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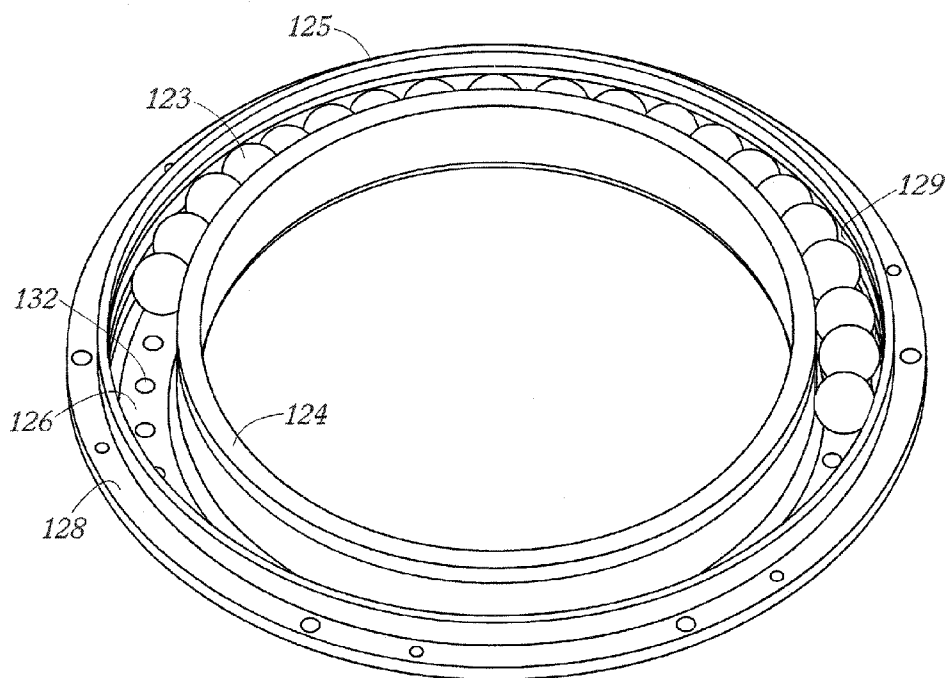
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[Continued on next page]

(54) Title: APPARATUS AND METHOD FOR SEPARATING A COMPOSITE LIQUID INTO AT LEAST TWO COMPONENTS



(57) Abstract: A method and apparatus for separating blood into blood components using a separation vessel with satellite bags mounted on a centrifuge rotor and a balancing assembly for the centrifuge to compensate for changes to the center of gravity.

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

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER INV. B04B9/14 B04B5/04 B04B13/00 F16F15/36		
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) B04B A61M F16F G01M D06F		
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	US 2002/020680 A1 (JORGENSEN GLEN [US]) 21 February 2002 (2002-02-21) paragraph [0049] - paragraph [0058] paragraph [0074] - paragraph [0075]	1, 24, 25, 28
Y	figures 3, 6	2, 9-21, 26, 27, 29, 30, 33
X	----- EP 0 587 257 A (VER NL KANKER INST [NL]) VER NL KANKER INST [US] 16 March 1994 (1994-03-16) abstract; claim 1; figures	1
Y	----- US 6 132 354 A (OHTSU SHINKI [JP] ET AL) 17 October 2000 (2000-10-17)	2, 9-19, 65
A	the whole document ----- -/--	3, 34
☒ 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 2 May 2008	Date of mailing of the international search report 14/05/2008	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Leitner, Josef	

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.
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/069417

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 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 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 PCT/ISA/ 210

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

1. claims: 1-19,34-50

An apparatus comprising a centrifuging means having a first containing means for storing a liquid at a distance from the rotation axis; a second containing means for storing a liquid at a distance from the rotation axis; a liquid transferring means for transferring a liquid between at least one of the first containing means and the second containing means; and a balancing means for substantially neutralizing an unbalance of the centrifuging means as it occurs, whereby the balancing means comprises a plurality of ponderous satellites (23) in a housing (121) defining a circular orbit along which the ponderous satellites can move substantially freely, and further comprises a plurality of stopping means (132) for temporarily stopping the ponderous satellites when the centrifuging means does not rotate and the balancing assembly (120, 135) is inclined to no more than a predetermined angle with respect to a horizontal plane.

2. claims: 1+(20-23),51-65

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

An apparatus comprising a centrifuging means having a first containing means for storing a liquid at a distance from the rotation axis; a second containing means for storing a liquid at a distance from the rotation axis; a liquid transferring means for transferring a liquid between at least one of the first containing means and the second containing means; and a balancing means for substantially neutralizing an unbalance of the centrifuging means as it occurs, wherein the first containing means comprises at least one separation compartment (53; 141) and the second containing means comprises at least one storage container (34; 341, 342, 343, 344), and the at least one separation compartment is further apart from the rotation axis than the at least one storage container, as well as a method for separating a volume of composite liquid into at least a first component and a second component using a rotor (32, 33, 34, 35) comprising a turntable (35) for supporting a separation bag (1) and a central container (34) for receiving at least one satellite bag (2, 3, 4) connected to the separation bag, where the method comprising the steps of: providing a separation bag fluidly connected to at least one satellite bag (2, 3, 4) containing a volume of composite liquid; securing the separation bag (1) to the turntable (35); securing the at least one satellite bag (2, 3, 4) within the central container (34) so that a lower portion thereof is closer to the rotation axis (31) than an upper portion thereof, wherein the at least one satellite bag is connected to the separation bag (1), and so that a content of the at least one satellite bag drains under centrifugation forces into the separation bag when the rotor is rotated at a transfer speed; rotating the rotor so as to transfer at least a fraction of the volume of liquid from the at least one satellite bag into the separation bag; and substantially neutralizing an unbalance of the rotor caused by the transfer of liquid.

3. claims: 1+(24-33)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

An apparatus comprising a centrifuging means having a first containing means for storing a liquid at a distance from the rotation axis; a second containing means for storing a liquid at a distance from the rotation axis; a liquid transferring means for transferring a liquid between at least one of the first containing means and the second containing means; and a balancing means for substantially neutralizing an unbalance of the centrifuging means as it occurs, wherein the liquid transferring means comprises a first transferring means including a pumping means (60) for transferring a separated component from at least one separation bag (1) contained in the first containing means (53; 141) into at least one satellite bag (2, 3, 4) contained in the second containing means (53; 141), or wherein the liquid transferring means comprises a first transferring means including a squeezing means (37, 38, 54, 55, 60) for squeezing at least one separation bag (1) contained in the first containing means (53; 141) so as to cause a transfer of a separated component into at least one satellite bag (2, 3, 4) contained in the second containing means (34; 341, 342, 343, 344), or wherein the transferring means transfers a liquid from at least one satellite bag (2, 3, 4) contained in the second containing means (34; 341, 342, 343, 344) into at least one separation bag (1) contained in the first containing means (53; 141).

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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