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**Declaration under Rule 4.17:**

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12 September 2008

(54) **Title:** IMPROVED CONTROL CIRCUIT AND APPARATUS FOR NEGATIVE PRESSURE WOUND TREATMENT

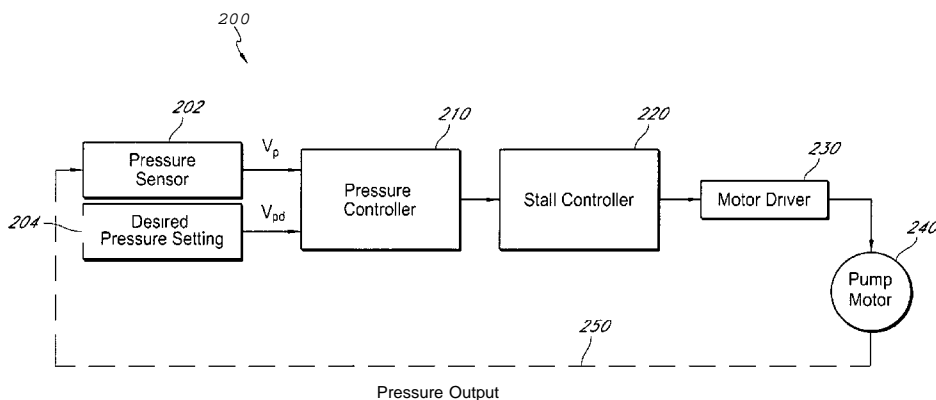


FIG. 5

(57) **Abstract:** A negative pressure wound therapy apparatus (20) can include a wound dressing (24), a fluid collection container (38), a vacuum pump (30) comprising a pump motor, and tubing (36). Additionally, the apparatus can include a pressure sensor (202) that measures a pressure in the tubing. One or more tubes can channel a fluid between the wound dressing, the fluid collection canister, and the pump. In addition, first and second control circuits (210, 220) can be provided for controlling the pump motor without using a processor. The first control circuit can generate a difference signal between a desired pressure input and a pressure sensor input, and can further generate a motor control signal responsive to the difference signal. Moreover, a second control circuit can provide an override signal based at least in part on the difference signal and at least one reference signal. The override signal beneficially overrides the motor control signal to prevent the pump motor from stalling.

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# INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/021790

**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. A61M1/00 A61M27/00

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

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.
Y	US 4 710 165 A (MCNEIL CHARLES B [US] ET AL) 1 December 1987 (1987-12-01) figures 1,2,3a-3d column 4, line 67 - column 7, line 11 column 8, lines 24-28 column 8, lines 51-62 column 9, lines 5-23	1-15
Y	US 2003/040687 A1 (BOYNTON THOMAS A [US] ET AL BOYNTON THOMAS A [US] ET AL) 27 February 2003 (2003-02-27) figures 1,4a paragraphs [0027], [0028], [0031], [0033], [0040] - [0042]	1-15,24,25

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
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- "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 July 2008

Date of mailing of the international search report

21/07/2008

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Authorized officer.  
  
 Hochrein, Marion

INTERNATIONAL SEARCH REPORT

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
P, Y	US 2007/014837 AI (JOHNSON ROYCE W [US] ET AL) 18 January 2007 (2007-01-18) paragraphs [0089] - [0091] , [0098] , [0122] figures 1,7, 10, 14, 17A	1-15
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P, Y	wo 2007/088530 A (ADAHAN CARMELI [IL] ) 9 August 2007 (2007-08-09) figures 1,2 page 19, lines 6-29 page 23, lines 5-23	1-15
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Y	DE 10 2005 014420 AI (INMEDITEC MEDIZINTECHNIK GMBH [DE] ) 28 September 2006 (2006-09-28) paragraphs [0031] - [0034] , [0040] , [0041] , [0043] , [0047] , [0048] , [0050] - [0052] figure 1	24,25
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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2007/021790

## 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.: **16-23**  
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 daims..
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 POT/ISA/ 210

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

1. claims: 1-15

A negative pressure wound therapy apparatus comprising a pressure sensor and a control circuit for controlling the pressure without using a processor; the control circuit comprising a difference circuit and a stall controller

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2. claims: 24, 25

An apparatus for detecting high air flow in negative pressure wound therapy system comprising two pressure sensors, a difference circuit and an alarm circuit for high flow conditions

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/021790

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