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Declarations under Rule 4.17:

[Continued on next page]

(54) Title: MULTI-LAYER ARTICLES CAPABLE OF FORMING COLOR IMAGES AND METHODS OF FORMING COLOR IMAGES



Fig. 1

(57) Abstract: Multi-layer articles are described that are capable of forming color images. The articles include at least six layers, four thermally activatable layers (layers 1-4) and two blocking layers (layer 5 and 6). The layers are arranged such that layer 5 is disposed between layers 1 and 2 and layer 6 is disposed between layers 3 and 4. Thermally activatable layers 1 and 2 are activatable upon exposure to light of a first write wavelength, and blocking layer 5 is adapted to at least partially block light of the first write wavelength. Thermally activatable layers 3 and 4 are activatable upon exposure to light of a second write wavelength, and blocking layer 6 is adapted to at least partially block light of the second write wavelength. At least one, and possibly all of the thermally activatable layers include a light to heat convertor composition and a color changing compound. Some of the thermally activatable layers may be a group of layers arranged to selectively reflect light by constructive or destructive interference to provide a first reflective characteristic, the group of layers also having a first absorption characteristic suitable to, upon exposure to light comprising a write wavelength, absorptively heat the first group of layers by an amount sufficient to change the first reflective characteristic to a second reflective characteristic while maintaining the structural integrity of the group of layers.



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- *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(Hi))*
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/042478**A. CLASSIFICATION OF SUBJECT MATTER****B32B 27/20(2006.01)i, B32B 27/08(2006.01)I**

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)

B32B 27/20; B42D 15/10; B32B 27/14; B41F 15/10; B32B 27/18; G03C 5/00; B41C 1/14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: multi-layer, thermally activatable layer, light to heat convertor, color changing compound, blocking layer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	W0 2009-140088 A1 (3M Innovative Properties Company) 19 November 2009. See the whole document.	1-31
A	US 2003-0035934 A1 (Akihiro Shimomura et al.) 20 February 2003. See the whole document.	1-31
A	US 05857410 A (Hideo Watanabe and Junnosuke Katsuyama) 12 January 1999. See the whole document.	1-31
A	US 05178990 A (Toshimi Satake et al.) 12 January 1993. See the whole document.	1-31

 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

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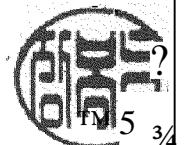
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Information on patent family members

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