

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
22 May 2008 (22.05.2008)

PCT

(10) International Publication Number
WO 2008/061237 A3

- (51) International Patent Classification:
B32B 5/26 (2006.01) E04B 1/84 (2006.01)
D04H 13/00 (2006.01) B60R 13/08 (2006.01)
F16L 59/02 (2006.01)
- (21) International Application Number:
PCT/US2007/085002
- (22) International Filing Date:
16 November 2007 (16.11.2007)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/859,737 16 November 2006 (16.11.2006) US
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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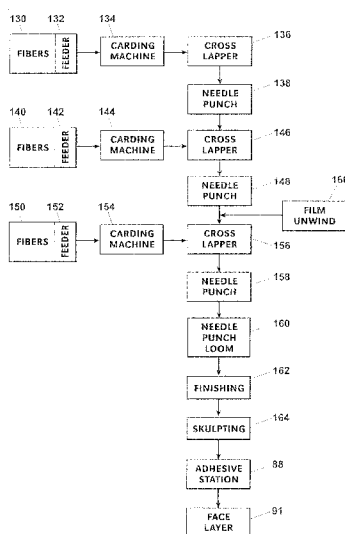
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report

[Continued on next page]

(54) Title: MULTI-LAYER NONWOVEN COMPOSITE MATERIAL AND METHOD OF MANUFACTURE



(57) Abstract: A multi-layer nonwoven composite material includes base layers which impart desired properties. The number of base layers can vary as desired for desired properties in order to tune the resulting multi-layer composite material. In a preferred composite material, three base layers are provided to impart sound deadening, sound dispersion, sound absorption, and sound durability. The base layers are first produced from constituent fibers to form constituent webs. These webs are then combined into a multi-layer substrate. A barrier layer may be applied to the multi-layer substrate to impart additional properties. A face layer may be adhered to form a multi-layer nonwoven composite material. The barrier material imparts fire retardancy water resistance while the face carpet imparts cosmetic and/or tactile qualities. Other materials, such as chemical additives, can be applied to the composite material to achieve desired characteristics.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
10 July 2008

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/085002

A. CLASSIFICATION OF SUBJECT MATTER INV. B32B5/26 D04H13/00 F16L59/02 E04B1/84 B60R13/08		
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 D04H F16L E04B B60R		
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) EPO-Internal; WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2004/077247 A1 (SCHMIDT RICHARD J [US] ET AL) 22 April 2004 (2004-04-22) paragraphs [0001], [0009], [0010], [0029], [0036] - [0044], [0089] - [0091], [0115] - [0117]; claims 1-40; examples 1-6 -----	1-11
Y	DE 44 28 613 A1 (KINKEL WERNER HELMUT [DE]) 15 February 1996 (1996-02-15) column 1, line 3 - line 45 column 3, line 65 - column 4, line 5 column 5, line 10 - column 6, line 59; claims 1-4 ----- -/--	1-11
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents :		
<ul style="list-style-type: none"> *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *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 *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 *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 *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. * & * document member of the same patent family 		
Date of the actual completion of the international search	Date of mailing of the international search report	
8 May 2008	16/05/2008	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Hindia, Evangelia	

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/085002

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	US 2001/036788 A1 (SANDOE MICHAEL D [US] ET AL) 1 November 2001 (2001-11-01) paragraphs [0003], [0026], [0035], [0043]; claim 1 -----	1-11
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Information on patent family members

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