

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2018/042763

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl. G02B15/20 (2006.01) i, G02B13/18 (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)

Int.Cl. G02B15/20, G02B13/18

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	1971-2019
Registered utility model specifications of Japan	1996-2019
Published registered utility model applications of Japan	1994-2019

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 A	JP 2018-92185 A (PANASONIC INTELLECTUAL PROPERTY MANAGEMENT CO., LTD.) 14 June 2018, example 5 & US 2014/0240554 A1, example 5	1-9, 12-16 10, 11
X A	JP 2018-54989 A (CANON INC.) 05 April 2018, example 3 & US 2018/0095242 A1, example 3	1-10, 12-16 11
X A	JP 2016-173438 A (CANON INC.) 29 September 2016, examples 1, 2 (Family: none)	1-3, 5-10, 12-16 4, 11

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
 “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
13.02.2019

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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 A	JP 2016-139125 A (PANASONIC INTELLECTUAL PROPERTY MANAGEMENT CO., LTD.) 04 August 2016, examples 1-4, 7 & US 2016/0209632 A1, examples 1-4, 7	1-7, 9, 10, 12-16 8, 11

Claims 1 and 16 include the recitation " ... has (having) a first lens group having a positive refractive power, a second lens group having a negative refractive power, a third lens group having a positive refractive power, and a rear lens group, these lens groups being arranged in this order from the object side". This recitation is construed as including, in addition to a variable magnification optical system composed of six or more lens groups and formed of a first lens group having a positive refractive power, a second lens group having a negative refractive power, a third lens group having a positive refractive power, and a rear lens group (including three or more lens groups), these lens groups being arranged in this order from the object side, a variable magnification optical system with some of the lens groups removed from this or having another lens group having a refractive power. Meanwhile, however, the description only discloses, as a specific example, a variable magnification optical system composed of six or more lens groups and formed of a first lens group having a positive refractive power, a second lens group having a negative refractive power, a third lens group having a positive refractive power, and a rear lens group (including three or more lens groups), these lens groups being arranged in this order from the object side". In view of this, the invention of claims 1 and 16 of the present application and claims 2-16 depending from claim 1, which includes the variable magnification optical system with some of the lens groups removed or having another lens group having a refractive power, goes beyond the scope disclosed in the description, and thus does not fulfill the requirement for support under PCT Article 6.

Accordingly, variable magnification optical systems other than a variable magnification optical system composed of six or more lens groups and formed of a first lens group having a positive refractive power, a second lens group having a negative refractive power, a third lens group having a positive refractive power, and a rear lens group (including three or more lens groups), these lens groups being arranged in this order from the object side, cannot be examined in a meaningful manner, and thus have not been examined.