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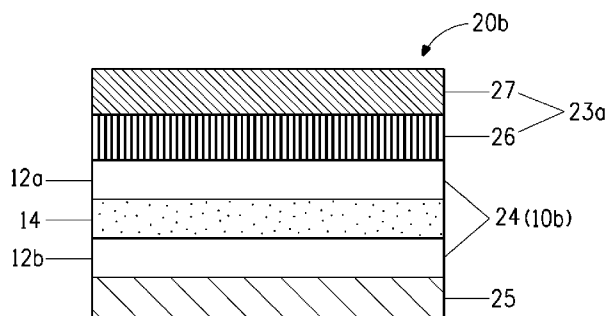
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FIG. 4



(57) Abstract: A solar cell module (20b) comprises a laminate structure including a solar cell layer (23a) and colored multi-layer polymeric sheet (10b). The solar cell layer is solar cell layers comprising a single solar cell (26) or solar cell layers comprising electrically interconnected solar cells; and has a light-receiving side and non-light-receiving side. The colored multi-layer polymeric sheet comprises a first surface sub-layer that is positioned such that it is adjacent to and in direct contact with solar cell layer, and second surface sub-layer.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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B. FIELDS SEARCHED

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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 practical, search terms used)

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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	WO 2007/008329 A2 (3M INNOVATIVE PROPERTIES CO [US]) 18 January 2007 (2007-01-18) paragraphs [0008], [0009], [0011] - [0015], [0022], [0023], [0029] - [0031], [0036] - [0038] -----	1-5, 7, 8
X	WO 2007/050756 A2 (DU PONT [US]; SMILLIE BENJAMIN ANDREW [CA]; LENGES GERALDINE M [US]) 3 May 2007 (2007-05-03) paragraphs [0006], [0008], [0019] - [0022], [0025] - [0029], [0031], [0032], [0004], [0048] - [0051] -----	1-5, 7, 8, 11-13, 21
A	----- -/--	9, 10



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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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X	US 2006/166023 A1 (YOSHIKATA KUNIAKI [JP]	1,2,4-21
A	ET AL) 27 July 2006 (2006-07-27) paragraphs [0015] - [0020], [0024], [0025], [0054], [0188] - [0191], [0234], [0235], [0238] - [0240], [0245], [0247], [0248] paragraphs [0255] - [0262], [0269], [0271], [0332] - [0337]; figure 1 -----	3

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 2007008329	A2	18-01-2007	AU	2006269607 A1	18-01-2007
			CA	2611965 A1	18-01-2007
			CN	101193748 A	04-06-2008
			EP	1890874 A2	27-02-2008
			JP	2008546557 T	25-12-2008
			KR	20080022172 A	10-03-2008

WO 2007050756	A2	03-05-2007	NONE		

US 2006166023	A1	27-07-2006	DE	10393252 T5	08-09-2005
			WO	2004023565 A1	18-03-2004
