

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2019/043305

<p>A. CLASSIFICATION OF SUBJECT MATTER Int.Cl. H01M10/48 (2006.01) i, B60L3/00 (2019.01) i, H02J7/00 (2006.01) i, B60L58/10 (2019.01) i, G01R31/367 (2019.01) i FI: B60L58/10, G01R31/367, H01M10/48P, H01M10/48301, H02J7/00X, H02J7/00Y, B60L3/00S According to International Patent Classification (IPC) or to both national classification and IPC</p>																	
<p>B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) Int.Cl. H01M10/48, B60L3/00, H02J7/00, B60L58/10, G01R31/367</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:80%;">Published examined utility model applications of Japan</td> <td style="text-align: right;">1922-1996</td> </tr> <tr> <td>Published unexamined utility model applications of Japan</td> <td style="text-align: right;">1971-2020</td> </tr> <tr> <td>Registered utility model specifications of Japan</td> <td style="text-align: right;">1996-2020</td> </tr> <tr> <td>Published registered utility model applications of Japan</td> <td style="text-align: right;">1994-2020</td> </tr> </table> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)</p>			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							
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																
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">Category*</th> <th style="width:70%;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="width:20%;">Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td align="center">X</td> <td>JP 2013-89424 A (INTERNATIONAL BUSINESS MACHINES CORPORATION) 13.05.2013 (2013-05-13), particularly, paragraphs [0015], [0025]-[0053], fig. 1-6</td> <td align="center">1-2, 7</td> </tr> <tr> <td align="center">Y</td> <td>WO 2016/071941 A1 (TOSHIBA SOLUTIONS CORPORATION) 12.05.2016 (2016-05-12), particularly, paragraphs [0010]-[0039], [0047], fig. 1-11</td> <td align="center">1-7</td> </tr> <tr> <td align="center">Y</td> <td>JP 2006-211789 A (TOYOTA MOTOR CORPORATION) 10.08.2006 (2006-08-10), particularly, paragraphs [0026]-[0039]</td> <td align="center">1-7</td> </tr> <tr> <td align="center">Y</td> <td>JP 2016-13819 A (TOYOTA MOTOR CORPORATION) 28.01.2016 (2016-01-28), particularly, paragraph [0055]</td> <td align="center">4-6</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	JP 2013-89424 A (INTERNATIONAL BUSINESS MACHINES CORPORATION) 13.05.2013 (2013-05-13), particularly, paragraphs [0015], [0025]-[0053], fig. 1-6	1-2, 7	Y	WO 2016/071941 A1 (TOSHIBA SOLUTIONS CORPORATION) 12.05.2016 (2016-05-12), particularly, paragraphs [0010]-[0039], [0047], fig. 1-11	1-7	Y	JP 2006-211789 A (TOYOTA MOTOR CORPORATION) 10.08.2006 (2006-08-10), particularly, paragraphs [0026]-[0039]	1-7	Y	JP 2016-13819 A (TOYOTA MOTOR CORPORATION) 28.01.2016 (2016-01-28), particularly, paragraph [0055]	4-6
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.															
X	JP 2013-89424 A (INTERNATIONAL BUSINESS MACHINES CORPORATION) 13.05.2013 (2013-05-13), particularly, paragraphs [0015], [0025]-[0053], fig. 1-6	1-2, 7															
Y	WO 2016/071941 A1 (TOSHIBA SOLUTIONS CORPORATION) 12.05.2016 (2016-05-12), particularly, paragraphs [0010]-[0039], [0047], fig. 1-11	1-7															
Y	JP 2006-211789 A (TOYOTA MOTOR CORPORATION) 10.08.2006 (2006-08-10), particularly, paragraphs [0026]-[0039]	1-7															
Y	JP 2016-13819 A (TOYOTA MOTOR CORPORATION) 28.01.2016 (2016-01-28), particularly, paragraph [0055]	4-6															
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; border: none;"><input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.</td> <td style="width:50%; border: none;"><input checked="" type="checkbox"/> See patent family annex.</td> </tr> </table>			<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.	<input checked="" type="checkbox"/> See patent family annex.													
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.	<input checked="" type="checkbox"/> See patent family annex.																
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; border: none;"> * 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 </td> <td style="width:50%; border: none;"> "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 </td> </tr> </table>			* 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													
* 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 17.01.2020		Date of mailing of the international search report 04.02.2020															
Name and mailing address of the ISA/ Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan		Authorized officer Telephone No.															

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2019/043305

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2017-28874 A (AUTOMOTIVE ENERGY SUPPLY CORPORATION) 02.02.2017 (2017-02-02), particularly, paragraph [0027]	4-6
A	JP 2018-148649 A (GS YUASA INTERNATIONAL LTD.) 20.09.2018 (2018-09-20), entire text, all drawings	1-7
A	US 2015/0251556 A1 (FORD GROBAL TECHNOLOGIES, LLC) 10.09.2015 (2015-09-10), entire text, all drawings	1-7

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/JP2019/043305

JP 2013-89424 A	13.05.2013	US 2013/0096858 A1 particularly, paragraphs [0032], [0045]-[0086], fig. 1-6 CN 103048625 A
WO 2016/071941 A1	12.05.2016	(Family: none)
JP 2006-211789 A	10.08.2006	(Family: none)
JP 2016-13819 A	28.01.2016	US 2016/0006377 A1 particularly, paragraph [0080] CN 105270194 A
JP 2017-28874 A	02.02.2017	(Family: none)
JP 2018-148649 A	20.09.2018	(Family: none)
US 2015/0251556 A1	10.09.2015	DE 102015203789 A CN 104898063 A