

**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 <b>2016-95</b>	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. <b>PCT/JP2017/001841</b>	International filing date ( <i>day/month/year</i> ) <b>20 January 2017 (20.01.2017)</b>	Priority date ( <i>day/month/year</i> ) <b>29 January 2016 (29.01.2016)</b>	
International Patent Classification (8th edition unless older edition indicated) <b>See relevant information in Form PCT/ISA/237</b>			
Applicant <b>NIDEC SANKYO CORPORATION</b>			

<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 9 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 <b>31 July 2018 (31.07.2018)</b>
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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)	<b>07.03.2017</b>
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Applicant's or agent's file reference <b>2016-95</b>	<b>FOR FURTHER ACTION</b> See paragraph 2 below
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International application No. <b>PCT/JP2017/001841</b>	International filing date (day/month/year) <b>20.01.2017</b>	Priority date (day/month/year) <b>29.01.2016</b>
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International Patent Classification (IPC) or both national classification and IPC  
**F16F9/14 (2006.01) i, A47K13/12 (2006.01) i, F16J15/18 (2006.01) i**

Applicant  
**NIDEC SANKYO CORPORATION**

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.

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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 43bis.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 13ter.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 13ter.1(a)).
    - on paper or in the form of an image file (Rule 13ter.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:

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<b>Box No. V</b>	<b>Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b>		
1. Statement			
Novelty (N)	Claims	1-14	YES
	Claims		NO
Inventive step (IS)	Claims	8	YES
	Claims	1-7, 9-14	NO
Industrial applicability (IA)	Claims	1-14	YES
	Claims		NO
2. Citations and explanations:			
<p>Document 1: JP 2015-194230 A (NIDEC SANKYO CORP.) 05 November 2015, paragraphs [0023]-[0031], [0043]-[0048], fig. 1, 3-6 (Family: none)</p> <p>Document 2: JP 51-54171 A (YUGEN KAISHA SN SEIKI) 13 May 1976, page 2, upper left column, lines 4-20, page 2, lower left column, lines 7- 11, fig. 1, 2 (Family: none)</p> <p style="text-align: center;">The invention as in claims 1-7 and 9-14 does not involve an inventive step with respect to documents 1 and 2 cited in the ISR.</p> <p>(1) Claim 1</p> <p>Document 1 discloses a fluid damper device 10 provided with: a cylindrical case 20; a rotor 30 provided with valves 50; a fluid 12 filling a damper chamber 11; a bearing part provided with an end part 49 (shaft part) protruding from a rotation shaft 40 toward a bottom wall 21, and a recess part 210 (shaft hole) which is recessed in the bottom wall 21 and in which the end part 49 fits; in the rotation shaft 40a, a surface (first end surface)</p>			

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facing the bottom wall 21 around the bearing part; and in the bottom surface 21, a surface (second end surface) facing the rotation shaft 40 around the bearing part.

A comparison between the invention as in claim 1 and the invention disclosed in document 1 reveals that the two inventions differ in that a rib protruding from one of the first end surface and the second end surface to the other one of the first end surface and the second end surface and extending in the circumferential direction around the bearing part is not provided between the first end surface and the second end surface in the invention disclosed in document 1.

The abovementioned difference is considered.

Document 2 discloses a circular cylinder in which a gasket 10 provided with annular parts 10' is fitted onto step part end surfaces b (first end surfaces) of a rotation shaft 4 and is placed in close contact with lateral plates 2 (bottom walls). The annular parts 10' of document 2 are placed in close contact with the lateral plates 2 and thereby allow airtightness to be maintained. Further, it can be considered that the annular parts 10' are provided to the step part end surfaces b in the shape of ribs (see in particular fig. 1 and 2, etc.).

Accordingly, the annular parts 10' of the invention disclosed in document 2 correspond to the "rib extending in the circumferential direction around the bearing part" of the invention as in claim 1.

The inventions disclosed in documents 1 and 2 have the same function for having a rotor that rotates about a shaft and also partitions the inside of a cylindrical case in the circumferential direction in airtight state.

Accordingly, a person skilled in the art could

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easily have applied, to the invention disclosed in document 1, the technical concept disclosed in document 2 of having the annular parts 10' to provide a rib extending in the circumferential direction around the bearing part in a surface of the rotation shaft 40 that faces the bottom wall 2 in the invention disclosed in document 1 and thereby arrive at the invention as in claim 1.

(2) Claims 2-6

The annular parts 10' disclosed in document 2 are continuous in the circumferential direction (claim 2), and are provided at positions spaced away from a small diameter shaft 4' (bearing part) toward the outside in the radial direction (claim 3).

Further, the annular parts 10' disclosed in document 2 are in abutment between the radially-inner end parts of blocking pieces 5 (partitioning projection parts) and hole parts, in both lateral plates 2 (bottom walls), that are penetrated by the small diameter shaft 4' (claim 4).

Further, no particular difficulty is found in providing such annular parts 10' with a circular shape that is concentric with the small diameter shaft 4' (claim 5).

Further, the annular parts 10' disclosed in document 2 protrude from the step part end surfaces b (first end surfaces) of the rotation shaft 4 toward both lateral plates 2 and contact both lateral plates 2 (claim 6).

(3) Claim 7

Document 1 indicates that first ribs 16 that are formed in second projection parts 462 (valve support

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parts) of valve-holding projection parts 46 at end surfaces facing the bottom wall 21 are formed in the bottom wall 21 (second end surface) (see in particular paragraph [0044], etc.).

When providing a rib extending in the circumferential direction around the bearing part in the invention disclosed in document 1, a person skilled in the art could easily have applied the technical concept of forming the first ribs 16 in the bottom wall 21 to make a configuration so that the rib extending in the circumferential direction is formed in the bottom wall 21 and contacts the rotation shaft 40, and thereby arrive at the invention as in claim 7.

(4) Claim 9

The first ribs 16 in the invention disclosed in document 1 extend radially (see in particular paragraph [0044], fig. 5, etc.).

When providing a rib extending in the circumferential direction around the bearing part in the invention disclosed in document 1, a person skilled in the art could easily have made a configuration so that the rib is connected to the radially-extending first ribs 16 and thereby arrive at the invention as in claim 9.

(5) Claims 10-11 and 13

Document 1 indicates that tip sides 163 of the first ribs 16 are surfaces perpendicular to an axis L direction (see in particular paragraph [0048], etc.), the first ribs 16 are crushed (undergo deformation) between the bottom wall 21 and the valve-holding projection parts 46 (see in particular paragraph [0047], etc.), and the base

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parts 161 of the first ribs 16 are wider than the tip parts 163 (see in particular paragraph [0048], etc.).

When providing a rib extending in the circumferential direction around the bearing part in the invention disclosed in document 1, a person skilled in the art could easily have made a configuration so that the rib has the same shape as the first ribs 16 and thereby arrive at the invention as in claims 10-11 and 13.

(6) Claim 12

No particular difficulty is found in configuring the invention disclosed in document 1 by providing a clearance between the end part 49 and the recess part 210 so that the rotation shaft 40 can rotate easily.

(7) Claim 14

The fluid damper device 10 of the invention disclosed in document 1 is provided to a western-style toilet bowl (equipment having damper), and a toilet seat 5 or toilet lid 6 (swinging member) is attached to a toilet bowl body 2 (equipment body) with the fluid damper device 10 therebetween.

Accordingly, the invention as in claims 1-7 and 9-14 could easily have been made on the basis of the inventions disclosed in documents 1 and 2.

The invention as in claim 8 is not disclosed in either one of the abovementioned documents cited in the ISR, and also would not be obvious to a person skilled in the art.



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In particular, the feature of providing, as the rib extending in the circumferential direction around the bearing part, a first rib that protrudes from the first end surface toward the second end surface and a second rib that protrudes from the second end surface toward the first end surface is not disclosed in either one of the abovementioned documents.