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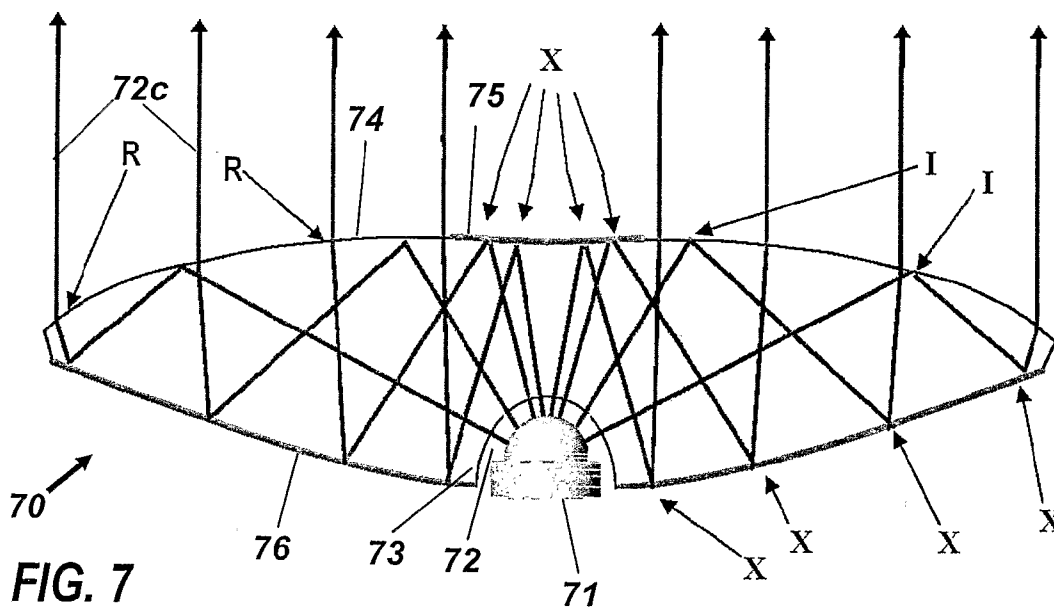
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[Continued on next page]

(54) Title: FREE-FORM LENTICULAR OPTICAL ELEMENTS AND THEIR APPLICATION TO CONDENSERS AND HEAD-LAMPS



(57) Abstract: Some embodiments provide an illumination optical system. The optical system can include a first surface and a second surface. Each of the first and second surfaces can further comprises a multiplicity of corresponding Cartesian-oval lenticulations such that each lenticulation of the first surface focuses a source upon a corresponding lenticulation of the second surface and each lenticulation of the second surface focuses a target upon a corresponding lenticulation of the first surface.

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<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) IPC(8): F21V 9/00 (2006.01) USPC - 359/619,640; 362/231; 348/222.1</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPTO EAST System (US, USPG-PUB, EPO, DERWENT), MicroPatent, IP.com, DialogPro</p>																	
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">Category*</th> <th style="width:70%;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="width:20%;">Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>US 2004/0080938 A1 (HOLMAN et al) 29 April 2004 (29.04.2004) entire document</td> <td>1-5,7,40-41</td> </tr> <tr> <td>A</td> <td>US 2005/0086032 A1 (BENITEZ et al) 21 April 2005 (21.04.2005) entire document</td> <td>1-49</td> </tr> <tr> <td>A</td> <td>US 6,055,108 A (DREYER) 25 April 2000 (25.04.2000) entire document</td> <td>1-49</td> </tr> <tr> <td>A</td> <td>US 6,896,381 B2 (BENITEZ et al) 24 May 2005 (24.05.2005) entire document</td> <td>1-49</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	US 2004/0080938 A1 (HOLMAN et al) 29 April 2004 (29.04.2004) entire document	1-5,7,40-41	A	US 2005/0086032 A1 (BENITEZ et al) 21 April 2005 (21.04.2005) entire document	1-49	A	US 6,055,108 A (DREYER) 25 April 2000 (25.04.2000) entire document	1-49	A	US 6,896,381 B2 (BENITEZ et al) 24 May 2005 (24.05.2005) entire document	1-49
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<p>Name and mailing address of the ISA/US</p> <p>Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201</p>		<p>Authorized officer:</p> <p align="center">Blaine R. Copenheaver</p> <p>PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774</p>															