

(21) Application No: 0818570.4

(22) Date of Filing: 09.10.2008

(30) Priority Data:
(31) 096219758 (32) 22.11.2007 (33) TW

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(51) INT CL:
F21S 10/00 (2006.01) **F21S 4/00** (2006.01)
G09F 13/24 (2006.01)

(56) Documents Cited:
DE 010221814 A1 **DE 202007000442 U1**
US 5678918 A **US 5664879 A**
US 20060215397 A1 **US 20060209534 A1**
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(58) Field of Search:
UK CL (Edition X) F4R
INT CL F21S, F21V, G09F
Other: EPODOC, WPI

(54) Abstract Title: **An electric candle lighting device with aqua lamp base**

(57) An aqua-lamp-based candle-like lighting device 'A' includes a stand 1 accommodating therein an incandescent lamp assembly 2 that is connected with a power source to generate heat. The stand 1 has an open end 11 in which an aqua-lamp base 3 that defines an internal chamber 31 is mounted. An illuminator 4 for a candle effect lighting purposes is arranged at an opening 311 of the chamber. Heat generated by the incandescent lamp assembly is employed to cause a liquid contained in the aqua lamp base to flow and produce a shining decorative effect; and the illuminator of the internal chamber 31 serves as a twinkling night lamp. The invention provides dual interests of visual effects in both twinkling light from the electric candle and flowing liquid in the lava lamp type chamber.

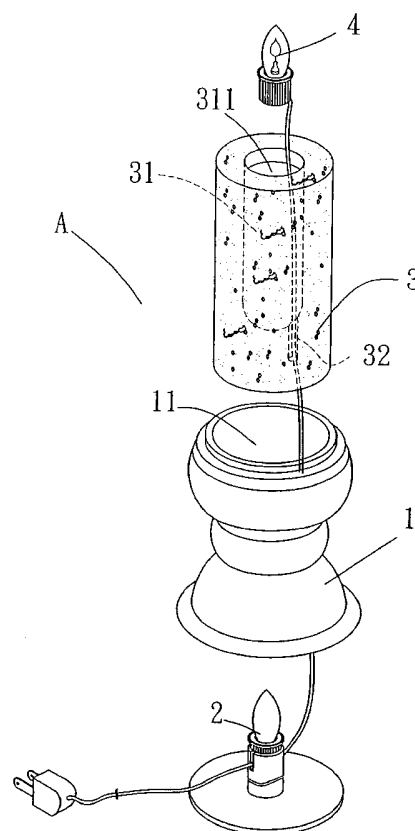


FIG. 1

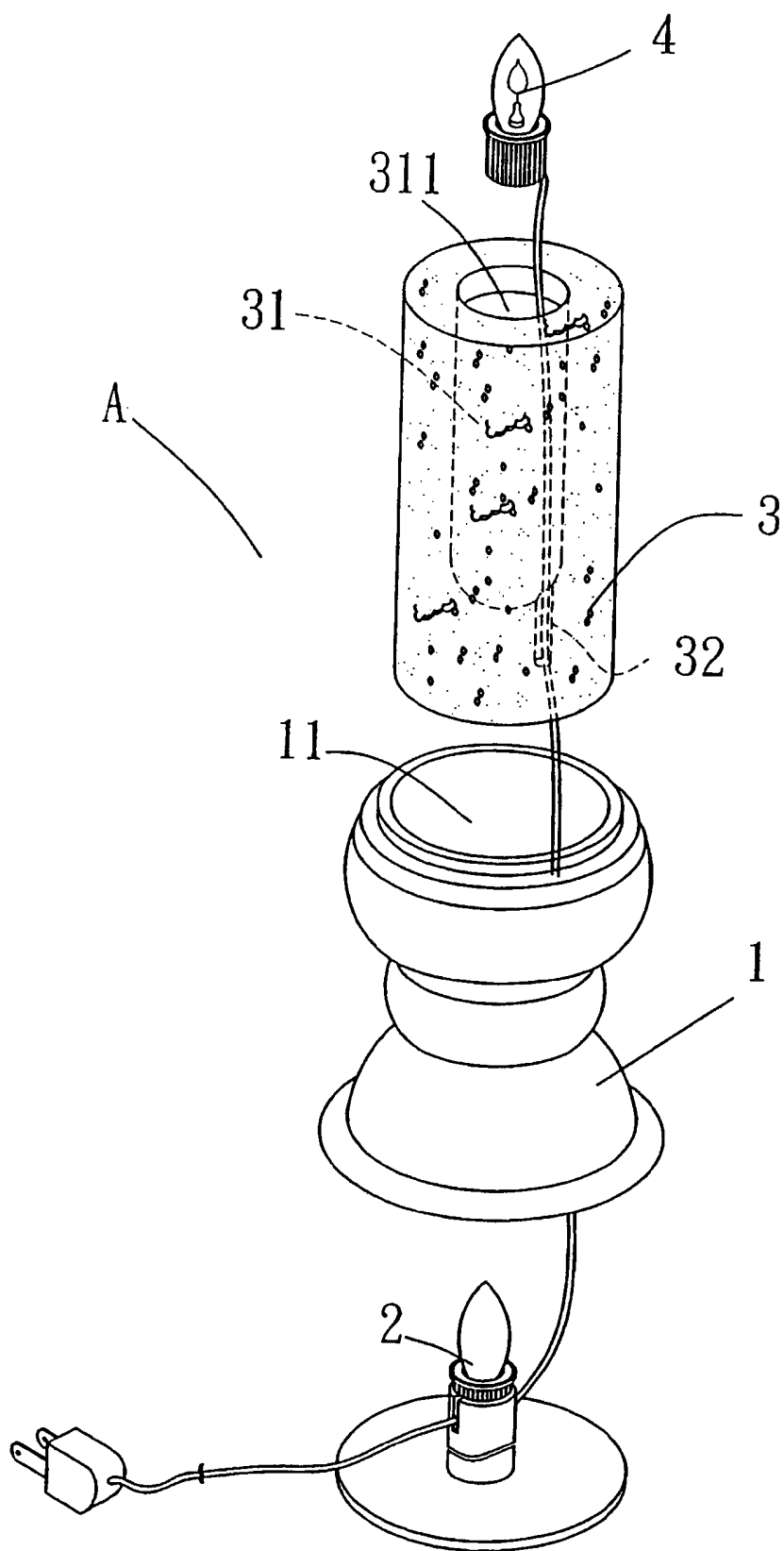


FIG. 1

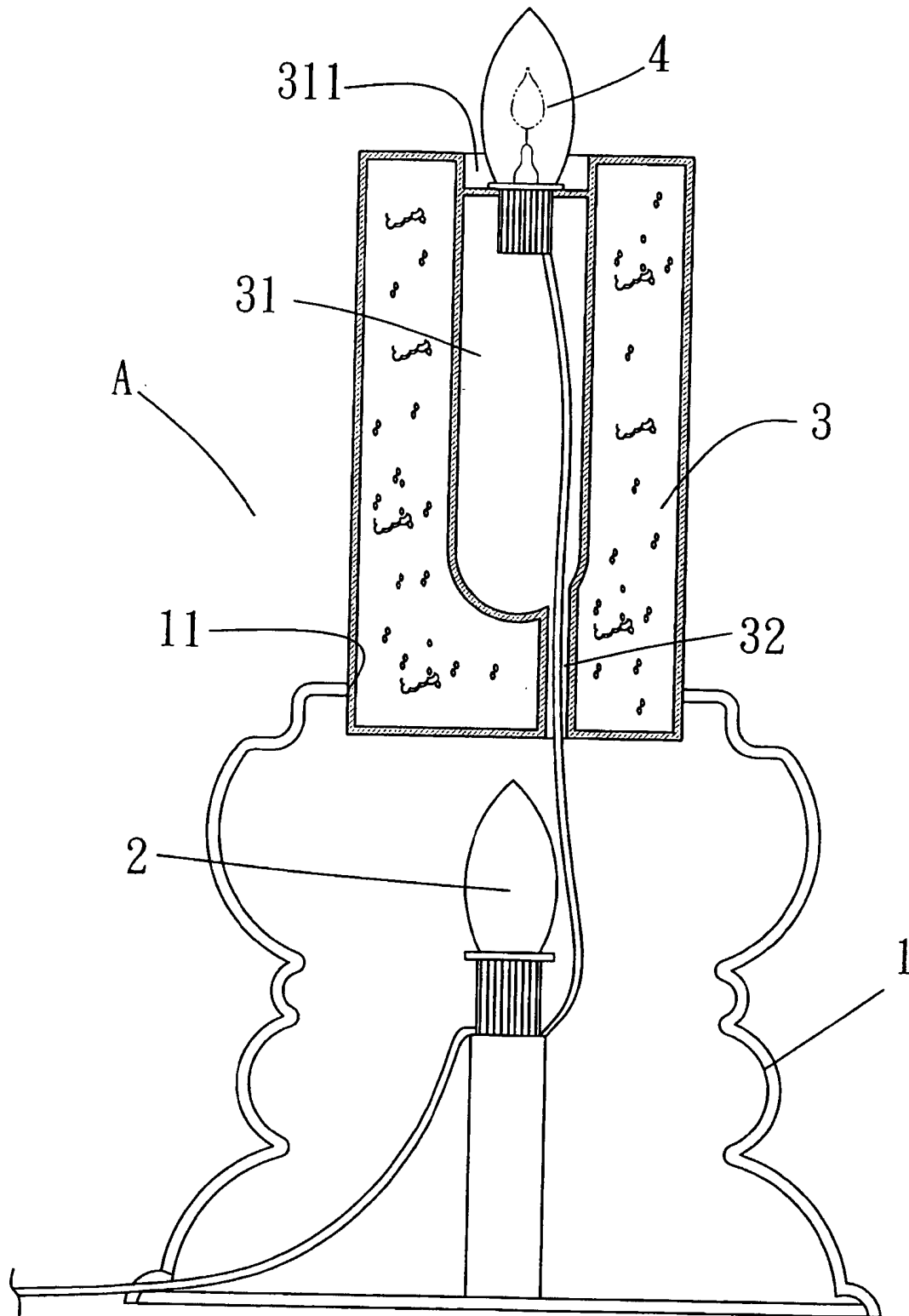


FIG. 2

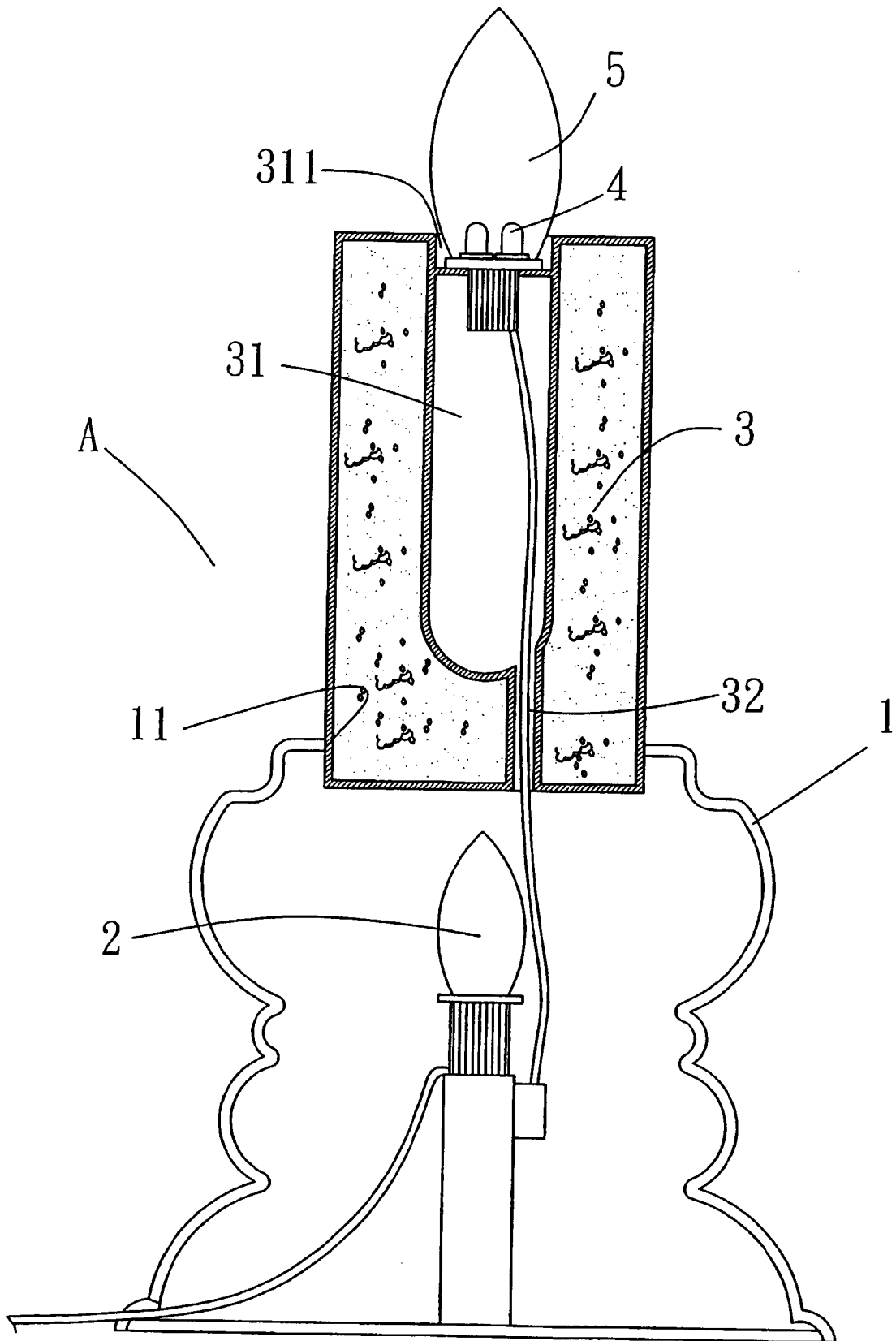


FIG. 3

TITLE: AQUA-LAMP-BASED CANDLE-LIKE LIGHTING DEVICE

(a) Technical Field of the Invention

The present invention generally relates to an aqua-lamp-based candle-like lighting device, and particularly to an aqua-lamp-based candle-like lighting device that features dual interests of visually watching twinkling light and flowing liquid, which are realized by means of an incandescent lamp assembly and an illuminator that are respectively accommodated in a stand and an aqua lamp.

(b) Description of the Prior Art

Lighting devices are commonly used for general household lighting and besides such lighting devices, other lighting tools, such as table lamp and socket-plugged miniature candle-like lighting units, which are measures used to light a limited area around the lighting unit and to provide decoration for enhanced romantic atmosphere. Various of candle-like lighting device or other lighting devices for similar purposes are available in the market and they are of versatile designs, often depending upon the material used. A light source contained in such lighting devices can be a standard lamp bulb or light-emitting diode, or even a power-saving bulb/tube. Yet, all these variations are limited to the lighting and decoration related fields, and as such, the development of the candle-like lighting is subjected to limitation, making

them no match to large-sized lighting devices that are of various designs subjected to substantially no limitation. A solution to overcome such a drawback is to combine interesting functions, other than simply lighting and decoration, to the candle-like lighting to make a breakthrough of the existing
5 outside visual effect, by which attraction to the general consumers can be improved.

Based on years' experience in development and manufacturing of pendant lighting and a strong love for aqua lamp, the present applicant wishes to provide an aqua-lamp-based candle-like lighting device that, besides
10 lighting in the nighttime, provides an additional censuring or perfuming effect. With successive attempts in the development of such a device, an aqua-lamp-based candle-like lighting device is invented and will be further described hereinafter.

SUMMARY OF THE INVENTION

Thus, the present invention provides an aqua-lamp-based candle-like lighting device comprising a stand accommodating therein an incandescent lamp assembly that is engageable with a power source to generate heat. The
5 stand has an open end in which an aqua-lamp base that defines an internal chamber is mounted. An illuminator for lighting purposes is arranged at an opening of the chamber. Thus, the heat generated by the incandescent lamp assembly is employed to cause a liquid contained in the aqua lamp base to flow and show a shining effect; and the illuminator of the internal chamber
10 serves as a twinkling night lamp. As such, the aqua-lamp-based candle-like lighting device shows dual interests of visual effects in both light twinkling and liquid flowing.

The foregoing objective and summary provide only a brief introduction to the present invention. To fully appreciate these and other objects of the
15 present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification and drawings identical reference numerals refer to identical or similar parts.

Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is
5 shown by way of illustrative example.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG 1 is an exploded view of an aqua-lamp-based candle-like lighting device in accordance with the present invention.

FIG 2 is a cross-sectional view of the aqua-lamp-based candle-like
5 lighting device of the present invention.

FIG 3 is a cross-sectional view of the aqua-lamp-based candle-like lighting device in accordance with a modified embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following descriptions are exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration
5 for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

With initial reference to FIG 1, which illustrates an exploded view of an
10 aqua-lamp-based candle-like lighting device constructed in accordance with the present invention, the aqua-lamp-based candle-like lighting device A generally comprises the following constituent parts/components:

A stand 1 comprises a hollow structure forming an open end 11.

An incandescent lamp assembly 2 comprises a lighting element that is set
15 in the stand 1, corresponding to the open end 11 of the stand 1, and electrically engageable a power source to generate light and heat.

A light-transmittable aqua-lamp base 3 comprises a three-dimensional and light-transmittable structure forming centrally an internal chamber 31 that is circumferentially surrounded by a flowable liquid. A passage 32 is defined
20 through the light-transmittable aqua-lamp base 3 in communication with the

chamber 31 at a location corresponding to the open end 11 of the stand 1. If desired, the flowable liquid may be mixed with flake- or particle-like spangles. The aqua-lamp, as a whole, is mounted to the open end 11 of the stand 1 in such a way that the bottom of the aqua-lamp base corresponds to and is spaced
5 from the incandescent lamp assembly 2 by a given distance.

An illuminator 4 is mounted at an open end 311 of the internal chamber 31 of the aqua-lamp base 3 and is electrically connected to a power source through the passage 32 via the incandescent lamp assembly 2 to generate twinkling lighting.

10 Also referring to FIG 2, which shows a cross-sectional view of the aqua-lamp-based candle-like lighting device in accordance with the present invention, the aqua-lamp-based candle-like lighting device A of the present invention is formed by first electrically connecting the incandescent lamp assembly 2 inside the stand 1 to a power source to have the incandescent lamp
15 assembly 2 energized for generating light and heat. In the time when the incandescent lamp assembly 2 generates heat, the heat is transferred to the bottom of the aqua-lamp base 3, leading to a rise of temperature that makes the liquid flowing inside the aqua-lamp base due to heat convection and at the same causing the spangles to move with the liquid flow so that shining and
20 interesting aqua lamp is realized. Further, when the incandescent lamp

assembly 2 is conducted on with the power source, the illuminator 4 is also energized to give off twinkling light, so that the illuminator 4 generates twinkling lighting at the open end 311 of the internal chamber 31 similar to candle lighting. An inside surface of the chamber 31 is preferably coated
5 with a colored layer to shield electrical wire or cable. The illuminator 4 can be for example a regular lamp bulb or a light-emitting diode, or alternately, the illuminator 4 is a twinkling bulb, which provides lighting/darkening-alternating lighting effect. Also referring to FIG 3, a flame-like shade 5 is mounted to the aqua-lamp base 3 at a location
10 corresponding to the light-emitting diode of the illuminator 4. Fitting the shade 5 outside the light-emitting diode mimics a flaming candle, and the lighting provided by the light-emitting diode make the whole lighting device more beautiful and attractive.

From the above description of the constituent parts and operation of the
15 aqua-lamp-based candle-like lighting device of the present invention, several advantages can be recognized and will be briefed as follows:

(1) The aqua-lamp-based candle-like lighting device of the present invention comprises a stand that receives and fixes therein an incandescent lamp assembly for generating heat that causes flow of liquid inside an
20 aqua-lamp base to show shining and interesting candle lighting.

(2) The aqua-lamp-based candle-like lighting device of the present invention comprises an illuminator arranged in the light-transmittable aqua-lamp base to provide a visual effect of twinkling lighting in the nighttime.

5 (3) Based on the above two points, the stand of the aqua-lamp-based candle-like lighting device of the present invention is provided with the incandescent lamp assembly to generate heat for inducing liquid flow inside the aqua-lamp base and also comprises the illuminator arranged in the light-transmittable aqua-lamp base to provide dual interests of visual effects in
10 light twinkling and liquid flowing.

(4) The aqua-lamp-based candle-like lighting device of the present invention comprises a flame-like shade fit over the light-emitting diode of the illuminator, which mimics a flaming candle, so that the aqua-lamp-based candle-like lighting device of the present invention as a whole is more similar
15 to the aesthetic visual effect that a candle can provide.

To conclude, the above description of the integral formation of the structure in accordance with the embodiment of the present invention reveals that the present invention does perfectly exhibit the functionality of the aqua-lamp-based candle-like lighting device and that, based on co-existence of

the illuminator and the heat source, the present invention provides dual interprets of visual effects in light twinkling and liquid flowing.

While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be
5 limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

I CLAIM:

1. An aqua-lamp-based candle-like lighting device, comprising:
 - a stand, which comprises a hollow structure forming an open end;
 - an incandescent lamp assembly, which comprises a lighting element
 - 5 that is set in the open end of the stand and is electrically engageable a power source to generate light and heat;
 - a light-transmittable aqua-lamp base, which comprises a three-dimensional and light-transmittable structure forming an internal chamber that is surrounded by a flowable liquid, a
 - 10 passage being defined through the aqua-lamp base in communication with the chamber and set at a location corresponding to the stand, the aqua-lamp being mounted to the open end of the stand in such a way that a bottom of the aqua-lamp base corresponding to and selectively engageable
 - 15 with the incandescent lamp assembly; and
 - an illuminator, which is mounted at an open end of the internal chamber of the aqua-lamp base and is electrically engageable with the incandescent lamp assembly to generate light;
 - whereby with power source supplying power to the incandescent
 - 20 lamp assembly and the illuminator to have the incandescent

lamp assembly generating heat that causes a flow of the liquid inside the aqua-lamp base and the illuminator generating twinkling lighting.

2. The aqua-lamp-based candle-like lighting device according to claim 5 1, wherein the flowable liquid contains flake-like spangles.
3. The aqua-lamp-based candle-like lighting device according to claim 1, wherein the illuminator comprises a light-emitting diode.
4. The aqua-lamp-based candle-like lighting device according to claim 1, wherein the illuminator comprises a twinkling bulb.
- 10 5. The aqua-lamp-based candle-like lighting device according to claim 1, wherein the internal chamber has an inside surface that is coated with a colored layer.



Application No: GB0818570.4

Examiner: Dr Andrew Courtenay

Claims searched: 1 to 5

Date of search: 20 January 2009

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
Y	1 to 5	US 2006/215397 A1 (LEE) Whole document relevant, especially figures 2 and 4.
Y	1 to 5	US 5678918 A (LIN) Whole document relevant, especially figures 5 and 6.
Y	1 to 5	DE 202007000442 U1 (MAWIX VERWALTUNGS) See figure 2 and paragraphs 16 and 27 especially.
A	2	US 2003/043572 A1 (ZALE) See abstract and figure 1.
A	3	US 2006/209534 A1 (LIU) See figures 2 and 4 especially.
A	4	DE 10221814 A1 (RADERECHT) See English language abstract.
A	-	US 5664879 A (LAI) See figures 1 to 3 especially.

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X:

F4R

Worldwide search of patent documents classified in the following areas of the IPC:

F21S; F21V; G09F

The following online and other databases have been used in the preparation of this search report



14

EPODOC, WPI

International Classification:

Subclass	Subgroup	Valid From
F21S	0010/00	01/01/2006
F21S	0004/00	01/01/2006
G09F	0013/24	01/01/2006