

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 201608499	FOR FURTHER ACTION		See item 4 below
International application No. PCT/JP2016/084514	International filing date (<i>day/month/year</i>) 21 November 2016 (21.11.2016)	Priority date (<i>day/month/year</i>) 10 December 2015 (10.12.2015)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant RICOH COMPANY, LTD.			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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	Date of issuance of this report 12 June 2018 (12.06.2018)
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PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year)	24.01.2017
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Applicant's or agent's file reference 201608499

FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/JP2016/084514	International filing date (day/month/year) 21.11.2016	Priority date (day/month/year) 10.12.2015
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International Patent Classification (IPC) or both national classification and IPC G02B27/01 (2006.01) i, B60K35/00 (2006.01) i, G02B26/10 (2006.01) i

Applicant RICOH COMPANY, LTD.

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

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Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed
 - a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
 - on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No. PCT/JP2016/084514
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Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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1. Statement									
Novelty (N)		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;">2-4, 6-7</td> <td style="width: 10%; padding: 2px;">YES</td> </tr> <tr> <td style="padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;">1, 5</td> <td style="padding: 2px;">NO</td> </tr> </table>	Claims	2-4, 6-7	YES	Claims	1, 5	NO	
Claims	2-4, 6-7	YES							
Claims	1, 5	NO							
Inventive step (IS)		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;">2-4</td> <td style="width: 10%; padding: 2px;">YES</td> </tr> <tr> <td style="padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;">1, 5-7</td> <td style="padding: 2px;">NO</td> </tr> </table>	Claims	2-4	YES	Claims	1, 5-7	NO	
Claims	2-4	YES							
Claims	1, 5-7	NO							
Industrial applicability (IA)		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;">1-7</td> <td style="width: 10%; padding: 2px;">YES</td> </tr> <tr> <td style="padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;"></td> <td style="padding: 2px;">NO</td> </tr> </table>	Claims	1-7	YES	Claims		NO	
Claims	1-7	YES							
Claims		NO							

2. Citations and explanations:	
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Document 1: JP 2014-095796 A (RICOH CO., LTD.) 22 May 2014, paragraphs [0007]-[0033], fig. 1, 2 (Family: none)

Document 2: JP 2015-148654 A (RICOH CO., LTD.) 20 August 2015, paragraphs [0007]-[0043], [0157]-[0163], fig. 1, 10 (Family: none)

The invention as in claims 1 and 5 is disclosed in document 1 cited in the ISR and thus lacks novelty and does not involve an inventive step.

Regarding the invention as in claim 1, the "glass pane" composing the "light-transmitting window" of the invention disclosed in document 1 corresponds to the flat plate of the invention as in claim 1. Further, given, for example, the recitation of paragraph [0008] of document 1, the Z-axis direction perpendicular to the horizontal plane (XY plane) can be said to be the sub-scanning direction. Therefore, in the invention disclosed in document 1, the flat plate is inclined in relation to an image formation unit ("screen S") within a cross section in the sub-scanning direction.

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Regarding the invention as in claim 5, given the recitations of document 1, in particular, fig. 1, the flat plate of the invention disclosed in document 1 can be said to be angled in the sub-scanning direction in relation to light incident from a light deflection part.

The invention as in claims 6-7 does not involve an inventive step in the light of document 1 and document 2 cited in the ISR.

Regarding the invention as in claim 6, given, for example, the recitation of paragraph [0106] of document 1, document 1 suggests applying the optical scanning device disclosed in document 1 to a head-up display. Meanwhile, document 2 discloses a feature in which when the configuration of an optical scanning device optical system for a projector device is applied to a head-up display, the screen of the projector device is replaced with an image formation unit for generating an intermediate image. It would be easy for a person skilled in the art to apply the feature disclosed in document 2 to the invention disclosed in document 1 and arrive at an image display device for displaying an intermediate image generated by an image formation unit as a virtual image.

Regarding the invention as in claim 7, see, for example, paragraph [0106] of document 1.

The invention as in claims 2-4 is not disclosed in any of the documents cited in the ISR and would not be obvious to a person skilled in the art. None of the documents disclose the feature of the invention as in claims 2-4 in which in a cross section in the sub-scanning direction, a perpendicular to the flat plate is

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

inclined in relation to the imaginary line, from among two imaginary lines diagonally connecting the ends of the flat plate and the ends of the image formation unit, that forms a smaller angle with the perpendicular to the flat plate in a direction in which the angle formed between the flat plate and the image formation unit is increased.