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(56) Documents Cited:  
**GB 2431773 A** **EP 0924775 A1**  
**WO 2008/020462 A** **WO 2007/035677 A**  
**WO 2007/013115 A** **WO 1996/024013 A**  
**DE 004227828 A** **US 20080105291 A1**  
**US 20080098672 A1**

(58) Field of Search:  
INT CL **H01L**  
Other: **Online: WPI, EPODOC**

(54) Abstract Title: **Photovoltaic roof tiles**

(57) The photovoltaic devices can be stuck onto traditional roof tiles and interconnected with one another to form a photovoltaic panel. The photovoltaic roof tiles are compatible with existing roof the structures and can be retro-fitted. The electrical connections are configured so that they are located away from nail holes and the sides of adjacent tiles. The photovoltaic tiles can be mixed and matched with traditional roof tiles.

**GB 2463673 A**

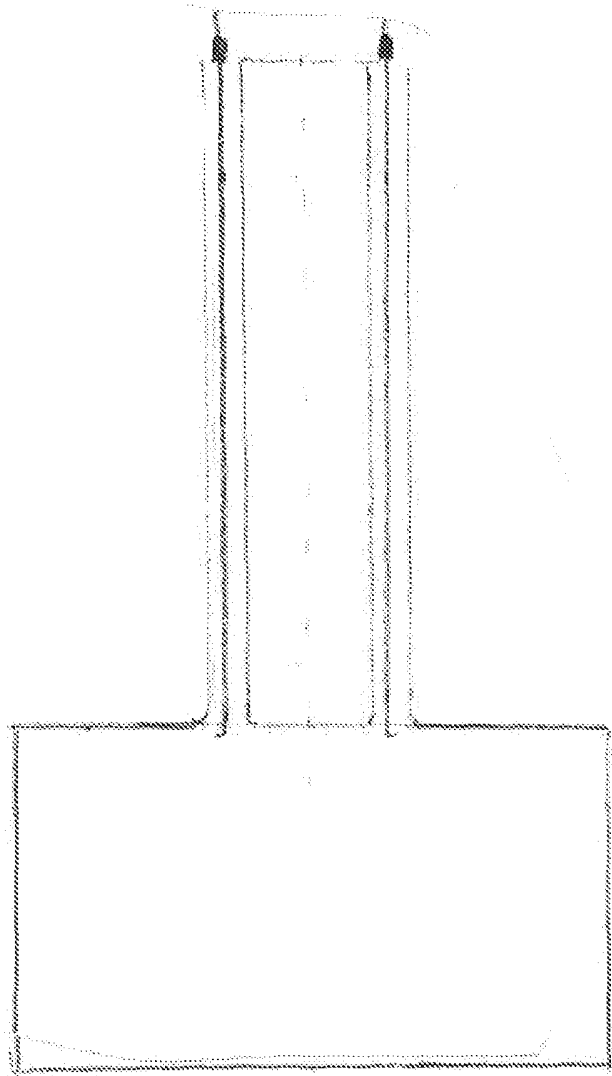


Figure 1

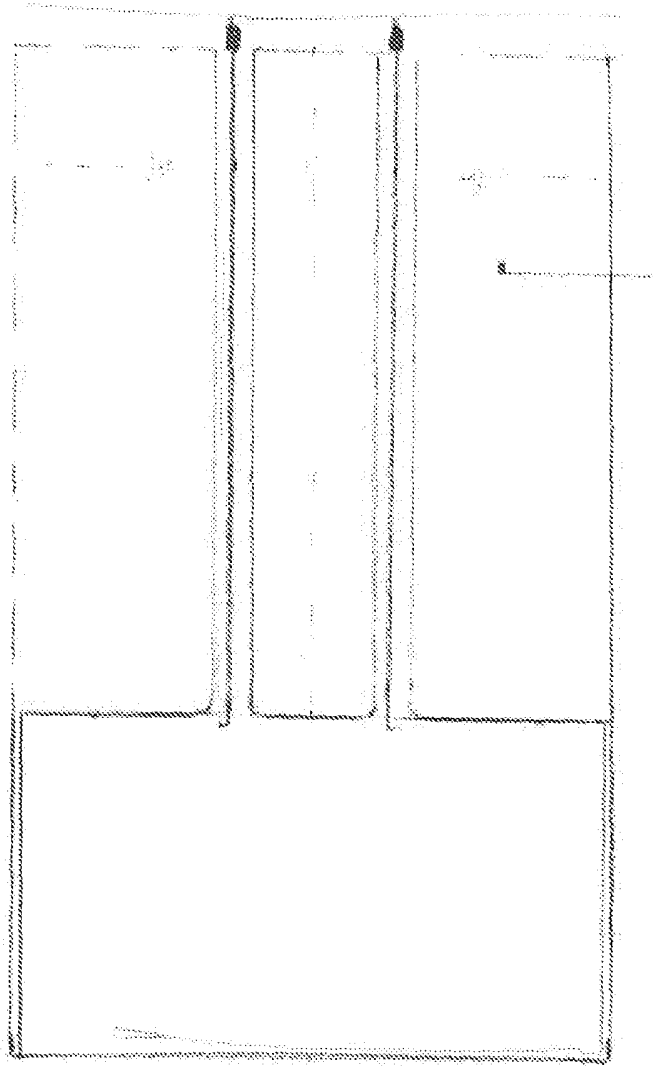


Figure 2

# Description

## Photovoltaic panel for plain roof tiles.

Most plain roof tiles are of a standard nominal size. Traditionally 6 ½ inches wide / horizontally (165mm) and 10 ½ inches vertically (268mm).

Most traditional plain roof tiles of this nature are lapped with a 4 inch (100mm) gauge. The “Photovoltaic panel for plain roof tiles” has been specifically designed to fit onto the appropriate visible area of plain roof tiles. This is the same area that will be available for sunlight collection.

Any number of individual tiles can be connected to produce an electrical current a series to generate electricity. This gives more flexibility than most of the currently available solar panels.

The positive and negative electrical connection tails are designed to miss the tile nail holes and sides of adjacent tiles.

Currently there is no equivalent photovoltaic option available on the market for this specific location.

The variable voltage generated can be regulated and controlled by readily available electrical equipment to stabilise the supply. This equipment is already on the market.

Currently there is no equivalent photovoltaic option available on the market for this specific location.

The panels can be utilized with new roofing or replacement roofs as they fit a standard plain tile.

The larger panels available on the market are not easily installed and do not necessarily fit in with traditional tiles or fit in with the usual street scene. The larger panels present problems at certain locations on a roof such as the valleys where normal plain tiles have usually to be cut. “Photovoltaic panel for plain roof tiles” can be blended in with the normal plain tiles in order to overcome this problem. The traditional tiles can be used for the cuts.

“Photovoltaic panel for plain roof tiles” can be used on either concrete or clay traditional roof tiles.

A user has the ability to introduce small as well as large quantities of “Photovoltaic panel for plain roof tiles” as they fit in with the other existing tiles. This is not so easy with many of the other proprietary systems.

As the main tiles will be of the same gauge as the existing tiles of an existing roof, it would be possible to replace the roof covering using the “Photovoltaic panel for plain roof tiles” with out necessarily replacing the existing roofing battens or close boarding, thus saving waste disposal and energy.

The invention combines the collection of solar energy with the ability to mix with the traditional tile.

Figure 1 shows the panel on its own for the sake of clarity.

Figure 2 shows the panel in the fixed position to a plain roof tile.

# Specification

“Photovoltaic panel for plain roof tiles”

## Dimensions

The base length of the main panel will be 165mm. The height of the main panel will be 90 mm. The overall length from the base to the top where the positive and negative tails are attached will be 268mm.

Figure 1 shows the panel on its own for the sake of clarity.

Figure 2 shows the panel in the fixed position to a plain roof tile.

Most plain roof tiles are of a standard nominal size. Traditionally 6 ½ inches wide / horizontally (165mm) and 10 ½ inches vertically (268mm).

Most traditional plain roof tiles of this nature are lapped with a 4 inch (100mm) gauge. The panel has been designed to fit onto the appropriate visible area of plain roof tiles. This is the same area that will be available for sunlight collection. Photocell panel for plain roof tiles combines a standard photovoltaic panel specially profiled to coincide with the sunlight visible area of a plain roof tile.

“Photovoltaic panel for plain roof tiles” is stuck to an existing roof tile and then joined up in series to produce an electrical current.

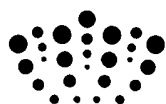
The tails of the panel can be connected to readily available voltage stabilizing equipment for either storage use or feeding back into the electrical grid system.

Figure 1 shows the panel on its own for the sake of clarity.

Figure 2 shows the panel in the fixed position to a plain roof tile.

## “Claims”

Photovoltaic panel for plain roof tiles specifically combine the ability to mix the old style plain roof tile format with contemporary photovoltaic collection techniques and is not available on the market in this particular form.



**Application No:** GB0817182.9

**Examiner:** Mr Steven Morgan

**Claims searched:** all

**Date of search:** 29 January 2009

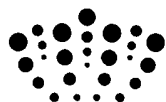
## Patents Act 1977: Search Report under Section 17

### Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1	GB2431773 A (JANSEN) See abstract
X	1	DE4227828 A (WAGNER) See abstract
X	1	US2008/0098672 A1 (O'HAGIN) See paragraph 34 in particular
X	1	WO2008/020462 A (DE NARDIS) See line 29, page 4 - line 2, page 5 in particular.
X	1	WO2007/035677 A (SOLAR ROOFING SYSTEMS INC) See abstract.
X	1	WO96/24013 A (STAR UNITY) See abstract
X	1	WO2007/013115 A (NICCHI) See abstract
X	1	US2008/0105291 A1 (PISKLAK) See abstract & figures
X	1	EP0924775 A1 (ABAC) see abstract

### 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<sup>X</sup> :

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

H01L
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The following online and other databases have been used in the preparation of this search report

Online: WPI, EPODOC
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**International Classification:**

Subclass	Subgroup	Valid From
H01L	0031/048	01/01/2006