

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2015/051188

A. CLASSIFICATION OF SUBJECT MATTER
D04H1/4242(2012.01)i, D04H1/74(2006.01)i, H01M4/96(2006.01)i, H01M8/18(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)
 D04H1/00-18/04, H01M4/86-4/98, H01M8/00-8/02, H01M8/08-8/24

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2015
 Kokai Jitsuyo Shinan Koho 1971-2015 Toroku Jitsuyo Shinan Koho 1994-2015

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 2001-313070 A (Mitsubishi Rayon Co., Ltd.), 09 November 2001 (09.11.2001), paragraph [0001]; examples & US 2004/0253445 A1 & WO 2003/035956 A1 & EP 1449948 A1	1, 2 3, 4
Y	JP 01-239767 A (Toray Industries, Inc.), 25 September 1989 (25.09.1989), claims; page 1, lower right column, lines 8 to 12 (Family: none)	3, 4
Y	JP 63-021755 A (Toray Industries, Inc.), 29 January 1988 (29.01.1988), claims; page 1, lower left column, lines 11 to 16 (Family: none)	3, 4

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search 06 April 2015 (06.04.15)	Date of mailing of the international search report 14 April 2015 (14.04.15)
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PCT/JP2015/051188

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2001-279566 A (Toho Tenax Co., Ltd.), 10 October 2001 (10.10.2001), claims; paragraph [0001]; examples (Family: none)	1-4