

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/JP2020/006493

**A. CLASSIFICATION OF SUBJECT MATTER**  
 G02B 5/18(2006.01)i; B42D 25/328(2014.01)i; B42D 25/435(2014.01)i; B32B 7/023(2019.01)i  
 FI: G02B5/18; B32B7/023; B42D25/328 120; B42D25/435  
 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)  
 G02B5/18; B32B7/023; B42D25/328; B42D25/435

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

Published examined utility model applications of Japan	1922-1996
Published unexamined utility model applications of Japan	1971-2020
Registered utility model specifications of Japan	1996-2020
Published registered utility model applications of Japan	1994-2020

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.
X	JP 2010-173220 A (TOPPAN PRINTING CO., LTD.) 12.08.2010 (2010-08-12) paragraphs [0029]-[0056], fig. 4, 6-7	1-2, 6
Y	paragraphs [0029]-[0056], fig. 4, 6-7	3-5, 8-10
X	JP 2003-520986 A (FLEX PRODUCTS, INC.) 08.07.2003 (2003-07-08) paragraphs [0023]-[0056], fig. 1-9, 17	1, 6-7, 11-14
Y	paragraphs [0023]-[0056], fig. 1-9, 17	3, 4-5, 8-10
Y	WO 2015/079652 A1 (TOPPAN PRINTING CO., LTD.) 04.06.2015 (2015-06-04) paragraphs [0056]-[0061], fig. 3	3-5
Y	JP 2009-134093 A (TOPPAN PRINTING CO., LTD.) 18.06.2009 (2009-06-18) paragraphs [0036]-[0042], fig. 1-6	4, 9
Y	JP 2009-134094 A (TOPPAN PRINTING CO., LTD.) 18.06.2009 (2009-06-18) paragraphs [0031]-[0034], fig. 1-2	4, 9

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

* Special categories of cited documents:	"I" 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 March 2020 (06.03.2020)	Date of mailing of the international search report 17 March 2020 (17.03.2020)
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## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2013/084960 A1 (TOPPAN PRINTING CO., LTD.) 13.06.2013 (2013-06-13) paragraphs [0021]-[0025], fig. 4-8	5, 10
Y	JP 2016-080963 A (TOPPAN PRINTING CO., LTD.) 16.05.2016 (2016-05-16) paragraphs [0032]-[0035], fig. 5-6	5, 10
A	JP 2011-133677 A (TOPPAN PRINTING CO., LTD.) 07.07.2011 (2011-07-07) paragraph [0053], fig. 1	1-14
A	KR 10-2005-0013893 A (KIM, Chul-Ha) 05.02.2005 (2005-02-05) the whole document, all figure	1-14

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application no.

PCT/JP2020/006493

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
JP 2010-173220 A	12 Aug. 2010	(Family: none)	
JP 2003-520986 A	08 Jul. 2003	US 2004/0101676 A1 paragraphs [0057]- [0090], fig. 1-9, 17A WO 2001/053113 A1 EP 1252027 A1 AU 1194901 A CA 2397806 A KR 10-2007-0007975 A CA 2604093 A	
WO 2015/079652 A1	04 Jun. 2015	JP 2015-101024 A TW 201527805 A	
JP 2009-134093 A	18 Jun. 2009	(Family: none)	
JP 2009-134094 A	18 Jun. 2009	(Family: none)	
WO 2013/084960 A1	13 Jun. 2013	US 2014/0268261 A1 paragraphs [0051]- [0054], fig. 4-8 EP 2790042 A1 AU 2012349329 A CN 103988100 A MX 2014006587 A RU 2014127476 A	
JP 2016-080963 A	16 May 2016	(Family: none)	
JP 2011-133677 A	07 Jul. 2011	(Family: none)	
KR 10-2005-0013893 A	05 Feb. 2005	(Family: none)	