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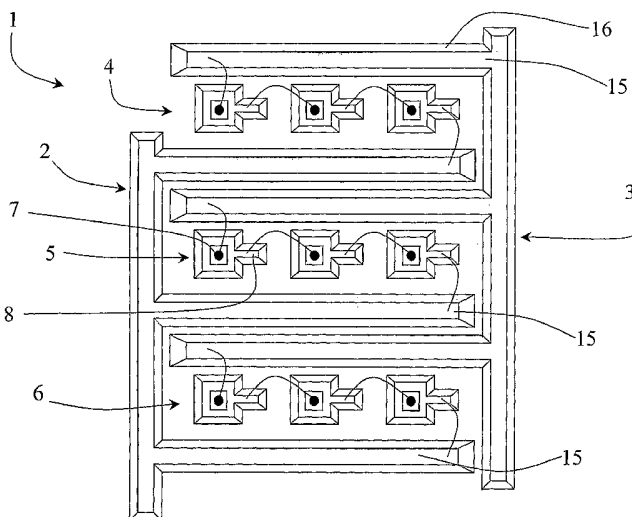
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(54) Title: AN ILLUMINATOR AND MANUFACTURING METHOD



(57) Abstract: An illuminator (1) is manufactured by embossing an aluminium preform to provide a structured substrate base (21) with cavities (25) for LEDs and recesses (26) for tracks. The substrate is anodised to provide an aluminium oxide insulating layer (30) over the structured surface. A metal layer (35) is then applied over the insulating layer (30), and this is etched to leave metal pads in the cavities and tracks in the recesses (26). LEDs (50) are placed in the cavities and they are wire-bonded to the exposed metal tracks. This manufacturing method allows versatility in choice of configuration of 5 illuminator by simple embossing a desired substrate shape. Also, the anodisation provides an excellent and durable insulating layer, which has the major benefit of being conformal with the structured surface.

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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 480 389 B1 (SHIE JIN-SHOWN ET AL) 12 November 2002 (2002-11-12)	37
Y	column 2, line 53 - column 3, line 30; figures	1-4, 27-33, 36
Y	----- EP 1 059 667 A (SANYO ELECTRIC CO., LTD) 13 December 2000 (2000-12-13) paragraphs [0034] - [0040]	1-4, 27-33, 36
A	----- US 6 322 712 B1 (HANSON ROBERT J ET AL) 27 November 2001 (2001-11-27) column 7, line 53 - column 8, line 6	5-26
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
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EP 1059667	A	13-12-2000	EP 1059668 A2 EP 1059678 A2
US 6322712	B1	27-11-2001	US 2002011459 A1 US 2003164350 A1