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(71) Applicant (for all designated States except US): **DEKA PRODUCTS LIMITED PARTNERSHIP** [US/US];
340 Commercial Street, Manchester, NH 03101 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DEMERS, Jason, A.** [US/US]; 387 North Bay Street, Manchester, NH 03104 (US). **MCGILL, David, W.** [US/US]; 20 Harrod Lane, Bedford, NH 03110 (US). **SCARPACI, Jacob, W.** [US/US]; 162 North Adams Street, Manchester, NH 03104 (US). **DALE, James, D.** [US/US]; 37 White Plains Drive, Nashua, NH 03062 (US). **BODWELL, Jesse, T.** [US/US]; 168 Island Pond Road, Manchester, NH 03109 (US). **WANG, Tien-Shoe** [US/US]; 142 Pleasant Street, Apartment 80102, Methuen, MA 01844 (US).

(74) Agent: **HUNT, Robert, E.**; Wolf, Greenfield & Sacks, P.C., Federal Reserve Plaza, 600 Atlantic Avenue, Boston, MA 02210-2206 (US).

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Published:

— with international search report (Art. 21(3))

[Continued on next page]

(54) Title: MEDICAL TREATMENT SYSTEM AND METHODS USING A PLURALITY OF FLUID LINES

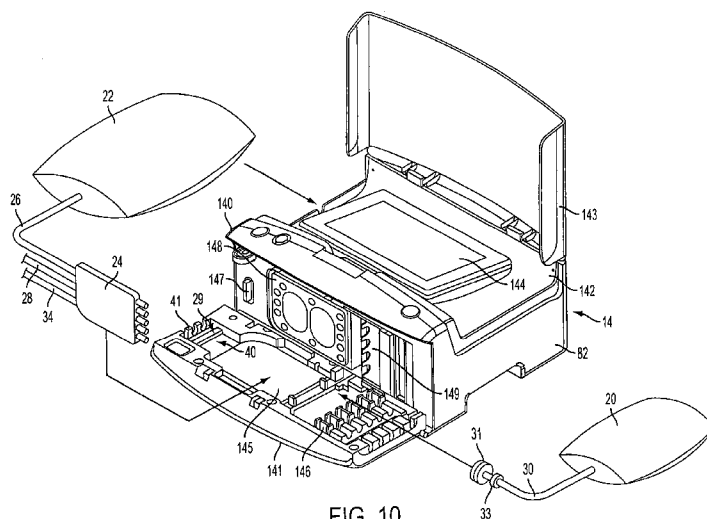


FIG. 10

(57) Abstract: A medical treatment system, such as peritoneal dialysis system, may include control and other features to enhance patient comfort and ease of use. For example, a cycler device (14) may include a heater bag receiving section (142) and a lid (143) mounted to cover and uncover the heater bag receiving section, potentially enabling faster heating of dialysate. A user interface (144) may be moveable to be received into the receiving section and covered by the lid, if desired. The system may detect anomalous conditions, such as tilting of the system housing, and automatically recover without terminating a treatment. The system may include noise reduction features, such as porting pneumatic outputs to a common chamber, and others. The system may also automatically detect any one of several different solution lines (30) connected to the system, and control operation accordingly, e.g., to mix solutions provided by two or more lines and form a needed dialysate solution. A cassette control (148) surface may be arranged to have one or more ports that can detect the presence of liquid, e.g., to identify if the cassette (24) is leaking or has otherwise been compromised.





— *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))*

(88) Date of publication of the international search report:
12 November 2009

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/000440

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61M1/28 A61M5/145

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 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	WO 99/02206 A (GAMBRO AB [SE]; JEPSSON JAN BERTIL [SE]; THELL BENGT OLOV [SE]) 21 January 1999 (1999-01-21)	1
Y	page 6, line 8 - page 7, line 34; figure 2	2-8
Y	US 5 989 423 A (KAMEN DEAN [US] ET AL) 23 November 1999 (1999-11-23) column 5, line 44 - column 9, line 28 column 11, lines 39-53; figures 1,2,6,8A	2-8
A	US 2008/015493 A1 (CHILDERS ROBERT W [US] ET AL) 17 January 2008 (2008-01-17) paragraph [0091]; figure 2	8-11



Further documents are listed in the continuation of Box C.



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 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

8 May 2009

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Böttcher, Stephanie

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/000440

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.: 29-33, 43-49
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 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 allsearchable 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 reportcovers 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.:

see additional sheet(s)

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: 1-11

A peritoneal dialysis system including a cycler having a housing with a heater bag receiving section, and a lid for covering the heater bag receiving section.

Problem to be solved: Speeding the heating process

2. claims: 12-21

A dialysis system comprising a supply of pneumatic pressure, a pneumatically operated component and a control system.

Problem to be solved: Reducing noise in response to pressure variations

3. claims: 22-24

A peritoneal dialysis system comprising a cassette and a cycler, wherein the cycler is adapted to identify and interact with two types of cassettes.

Problem to be solved: Allowing the use of differently sized patient lines.

4. claims: 25-28

A dialysis machine comprising a cassette, a plurality of solution lines and a control system for reading indicia on the solution lines.

Problem to be solved: Adjusting the pumping operation depending on the identity of the solution line.

5. claims: 34-42

A patient data interface comprising a recess in a chassis and a patient data storage device to be received in the recess.

Problem to be solved: Transferring data from a patient data key to the system.

6. claims: 50-53

A medical infusion system comprising a housing with a control surface for controlling the operation of a cassette, the control surface having movable portions.

Problem to be solved: Controlling fluid pumping and valve operations of the cassette.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2009/000440

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9902206	A	21-01-1999	AT 305317 T 15-10-2005
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