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(54) Title: DECONTAMINATION DEVICE AND METHOD FOR MEDICAL INSTRUMENTS

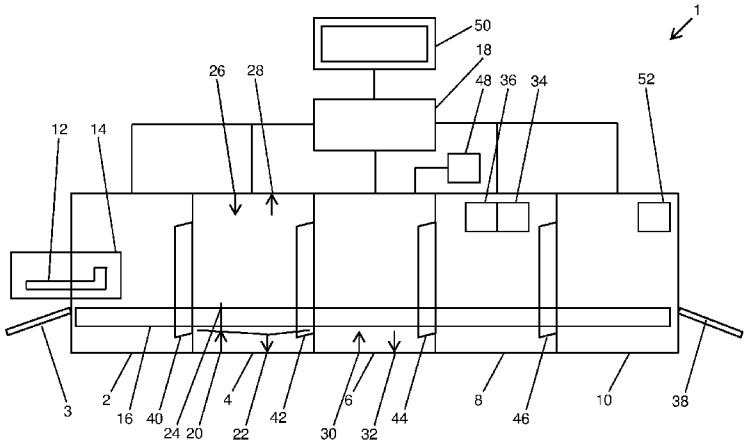


Figure 1

(57) Abstract: The invention relates to a decontamination device for medical instruments and a method for decontaminating medical instruments. The device includes a reception unit arranged for receiving a to be treated medical instrument. The device further includes a washing unit arranged for washing and/or drying the instrument. The device includes a disinfection unit arranged for disinfecting the instrument. The device includes a delivery unit arranged for presenting the disinfected instrument to be taken out of the decontamination device.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. A61L2/20
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	EP 1 787 662 A1 (INTERNAT STEEL CO SPA [IT]) 23 May 2007 (2007-05-23) paragraphs [0031] - [0033]; figure 2	1-4, 26-28
X	EP 1 787 731 A2 (INTERNAT STEEL CO SPA [IT]) 23 May 2007 (2007-05-23) figure 6	1-4, 26-28
X	US 2002/153021 A1 (AUDET ETIENNE [CA]) 24 October 2002 (2002-10-24) figure 1	1-4, 26-28
X	DE 23 39 517 A1 (TETRA PAK DEV) 21 February 1974 (1974-02-21) page 8; figure 1	1-4, 26-28

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[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
24 October 2016	02/01/2017

Name and mailing address of the ISA/	Authorized officer
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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	EP 2 292 340 A1 (KRONES AG [DE]) 9 March 2011 (2011-03-09) paragraphs [0030], [0045], [0046]; figure 1 -----	1-4, 26-28

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INTERNATIONAL SEARCH REPORT

International application No.
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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.:
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:

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.:

1-4, 26-28

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-4, 26-28

1. A decontamination device for medical instruments including:
a reception unit arranged for receiving a to be treated medical instrument;
a washing unit arranged for washing and/or drying;
a disinfection unit arranged for disinfecting the instrument; and
a delivery unit arranged for presenting the disinfected instrument to be taken out of the decontamination device.
2. The decontamination device of claim 1, further including:
a wrapping unit arranged for providing the decontaminated instrument in a holder;
wherein the delivery unit is arranged for presenting the holder including the decontaminated instrument to be taken out of the decontamination device.
3. The decontamination device of claim 1 or 2, including a control unit arranged for controlling the washing unit, the disinfection unit and optionally the wrapping unit, for automatically washing and/or drying and disinfecting the instrument and optionally automatically providing the disinfected instrument in the holder hermetically sealed from ambient air
4. The decontamination device of any one of claims 1-3, wherein the reception unit and the delivery unit are one and the same.
26. A method for decontaminating a medical instrument using a decontamination device, the method including:
receiving a to be treated medical instrument in a reception unit;
washing and/or drying the instrument in a washing unit;
disinfecting the instrument in a disinfection unit; and
presenting the disinfected instrument to be taken out of the decontamination device in a delivery unit.
27. The method of claim 26, further including:
providing the disinfected instrument in a holder by a wrapping unit;
wherein the step of presenting includes presenting the holder including the disinfected instrument to be taken out of the delivery unit.
28. The method of claim 26, wherein the decontamination device is a decontamination device according to any one of claims 1-24.

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2. claims: 5-10

5. The decontamination device of any one of claims 1-3, wherein at least the reception unit, the disinfection unit, and the delivery unit are consecutive stations within the device.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

6. The decontamination device of any one of claims 1-5, wherein the disinfection unit is arranged for sterilizing the instrument.
7. The decontamination device of any one of claims 1-6, wherein the disinfection unit is arranged for treating the instrument with ozone.
8. The decontamination device of any one of claims 1-7, wherein the washing unit is arranged for washing debris off the instrument.
9. The decontamination device of claim 8, wherein the washing unit includes at least one nozzle to spray a jet or mist of a cleaning fluid directly onto the instrument.
10. The decontamination device of any one of claims 1-9, wherein the decontamination device is arranged for washing the instrument using a liquid containing a disinfectant, such as ozone.

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3. claims: 11-15

11. The decontamination device of any one of claims 1-10, wherein the washing unit includes at least one nozzle to spray a jet or mist of a drying gas directly onto the instrument.
12. The decontamination device of any one of claims 1-11, wherein the decontamination device is arranged for drying the instrument using a gas containing a disinfectant, such as ozone.
13. The decontamination device of claim 2 or any one of claims 3-12 as far as dependent on claim 2, wherein the wrapping unit is arranged for packaging the disinfected instrument in a hermetically sealed holder.
14. The decontamination device of any one of claims 1-13, arranged for holding the instrument in a cassette.
15. The decontamination device of claim 14, wherein the reception unit is arranged for receiving the to be treated medical instrument loaded in a cassette.

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4. claims: 16-20

16. The decontamination device of claim 14 or 15, wherein the washing unit is arranged for washing and/or drying the instrument in the cassette.
17. The decontamination device of any one of claims 14-16, wherein the disinfection unit is arranged for disinfecting the instrument in the cassette.
18. The decontamination device of any one of claims 14-17 as far as dependent from claim 2, wherein the wrapping unit is arranged for hermetically sealing the cassette containing the disinfected instrument.
19. The decontamination device of any one of claims 14-18, wherein the delivery unit is arranged for presenting the cassette containing the disinfected instrument to be taken out of the decontamination device.

20. The decontamination device of any one of claims 14-19, wherein the cassette includes a first portion and a second portion that can be closed against each other for enclosing the instrument.

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5. claims: 21-25

21. The decontamination device of claim 20, wherein the wrapping unit is arranged for hermetically closing the first portion against the second portion.
22. The decontamination device of any one of claims 1-21, including a transportation unit arranged for transporting the instrument and/or the cassette from the reception unit to the disinfection unit and/or from the disinfection unit to the delivery unit.
23. The decontamination device of any one of claims 1-22, including a labelling unit arranged for providing the instrument and/or the cassette with a label representative of the performed decontamination.
24. The decontamination device of any one of claims 1-23, wherein the instrument is a dental instrument.
25. System including a decontamination device of any one of claims 14-24 and at least one cassette arranged for holding the instrument.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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