

(12) INNOVATION PATENT
(19) AUSTRALIAN PATENT OFFICE

(11) Application No. **AU 2002100505 A4**

(54) Title
An outdoor light device

(51)⁷ International Patent Classification(s)
F21S 009/03 H05B 037/02
F21L 004/08

(21) Application No: **2002100505** (22) Date of Filing: **2002.06.19**

(30) Priority Data

(31) Number	(32) Date	(33) Country
PR6236	2001.07.09	AU
PR8309	2001.10.16	AU

(45) Publication Date: **2002.11.21**

(45) Publication Journal Date: **2002.11.21**

(45) Granted Journal Date: **2002.11.21**

(71) Applicant(s)
H.P.M. Industries Pty Ltd

(72) Inventor(s)
Richmond, Simon

(74) Agent / Attorney
Griffith Hack, 256 Adelaide Terrace, Perth, WA, 6000

AUSTRALIA
Patents Act 1990

COMPLETE SPECIFICATION
INNOVATION PATENT

Applicant(s):

H.P.M. INDUSTRIES PTY LTD

Invention Title:

AN OUTDOOR LIGHT DEVICE

The following statement is a full description of this invention, including the best method of performing it known to me/us:

AN OUTDOOR LIGHT DEVICE

FIELD OF THE INVENTION

5

The present invention relates to an outdoor light device suitable for illuminating portions of an outdoor area such as a garden.

BACKGROUND OF THE INVENTION

10

It is known to provide an outdoor light of essentially conventional configuration which includes a bulb connected to mains power supply through a step-down transformer.

15 While this type of outdoor light operates satisfactorily in that a portion of an outdoor area is illuminated, each light consumes an amount of power which is not insignificant, generally of the order of 20 watts. As a result, if a plurality of lights are employed, a sizeable amount of power is used, particularly if the plurality of lights are illuminated daily for several hours.

20 SUMMARY OF THE INVENTION

In accordance with a first aspect of the present invention, there is provided a light device including power storage means, a light emitting element arranged to receive power from the power storage means to thereby cause the light emitting element to emit
25 light, and solar power converting means arranged to convert solar power to electrical power, the device being arranged to use the electrical power to recharge the power storage means.

30 Preferably, the power storage means is arranged to store electrical power and the light device further includes an inverter arranged to receive DC power from the power storage means and to convert the DC power to AC power for supply to the light emitting device.

In one embodiment, the power storage means includes at least one

W:\jnelson\keep\spec1\AM OUTDOOR LIGHT DEVICE - P46259 - 28NOV.doc

rechargeable battery.

Preferably, the solar power converting means is a polycrystalline solar array, and the batteries are of nickel cadmium type.

In a preferred embodiment, the device further includes a light sensing device
5 arranged to sense the level of ambient light adjacent the device and to generate a signal indicative of the ambient light level, and the device is arranged to use the signal to determine whether sufficient ambient light is available to recharge the power storage means. If sufficient light is available, a recharge connection is established between the solar power converting means and the power storage means to enable recharging. If
10 sufficient light is not available, such a connection is not made and recharging of the power storage means does not occur.

The device may also be arranged to use the signal generated by the light sensing device to determine whether to activate and thereby illuminate the electro-luminescent element on the basis of the ambient light level.

15 Preferably, the light sensing device is a light dependent resistor which may include cadmium sulphide.

Preferably, the device also includes means for facilitating retention of the device in use in a predetermined orientation relative to an outdoor structure.

In one embodiment, the means for facilitating retention of the device includes a
20 spike which is insertable in use into a portion of ground such as a portion of a garden. Alternatively, or in addition, the means for facilitating retention of the device includes a mounting bracket or base plate.

In one arrangement, a connector is provided between the light emitting element and the remaining components of the device, the connector enabling quick and simple
25 connection and disconnection of the light emitting element.

The device may include a further connector which enables power to be received directly from an external supply, such as a step-down transformer connected to a mains AC power supply. With this arrangement, the device may be arranged to divert power from the external power supply directly to the electro-luminescent element
30 and/or to the batteries for the purpose of recharging the batteries.

The device may further include a control unit which operates so as to control and co-ordinate operations in the device. For example, the control unit may be arranged

H:\jnelson\keep\spec1\AN OUTDOOR LIGHT DEVICE - P46259 - EMOV.doc

to carry out appropriate switching of power to the light emitting element depending on whether an external power supply is present, to carry out appropriate recharge operations depending on the characteristics of signals generated by a light sensing device, to control the charge supplied to the power storage means during recharging, to
5 control the level of power supplied to the inverter, to protect the power storage means from overcharge, and/or to prevent a reverse flow of current to solar power converting means.

The device may also be arranged to cause the signal generated by the inverter to change so as to cause the light emitting element to emit a desired light pattern. For
10 example, the inverter may be controlled so that the light emitting element is caused to flash or so that the light emitting element mimics the characteristics of a flame.

A plurality of light emitting elements may be used and light emitting elements of different colours or of different combined colours may be used.

The light emitting element(s) may be electro-luminescent element(s), cold
15 cathode fluorescent lamp(s) or any other suitable low power light emitting element(s).

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described, by way of example, with
20 reference to the accompanying drawings, in which:

Figure 1 is a block diagram showing components of an outdoor light device in accordance with an embodiment of the present invention; and

Figure 2 is a diagrammatic representation of an outdoor light device in accordance with an embodiment of the present invention, the outdoor light device
25 including the components shown in Figure 1.

DETAILED DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

Referring to the drawings, there is shown an outdoor light device 10, shown
30 more particularly in Figure 2, which includes operative components 11, shown more particularly in Figure 1.

The operative components 11 include a power supply, in this example a power

F:\jnelson\keep\speci\AN OUTDOOR LIGHT DEVICE - P46259 - IMNOV.doc

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.