

INTERNATIONAL SEARCH REPORT

International application No. PCT/JP2020/012312
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A. CLASSIFICATION OF SUBJECT MATTER
 Int. Cl. B25J13/08 (2006.01) i, B22D11/10 (2006.01) i, B22D41/34 (2006.01) i,
 B25J15/08 (2006.01) i
 FI: B22D41/34, B22D11/10, B25J13/08, B25J15/08
 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. B25J13/08, B25J15/08, B22D11/10, B22D41/34

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.
A	WO 2009/119824 A1 (KROSAKI HARIMA CORP.) 01 October 2009	1-5
A	WO 2018/074424 A1 (KROSAKI HARIMA CORP.) 26 April 2018	1-5

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	

Date of the actual completion of the international search 01.04.2020	Date of mailing of the international search report 21.04.2020
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2020/012312

Patent Documents referred to in the Report	Publication Date	Patent Family	Publication Date
WO 2009/119824 A1	01.10.2009	US 2011/0062193 A1 EP 2272604 A1 AU 2009229793 A CA 2718307 A	
WO 2018/074424 A1	26.04.2018	JP 2018-65184 A EP 3530376 A1 CA 3039145 A CN 109843476 A TW 201819127 A	