

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/JP2016/003934

**A. CLASSIFICATION OF SUBJECT MATTER**  
D04H1/732(2012.01)i, B27N3/00(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)  
B27N1/00-9/00, D04H1/00-18/04, D21B1/00-1/38, D21C1/00-11/14,  
D21D1/00-99/00, D21F1/00-13/12, D21G1/00-9/00, D21H11/00-27/42,  
D21J1/00-7/00

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	1996-2016
Kokai Jitsuyo Shinan Koho	1971-2016	Toroku Jitsuyo Shinan Koho	1994-2016

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

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	JP 2015-137437 A (Seiko Epson Corp.), 30 July 2015 (30.07.2015), claims; paragraphs [0074], [0123]; fig. 1 & US 2015/0204015 A1 claims; paragraphs [0083], [0134]; fig. 1 & CN 104805721 A	1-4, 7-9 5, 6
Y A	JP 2003-227089 A (Mitsubishi Heavy Industries, Ltd.), 15 August 2003 (15.08.2003), claims; paragraphs [0001], [0014], [0020] (Family: none)	1-4, 7-9 5, 6
A	JP 52-144407 A (Mitsubishi Heavy Industries, Ltd.), 01 December 1977 (01.12.1977), (Family: none)	1-9

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	

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