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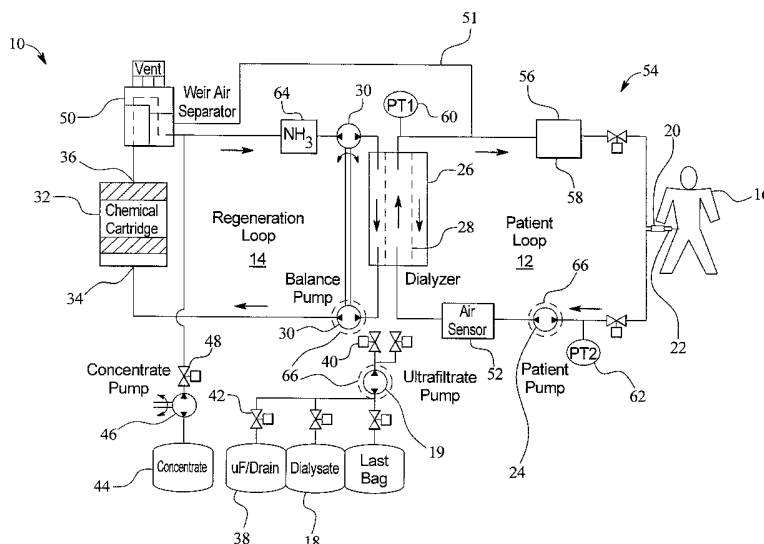
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[Continued on next page]

(54) Title: SYSTEMS AND METHODS FOR PERFORMING PERITONEAL DIALYSIS



(57) Abstract: In a peritoneal dialysis embodiment of the present invention, spent dialysate from the patient's peritoneal cavity passes, along a patient loop, through a dialyzer having a membrane that separates waste components from the spent dialysate, wherein the patient loop returns fresh dialysate to the patient's peritoneal cavity. The waste components are carried away in a second regeneration loop to a regeneration unit or sorbent cartridge, which absorbs the waste components. The regeneration unit removes undesirable components in the dialysate that were removed from the patient loop by the dialyzer, for example, excess water (ultrafiltrate or UF), toxins and metabolic wastes. Desirable components can be added to the dialysate by the system, such as glucose and electrolytes. The additives assist in maintaining the proper osmotic gradients in the patient to perform dialysis and provide the necessary compounds to the patient.

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Published:

- *with international search report*
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INTERNATIONAL SEARCH REPORT

International Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61M1/16

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)
IPC 7 A61M G01N

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 practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 269 708 A (BONOMINI VITTORIO ET AL) 26 May 1981 (1981-05-26)	1-5,13, 14,16, 24-26
Y	column 4, line 50 - column 5, line 46; figures 1,3	6-12,15, 17,20-23
X	----- US 4 684 460 A (ISSAUTIER GERALD) 4 August 1987 (1987-08-04) column 3, line 36 - column 6, line 9; figure 1	1-5,13, 16,18, 19,26
X	----- FR 2 154 983 A (THOMSON CSF) 18 May 1973 (1973-05-18) page 2, line 10 - page 3, line 30; figure 1 ----- -/--	1,2,4,5, 7,13,16, 18,26

Further documents are listed in the continuation of box C.

Patent family members are listed in 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 document 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

14 October 2003

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International Application No

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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	US 4 213 859 A (BERG GERRIT H VAN DEN ET AL) 22 July 1980 (1980-07-22) column 6, line 44 - column 7, line 20; figure 1	1,2,4-7, 13,14,26
Y	----- DE 31 10 128 A (FRAUNHOFER GES FORSCHUNG) 23 September 1982 (1982-09-23) page 22, line 12 - page 24, line 21; figure 2	6-10,12
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Y	----- US 5 522 998 A (POLASCHEGG HANS-DIETRICH) 4 June 1996 (1996-06-04) abstract	15
Y	----- WO 02/30489 A (BAXTER INT) 18 April 2002 (2002-04-18) abstract	17
Y	----- US 4 137 168 A (PERROT ERWIN) 30 January 1979 (1979-01-30) column 5, line 58 - line 63	21-23
Y	----- US 3 669 880 A (MARANTZ LAURENCE B ET AL) 13 June 1972 (1972-06-13) column 3, line 34 - line 42; figure 1	21
P,X	----- WO 03/041764 A (BAXTER INT) 22 May 2003 (2003-05-22) the whole document	1-26
P,Y	----- US 2003/113931 A1 (WARIAR RAMESH ET AL) 19 June 2003 (2003-06-19) abstract	20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 03/22267

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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.: 40-61
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy
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 II Observations where unity of invention is lacking (Continuation of item 2 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 fee, this Authority did not invite payment of any additional fee.
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.:

1-26

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- 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: 1-26

Dialysis system with a membrane device, two fluid loops each including a pump, a medical fluid regenerator and a pump controller

2. claims: 27-34

A disposable dialysis cassette comprising a flexible membrane covering a patient pump chamber and a regeneration pump chamber, and connecting means

3. claims: 35-39

Dialysis therapy device comprising a housing with a patient pump actuator and a regeneration pump actuator

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Claims Nos.: 40-61

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

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 Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/22267

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