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Declarations under Rule 4.17:
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
— *of inventorship (Rule 4.17(iv))*

Published:
— *with international search report (Art. 21(3))*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(54) **Title:** IMPROVEMENTS RELATED TO THE DISINFECTING OF AN AIR SPACE

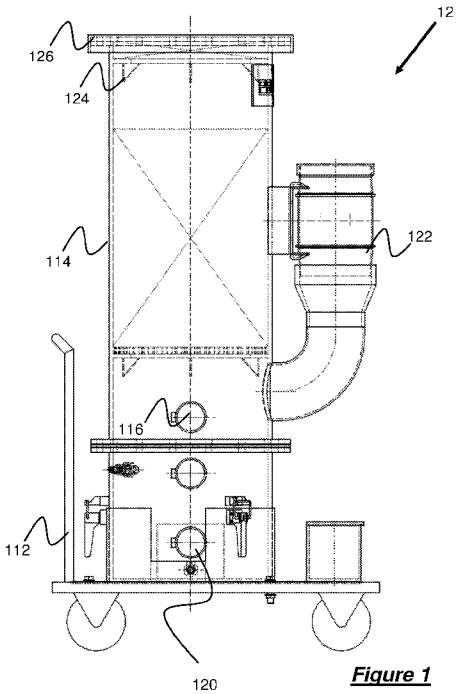


Figure 1

(57) **Abstract:** A portable device for removing water-soluble disinfectant from air. The device comprises a water reservoir, and means for drawing air into contact with water from the water reservoir.

[Continued on next page]

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28 March 2019 (28.03.2019)

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A. CLASSIFICATION OF SUBJECT MATTER
INV. A61L9/14
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A61L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/079124 A1 (SANDERSON WILLIAM D [US]) 14 April 2005 (2005-04-14) paragraphs [0133], [0137] - [0139]; figure 8 paragraph [0163]	1,6-16, 18
X	WO 01/03747 A1 (SCHUER JOERG PETER [DE]) 18 January 2001 (2001-01-18) page 14, paragraph 4; figure 1	1,6-16, 18
X	DE 32 28 997 A1 (SCHWABSBERGER ENERGIETECHNIK G [DE]) 9 February 1984 (1984-02-09) page 9; figure 1	1,6-16, 18

-/--

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
16 January 2019	28/02/2019

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Fischer, Michael

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Form PCT/ISA/210 (second sheet) (April 2005)

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008/053871 A1 (MISAWA HOMES INST OF RES AND D [JP]; ORGANO CORP [JP]; ASANO MASAHIKO) 8 May 2008 (2008-05-08) abstract; figure 1	1
X	US 2007/224079 A1 (SPARKS DAVID W [US] ET AL) 27 September 2007 (2007-09-27) paragraphs [0025], [0036], [0037], [0043], [0044]; figures 1,12	1,6-16, 18
X	DE 710 954 C (MAX PRUESS DR ING; HEINRICH BLUNK) 24 September 1941 (1941-09-24) figure 1	1
X	WO 2012/021113 A2 (KARE MUHENDISLIK CEVRE TEKNOLOJILERI SANAYI VE TICARET ANONIM SIRKETI) 16 February 2012 (2012-02-16) abstract; figure 1	1
X	EP 1 918 652 A2 (SANYO ELECTRIC CO [JP]) 7 May 2008 (2008-05-07) paragraphs [0052], [0053], [0063]; figure 1	1,6-16, 18
X	EP 2 155 267 A1 (BIOQUELL UK LTD [GB]) 24 February 2010 (2010-02-24) paragraphs [0029], [0032], [0033], [0021], [0022], [0041]; claims 9, 10; figure 2 paragraphs [0047], [0042]	19-28
X	US 2012/213672 A1 (ADAMS NICHOLAS MARK TURNER [GB] ET AL) 23 August 2012 (2012-08-23) paragraphs [0027], [0036]; figure 12 paragraphs [0005], [0033], [0035]	19-28
X	US 2012/275953 A1 (LUKASIK ROBERT [US] ET AL) 1 November 2012 (2012-11-01) paragraphs [0033], [0034], [0045]; figures 2, 3, 4 paragraph [0041]	1,19-28

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 2-5, 17(completely); 1(partially)
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☒ No protest accompanied the payment of additional search fees.

Continuation of Box II.2

Claims Nos.: 2-5, 17(completely); 1(partially)

Re item III

1.1 The subject matter of claims 2 - 5, 17 relates to desired properties ("configured to") of the claimed apparatus without specifying clear functional or structural features.
1.2 This non-compliance with the substantive provisions is to such an extent, that the search was performed taking into consideration the non-compliance in determining the extent of the search of the claim (PCT Guidelines 9.19 and 9.20).
1.3 Since the ISA cannot derive searchable subject matter from the subject matter of these claims, no search can be conducted in view of claims 2 - 5, 17.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guidelines C-IV, 7.2), should the problems which led to the Article 17(2) declaration be overcome.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 6-16, 18

> 1. A portable device for removing water-soluble disinfectant from air, the device comprising a water reservoir, and an air inlet for drawing air into contact with water from the water reservoir.
> 6. A device as claimed in any preceding claim, wherein the device comprises a purification chamber in fluid communication with the water reservoir, such that water and/or air can pass between the water reservoir and the purification chamber in use.
> ...
>
> ---

2. claims: 19-28

> 19. Apparatus for disinfecting a space using a water-soluble disinfectant, wherein the apparatus comprises a device for distributing the water-soluble disinfectant in air in the space and a device according to any one of Claims 1 to 18.
> 20. Apparatus as claimed in Claim 19, wherein the apparatus comprises a controller for control of both the device for distributing the water-soluble disinfectant in air in the space and the device for removing water-soluble disinfectant from the air.
> 21. Apparatus as claimed in Claim 20, wherein the controller is programmable.
> 22. Apparatus according to Claim 19 or Claim 20, wherein the apparatus is mounted on a trolley comprising wheels.
> 23. A method of disinfecting a space using a water-soluble disinfectant, wherein the method comprises the steps of distributing the water-soluble disinfectant throughout the space, and drawing air from the space into contact with water from a water reservoir.
> 24. A method according to Claim 23, wherein the method comprises utilising a device according to any of Claims 1 to 18 and/or apparatus according to any of Claims 19 to 22.
> 25. A method according to Claim 22 or Claim 23, wherein the method comprises operating the apparatus using a controller.
> 26. A method as claimed in any of Claims 23-25, wherein the method comprises switching on a device for distributing water-soluble disinfectant for a first pre-determined period of time and switching off the device for distributing water-soluble disinfectant after the first pre-determined period of time has elapsed.
> 27. A method as claimed in Claim 26, wherein the method comprises switching on a device for removing water-soluble disinfectant from air after a second pre-determined amount of time has elapsed, the second pre-determined period of time being the time after the switching off of the device for distributing water-soluble disinfectant.
> 28. A method as claimed in Claim 27, wherein the method

comprises switching off the device for removing water-soluble disinfectant from air after a third pre-determined period of time has elapsed.

INTERNATIONAL SEARCH REPORT

Information on patent family members

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International application No
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