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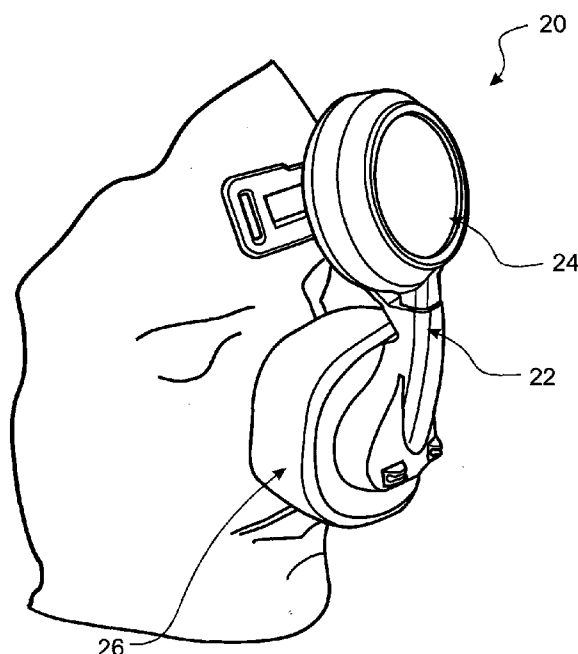
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[Continued on next page]

(54) Title: RESPIRATORY ASSISTANCE APPARATUS

FIGURE 7



(57) Abstract: A head-mounted respiratory assistance apparatus configured to provide a respiratory gases stream to a user. The head-mounted respiratory assistance has a main body securable to the head of a user and a blower unit that is operable to generate a pressurised gases stream from a supply of gases from the surrounding atmosphere. A patient interface is provided on the main body that has a gases inlet which is fluidly connected to the blower unit and which is configured to deliver the pressurised gases to the user's nose and/or mouth.



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INTERNATIONAL SEARCH REPORT

 International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

A61M 16/10 (2006.01)

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)

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 practicable, search terms used)

WPI & EPODOC: IPC & CC A61M16/-, A61M2016/- & Keywords (+PAP, ventilat+, respirat+, apne+, (3ug positive, airway, pressure), OSA, SDB, (3ug disordered, breathing), (head 3d (mount+, secur+, connect+, fasten+)), fan, blower, generator, pump, mask, interface, light_weight 3d impeller, self_contain+, (3ug zero, bias, flow), (3ug zero, bias+), (air 3w tight), sealed, sealing) and like terms; **Espacenet & Google Scholar:** Keywords (+PAP, ventilat+, respirat+, apne+, (3ug positive, airway, pressure), OSA, SDB, (3ug disordered, breathing)) and (head 3d (mount+, secur+, connect+, fasten+)) and (fan, blower, generator, pump) and (mask, interface) and (light_weight 3d impeller) and (self_contain+) and ((3ug zero, bias, flow), (3ug zero, bias+), (air 3w tight), sealed, sealing) and like terms; **TEXTUS5, TEXTUS4, TEXTUS3, TEXTUS2, TEXTUS1, TEXTUS0, TXTEP1, TXTGB1, TXTW01, TXTAU1, TXTCA1, TXTSG1:** Keywords: (VPAP, CPAP, ventilat+, respirat+, apne+, (3ug positive, airway, pressure), OSA, SDB, (3ug disordered, breathing), head 3d (mount+, secur+, connect+, fasten+), or mask, interface, (light_weight 3d impeller), (light_weight 3d impeller), (light_weight 3d impeller), (head 3d (mount+, secur+, connect+,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	



Further documents are listed in the continuation of Box C



See patent family annex

* "A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	"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
"E"	earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 24 September 2013		Date of mailing of the international search report 24 September 2013	
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA Email address: pct@ipaustalia.gov.au Facsimile No.: +61 2 6283 7999		Authorised officer Karen Violante AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. 0262837933	

INTERNATIONAL SEARCH REPORT		International application No.
C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		PCT/NZ2013/000006
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2011/022779 A1 (RESMED LTD) 03 March 2011 Abstract; Paragraphs [0008]-[0036], [00222]-[00266], [00284]-[00300], [00407]-[00424] and [00585]-[00588]; Claims; Figures 1.1 to 2.1, 3.1 to 3.4, 6.1 to 10, 12 to 23, 36, 47, 56 to 67, 78 to 80, 86, 130 to 148 and 204.3	1-40
Y	US 2007/0277827 A1 (BORDEWICK et al.) 06 December 2007 Abstract; Paragraphs [0013] and [0029]-[0063]; Figures 1-4C, 6 and 7; Claims	1-40
Y	US 2010/0170513 A1 (BOWDITCH et al.) 08 July 2010 Abstract; Paragraphs [0016]-[0019] and [0037]-[0107]; Claims; Figures 1A-1D, 3-7C, 9A-15B	1-40
Y	EP 1205203 B1 (BIRD PRODUCTS CORPORATION) 29 September 2004 Paragraphs [0041]-[0044], [0135] and [0140]-[0142]; Figures 4-6	1-40
Y	US 2005/0188989 A1 (DELACHE et al.) 01 September 2005 Paragraphs [0014]-[0016], [0079] and [0083]; Figures 1-3	1-40

Form PCT/ISA/210 (fifth sheet) (July 2009)

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.:
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 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 Supplemental Box for Details

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 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.:
1-40

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.

Supplemental Box**Continuation of: Box III**

This International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept.

This Authority has found that there are different inventions based on the following features that separate the claims into distinct groups:

- Claims 1-40 are directed to a head-mounted respiratory assistance apparatus. The feature of wherein the gases flow path from the gases inlet of the blower unit to the gases outlet(s) of the patient interface is substantially sealed such that there is zero bias flow along the gases flow path, and wherein the blower unit comprises a lightweight impeller, and a motor with a rotatable drive shaft that is configured to rotate the impeller is specific to this group of claims.
- Claims 41-47 are directed to a base station that is operatively connectable to a head-mounted respiratory assistance apparatus. The feature of the base station comprising: a power supply system that is operable to supply power to the respiratory assistance apparatus; a data transfer system that is operable to send and receive data to and from the respiratory assistance apparatus; and a control system that is operable to control the respiratory assistance apparatus via control signals is specific to this group of claims.
- Claims 48-50 are directed to a respiratory assistance system. The feature of a wireless power supply system that is configured to supply power wirelessly to the respiratory assistance apparatus is specific to this group of claims.
- Claims 51-53 are directed to a respiratory assistance system. The feature of one or more wireless sensors mounted to or within the respiratory assistance apparatus that are configured to sense operational parameters and generate representative sensor signals is specific to this group of claims.
- Claims 54-56 are directed to a respiratory assistance system. The feature of a wireless communication module onboard the respiratory assistance apparatus that is operable to receive and send data to external devices and/or systems is specific to this group of claims.
- Claim 57 is directed to a head-mounted respiratory assistance apparatus. The feature of a head-mounted power supply that is configured to supply power to the respiratory device is specific to this group of claims.

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

When there is no special technical feature common to all the claimed inventions there is no unity of invention.

In the above groups of claims, the identified features may have the potential to make a contribution over the prior art but are not common to all the claimed inventions and therefore cannot provide the required technical relationship. The only feature common to all of the claimed inventions and which provides a technical relationship among them is a head-mounted respiratory assistance apparatus configured to provide a respiratory gases stream to a user, the head-mounted respiratory assistance apparatus comprising: a main body securable to the head of a user; a blower unit provided on the main body having a gases inlet to receive a supply of gases from the surrounding atmosphere and which is operable to generate a pressurised gases stream at a gases outlet; and a patient interface provided on the main body having a gases inlet which is fluidly connected via a flow path to the gases outlet of the blower unit and which is configured to deliver the pressurised gases to the user's nose and/or mouth via one or more gases outlets. However this feature does not make a contribution over the prior art because it is disclosed in the following documents:

D1 = WO 2011/022779 A1 (RESMED LTD) 3 March 2011 (see: Abstract; Paragraphs [0008]-[0036] and [00222]-[00266]; Claims; Figures 1.1-2.1, 3.1-3.4, 12-23 and 56-67)

D2 = US 2007/0277827 A1 (BORDEWICK et al.) 6 December 2007 (see: Abstract; Paragraphs [0013] and [0029]-[0063]; Figures 1-4C, 6 and 7; Claims)

D3 = US 2010/0170513 A1 (BOWDITCH et al.) 8 July 2010 (see: Abstract; Paragraphs [0016]-[0019] and [0037]-[0079]; Claims; Figures 1A-1D, 3-7C, 9A-15B)

Therefore in the light of this document this common feature cannot be a special technical feature. Therefore there is no special technical feature common to all the claimed inventions and the requirements for unity of invention are consequently not satisfied a posteriori.

As the search and examination for the additional inventions will each require more than negligible additional search and examination effort over that for the first invention and each other, five additional search fees are warranted.

INTERNATIONAL SEARCH REPORT		International application No.	
Information on patent family members		PCT/NZ2013/000006	
This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.			
Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
WO 2011/022779 A1	03 Mar 2011	AU 2010282228 B2	18 Apr 2013
		CN 102596299 A	18 Jul 2012
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		EP 2464404 A1	20 Jun 2012
		EP 2470246 A1	04 Jul 2012
		JP 2013501541 A	17 Jan 2013
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		WO 2011017763 A1	17 Feb 2011
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		EP 1205206 A2	15 May 2002
		EP 1205206 B1	22 Oct 2003

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

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INTERNATIONAL SEARCH REPORT		International application No.	
Information on patent family members		PCT/NZ2013/000006	
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Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
US 2005/0188989 A1	01 Sep 2005	EP 1491227 A2	29 Dec 2004
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		US 7500481 B2	10 Mar 2009
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		WO 03075990 A2	18 Sep 2003
		WO 03075991 A1	18 Sep 2003
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INTERNATIONAL SEARCH REPORT Information on patent family members		International application No. PCT/NZ2013/000006	
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Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
End of Annex			
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001. Form PCT/ISA/210 (Family Annex)(July 2009)			