

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2018/031484

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl. H01M4/505 (2010.01) i, H01M4/36 (2006.01) i, H01M4/525 (2010.01) i, H01M10/0562 (2010.01) i, H01M10/052 (2010.01) n

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. H01M4/505, H01M4/36, H01M4/525, H01M10/0562, H01M10/052

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	1971-2018
Registered utility model specifications of Japan	1996-2018
Published registered utility model applications of Japan	1994-2018

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.
A	WO 2014/185548 A1 (MITSUI MINING AND SMELTING CO.) 20 November 2014 & KR 10-2016-0009016 A & US 2016/0093882 A1	1-10
A	JP 2012-216548 A (TODA KOGYO CORP.) 08 November 2012 & WO 2012/132155 A1 & CN 103460455 A & KR 10-2014- 0008408 A & EP 2693534 A1 & US 2014/0034872 A1	1-10
A	JP 2015-140292 A (SUMITOMO METAL MINING CO., LTD.) 03 August 2015 & JP 2015-140297 A	1-10

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
19.09.2018

Date of mailing of the international search report
02.10.2018

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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.
A	WO 2014/104234 A1 (AGC SEIMI CHEMICAL CO., LTD.) 03 July 2014 & US 2015/0263341 A1	1-10
A	JP 2015-179616 A (TOYOTA MOTOR CORPORATION) 08 October 2015 & CN 104934586 A & US 2015/0270537 A1	1-10
A	JP 2015-053236 A (NAGOYA UNIVERSITY) 19 March 2015 (Family: none)	1-10
P, A	WO 2017/150504 A1 (MITSUI MINING AND SMELTING CO.) 08 September 2017 (Family: none)	1-10