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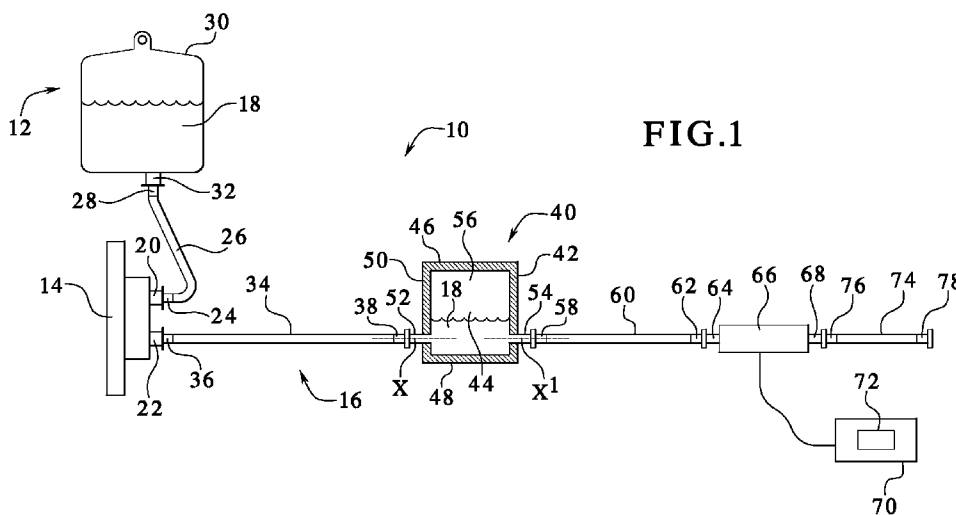
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- Declarations under Rule 4.17:**
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
 - as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- Published:**
- with international search report

[Continued on next page]

(54) Title: FLOW PULSATILITY DAMPENING DEVICES FOR CLOSED-LOOP CONTROLLED INFUSION SYSTEMS



(57) **Abstract:** A flow monitoring infusion system that includes an infusion circuit having a fluid with a pulsatile fluid flow flowing therethrough. The infusion circuit includes a dampening element (40) having a dampening chamber (44) that absorbs the pressure fluctuations of the pulsatile fluid flow to transform the pulsatile fluid flow to a more smooth fluid flow. A fluid flow sensor that measures the flowrate of the more smooth fluid flow is disposed along the infusion circuit downstream of the dampening element.

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- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*
 - *the filing date of the international application is within two months from the date of expiration of the priority period*
- (88) **Date of publication of the international search report:**
16 July 2009

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2009/030299

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61M5/142 A61M5/168 F04B11/00

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 F04B

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, 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 4 392 791 A (MANDROIAN HAROLD [US]) 12 July 1983 (1983-07-12) column 7, lines 18-43; claims 1,2; figure 5	1-16
X	US 2002/127736 A1 (CHOU HOU-PU [US] ET AL) 12 September 2002 (2002-09-12) paragraphs [0238] - [0244]; figures 14,26,27	1-16
X	EP 0 816 677 A (KIM SEONG CHEOL [KR] KIM SEONG-CHEOL [KR]) 7 January 1998 (1998-01-07) column 2, lines 9-18; figure 2	1-7, 10-14,16
X	US 4 345 594 A (BISERA JOSE ET AL) 24 August 1982 (1982-08-24) column 2, lines 30-59; figures 1-3	1-7, 10-14,16

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

20 May 2009

Date of mailing of the international search report

29/05/2009

Name and mailing address of the ISA/

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Continuation of Box II.1

Claims Nos.: 17-20

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

The method according to claims 17-20 comprise closed-loop control of infusion of a medicament to a patient, i.e. the methods are directed to treatment of the human body by therapy. Moreover, the method implies a patient being connected to the infusion line, i.e. it is also of surgical nature.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/030299

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.: 17-20
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
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:

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 report covers only those claims for which fees were paid, specifcally 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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2009/030299

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4392791	A	12-07-1983	NONE
US 2002127736	A1	12-09-2002	US 2008050283 A1 28-02-2008
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US 4345594	A	24-08-1982	NONE