Title: VOTIVE LIGHT WITH A PHOTOLUMINESCENT ELEMENT

Abstract: Votive light containing a photoluminescent element rechargeable by a natural or artificial light source.
Declarations under Rule 4.17:

- without international search report and to be republished upon receipt of that report (Rule 48.2(g))
- of inventorship (Rule 4.17(iv))
DESCRIPTION

VOTIVE LIGHT WITH A PHOTOLUMINI SCENT ELEMENT.

Technical field

The present utility model refers to a votive light of a type usually used inside places of worship, for instance to be kept lit in front of holy images, or in cemeteries, on graves. Specifically, the present invention refers to a light having a transparent or semi-transparent outer shell, containing inside a photoluminescent element, the latter being rechargeable by a natural or artificial light source.

Present status of the art

The use of votive lights or small lamps in places of worship, including for instance cemeteries or churches, is known since the ancient times.

In the past, lights of this type were made up of a container filled with a fuel, typically oil, in which a wick was partially dipped, to the free end of which fire was set. This type of lamps features a number of drawbacks, including the fact that it needs periodical topings up of the fuel and the replacement of the wick, once this is exhausted.

At present, lights of this type have been replaced by small lamps directly powered by the mains or by batteries. Evident are, in this case, the implications in terms of electrical power consumption or the disadvantages related to the need for periodically replacing the exhausted batteries.

There are systems in which an artificial light source, for instance a lamp or a candle, is associated with a photoluminescent material in order to create special lighting effects or to enhance the luminous intensity or even to extend the light emitting period. Some examples of systems of this type are disclosed in US5654552 or in US5545493.

There are also lights provided with photoluminescent elements exclusively activated by external light sources, be they
natural or artificial, basically obtained by applying a layer of luminescent material onto the outer surface. An example of a decorative candle having its head covered by a photoluminescent layer, is disclosed in the German utility model DE20217808. Lights of this type are poorly suitable for being used outdoor, since the luminescent treatment is applied onto the outer surface of the light and does not withstand an extended action of bad weather or possible collisions and frictions with other bodies.

However, in none of the cases described above has it been possible to develop a photoluminescent light that features, in addition to a low production cost and an easy workability, the possibility of being used outdoor, without any risk for the luminescent pigment of deteriorating.

Also, in none of the cases considered above has it been possible to obtain a light provided with a luminescent component that is non-toxic and capable of guaranteeing a long-lasting, light blue or yellow/green luminescence in the dark.

**Purposes and summary of the invention**

The main purpose of the present invention is thus to provide a votive light that is simple and inexpensive to implement, in which the luminescent component is protected from the effect of the atmospheric agents and that is capable of guaranteeing a light blue or yellow/green long-lasting photoluminescence, endlessly rechargeable from both a natural source (sunlight) and an artificial source. These purposes and others are achieved by an invention according to the attached claims, consisting of a transparent or semitransparent shell, hollow inside and provided with a closable opening, containing a photoluminescent element capable of providing a light blue or yellow/green luminescence lasting more than 12 hours as from a recharge made by exposure.
to the sunlight (for 10 minutes) or to an artificial light (for 15 minutes).

These advantages of the invention and others will be made evident, together with the technical characteristics, by the following detailed description of an explanatory, not exhaustive example of an embodiment thereof.

**Brief description of the drawings**

*Fig. 1* shows a side view of an embodiment of the votive light according to the present utility model application. The figure shows an outer shell (1) provided with a number of hollows (15) and presenting, on the lower side, a tubularly-profiled lengthening (12), the latter comprising a threading (13) and a stiffening rib (14).

*Fig. 2* shows a perspective view of an embodiment of the votive light according to the present invention.

*Fig. 3* shows a top view of an embodiment of the utility model, also showing the sectioning line A-A’ referred to in the following figure.

*Fig. 4* shows a cross-sectional view along A-A’ of an embodiment of the utility model; worth to note the lower opening (11).

**Detailed description of an embodiment of the invention**

The present invention consists of a photoluminescent votive light, realized starting from an at least partially transparent external shell (1), suitable for containing a photoluminescent material (2).

In a preferred embodiment of the invention, the shell (1) is obtained by molding a glass-ceramic material.

In a particularly advantageous embodiment, the shell (1) presents, on the lower side, a tubularly-profiled lengthening (12), provided with a lower opening (11).

Very advantageously is the outer surface of said tubular lengthening (12) provided with a threading (13) to make it
possible to couple it with an internal thread or a screwable plug.

In a possible embodiment, the tubular lengthening (12) presents a circumferential stiffening rib (14), located above the threading (13).

In a preferred embodiment of the present model, the shell (1) presents one or several hollows (15) where the thickness of the shell (1) is smaller than the average thickness of the shell itself, hence the intensity of the light radiation is greater because, as well known, the smaller is the thickness of the material crossed by light, the more intense is the light flux.

In a preferred embodiment of the invention, the photoluminescent material (2) consists of a powder of alkaline-earth strontium aluminates mixed with a polyester resin.

Should the photoluminescent pigment used consist of alkaline-earth strontium aluminates, a light blue or yellow/green luminescence would be obtained in the dark.
5

CLAIMS

1. A votive light comprising an external shell (1) made of
an at least partially transparent glass-ceramic material,
characterized in that inside said external shell (1) there is
an element made of a photoluminescent material (2).

2. A votive light according to the previous claim,
characterized in that said photoluminescent material (2) is in
the form of a pulverized pigment.

3. A votive light according to claim 1, characterized in
that said photoluminescent material (2) is in the form of a
pulverized pigment mixed with a polyester resin.

4. A votive light according to one or several of the
previous claims, characterized in that in order to obtain a
light blue or yellow/green luminescence in the dark, said
photoluminescent material comprises alkaline-earth strontium
aluminates.

5. A votive light according to one or several of the
previous claims, characterized in that said photoluminescent
material is not toxic nor is it harmful for humans in any way.

6. A votive light according to one or several of the
previous claims, characterized in that the shell (1),
comprises, in its lower side, a tubularly-profiled lengthening
(12).

7. A votive light according to one or several of the
previous claims, characterized in that said tubular
lengthening (12) comprises specifically developed means to
make said external shell (1) couple with a plug or a fixed
support.

8. A votive light according to one or several of the
previous claims, characterized in that said coupling means
comprise a threading (13) suitable for coupling with an
internal thread or a screwable plug.

9. A votive light according to one or several of the
previous claims, characterized in that said tubular lengthening (12) presents a circumferential stiffening rib (14), located above the threading (13).

10. A votive light according to one or several of the previous claims, characterized in that the shell (1) presents one or several hollows (15) in correspondence with which the thickness of the shell (1) is smaller than the average thickness of the shell itself.