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(54) Title: DISPOSABLE CARTRIDGE SYSTEM FOR USE WITH SORBENT OR PREMIXED DIALYSATE

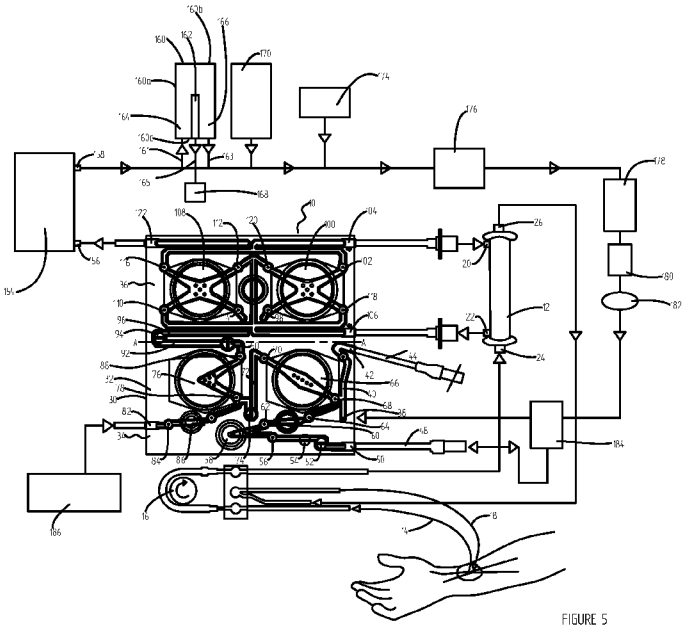

FIGURE 5

(57) Abstract: A hemodialysis machine defining a closed loop fluid path for dialysate solution, the fluid path comprising: a first pump chamber having a pump inlet and a pump outlet, a dialyser having a dialyser inlet and a dialyser outlet, a conduit connected between the outlet of the first pump chamber and the inlet of the dialyser, a second pump chamber having a pump inlet and a pump outlet, a conduit connected between the outlet of the dialyser and the inlet of the second pump chamber, a dialysate regeneration device having a filter inlet and a filter outlet, a conduit connected between the outlet of the second pump chamber and the inlet of the dialysate regeneration device, a reservoir having a reservoir inlet and a reservoir outlet, a conduit connected between the outlet of the dialysate regeneration device and the inlet of the reservoir and, a conduit connected between the outlet of the reservoir and the inlet of the first pump chamber.

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A. CLASSIFICATION OF SUBJECT MATTER
INV. A61M1/16
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)
A61M

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	WO 2011/017215 A1 (FRESENIUS MED CARE HLDG INC [US]; BEIRIGER MICHAEL JAMES [US]; PARKS R) 10 February 2011 (2011-02-10) page 7, line 2 - page 8, line 17 page 29, lines 24-32 page 37, line 24 - page 38, line 2 figures 1, 2, 9-11a	1-3, 9-12,29
X	US 2009/198170 A1 (CHILDERS ROBERT W [US] ET AL) 6 August 2009 (2009-08-06) paragraphs [0024] - [0030] figure 1	1,2,9,29
X	US 2009/008306 A1 (CICCHELLO GINO [US] ET AL) 8 January 2009 (2009-01-08) paragraphs [0092] - [0100] figure 2	1-3,9,29

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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
17 September 2014	26/09/2014

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	Schlaug, Martin

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

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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.: 30
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.

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, 2, 29(completely); 9-12(partially)

   A hemodialysis machine comprising a dialyser, a closed loop fluid path for dialysate solution (only claims 1 and 2) and a mixing chamber
   and further features relating to first and second fluid balancing chambers provided on a removably mounted cartridge.

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2. claims: 3-8, 13-28(completely); 9-12(partially)

   A hemodialysis machine comprising a dialyser, a closed loop fluid path for dialysate solution and a dialysate regeneration device
   and further features relating to a reservoir in combination with an arrangement of pumps.

Continuation of Box II.2

Claims Nos.: 30

The independent claim 30 does not contain any technical features, but relies with respect to technical features entirely on references to the description and drawings. This is contrary to the requirements of Rule 6.2 (a) PCT.

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.

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 2005/044339 A2 (BAXTER HEALTHCARE CORP [US]; BAXTER HEALTHCARE SA [CH]; KELLY THOMAS D) 19 May 2005 (2005-05-19) page 19, line 1 - page 21, line 10 page 29, line 5 - page 31, line 4 figures 1-3, 5	1-3,9,29
X	WO 2010/042666 A2 (XCORPOREAL INC [US] FRESENIUS MED CARE HLDG INC [US]) 15 April 2010 (2010-04-15) page 9, lines 27-30 page 26, line 3 - page 33, line 13 figures 6-8	3-9, 13-26,28
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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