

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**
(PCT Rule 43*bis*.1)

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/IT2016/000090

International filing date (day/month/year)
11.04.2016

Priority date (day/month/year)
09.04.2015

International Patent Classification (IPC) or both national classification and IPC
INV. B01D5/00 B01D1/00 B01D1/30 C02F1/14

Applicant
LAVANGA VITO

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 43*bis*.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 usually 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 66.1*bis*(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:



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Date of completion of this opinion

see form
PCT/ISA/210

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Box No. I Basis of the 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:

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

1. Statement

Novelty (N)	Yes: Claims	<u>3-15</u>
	No: Claims	<u>1, 2</u>
Inventive step (IS)	Yes: Claims	<u>8</u>
	No: Claims	<u>1-7, 9-15</u>
Industrial applicability (IA)	Yes: Claims	<u>1-15</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

- D1 WO 2007/011201 A1 (ZONNEWATER B V [NL]; DE KONING JAN CORNELIS [NL]) 25 January 2007 (2007-01-25)
- D2 WO 2011/004416 A1 (ESAE S R L [IT]; LAVANGA VITO [IT]; SPARACINO ANTONIO CESARE [IT]) 13 January 2011 (2011-01-13)
- D3 WO 2010/034043 A1 (GIG KARASEK GMBH [AT]; KARASEK ANDREAS [AT]; BETHGE DANIEL [AT]) 1 April 2010 (2010-04-01)
- D4 FR 2 853 895 A1 (COSTES DIDIER [FR]) 22 October 2004 (2004-10-22)

1 The document D1 discloses

a method to desalinate sea water (page 1, line 2), brackish water or from industrial processes, in continuous or in alternative mode (implicit), of the type which provides to cause the evaporation of said water to desalinate and the subsequent condensation of the steam and condensed water collection,

characterized in that:

- to operate in a closed tank (2) in which they are present the water to desalinate and the steam resulting from the evaporation of said water;
- to heat said water to desalinate in the nearness of the free surface (page 5, line 5 to 7) of said water, so that said free surface and said produced steam are at a higher temperature than the temperature into the depths of the water to desalinate;
- to cause the condensation (condensation tube 4) of said steam and to collect the condensed water, said condensation taking place on cooling means, which are in heat exchange connection with the heating means (the condensation tube is connected to the evaporation chamber, as a consequence it is in heat exchange connection), immersed in said water to desalinate, said heat exchange simultaneously causing:

a) the reduction of temperature of said cooling means (5a), then the suitable conditions for the condensation of the steam;

b) the increase of temperature, into the depths, of said water to desalinize.

Therefore claim 1 is not novel in view of D1 (Art. 33(2)PCT).

2 The following features are indicating how the apparatus is used. They are defining the structure of the apparatus. As a consequence they are not limiting the scope of the claim. They are ignored for the examination

a) said tank (1), fitted to contain said water to desalinize, is filled up to a level

b) immersed in said water to desalinize,

c) said heat exchange simultaneously causing:

the reduction of the temperature of said means (5a), then the suitable conditions for the condensation of the steam;

the increase of the temperature, into the depths, of said water to desalinize;

3 The document D1 discloses

a device to desalinize sea water, brackish water or from industrial processes, in continuous or in alternative mode, of the type which provides for a containment tank of the water to desalinize, in which there are heating means (8) fitted to cause the evaporation of said water to desalinize, cooling means fitted (4) to facilitate the subsequent condensation of the steam and means fitted to the condensed water collection, characterized in that:

(...);

said heating means, fitted to cause the evaporation of said water to desalinate, include a first heat exchanger (8), immersed in the water to desalinate and positioned in the nearness of said level (see page 5, line 5 to 7);

said cooling means (condensation tube 4)), fitted to establish the condensation of the steam, are in heat exchange connection with the heating means, (...).

conveying means (implicit) fitted to collect the condensed water on said cooling means.

Therefore the subject matter of claim 2 is not novel (Art. 33(2)PCT).

- 4 Dependent claims 3 to 5 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, the reasons being that these features relates to alternatives which belong to the normal practice of the skilled person.
- 5 Dependent claims 7 and 9 to 15 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, the reasons being that these features are not linked to any surprising technical effect i the description.

Re Item VIII

Certain observations on the international application

- 6 The features in the apparatus claim 6 relate to a method of using the apparatus rather than clearly defining the apparatus in terms of its technical features. The intended limitations are therefore not clear from this claim, contrary to the requirements of Article 6 PCT.

The claim should be redrafted as process claim.

- 7 The feature "immersed in said water to desalinize, said heat exchange simultaneously causing: a) the reduction of the temperature of said means (5a), then the suitable conditions for the condensation of the steam; b) the increase of the temperature, into the depths, of said water to desalinize" in claim 1 and 2 attempts to define the method and the apparatus in term of result to be achieved. Therefore those claims are not clear (Art. 6 PCT).

The features of claim 8 appear to be necessary to the definition of the this result to be achieved. The combination of this claim with claim 2 would solve the issue and claim 2 would be novel and inventive.

Then claim 1 should be drafted as a method claim using the device of claim 2.