

**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>21.03.2017</b>
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Applicant's or agent's file reference <b>17-03-PCT</b>	<b>FOR FURTHER ACTION</b> See paragraph 2 below
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International application No. <b>PCT/JP2017/005064</b>	International filing date (day/month/year) <b>13.02.2017</b>	Priority date (day/month/year) <b>23.03.2016</b>
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International Patent Classification (IPC) or both national classification and IPC  
**F02M37/00 (2006.01) i, B60K15/035 (2006.01) i, F16K24/04 (2006.01) i, F16K31/18 (2006.01) i**

Applicant  
**KYOSAN DENKI CO., 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.

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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:

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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>
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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;">2-10</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</td> <td style="padding: 2px;">NO</td> </tr> </table>	Claims	2-10	YES	Claims	1	NO	
Claims	2-10	YES							
Claims	1	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;">2-7</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, 8-10</td> <td style="padding: 2px;">NO</td> </tr> </table>	Claims	2-7	YES	Claims	1, 8-10	NO	
Claims	2-7	YES							
Claims	1, 8-10	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;">1-10</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	1-10	YES	Claims		NO	
Claims	1-10	YES							
Claims		NO							

2. Citations and explanations:	
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Document 1:	JP 2004-293325 A (TOYODA GOSEI CO., LTD.) 21 October 2004, paragraphs [0012]-[0041], fig. 1-7 & US 2004/0187923 A1, paragraphs [0027]-[0069], fig. 1-10
Document 2:	JP 2002-285929 A (NIFCO INC.) 03 October 2002, paragraphs [0020]-[0088], fig. 1-18 (Family: none)
Document 3:	JP 2014-159209 A (TOYOTA MOTOR CORP., KYOSAN DENKI CO., LTD.) 04 September 2014, paragraphs [0028]-[0060], fig. 2-4 & US 2014/0230920 A1, paragraphs [0035]-[0067], fig. 2-4 & CN 103993995 A
Document 4:	JP 2013-82427 A (KYOSAN DENKI CO., LTD.) 09 May 2013, paragraphs [0036]-[0136], fig. 1- 23 & JP 2015-180567 A & JP 2015-180568 A & US 2013/0075394 A1, paragraphs [0043]- [0153], fig. 1-23 & US 2016/0031315 A1 & CN 103016809 A & CN 106065954 A
Document 5:	JP 2011-178379 A (KYOSAN DENKI CO., LTD.) 15 September 2011, paragraphs [0023]- [0108], fig. 1-14 & US 2011/0186149 A1,

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paragraphs [0050]-[0159], fig. 1-14

Document 6: JP 2002-235623 A (WALBRO CORP.) 23 August 2002, paragraphs [0009]-[0033], fig. 1-8 & JP 2000-320416 A & JP 2003-182389 A & US 2001/0011538 A1, paragraphs [0019]-[0046], fig. 1-8 & US 6213100 B1 & US 2002/0017281 A1 & DE 10148506 A1 & DE 10021054 A1 & DE 10247791 A1

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

Document 1 discloses a venting control valve for a fuel tank that forms an air chamber inside a fuel tank, the fuel valve comprising: a cylindrical case (30, 35) that has an opening part (35b) (see paragraph [0017]) for the introduction of fuel at a lower part; a first float valve (40) that switches the passage cross-section area of a passage that communicates between the inside and outside of the fuel tank via inside the case from an open state to a first restricted state in which the passage cross-section area is more restricted than in the open state (see fig. 4, paragraphs [0024], [0025]); and a second float valve (52) that switches the passage cross-section area of the passage from the first restricted state to a second restricted state in which the passage cross-section area is more restricted than in the first restricted state (see fig. 5, paragraph [0026]). Document 1 further indicates that the first float valve and the second float valve are disposed (see fig. 1-7) in an inside/outside double structure.

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The invention as in claim 1 is disclosed in document 2 cited in the ISR, and lacks novelty and does not involve an inventive step.

Document 2 discloses a venting control valve for a fuel tank that forms an air chamber inside a fuel tank, the fuel valve comprising: a cylindrical case that has an opening part (52) (see paragraph [0067]) for the introduction of fuel at a lower part; a first float valve (55) that switches the passage cross-section area of a passage that communicates between inside and outside the fuel tank via inside the case from an open state to a first restricted state in which the passage cross-section area is more restricted than in the open state (see fig. 14); and a second float valve (56) that switches the passage cross-section area of the passage from the first restricted state to a second restricted state (see fig. 15) in which the passage cross-section area is more restricted than in the first restricted state. Document 2 further indicates that the first float valve and the second float valve are disposed (see fig. 13-18) in an inside/outside double structure.

The invention as in claims 2-7 is not disclosed in any of the documents cited in the ISR and would not be obvious to a person skilled in the art.

In particular, none of the documents cited in the ISR discloses a venting control valve for a fuel tank in which a first float valve and a second float valve are disposed in an inside/outside double structure, wherein: the first float valve has a cup-shaped first fuel basin that can hold fuel supplied from inside a case, a first float that is disposed in the first fuel basin and floats

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in the fuel, and a first valve that provides an open state when the first float is not floating in the fuel and provides a first restricted state when the first float is floating in the fuel; and the second float valve has a cup-shaped second fuel basin that can hold fuel supplied from inside the case, a second float that is disposed in the second fuel basin and floats in the fuel, and a second valve that provides the first restricted state when the second float is not floating in the fuel and provides a second restricted state when the second float is floating in the fuel. Moreover, these features would not be obvious to a person skilled in the art.

The invention as in claim 8 does not involve an inventive step in the light of documents 2-5 cited in the ISR.

Document 2 discloses a venting control valve for a fuel tank that forms an air chamber inside a fuel tank, the fuel valve comprising: a cylindrical case that has an opening part (see fig. 5, for example) for the introduction of fuel at a lower part; a first float (10b) that floats in fuel; a first valve (10c) that is operated by the first float and switches the passage cross-section area of a passage that communicates between inside and outside the fuel tank via inside the case from an open state to a first restricted state (see fig. 2, 3) in which the passage cross-section area is more restricted than in the open state; a second float (11b) that floats in fuel; and a second valve (11c) that is operated by the second float and switches the passage cross-section area of the passage from the first restricted state to a second restricted state (see fig. 4) in which the passage

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cross-section area is more restricted than in the first restricted state.

Document 2 does not disclose "a cup-shaped first fuel basin that can hold fuel supplied from inside the case" where the first float is disposed or "a cup-shaped second fuel basin that can hold fuel supplied from inside the case" where the second float is disposed.

Nevertheless, it is a well-known feature to dispose a float valve in a cup-shaped fuel basin that can hold fuel supplied from inside a case in a venting control valve for a fuel tank, as disclosed in documents 3-5 (the "suppression member 50" in document 3, the "container body 36" in document 4, and the "container body 32" in document 5 correspond to the cup-shaped fuel basin). It would be easy for a person skilled in the art to use this well-known feature for the dispositions of the first float and the second float in the venting control valve for the fuel tank disclosed in document 2, thus creating the feature of the invention as in claim 8.

The invention as in claim 9 does not involve an inventive step in the light of documents 2-5 cited in the ISR.

Providing a siphon passage is a design matter that could have been addressed as appropriate by a person skilled in the art.

The invention as in claim 10 does not involve an inventive step in the light of documents 2-5 cited in the ISR.

The size of a through hole (see the "ventilation hole 35", for example, in document 2) and a throttle

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passage (see the "communication hole 11a", for example, in document 2) is a design matter that could have been selected as appropriate, by a person skilled in the art, in accordance with factors such as the degree of restriction needed in a passage cross-section area.