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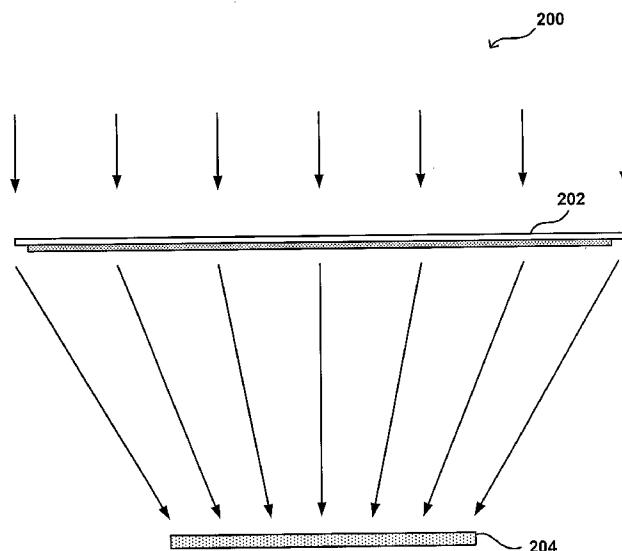
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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(54) Title: SYSTEMS AND METHODS FOR MANUFACTURING PHOTOVOLTAIC DEVICES



(57) Abstract: A solar energy system can include at least one holographic optical element to encode the focusing of solar radiation. Multiple holograms and/or multiple layers can be used to focus light over a band(s) of angles and/or wavelengths onto an array of solar cell elements. The selection of holograms in a concentrator can allow a photovoltaic device to receive light over a wide range of incident angles, and can allow for the receiving of a wide band of wavelengths without inoperable gaps in angle of incidence or wavelength. This range of incident angles for solar cells allows the solar cells to receive light over a large period of daylight without the need to mechanically rotate or pivot the device in order to track the movement of the sun throughout the daylight period.

WO 2007/044996 A3

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US06/40724

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC: **H01L 31/052**( 2006.01)

USPC: 136/246

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 136/246

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Google scholar search terms: hologram, solar cell, concentrator

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,274,860 B1 (ROSENBERG) 14 August 2001 (14.08.2001), figures 8 and 10, column 4 line 55 to column 5, line 11; column 14, lines 40-45; column 5, paragraph 6; column 16, paragraph 1.	1-8 10-17 ----- 9
Y	US 5,782,993 (PONEWASH) 21 July 1998 (21.07.1998), column 2, paragraph 7.	13
A	US 4,367,366 (BLOSS et al) 4 January 1983 (4.01.1983), entire document.	1-17
A	US 2004/0123895 A1 (KARDAUSKAS et al) 1 July 2004 (1.07.2004), entire document.	1-17

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents:

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"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

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