

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2019/046869

<p>A. CLASSIFICATION OF SUBJECT MATTER H01L 21/02(2006.01)i; H01L 21/66(2006.01)i; G05B 19/418(2006.01)i FI: H01L21/02 Z; H01L21/66 Z; G05B19/418 Z According to International Patent Classification (IPC) or to both national classification and IPC</p>																	
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) H01L21/02; H01L21/66; G05B19/418</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							
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<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 style="text-align: center;">X A</td> <td>WO 2018/101722 A2 (SK HOLDINGS CO., LTD.) 07.06.2018 (2018-06-07) paragraphs [0029]-[0092], fig. 1-4</td> <td style="text-align: center;">1-3, 6-7, 12, 17-18 4-5, 8-11, 13- 16</td> </tr> <tr> <td style="text-align: center;">A</td> <td>JP 2012-004181 A (SHARP CORP.) 05.01.2012 (2012- 01-05) entire text, all drawings</td> <td style="text-align: center;">1-18</td> </tr> <tr> <td style="text-align: center;">A</td> <td>JP 2014-507801 A (TOKYO ELECTRON LTD.) 27.03.2014 (2014-03-27) entire text, all drawings</td> <td style="text-align: center;">1-18</td> </tr> <tr> <td style="text-align: center;">A</td> <td>WO 2010/119894 A1 (SHARP CORP.) 21.10.2010 (2010- 10-21) entire text, all drawings</td> <td style="text-align: center;">1-18</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X A	WO 2018/101722 A2 (SK HOLDINGS CO., LTD.) 07.06.2018 (2018-06-07) paragraphs [0029]-[0092], fig. 1-4	1-3, 6-7, 12, 17-18 4-5, 8-11, 13- 16	A	JP 2012-004181 A (SHARP CORP.) 05.01.2012 (2012- 01-05) entire text, all drawings	1-18	A	JP 2014-507801 A (TOKYO ELECTRON LTD.) 27.03.2014 (2014-03-27) entire text, all drawings	1-18	A	WO 2010/119894 A1 (SHARP CORP.) 21.10.2010 (2010- 10-21) entire text, all drawings	1-18
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<p><input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.</p>																	
<p>* Special categories of cited documents:</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"> <p>“A” document defining the general state of the art which is not considered to be of particular relevance</p> <p>“E” earlier application or patent but published on or after the international filing date</p> <p>“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)</p> <p>“O” document referring to an oral disclosure, use, exhibition or other means</p> <p>“P” document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="width:50%;"> <p>“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</p> <p>“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</p> <p>“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</p> <p>“&” document member of the same patent family</p> </td> </tr> </table>			<p>“A” document defining the general state of the art which is not considered to be of particular relevance</p> <p>“E” earlier application or patent but published on or after the international filing date</p> <p>“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)</p> <p>“O” document referring to an oral disclosure, use, exhibition or other means</p> <p>“P” document published prior to the international filing date but later than the priority date claimed</p>	<p>“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</p> <p>“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</p> <p>“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</p> <p>“&” document member of the same patent family</p>													
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<p>Date of the actual completion of the international search 27 January 2020 (27.01.2020)</p>		<p>Date of mailing of the international search report 10 February 2020 (10.02.2020)</p>															
<p>Name and mailing address of the ISA/ Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan</p>		<p>Authorized officer</p> <p>Telephone No.</p>															

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Information on patent family members

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Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
WO 2018/101722 A2	07 Jun. 2018	US 2019/0286983 A1 paragraphs [0027]- [0091], fig. 1-4 JP 2020-500420 A paragraphs [0024]- [0092], fig. 1-4 EP 3514823 A2 KR 10-2018-0061769 A CN 110024097 A (Family: none)	
JP 2012-004181 A	05 Jan. 2012	US 2012/0185813 A1	
JP 2014-507801 A	27 Mar. 2014	entire text, all drawings WO 2012/099907 A1 KR 10-2014-0010381 A	
WO 2010/119894 A1	21 Oct. 2010	JP 2010-267242 A	