

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2017/043971

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. G02B6/40 (2006.01) i, G02B6/04 (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)

Int. Cl. G02B6/40, G02B6/04, G02G6/44

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 1971-2017
 Registered utility model specifications of Japan 1996-2017
 Published registered utility model applications of Japan 1994-2017

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 Y	JP 2005-536774 A (SUMITOMO ELECTRIC INDUSTRIES, LTD.) 02 December 2005, paragraphs [0066]-[0071], [0080], [0085], fig. 7, 17, 21 & US 2005/0271342 A1, paragraphs [0101]-[0106], [0114], [0119], fig. 7, 17, 21 & WO 2004/019102 A1 & EP 1543368 A1 & CA 2496030 A1 & CN 1675574 A & AU 2003265171 A1	1-2, 6 3-5
Y	JP 2003-315591 A (AMT CO., LTD.) 06 November 2003, paragraphs [0022], [0031] (Family: none)	3-5
Y	JP 2005-316246 A (THE FURUKAWA ELECTRIC CO., LTD.) 10 November 2005, paragraph [0008] (Family: none)	4-5

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:

- “A” document defining the general state of the art which is not considered to be of particular relevance
- “E” earlier application or patent but published on or after the international filing date
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- “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
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- “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
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26.12.2017

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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.
X	JP 7-301715 A (SUMITOMO ELECTRIC INDUSTRIES, LTD.)	6
A	14 November 1995, paragraphs [0015]-[0025], fig. 1, 3, 10 (Family: none)	1-5
A	JP 2001-013330 A (SHOWA ELECTRIC WIRE & CABLE CO) 19 January 2001, paragraphs [0009], [0010], [0026]-[0028], fig. 1 (Family: none)	1-6
A	JP 2005-114830 A (SUMITOMO ELECTRIC INDUSTRIES, LTD.) 28 April 2005, paragraphs [0026]-[0028], [0051], fig. 13 (Family: none)	1-6
A	JP 10-339818 A (NIPPON TELEGRAPH AND TELEPHONE CORP.) 22 December 1998, entire text, all drawings (Family: none)	1-6
A	JP 2013-221968 A (SUMITOMO ELECTRIC INDUSTRIES, LTD.) 28 October 2013, entire text, all drawings & US 2013/0272664 A1, entire text, all drawings & CN 103376518 A	1-6
A	US 6295400 B1 (SHAHID, Muhammed Afzal) 25 September 2001, entire text, all drawings (Family: none)	1-6