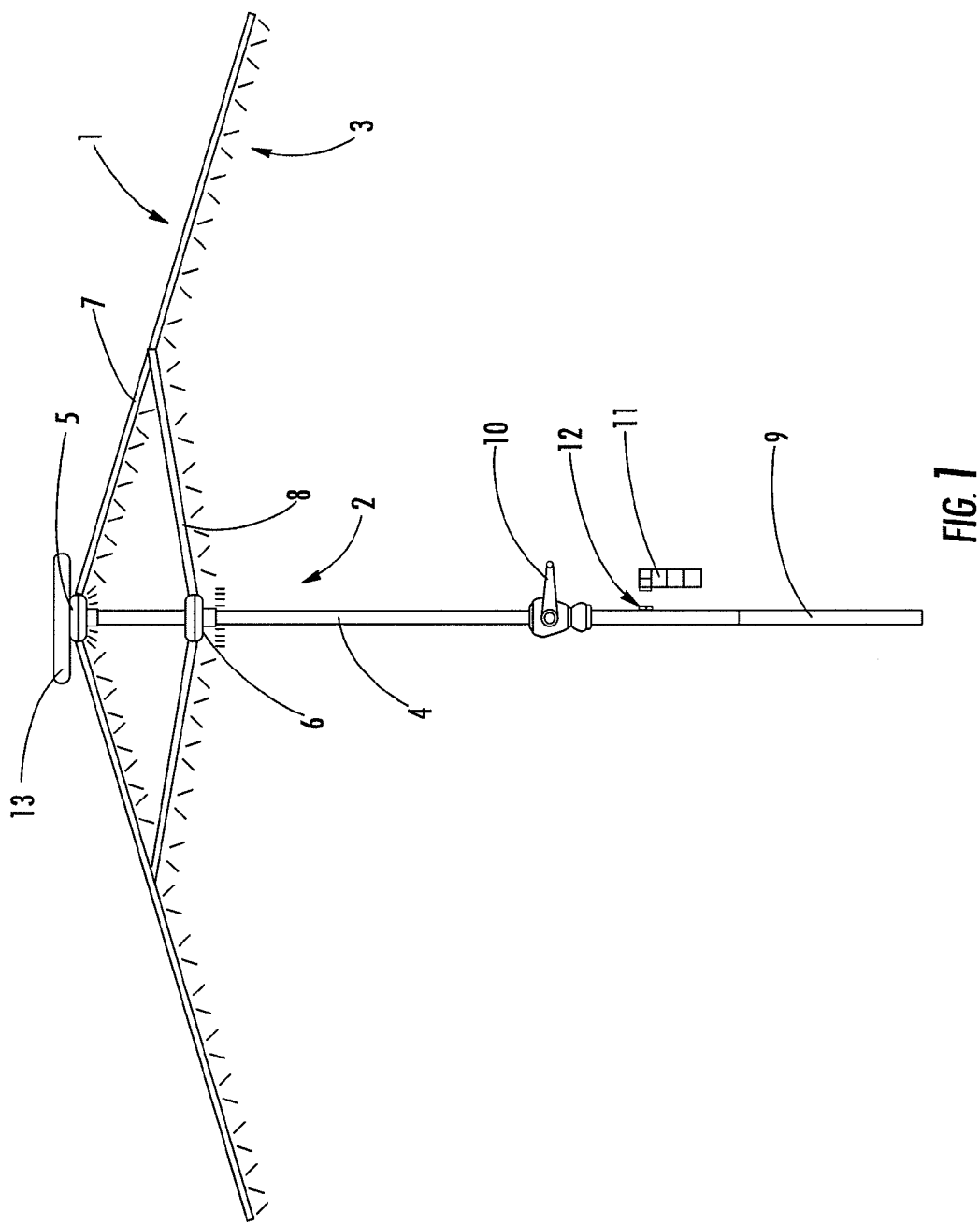
(19) **United States**(12) **Patent Application Publication**
HUALI et al.(10) **Pub. No.: US 2008/0105287 A1**(43) **Pub. Date: May 8, 2008**(54) **UMBRELLA COMPRISING AN
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Jianyong Xie(21) Appl. No.: **11/939,902**(22) Filed: **Nov. 14, 2007****Related U.S. Application Data**(63) Continuation of application No. PCT/DE2006/
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Publication Classification(51) **Int. Cl.****A45B 25/00** (2006.01)(52) **U.S. Cl.** **135/16**(57) **ABSTRACT**

The invention relates to an umbrella, in particular a hand-held umbrella, free-standing umbrella, or offset hanging umbrella for protection against the rain, or for use as a sunshade. Said umbrella comprises a canopy, a supporting construction for said canopy and an illumination unit that is allocated to the supporting construction. An aim of the invention is to provide the greatest possible protection for the illumination unit, whilst giving the umbrella a particularly aesthetic appearance. To achieve this, the invention is characterized in that the illumination unit of the supporting construction is essentially integrated into the umbrella.





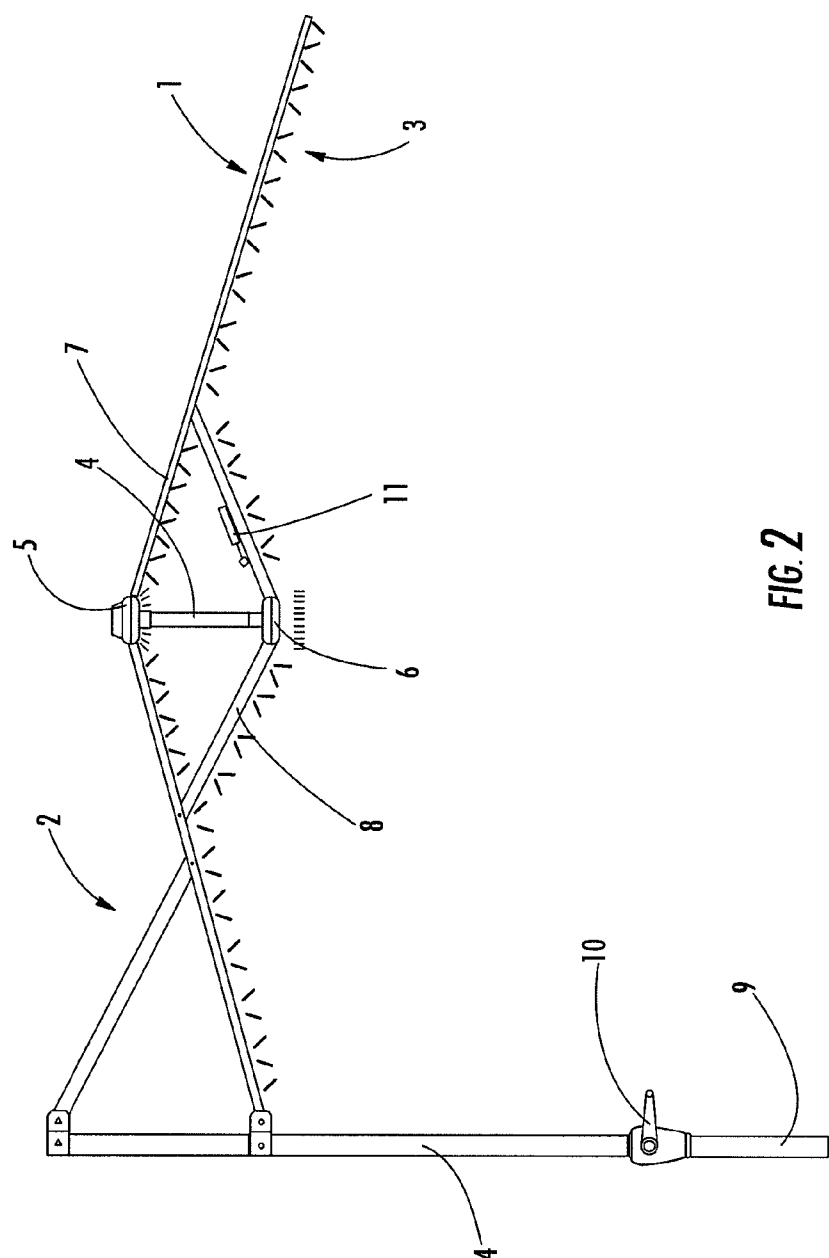


FIG. 2

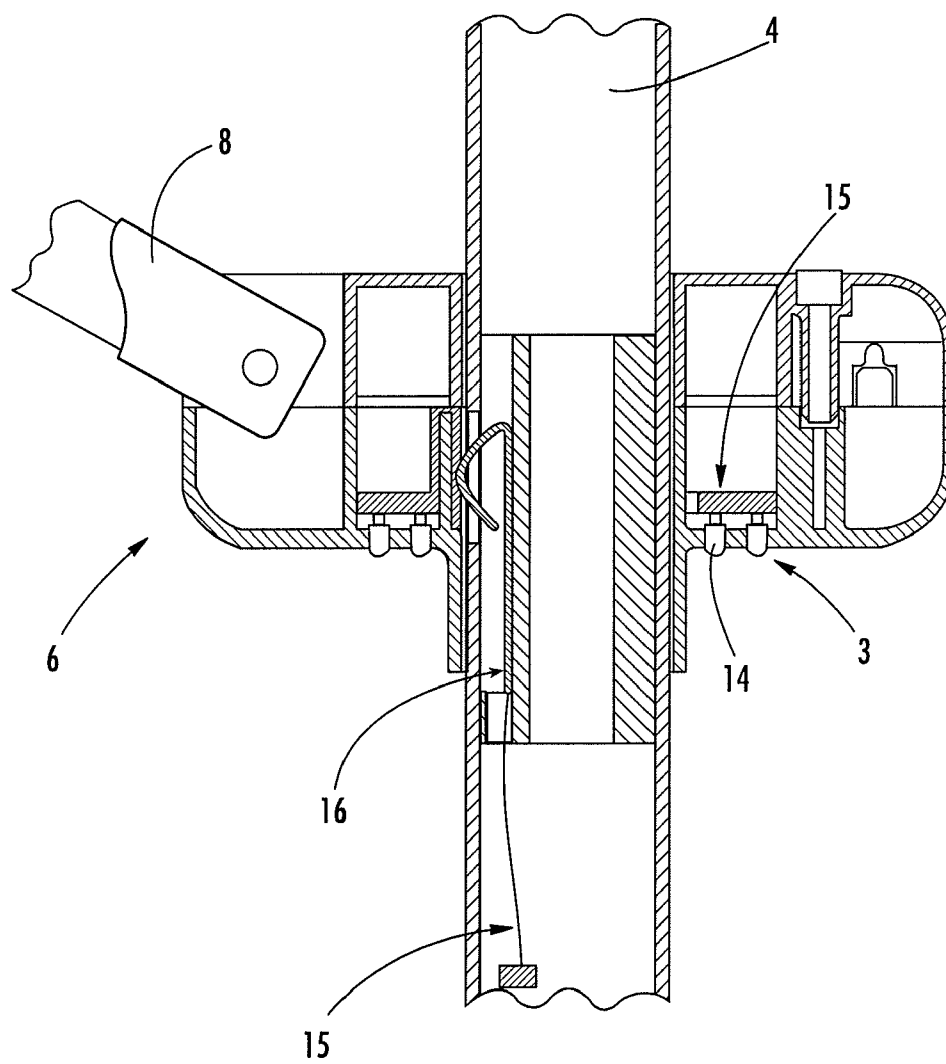


FIG. 3

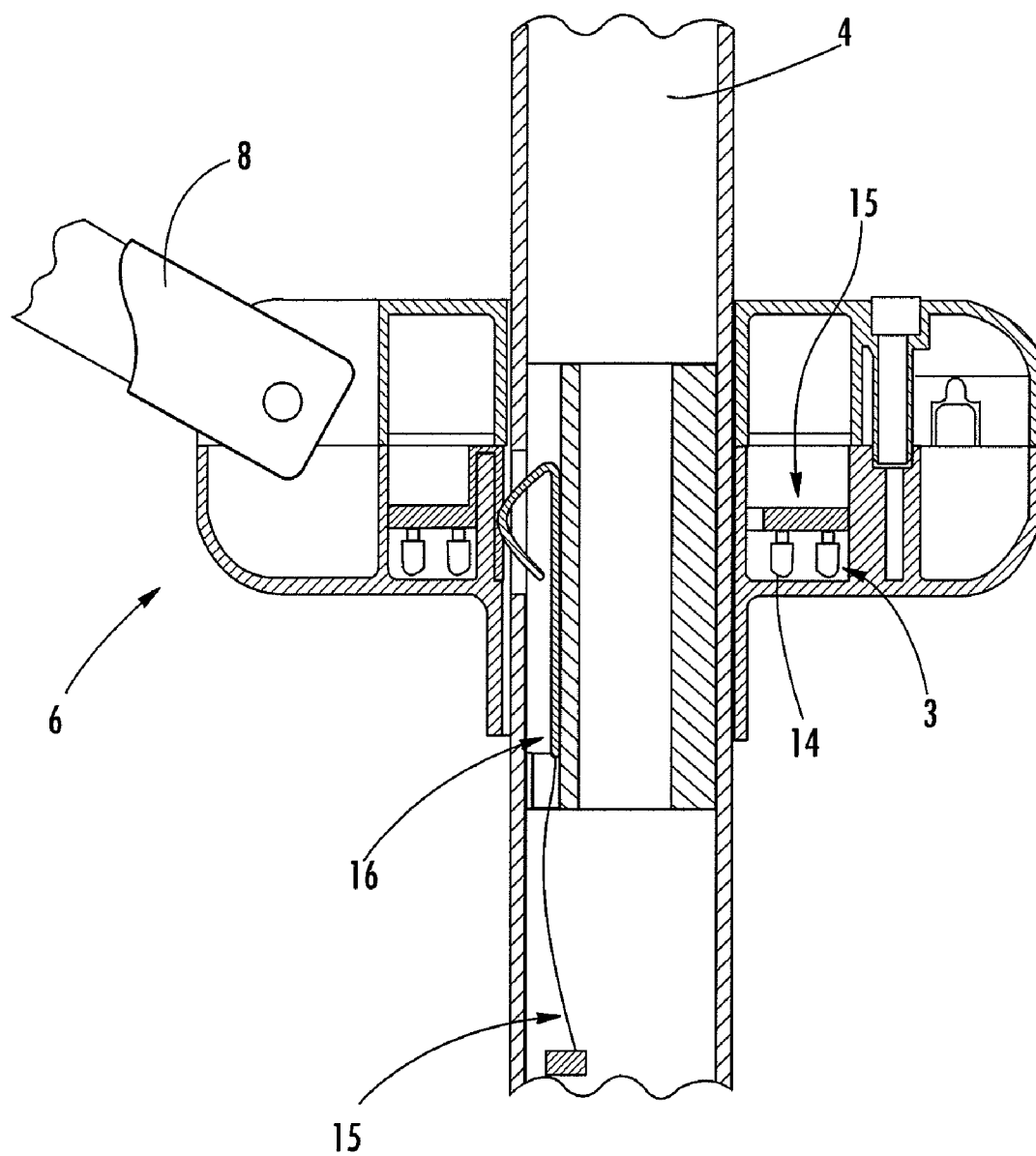


FIG. 4

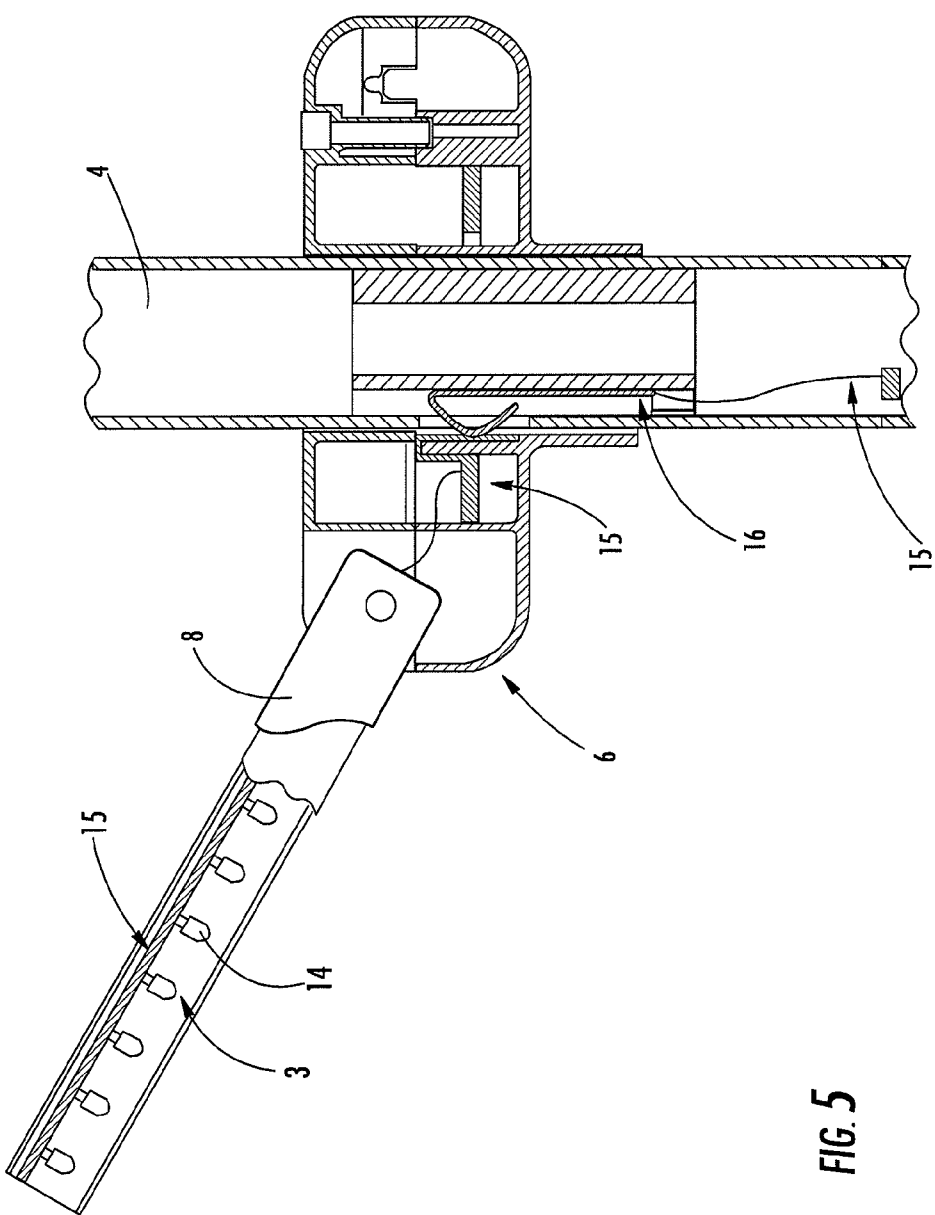


FIG. 5

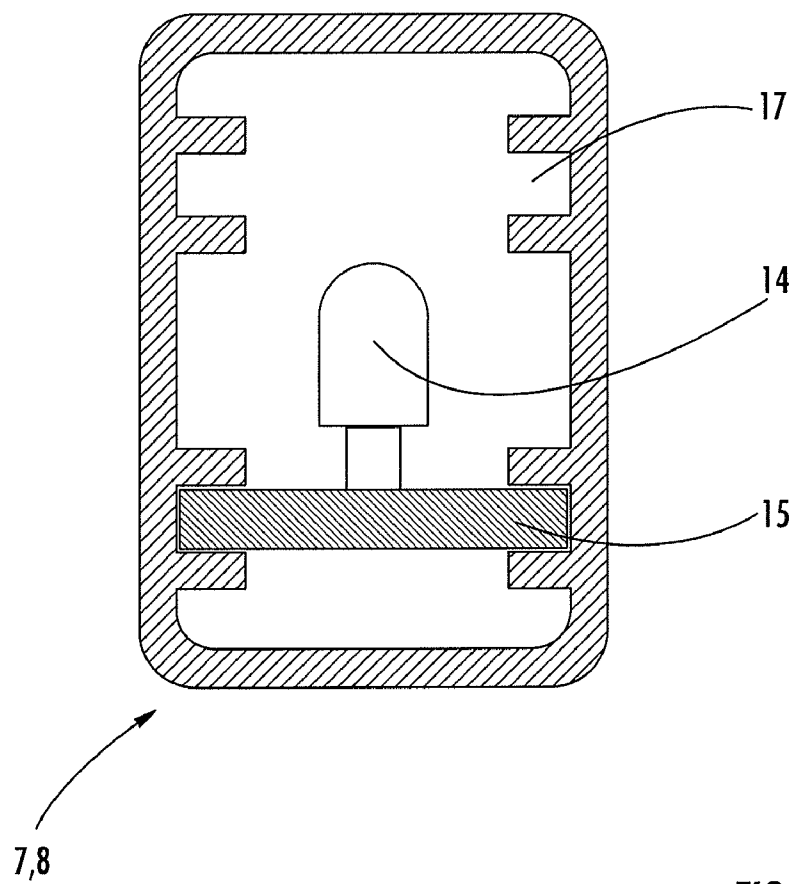


FIG. 6

UMBRELLA COMPRISING AN ILLUMINATION DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a Continuation of International Application No. PCT/DE2006/000467, filed Mar. 15, 2006, and which designates the U.S. The disclosure of the referenced application is incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The invention relates to an umbrella, more preferably a hand-held umbrella, free-standing umbrella, or offset hanging umbrella for protection against the rain, or for use as a sunshade. Said umbrella comprises a canopy, a supporting construction for said canopy and an illumination device that is allocated to the supporting construction.

BACKGROUND OF THE INVENTION

[0003] An apparatus of the mentioned type is known based on utility model patent application DE 298 11 817 U1. To improve the safety of pedestrians in traffic, it proposes an umbrella for protection against the rain equipped with electrical light sources at the tip of some of the ribs supporting the covering of the umbrella. These light sources are intended to improve the visibility of pedestrians in traffic by emitting a blinking or permanent light, particularly at night and in poor weather conditions.

[0004] Moreover, umbrellas for protection against the rain equipped with illumination devices are known from prior art, which are intended to help the user of the umbrella find his or her way thanks to the illumination of the immediate surroundings in particular at night and in difficult terrain. They are designed to prevent stumbling or accidental falls of the pedestrian. Said umbrellas for protection against the rain are equipped for example with commercially available light bulbs or filament bulbs, attached to the outside of the supporting construction of the umbrella.

[0005] Moreover, sunshades of the mentioned type are known from prior art. Especially large sunshades are used for example in the food and beverage industry, usually placed on terraces or in beer gardens. At dusk or at night, sunshades without illumination devices need to be folded closed to allow the illumination by existing external illumination devices or to be able to use the remaining sunlight at dusk. To make the complicated opening and closing of these sunshades several times a day unnecessary, sunshades equipped with illumination devices are now being offered. Several powerful lights are attached for example to the shaft of the umbrella. These lights can be turned on and off by the staff of the gastronomic establishment as needed.

[0006] However, the type-defining umbrellas have a disadvantage that the illumination device is very susceptible to damage as a result of the daily operation. Generally, the illumination device is attached to the shaft of the umbrella or to the supporting ribs of the canopy. In particular when the umbrella or the sunshade is folded open or closed, the illumination device can collide with other parts of the umbrella or its supporting construction, thus getting damaged or destroyed—especially over the long-term.

[0007] It is common knowledge that—as articles of the daily use—both umbrellas as well as sunshades are not

handled with particular care or treated gently, but are exposed to major wear as a result of their intended use and storage. The illumination device attached to the type-defining umbrella pursuant to the state of the art can be quickly and seriously damaged as a result.

[0008] An additional disadvantage of the umbrella comprising an illumination device known from prior art is the fact that the user perceives the illumination device as a highly disturbing foreign object within the otherwise familiar construction of the umbrella. The attachment of illumination devices to the supporting construction of commercially available umbrellas makes an amateurish impression on the user and creates an unfavorable aesthetical appearance. This unfavorable aesthetical appearance may have an especially negative impact if the illuminated umbrella is used in professional surroundings, such as for example in the case of very large and cost-intensive sunshades used in the food and beverage industry.

[0009] Therefore, an objective of the invention at hand is to develop and redesign an umbrella of the type mentioned above in such a way as to achieve the greatest possible protection for the illumination device, while giving the umbrella a particularly aesthetic appearance.

SUMMARY OF THE INVENTION

[0010] Based on the present invention, the objective mentioned above and others will be solved with the characteristics described in patent claim 1. Based on it, an umbrella, in particular a hand-held umbrella, free-standing umbrella or offset hanging umbrella for protection against the rain or for use as a sunshade is characterized in that the illumination device of the supporting construction is essentially integrated into the umbrella.

[0011] According to the present invention, it has been determined that the ideal protection of the illumination device allocated to the umbrella from being damaged or destroyed can be achieved by partially or completely integrating the illumination device in the supporting construction of the umbrella.

[0012] The sensitive illumination device which can consist for example of light bulbs, filament bulbs, light emitting diodes, etc., can be partially or completely “embedded” in the supporting construction of the umbrella according to the present invention. To the extent a regularly constructed umbrella is used for this purpose, the illumination device can be integrated for example in the shaft, the hub or the holding or supporting ribs of the umbrella.

[0013] The isolation of the illumination device from the surroundings achieved with this encapsulation effectively prevents it from being damaged by the opening and closing of the umbrella, by environmental influences or by influences which occur during the storage of the umbrella.

[0014] In addition, it has been determined according to the present invention that the integration of the illumination device within the supporting construction of the umbrella achieves a particularly beneficial aesthetic appearance. If the illumination device of the umbrella is not in operation, e.g. when daylight is available, the illumination device is not visible to the user of the umbrella or is vaguely discernible at best.

[0015] On the other hand, if the illumination device is in operation, a superior aesthetical impression of the complete umbrella is obtained thanks to the encapsulation of the illumination device.

[0016] The invention effectively prevents the aesthetical appearance of a particularly high-quality umbrella or sunshade from being seriously devaluated due to illumination devices that are attached to the outside of the supporting construction, possibly in an amateurish manner.

[0017] Accordingly, the invention relates to an umbrella, in particular a hand-held umbrella, free-standing umbrella, or offset hanging umbrella for protection against the rain, or for use as a sunshade in which the greatest possible protection of the illumination device as well as a particularly aesthetic appearance of the umbrella is achieved.

[0018] In a particularly preferred embodiment, the umbrella according to the invention comprises a supporting construction which is known from commercially available umbrellas or sunshades. This means that the supporting construction is equipped with a shaft consisting of a fixed upper hub and a lower hub which is moveable along the shaft, where the upper hub contains several holding ribs connected to the canopy, where several supporting ribs coupled with the holding ribs are connected to the lower hub and where the canopy can be folded open and closed by means of the movement of the lower hub.

[0019] The canopy can be made for example of natural or synthetic fabric, which can be impregnated, if necessary. In addition, it is possible to use a compound material made of fabric and synthetic foil. The compound material can consist of several layers. Finally, it is also possible to use a cover made of pure synthetic fabric for the canopy.

[0020] The lower hub and the shaft in the area of the upper end position of the lower hub are generally designed in such a way as to allow the lower hub to lock into its upper end position with respect to the shaft.

[0021] In addition, the supporting construction can comprise a handle or a base or similar at the lower end of the shaft. The umbrella according to the invention can be designed similar to commercially available umbrellas and sunshades in this respect.

[0022] In a particularly preferred further development of the umbrella according to the invention, the supporting construction integrates the illumination device in such a way that it is completely encapsulated and isolated from the surroundings. As a result, the illumination device is not in direct contact with the surroundings, thereby providing a particularly effective prevention of superficial wear of the illumination device. In other words: the illumination device is completely enclosed by the supporting construction in all directions, and as a result, it is ideally protected.

[0023] Preferably, the supporting construction is made of transparent or translucent material at least in the area of the illumination device. If the illumination device is completely enclosed by the supporting construction as described above, the supporting construction must be designed in such a way at least in the area of the enclosed illumination device that the light emitted by the illumination device can penetrate the supporting construction at least partially to allow the illumination device to fulfill its purpose.

[0024] The achieved light efficiency is particularly high with the use of transparent material above the supporting construction. In contrast, the use of translucent material allows one to achieve light scattering similar to the effect known from matte light bulbs or lamps comprising lampshades. This allows the provision of a particularly comfortable illumination for the user. Moreover, the use of translucent material allows the realization of color effects, namely, if the translucent material is colored and the emitted light acts as a color filter. In addition, it is possible to provide various colors of the emitted light within a single supporting construction, by using differently colored translucent material in different areas of the supporting construction.

[0025] The translucent material can consist of synthetic material or glass or any other suitable material with translucent properties. Based on prior art, a large number of different materials are known in this respect.

[0026] The translucent materials known from prior art can consist of any color and/or shade or light permeability. This allows the achievement of interesting color and light effects with the umbrella according to the invention which are suitable for the respective situation.

[0027] In an additional embodiment of the umbrella according to the invention, the color and/or intensity of the emitted light can be changed by the user. The intensity of the emitted light can be changed for example in that the user is provided with a dimming function for the illumination device. Said dimming function can be realized particularly well with commercially available light bulbs. If the illumination device consists of illumination elements which are undimmable due to their function, the intensity of the emitted light can be controlled by turning a larger or smaller number of the illumination elements which form the illumination device on or off, depending on the requirements.

[0028] The color of the emitted light can be changed by turning illumination elements with different colors on or off as needed. For this purpose, the illumination device can consist of illumination elements which each emit one of the complementary colors. Any color of the emitted light can be provided by selectively turning on and off certain illumination elements.

[0029] In another embodiment of the umbrella according to the invention, the illumination device within the supporting construction can be surrounded by a color filter, for example shaped like a cylinder, which is equipped with differently colored segments. By rotating or otherwise changing the position of the color filter within the supporting construction, the color of the emitted light changes depending on the user's selection.

[0030] In a particularly preferred embodiment of the umbrella according to the invention, the upper hub and/or lower hub is at least partially made of transparent or translucent material and at least partially integrates the illumination device. This embodiment of the umbrella according to the invention allows the achievement of a particularly uniform light distribution, in particular if the illumination device is designed ring-like within the hub. For this purpose, several illumination elements with a defined distance between them can form a circle around the shaft of the umbrella. The area underneath the umbrella is particularly well lit by the reflection or diffusion of the emitted light through the canopy. In

addition, the power supply of the illumination device is easier thanks to the small distance from the shaft of the umbrella.

[0031] In addition or alternatively to the further development mentioned last, the umbrella can be equipped in such a way that one or a plurality of holding ribs and/or one or a plurality of supporting ribs are at least partially made of transparent or translucent material and at least partially integrate the illumination device. The integration of the illumination device within transparent or translucent supporting ribs ensures the optimal protection of the illumination device from being damaged. Moreover, the locally oriented illumination device is capable of realizing a particularly good illumination, including the area located outside the umbrella.

[0032] The supporting and holding ribs can have a square profile, with the illumination device integrated within them. For example, the illumination device can be arranged on a conducting rod or metal strip, inserted and fixed in the supporting and holding ribs when they are manufactured. To avoid a repetition, please refer to the statements above with respect to the materials and design options of the hubs, as well as the supporting or holding ribs.

[0033] Generally, an embodiment of the invention is preferred, in which the illumination device is equipped with one or a plurality of illumination elements. This generally allows the illumination of a larger area. Several illumination elements can be distributed locally in the supporting construction of the umbrella to ensure the uniform and extensive illumination. However, it is also possible to use a single illumination element as illumination device. For example, a circular neon tube can be integrated within a transparent or translucent hub of the umbrella as it is known from prior art.

[0034] The illumination elements can consist of filament bulbs, light bulbs and/or light emitting diodes (LEDs). Filament bulbs or light bulbs have the advantage that they emit a light that is perceived particularly comfortably by the user. However, as is generally known, the power consumption of light bulbs or filament bulbs is high compared to the emitted luminous power. Light emitting diodes have the advantage that they only take up a very small space within the supporting construction of the umbrella. In addition, the heat output of light emitting diodes is very small because a major share of the collected power is transformed into luminous power. Therefore, compared to light bulbs, light emitting diodes generally require much less power. Thanks to the small size of light emitting diodes, a particularly large number of light emitting diodes can be integrated within the supporting construction of the umbrella according to the invention. Moreover, a multitude of light effects can be realized with differently colored light emitting diodes. The luminous power can be controlled by selectively turning light emitting diodes on and off, whereby the power consumption of the illumination device can be minimized as well. The minimization of the power consumption is particularly important for umbrellas carried by the user, such as hand-held umbrellas for protection against the rain or sun.

[0035] The illumination device is generally equipped with an electrical circuit used to connect the illumination device to a power source. The electrical circuit can consist of wires, cables or conductive strips with the illumination elements arranged on them.

[0036] In a particularly preferred embodiment of the umbrella according to the invention, the electrical circuit is integrated within the supporting construction. As a result, the electrical circuit is not visible from the outside and safely

protected from being damaged. In case the circuit is required to bridge two mobile parts of the supporting construction which are coupled to one another, a conductive joint or hinge can be provided. Moreover, it is possible to arrange a piece of cable in such a way that it runs along the outside of the joint one wishes to bridge, thereby bypassing it.

[0037] In a further development of the umbrella according to the invention, the illumination device can be supplied with power by means of a battery or rechargeable battery pack, external solar cells or solar cells mounted on the canopy or by means of a power outlet or receptacle (via inserted rectifier, if necessary). If the umbrella according to the invention is equipped with several types of power supplies based on the user's selection, the user can select among them depending on the available power supply and switch for example from battery or rechargeable battery operation to operation using a power outlet or receptacle.

[0038] In a preferable embodiment, the rechargeable battery pack can be charged via solar cells and/or via a power outlet or receptacle. This way, an umbrella that is for example carried by a user, such as an umbrella for protection from the rain, can be recharged via a power outlet or receptacle in the residence of the user while he or she stays there. If the umbrella is needed, it is available fully charged. A sunshade according to the invention equipped with a solar cell mounted on the canopy or for example on the upper hub can be used to charge the rechargeable battery pack during daylight. If the illumination of the umbrella is required in the evening or at night, a fully charged rechargeable battery is available.

[0039] The battery or rechargeable battery pack can be integrated within the shaft, the handle or the base, depending on the preferred design of the umbrella according to the invention and depending on the type of umbrella one wishes to use.

[0040] In an alternative embodiment, the battery or rechargeable battery pack can be fully enclosed and attached on the outside of the shaft so that it can be detached. In this embodiment of the umbrella according to the invention, it is particularly easy to replace the battery or rechargeable battery pack with a new or charged battery or rechargeable battery pack, if it has been used for so long that it is unable to provide any more energy.

[0041] In a particularly preferred embodiment of the umbrella according to the invention, the illumination device can be activated by folding open the canopy. In other words, the illumination device is activated by means of a suitably designed contact which is triggered when the canopy is folded open. This way, the hand or foot switch or a remote control to activate the illumination device is not required.

[0042] Preferably, the illumination device is activated when the lower hub is moved into its upper end position with respect to the shaft. For this purpose, a switch can be provided for example at the outside of the shaft, which is automatically operated by the lower hub as soon as it is brought into its upper end position with respect to the shaft. The upper end position of the lower hub is deemed taken when the canopy is completely folded open.

[0043] In another preferable instance, the transition between the shaft and the lower hub in the area of its upper end position is itself designed as an electrical switch which can be closed by moving the lower hub into its upper end position. The illumination device is automatically activated in that an electrically conductive contact is created between the hub and the electrical circuit arranged in the shaft in the area

of the end position of the hub. The electrical circuit for the illumination device is thereby closed. The electrical circuit is automatically re-opened if the hub is removed from its upper end position or if one wishes to close the canopy.

[0044] In an alternative embodiment of the umbrella according to the invention, the automatic activation of the illumination device based on the opening of the canopy is not required. In this case, a hand or foot switch is integrated in the supporting construction which can be used at the choice of the user to activate the illumination device. This embodiment of the umbrella according to the invention is preferable in case the automatic activation of the illumination device with open canopy does not appear to be desirable. For example, for reasons of saving energy, it can appear to be rather worthwhile that the illumination device is exclusively activated and deactivated based on the user's choice.

BRIEF DESCRIPTION OF THE DRAWINGS

[0045] The inventive device will be described in more detail hereinbelow with the aid of an exemplary embodiment of the inventive apparatus, with reference to the accompanying drawings. The inventive device will be described in more detail hereinbelow with the aid of an exemplary embodiment of the inventive apparatus, with reference to the accompanying drawings.

[0046] FIG. 1 shows a side view of the umbrella according to one embodiment of the invention comprising an illumination device, which has been designed as a free-standing umbrella in this case;

[0047] FIG. 2 shows a side view of an alternative embodiment of the umbrella according to the invention, where the umbrella has been designed as an offset hanging umbrella;

[0048] FIG. 3 shows a partial view in cross-section of the supporting construction of the umbrella according to the embodiment of the invention shown in FIG. 1, where part of the shaft as well as the lower hub of the supporting construction arranged in a moveable manner on the shaft are displayed, where the lower hub is designed in such a way that the illumination elements of the illumination device are partially encapsulated and where the lower hub is additionally designed in such a way that the illumination device can be activated automatically by moving the lower hub into its upper end position;

[0049] FIG. 4 shows a partial view in cross-section of the supporting construction of another embodiment of the umbrella according to the invention, where contrary to FIG. 3 the lower hub of the supporting construction in this embodiment of the invention is designed in such a way that the illumination elements of the illumination device are integrated completely isolated from the surroundings, where at least the underside of the lower hub is made of transparent or translucent material;

[0050] FIG. 5 shows a partial view in cross-section of the supporting construction of an additional embodiment of the umbrella according to the invention, where the illumination elements of the illumination device are completely isolated from the surroundings through encapsulation into the supporting ribs of the supporting construction, while no illumination elements are integrated in the lower hub shown in this embodiment, where the lower hub is designed similar to FIG. 3 or FIG. 4 in such a way that the illumination device can be activated automatically by moving the lower hub into its upper end position; and

[0051] FIG. 6 shows a side view along the longitudinal axis of a supporting or holding rib, for example in an embodiment according to FIG. 5, where the illumination elements of the illumination device are completely isolated from the surroundings through encapsulation into the supporting/holding rib, and where the supporting or holding rib is at least partially made of transparent or translucent material.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0052] FIG. 1 shows the first embodiment of the umbrella according to the invention. The umbrella has been designed as a stand-alone umbrella and is usually used as a sunshade. The umbrella includes a canopy 1 and a supporting construction 2 for the canopy 1. Moreover, the umbrella is equipped with an illumination device 3, which is indicated by the rays of the emitted light.

[0053] The supporting construction 2 consists of a shaft 4 with a fixed upper hub 5 and a lower hub 6 which can be moved along the shaft. Several holding ribs 7 connected to the canopy 1 are attached to the upper hub 5. Several supporting ribs 8 coupled with the holding ribs 7 are attached to the lower hub 6. As mentioned, the canopy 1 can be folded open and closed by moving the lower hub 6 along the shaft 4.

[0054] The lower end of the shaft 4 is connected to a base 9 which is only adumbrated here. The connection between the shaft 4 and the base 9 is realized with a clamp 10.

[0055] In this embodiment of the umbrella according to the invention, the illumination device 3 is supplied with power by means of a battery/rechargeable battery pack 11. The battery/rechargeable battery pack 11 is attached at the outside of the shaft 4 by means of a detachable holder 12. In addition, the umbrella includes a solar cell 13 mounted on the upper hub 5 used to supply the illumination device 3 or the battery/rechargeable battery pack 11 with power. Optionally, the solar cell 13 can also be mounted on the canopy 1. In addition, it is possible to integrate the battery/rechargeable battery pack 11 within the shaft 4 or within the base 9.

[0056] In the illustrated embodiment, the illumination device 3 is integrated within the upper hub 5, the lower hub 6, the holding ribs 7 as well as the supporting ribs 8. The illumination device is completely isolated from the surroundings through encapsulation by the components mentioned above. For this purpose, the components are at least partially made of transparent or translucent material. However, it is equally possible that the illumination device 3 is only partially integrated within the mentioned components. In this type of embodiment, the transparent or translucent material may not be necessary.

[0057] FIG. 2 shows a side view of another embodiment of the umbrella according to the invention, designed as an offset hanging umbrella in this example. The base 9 of the offset hanging umbrella is located outside of the extension of the connection between the upper hub 5 and the lower hub 6. Moreover, the umbrella comprises two shafts 4. In this embodiment, the battery/rechargeable battery pack 11 is attached to one of the supporting ribs 8. Again, the illumination device 3 is completely isolated from the surroundings through encapsulation by the upper hub 5, the lower hub 6, the holding ribs 7 and the supporting ribs 8. To avoid a repetition, please refer to the description of the figure under FIG. 1.

[0058] FIG. 3 shows a partial view in cross-section of the supporting construction 2 of an umbrella according to the invention which is designed identical to the umbrella

described in FIG. 1 with respect to the construction. The canopy 1 (not shown) is supported by a central shaft 4. Also shown is the lower hub 6 arranged on the shaft 4 in a moveable manner, with the supporting ribs 8 attached to it. In this embodiment, the illumination device 3 is partially isolated from the surroundings through encapsulation by the lower hub 6. The illumination device 3 consists of several illumination devices 14, arranged in a circular manner within the lower hub 6. The underside of the lower hub 6 is equipped with openings for the illumination elements 14. As a result, the illumination elements 14 only contact the surroundings with a very small part of their surface, thus effectively protecting them from being damaged. Moreover, the illumination device 3 is hardly noticed by the user thanks to the partial encapsulation.

[0059] An electrical circuit 15 is provided to supply the illumination device 3 with power. The electrical circuit 15 is made of suitable conductive materials. In the embodiment shown, the electrical circuit 15 is supplied with power at the lower end of the shaft 4, for example via a battery/rechargeable battery pack 11 (not shown). The electrical circuit 15 extends from the lower end of the shaft 4 within the shaft 4 to the spring 16, which is made of electrically conductive material. The part of the electrical circuit 15 arranged within the shaft 4 ends in the spring 16 made of electrically conductive material. The spring 16 is isolated from the outside of the shaft 4; however, it can be used to create an electrically conductive connection through the wall of the shaft 4.

[0060] The electrical circuit 15 arranged within the lower hub 6 is designed in such a way that it automatically creates an electrically conductive connection with the spring 16 if the lower hub 6 is in the upper end position with respect to the shaft 4.

[0061] With this construction, the illumination device 3 is always activated when the canopy 1 is folded open.

[0062] Alternatively, it goes without saying that the illumination device 3 can be activated manually by means of a hand or foot switch which can be integrated in any position.

[0063] FIG. 4 shows a partial view in cross-section of the supporting construction of the umbrella according to the invention according to FIG. 3, where the illumination elements 14 of this embodiment are completely integrated in the lower hub 6. As a result, the illumination elements 14 of the illumination device 3 are completely isolated from the surroundings through encapsulation. The illumination elements 14 are arranged within the lower hub 6 on the electrical circuit 15. For this purpose, the electrical circuit 15 has been integrated as a holder and simultaneously as an electrical conductor in a circular fashion within the lower hub 6. To allow the emission of light from the lower hub 6, the lower hub 6 is at least partially made of transparent or translucent material. For this purpose, the lower hub 6 can be at least partially made of synthetic material, glass or any other suitable material.

[0064] The complete encapsulation of the illumination elements 14 within the lower hub 6 practically prevents the illumination elements 14 from being damaged during the use, transport or storage of the umbrella according to the invention. In addition, the illumination elements 14 are hardly discernible from the outside, particularly not when the illumination device 3 is in use. The illumination devices 14 can consist of light bulbs; however, in the embodiment shown the illumination elements 14 consist of light emitting diodes (LEDs).

[0065] FIG. 5 shows a partial view in cross-section of the supporting construction 2 of an umbrella according to the

invention according to FIG. 1. Contrary to the embodiments described in FIG. 3 and FIG. 4, the illumination elements 14 are not arranged within the lower hub 6 here, but are completely encapsulated by the supporting ribs 8. For this purpose, the supporting rib 8 is connected to the electrical circuit 15 which is supplied with power starting from the lower end of the shaft 4 as described above. This embodiment of the umbrella according to the invention is also equipped with the automatic activation of the illumination device 3 as soon as the lower hub 6 takes its upper end position with respect to the shaft 4. This automatic activation is described in detail above.

[0066] The supporting rib 8 shown preferably consists of a rectangular cross-section and is at least partially made of transparent or translucent material. A longitudinal holder for the illumination elements 14 is arranged in the supporting rib 8. The illumination elements 14 are arranged on this holder, separated from one another and connected to a power supply through the electrical circuit 15 integrated within the holder. The power supply is not shown in detail.

[0067] The illumination elements 14 consist of light emitting diodes. The light emitting diodes can have different colors and/or light intensities. Naturally, light bulbs or filament bulbs can be used instead of light emitting diodes.

[0068] The figure does not show the holding ribs 7 of the umbrella according to the invention. These holding ribs 7 can be designed according to the supporting ribs 8 shown and be electrically connected, thus allowing them to feed part of the illumination device 3. The simultaneous illumination of the holding ribs 7 and the supporting ribs 8 is shown in FIG. 1.

[0069] Naturally, an illuminated lower hub 6 pursuant to FIG. 3 or FIG. 4 can be combined with an illuminated upper hub 5 and additionally with illuminated holding ribs 7 and/or supporting ribs 8, depending on the desired illumination intensity and depending on the size of the area one wishes to illuminate. An umbrella with integrated illumination device 3 pursuant to FIG. 1 can be provided this way.

[0070] FIG. 6 shows a side view of the supporting rib 8 from FIG. 5, where the cutting plane is arranged vertically with respect to the longitudinal axis of the supporting rib 8. The supporting rib 8 consists of a hollow profile with rectangular cross-section, where the edges of the profile are rounded. However, the profile can have any other shape, such as an oval or circular cross-section.

[0071] Four slots 17 are arranged within the profile in a longitudinal direction, where two slots each are arranged pair-wise across from one another in the upper and lower area. A longitudinal holder for the illumination elements 14 is inserted into a pair of slots. Said holder is integrated in the electrical circuit 15 for the illumination elements 14. The illumination elements 14 are arranged on the holder or the electrical circuit 15.

[0072] Because the illumination elements 14 are completely encapsulated by the supporting rib 8, the supporting rib 8 is at least partially made of transparent or translucent material. Depending on the intended illumination result, the holder for the illumination elements 14 which is integrated in the electrical circuit 15 can be made of transparent, translucent or non-transparent material.

[0073] In the exemplary embodiment shown, the supporting rib 8 is made of synthetic material. However, the supporting rib 8 can be made of any other suitable material, such as glass.

[0074] When the supporting rib 8 is produced, the profile with the two pairs of slots is made first. Then the longitudinal

holder with the illumination elements **14** arranged on the holder is inserted into a pair of slots. The supporting rib **8** can then be installed into the supporting construction **2** of the umbrella.

[0075] If a different direction of the light emission is desired, for example if one wishes to illuminate the canopy **1** instead of the floor, the holder with the illumination elements **14** can be mounted on the other pair of slots, thereby resulting in an opposite direction of the illumination.

[0076] Naturally, the construction shown here can be used both as supporting rib **8** as well as holding rib **7** and was only shown here as an example based on the supporting rib **8** shown in FIG. 5.

[0077] We would like to refer to FIG. 1 again, which shows an umbrella according to the invention, containing both illuminated holding ribs **7** as well as illuminated supporting ribs **8**. In it, the design of the holding ribs **7** and the supporting ribs **8** corresponds to the construction shown in FIG. 6

[0078] Finally, we would like to emphasize that the exemplary embodiments described above are discussing the teachings according to the claim, without limiting them to the exemplary embodiments.

That which is claimed is:

1. An umbrella, in particular a hand-held umbrella, free-standing umbrella, or offset hanging umbrella, for protection against the rain or for use as a sunshade, comprising:

a canopy, a supporting construction for the canopy, and an illumination device that is allocated to the supporting construction,

wherein the illumination device of the supporting construction is essentially integrated into the umbrella.

2. The umbrella according to claim 1, wherein the supporting construction contains a shaft with a fixed upper hub and a lower hub which can be moved along the shaft, where several holding ribs connected to the canopy are attached to the upper hub, where several supporting ribs coupled with the holding ribs are attached to the lower hub, and where the canopy can be folded open and closed by moving the lower hub.

3. The umbrella according to claim 2, wherein the supporting construction comprises a handle or base or similar device at the lower end of the shaft.

4. The umbrella according to claim 1, wherein the supporting construction encapsulates the illumination device in such a way that it is isolated from the surroundings.

5. The umbrella according to claim 1, wherein the supporting construction is made of transparent or translucent material at least in an area of the illumination device.

6. The umbrella according to claim 5, wherein the transparent or translucent material comprises synthetic material or glass.

7. The umbrella according to claim 5, wherein translucent material with different colors or a different degree of shading can be used.

8. The umbrella according to claim 1, wherein at least one of a color or an intensity of emitted light can be changed by a user.

9. The umbrella according to claim 2, wherein at least one of the upper hub or the lower hub at least partially comprises transparent or translucent material and at least partially integrates the illumination device.

10. The umbrella according to claim 2, wherein at least one of the holding ribs at least partially comprises transparent or translucent material and at least partially integrates the illumination device.

11. The umbrella according to claim 2, wherein at least one of the supporting ribs at least partially comprises transparent or translucent material and at least partially integrates the illumination device.

12. The umbrella according to claim 1, wherein the illumination device comprises one or more illumination elements.

13. The umbrella according to claim 12, wherein at least one of the one or more illumination elements comprises a filament bulb or a light emitting diode.

14. The umbrella according to claim 1, wherein the illumination device comprises an electrical circuit.

15. The umbrella according to claim 14, wherein the electrical circuit is arranged within the supporting construction.

16. The umbrella according to claim 1, wherein the illumination device can be charged by one of the group consisting of: battery, rechargeable battery pack, external solar cells, solar cells mounted on the canopy, a power outlet or receptacle, a power outlet or receptacle via an inserted rectifier, or combinations thereof.

17. The umbrella according to claim 16, wherein the rechargeable battery pack can be charged via at least one of solar cells or a power outlet or receptacle.

18. The umbrella according to claim 16, wherein a battery or rechargeable battery pack is arranged within one of the shaft, the handle or the base.

19. The umbrella according to claim 16, wherein a battery or rechargeable battery pack is encapsulated and attached at the outside of the shaft so that it can be detached.

20. The umbrella according to claim 1, wherein the illumination device can be activated by folding open the canopy.

21. The umbrella according to claim 2, wherein the illumination device can be activated by moving the lower hub into its upper end position with respect to the shaft.

22. The umbrella according to claim 21, wherein the transition between the shaft and the lower hub is designed as an electrical switch in an area of the upper end position, which is lockable by moving the lower hub into its upper end position, whereby the illumination device can be activated.

23. The umbrella according to claim 1, wherein the illumination device can be activated by a hand or foot switch integrated within the supporting construction.

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