

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 SUB07886WO	FOR FURTHER ACTION	See item 4 below
International application No. PCT/US2016/055304	International filing date (<i>day/month/year</i>) 04 October 2016 (04.10.2016)	Priority date (<i>day/month/year</i>)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant WHIRLPOOL CORPORATION		

<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 checked="" 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 checked="" 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 09 April 2019 (09.04.2019)
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PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:
CALLAGHAN, Terry S.
Price Heneveld LLP
695 Kenmoor, S.E.
P.O. Box 2567
Grand Rapids, Michigan 49501-2567
United States of America

Date of mailing (<i>day/month/year</i>) 29 June 2017 (29.06.2017)		FOR FURTHER ACTION See paragraph 2 below	
Applicant's or agent's file reference SUB07886WO			
International application No. PCT/US 2016/055304	International filing date (<i>day/month/year</i>) 04 October 2016 (04.10.2016)	Priority date (<i>day/month/year</i>)	
International Patent Classification (IPC) or both national classification and IPC F25D 23/06 (2006.01) F16L 59/065 (2006.01)			
Applicant WHIRLPOOL CORPORATION			

I. 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 and 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/RU: Federal Institute of Industrial Property, Berezhkovskaya nab., 30-1, Moscow, G-59, GSP-3, Russia, 125993 Facsimile No: (8-495) 531-63-18, (8-499) 243-33-37	Date of completion of this opinion 13 June 2017 (13.06.2017)	Authorized officer T. Darina Telephone No. 8 499 240 25 91
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 2016/055304

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 filed or furnished:
 - 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 in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

the entire international application.

claims Nos. 6-10, 14-17

because:

the said international application, or the said claims Nos. _____ relate to the following subject matter which does not require an international search (*specify*):

the description, claims or drawings (*indicate particular elements below*) or said claims Nos. _____ are so unclear that no meaningful opinion could be formed (*specify*):

the claims, or said claims Nos. _____ are so inadequately supported by the description that no meaningful opinion could be formed (*specify*):

no international search report has been established for said claims Nos. 6-10, 14-17

a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:

furnish a sequence listing in the form of an Annex C/ST.25 text file, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.

furnish a sequence listing on paper or in the form of an image file complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.

pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rule 13ter.1(a) or (b).

See Supplemental Box for further details.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US 2016/055304

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

1. Statement

Novelty (N)	Claims	1-5, 11-13, 18-20	YES
	Claims		NO
Inventive step (IS)	Claims	1-5, 11-13, 18-20	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-5, 11-13, 18-20	YES
	Claims		NO

2. Citations and explanations:

D1-WO 1999/20964 A1

D1 (fig. 1), the closest prior art of the invention of the independent claims 1, 11 and 18, discloses a device comprising an outer 17 (fig. 1) and an inner lining 16, which are joined to form the structure of the inner cabinet with an insulated cavity formed between the outer and the inner linings, the insulating material 14 (fig. 1) located inside the insulating cavity, with vacuum formed inside the insulating cavity, which at least partially forms the pressure difference between the outer part of the structure of the inner cabinet and the insulating cavity, and the pressure difference is defined by the internal compressive force (p. 35 lines 9-30).

The device known from D1 implements a method for forming a cabinet for a device, comprising the joining of the outer skin 17 to the inner skin 16 to form a cavity, placing the insulation material 14 inside the insulating cavity, evacuating the gas from the insulating cavity to create a partial vacuum inside the insulating cavity, which at least partially, creates an internal compressive force that acts on the lining towards the insulating cavity (p. 35 lines 9-30).

The invention of the independent claims 1 and 11 differs from D1 in that the reinforcing elements of the outer lining are located in close proximity to it, the reinforcing elements of the inner lining are located in close proximity to it, the reinforcing elements of the respective linings pass into the insulating cavity and do not interact with each other, while the reinforcing elements of the outer and inner liner are resistant to the action of the internal compressive force, and the insulating material extends throughout the cavity.

The invention of the independent claim 18 differs from D1 in that a set of reinforcing elements of the outer lining are located in close proximity to the outer lining, a set of reinforcing elements of the inner lining are located in close proximity to the inner lining, the insulating cavity is compacted, the reinforcing elements of the outer and inner lining are arranged to resist to the compressive force and keep the outer lining and the inner lining at the same distance to maintain the volume of the cavity space between the reinforcing elements of the outer and inner linings.

Therefore, the invention according to the independent claims 1, 11 and 18 and the dependent claims 2-5, 12-13 and 19-20 meets the criterion of novelty.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of V:

The invention according to the claims 1-5, 11-13 and 18-20 meets the criterion of the inventive step, as far as the named features are not known from the prior art and the invention as a whole is not obvious to a person skilled in the art for achieving the technical result of improving the thermal insulating properties of devices with a vacuum thermal insulation of the housing due to the presence of reinforcing elements of the inner and outer linings resisting the compression while retaining the volume of the cavity with the heat-insulating evacuated material between the reinforcing elements of the inner and the outer linings.

The claims 1-5, 11-13 and 18-20 meet the criterion of industrial applicability.