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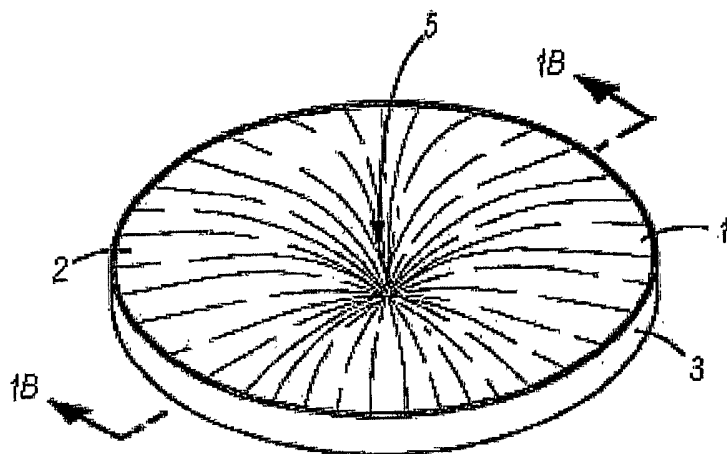
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CIRCUMFERENTIALLY EMITTING LUMINAIRES AND LENS ELEMENTS FORMED BY TRANSVERSE-AXIS PROFILE-SWEEPS



(57) Abstract: The present embodiments provide methods and apparatuses for providing prescribed illumination. Some embodiments provide lenses (30, 40) that include a two-dimensional beam-forming lens-profile where the profile acts to deflect light rays (38, 46) from a light source (37, 61) into a relatively narrow output beam (47). A zone of higher refractive index than that of the area outside the profile is enclosed where the higher refractive-index zone admits the light rays, a transverse axis of revolution (34, 42) is further included and extends transversely across and outside of the lens-profile so that the transverse axis extends generally laterally with respect to a luminous centroid-direction of the output beam. The lens further includes a surface of revolution formed by circularly

sweeping the lens-profile about the axis of revolution forming a circumferential beam from the output beam emitted by said surface of revolution.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/24450

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G02B 3/00

US CL : 359/737

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. : 359/737, 642, 798-800; 385/146, 901; 362/326-328, 335-340, 560

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0163808 A1 (WEST et al) 07 November 2002 (07.11.2002), Figures 5A, 5D-5G; column 5, lines 24-29, 40-44, 52-60.	1-8, 10, 11, 13-19, 21-23, 26, 27, 31-38
A,E	US 6,811,277 B2 (AMANO) 02 November 2004 (02.11.2004), see entire document.	1-38
A,P	US 6,679,621 B2 (WEST et al) 20 January 2004 (20.01.2004), see entire document.	1-38
A	US 6,502,964 B1 (SIMON) 07 January 2003 (07.01.2003), see entire document.	1-38
A	US 5,898,809 A (TABOADA et al) 27 April 1999 (27.04.1999), see entire document.	1-38
A	US 1,399,973 A (LIMPERT) 13 December 1921 (13.12.1921), see entire document.	1-38

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:		"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US04/24450

Continuation of B. FIELDS SEARCHED Item 3:

EAST: US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM\_TDB

search terms: (light or beam or illuminat\$3) with (perpendicular or orthoganal); (three-dimension\$4) or (three adj2 dimension\$4) or 3d;  
(light or beam oe illuminat\$3) with 3; (light or beam or illuminat\$3) with panoram\$6; circumferen\$ near4 (light or beam or illuminat\$3)