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- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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**Declarations under Rule 4.17:**

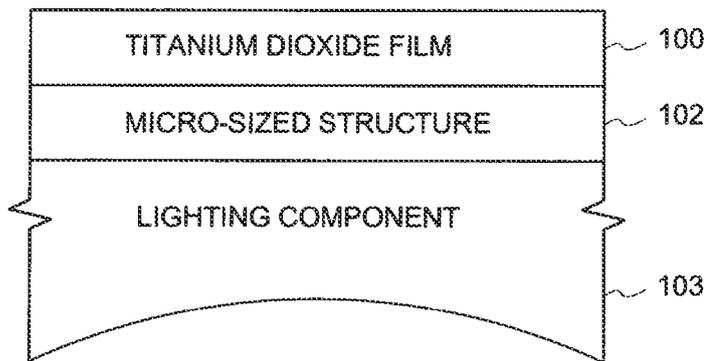
- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

**Published:**

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- (88) **Date of publication of the international search report:**  
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(54) **Title:** ENVIRONMENTAL CLEANING AND ANTIMICROBIAL LIGHTING COMPONENT AND FIXTURE



**FIG. 1**

(57) **Abstract:** A system and method according to various embodiments combines three separate technologies to form a unique lighting system with enhanced antimicrobial properties and air cleaning capabilities. The combination of the three technologies also produces a lighting system that extends the required maintenance period for lighting fixtures. The first technology is based on anatase type TiO<sub>2</sub>. The second and third technologies are based on the use of micro-sized surface structures to generate light scattering effects and, at the same time, reduce bacterial colonization and inhibit bacterial migration even during the absence of light or in dark environments.



**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/US2014/065661

**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. A61L2/232      A61L9/18      A61L9/20  
 ADD.

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)  
 A61L

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)  
 EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 387 844 B1 (FUJISHIMA AKIRA [JP] ET AL) 14 May 2002 (2002-05-14) claim 1; figure 6	1-17
X	P. PUCHER ET AL: "Nano-TiO2 sols immobilized on porous silica as new efficient photocatalyst", APPLIED CATALYSIS A: GENERAL, vol. 332, no. 2, 1 November 2007 (2007-11-01), pages 297-303, XP055067014, ISSN: 0926-860X, DOI: 10.1016/j.apcata.2007.08.031 abstract	1
X	EP 2 028 417 A1 (OSAKA TITANIUM TECHNOLOGIES CO [JP]) 25 February 2009 (2009-02-25) abstract; figure 1(b)	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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- "&" document member of the same patent family

Date of the actual completion of the international search  29 April 2015	Date of mailing of the international search report  12/05/2015
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Fischer, Michael
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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