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(71) Applicant : **VOTIVA LUX S.r.l.**
Via Oberdan, 19
I-40100 Bologna (IT)

(72) Inventor : **Amadesi, Leonardo**
Via Villari, 13
I-40100 Bologna (IT)

(74) Representative : **Dall'Olio, Giancarlo**
INVENTION s.n.c. Via del Cestello, 13
I-40124 Bologna (IT)

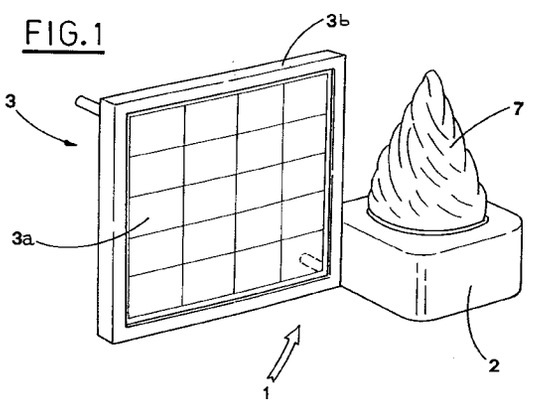
(54) Endless votive lamp.

(57) A votive lamp, or torch, is made in such a way as to work perpetually. The lamp comprises a supporting and containing box-like member (2), having a hole at the top, fastened to a light receiving-converting member (3), adapted to receive the light and to convert it into electricity, that includes a photovoltaic cell (3a) connected to an electric circuit (5), housed inside the box-like member (2) and in turn connected, on one side, to an electricity accumulator element (4) and, on the other side, to a series of light emmitting elements (6a,b,c,d).

The box-like member (2) is closed at the top by a glass cover (7) having shape of a burning flame. The accumulator element (4) stores the electricity that is produced by the light receiving-converting member (3) and that is not used by the circuit (5) to generate a series of modulated electric pulses delivered to the light emmitting elements.

In this way the device works continuously with a blazing flame suggestive effect.

FIG.1



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The present invention relates to the manufacturing of memorial articles for gravestones.

More particularly the present invention concerns an endless votive lamp, or torch that is to be placed on a grave, usually in a position near to the dead person's photo, for commemorative purpose.

As it is known, some time ago candles were put near the gravestone, with a wick left alight.

Afterwards it was found more convenient to adopt artificial forms of a votive flame, e.g. obtained by means of a lamp, or torch, comprising a housing, generally with a parallelepiped shape, and a glass cover shaped in form of a burning flame. Inside the glass cover there is a bulb that is connected to a power supply system.

The bulb is continuously kept on. The problems brought about by this commemorative set are self evident. First, the intensity of the light emitted by the bulb does not change and therefore the desired aesthetical effect is not completely achieved, because of the lacking of flashes in the light emitted.

Second, the need of power supply requires to set a properly suited electric system, which involves constructive costs and problems. Also it should be considered the cost for the power continuously supplied later.

The object of the present invention is to propose a device that is able to emulate the burning flame of a torch bringing about the result intended.

Another also important object of the invention is to propose a device that is able to work continuously, i.e. without any interruption, and that does not require any connection to the power supply system, nor any recurring maintenance.

The above-mentioned objects are achieved by means of the present invention made in accordance with the content of the claims.

The characteristic features of the invention will be pointed out in the following description, with reference to the accompanying drawings, in which:

- Figs.1 and 2 show perspective views of two preferred embodiments of the invention subject of the following description;
- Fig.3 shows a diagram of the electric circuit and other elements connected therewith, which form the bases of the subject device.

Referring to the above-mentioned figures, reference numeral 1 generally indicates the endless votive lamp subject of the present invention.

The lamp, or torch, substantially comprises a box-like member 2, a light receiving-converting member 3, accumulator elements 4, an electric circuit 5, light emitting elements 6a,b,c,d and a glass cover 7.

The box-like member 2 contains and supports some of the other elements or members listed above, and has a hole at the top, this hole being generally circular.

The member 3, that is designed to receive the light and to convert it into electricity, substantially includes a flat photovoltaic cell 3a, enclosed in a frame 3b.

A few pins, made integral with the frame 3b of the photovoltaic cell 3a, projects backwards therefrom, and are positioned, for example, at two of the frame corners opposite to each other.

The pins serve to fix the frame to a marble slab, that is the gravestone used to close the burial niche, or set over a ground grave. In the gravestone there are made holes properly positioned for receiving the pins which are fixed therein by means of a suitable adhesive.

In this way the box-like member 2, fastened to the frame 3b, is also supported by, and fixed to, the marble slab, along with the device herein described.

One or more accumulator elements 4, e.g. a NiCd battery, are housed inside the box-like member for storing the electricity generated by the receiving-converting member 3, and are connected to the electric circuit 5 that is also housed inside the box-like member 2.

The circuit 5 is designed to generate a series of modulated electric pulses when it is fed by the accumulator elements 4. The electric pulses are delivered to a series of output connectors.

The light emitting elements 6a,b,c,d are supported by the same electric circuit in such a position that they are located near to the top hole of the box-like member 2, and are connected to the output connectors.

The glass cover 7, that reproduces a burning flame, is blocked to the rim of the box-like member top hole, e.g. screwed thereinto, so as to cover the circuit and the light emitting elements 6a,b,c,d.

In this way the intended suggestive burning flame emulation is effectively obtained. The four light emitting elements 6a,b,c,d are orderly arranged and accordingly connected to the electric circuit.

When the device is set into operation, the light strikes the photovoltaic cell 3a and causes a voltage to be generated thereby and to be sent to the electric circuit 5.

It is to be noted that the photovoltaic cell generates electricity even with a very low light intensity, and therefore the device works in days of cloudy or foggy wheather as well.

The electical input required by the circuit and by the light emitting elements (which in this case are common red light emitting diodes, better known as LEDs) is so low that some lectric energy can be stored in the accumulator elements 4, while the device is fully working.

After a few hours in the sunlight, in the accumulator elements there is stored electric power enough to ensure a continuous working of the device throughout the night.

In the illustrative embodiment just described, the

flat photovoltaic cell 3a is arranged on a plane perpendicular to the bottom of the box-like member.

According to another another embodiment the flat photovoltaic cell 33 is instead coplanar to the bottom of the box-like member 32. This last embodiment may more advantageously be applied to a horizontal marble slab, that is in case of a ground grave.

Anyway, in both cases, the box-like member 2,32 bottom can be detached from the same so as to allow free access to the electric circuit and easy insertion of the accumulator elements 4.

The result is a device that achieves the suggestive aesthetical effect without negative drawbacks, as it has been proposed in the object statement.

The only thing necessary to be done is to replace the accumulator elements after a few years and the flame will be always blazing as desired.

Claims

1. Endless votive lamp, **characterized in that** it includes:
   a supporting and containing box-like member (2) having a hole at the top;
   a light receiving-converting member (3), adapted to receive the light and to convert it into electricity, this light receiving-converting member (3) including a photovoltaic cell (3a); at least one accumulator element (4) housed inside said box-like member (2);
   an electric circuit (5), housed inside the same said box-like member (2) and connected to said accumulator element (4), said circuit (5) being designed to generate a series of modulated electric pulses made available on at least one output connector; at least one light emmitting element (6a,b,c,d) connected to said output connector of said electric circuit (5) and positioned near to the said box-like member top hole;
   a glass cover (7) having shape of a burning flame and adapted to engage the rim of the hole made at the top of said box-like member (2), so as to cover said circuit and light emitting element and so as to emulate a blazing flame.

2. Lamp as claimed in claim 1, **characterized in that** four light emitting elements (6a,b,c,d) are connected to said circuit, these light emitting elements being orderly arranged and accordingly connected to said circuit (5).

3. Lamp as claimed in claim 1, **characterized in that** said light receiving and converting member (3) includes a flat photovoltaic cell (3a) arranged on a plane perpendicular to the bottom of said box-like member (2).

4. Lamp as claimed in claim 1, **characterized in that** said light receiving and converting member (3) includes a flat photovoltaic cell (33) arranged on a plane coplanar to the bottom of said box-like member (32).

5. Lamp as claimed in claim 1, **characterized in that** the bottom of said box-like member (2,32) can be detached from the same, so as to allow free access to the said electric circuit (5) and easy insertion of the accumulator element (4).

FIG. 1

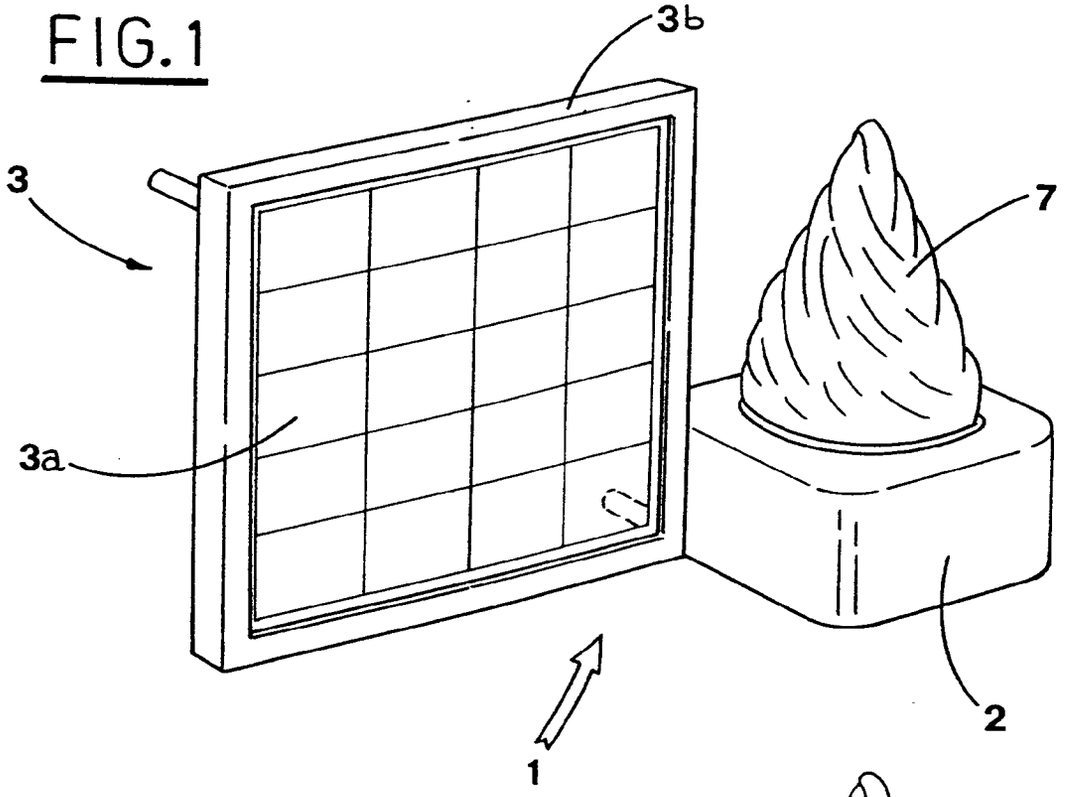
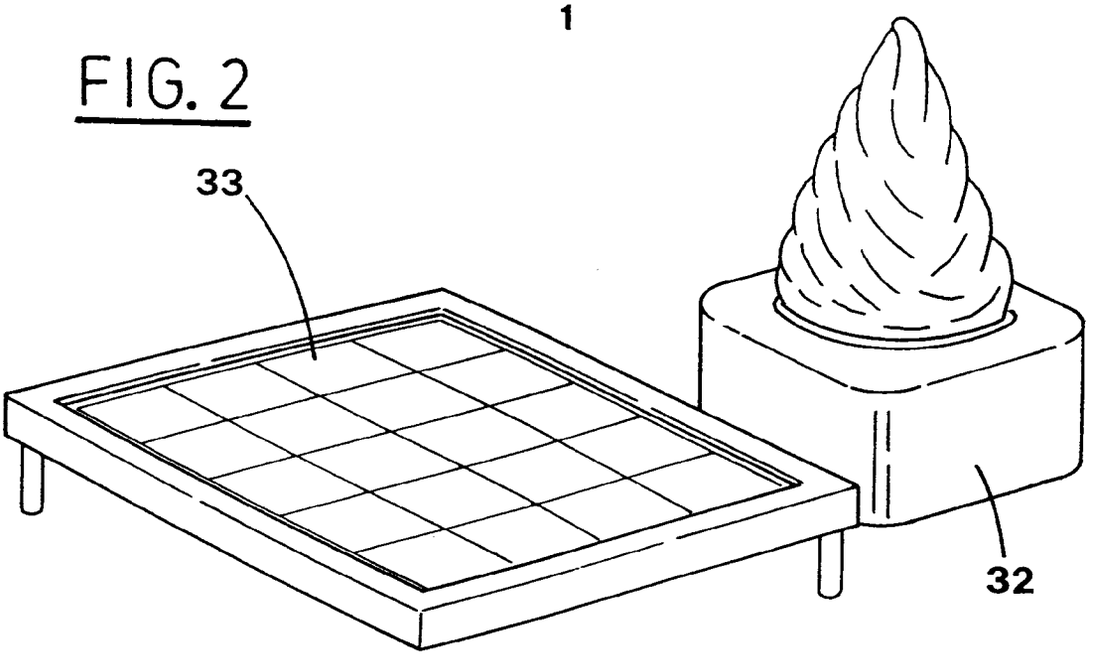


FIG. 2



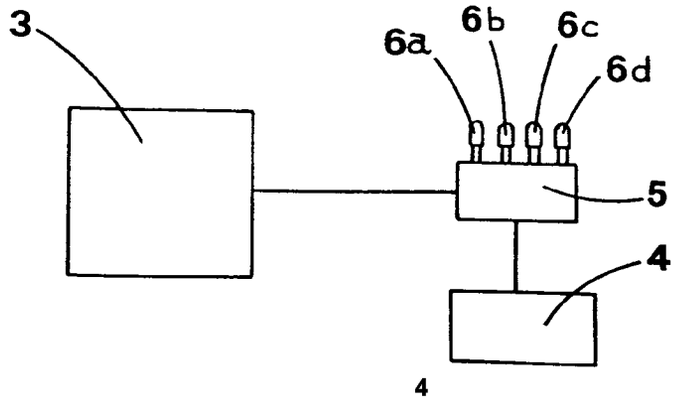


FIG. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 93 83 0341

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X	CH-A-678 098 (MERCURIO) * the whole document *	1-4	F21S9/02
Y		5	

Y	DE-A-40 10 071 (SCHMALENBACH) * claims 1-3,8; figures 5,6 *	5	
A		1-4	

X	US-A-5 013 972 (MALKIELI ET AL.) * column 1, line 41 - line 44 * * column 1, line 46 - line 56 * * column 2, line 60 - column 3, line 37 * * claims 1,9,10; figure 1 *	1,4	
A		2,3	

			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			F21S

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	8 November 1993	DE MAS, A

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
D : document cited in the application
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