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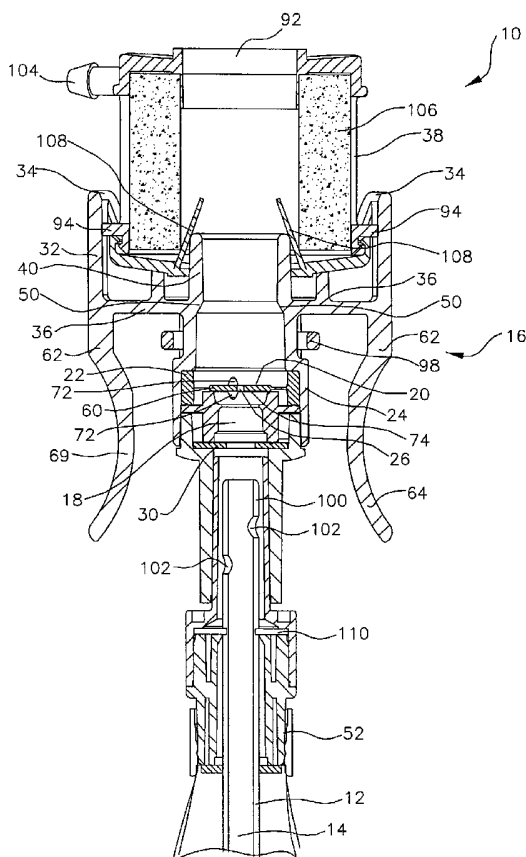
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[Continued on next page]

(54) Title: HEAT AND MOISTURE EXCHANGER ADAPTER FOR CLOSED SUCTION CATHETER ASSEMBLY AND SYSTEM HAVING IMPROVED CATHETER CLEANING



(57) Abstract: An endotracheal suction catheter apparatus (10) is provided. The apparatus (10) includes a distal end that is configured for allowing a catheter (12) to be moved through the distal end and into the respiratory tract of a patient. The distal end defines a cleaning chamber where the catheter may be cleaned. A flap (20) is located in the distal end and is located on one end of the cleaning chamber (28). The flap effects fluid flow within the cleaning chamber during cleaning of the catheter. A connection member (32) is present and is attached to the distal end. The connection member is configured for releasably engaging a heat and moisture exchanger (38) so that the catheter may be advanced through the distal end into the heat and moisture exchanger.



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ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,  
SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments*

**Declaration under Rule 4.17:**

— *as to the applicant's entitlement to claim the priority of the  
earlier application (Rule 4.17(iii)) for all designations*

**(88) Date of publication of the international search report:**

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## INTERNATIONAL SEARCH REPORT

Internati Application No  
PCT/US 03/02265

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61M16/04 A61M16/10 A61M39/20

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

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.
A	WO 01 45779 A (BALLARD MED PROD) 28 June 2001 (2001-06-28) page 3, line 3 - line 7 page 23, line 4 - line 16; figures 2,6B,6C ---	1, 2, 20
A	US 4 569 344 A (PALMER DARREL) 11 February 1986 (1986-02-11) cited in the application column 3, line 4 -column 4, line 19; figures 1,2 ---	1
P,X	WO 02 49680 A (KIMBERLY CLARK CO) 27 June 2002 (2002-06-27)  page 7, paragraph 2 -page 10, paragraph 3 page 12, paragraph 3 -page 15, paragraph 2; figures  --- -/--	2, 5-8, 12-15, 20, 21

 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

17 September 2003

Date of mailing of the international search report

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## INTERNATIONAL SEARCH REPORT

 Internati 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, A	WO 02 36191 A (KIMBERLY CLARK CO) 10 May 2002 (2002-05-10) page 3, paragraph 2 - paragraph 3 page 8, paragraph 3 -page 16, paragraph 3; figures 3,4,7,9,11-15A ---	1-7, 14, 16, 20-28
A	WO 99 60954 A (ATOS MEDICAL AB ;PERSSON JAN OVE (SE)) 2 December 1999 (1999-12-02) page 4, line 26 -page 7, line 5; figures 1,5 ---	2, 16, 20
A	WO 01 02034 A (ENTERNET MEDICAL INC) 11 January 2001 (2001-01-11) page 17, line 15 -page 23, line 34; figure 1 ---	1, 2
X	WO 01 24862 A (BALLARD MED PROD) 12 April 2001 (2001-04-12) ---	17-19
A	page 8, line 23 -page 13, line 25; figures 1A-1D, 3A-4D ---	8-12, 14, 15
A	WO 96 26757 A (BALLARD MED PROD) 6 September 1996 (1996-09-06) page 16, line 15 - line 17; figure 1 ---	17
A	US 5 368 017 A (MACKERT STEPHEN C ET AL) 29 November 1994 (1994-11-29) column 11, line 32 - line 44; figure 15 -----	17

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 03/02265

## 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.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
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.:

### Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International Application No. PCT/US 03 02265

### FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. Claim : 1

An endotracheal suction apparatus comprising a catheter, a distal end having a cleaning chamber, a valve in said distal end, a port, a wiper seal, a connection member, an opening member, a cap, a shipping plug, a first fitting, a sheath, a second fitting and a pressure valve.

2. Claims: 2-16

An endotracheal suction catheter apparatus comprising a catheter, a distal end having a cleaning chamber, a flap valve, wherein when a distal end of the catheter is in said cleaning chamber and negative pressure is applied to said catheter said flap is urged towards said catheter, a connection member and an opening member.

3. Claims: 17-19

A shipping plug for use with a an endotracheal suction catheter apparatus.

4. Claims: 20-28

An endotracheal suction apparatus comprising a distal end having a cleaning chamber, a flap located in said distal end and a connection member.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

Internati Application No

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