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Published:

— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) **Date of publication of the international search report**:
10 October 2013

(54) **Title**: METHOD AND APPARATUS FOR FILTERING A LIQUID SAMPLE

Fig. 1a

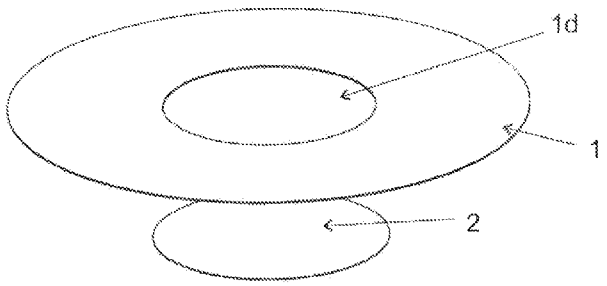
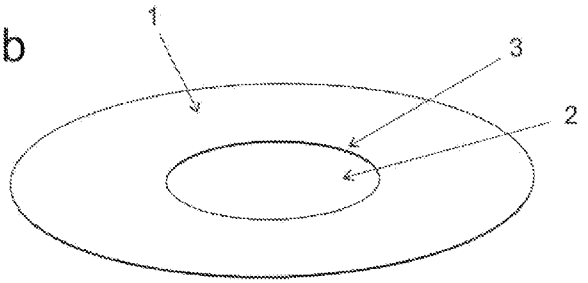


Fig. 1b



(57) **Abstract**: The invention relates to the filtering of liquid samples, preferably in a laboratory environment, for example for collecting micro organisms from the liquid sample for subsequent testing. The invention provides a method for filtering a liquid sample which comprises providing a blank of a deformable sheet material and a filtration medium, deforming the blank to form a funnel extending above and about the filtration medium, introducing the liquid sample to be filtered into the so formed funnel, and filtering the liquid sample from the funnel through the filtration medium, for example to a downstream receptacle. The method is accordingly based on the concept that the funnel is not or at least not completely preformed but provided in a form of a blank of a deformable material sheet which is deformed so as to form the funnel at the point and time of use during filtration.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/041568

A. CLASSIFICATION OF SUBJECT MATTER

G01N 1/28(2006.01)i, B01D 29/01(2006.01)i, G01N 35/10(2006.01)i

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)
G01N 1/28; B01D 29/42; B01D 29/01; B01D 29/085; B01D 33/067; B04B 3/02; B01D 63/08; G01N 35/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & Keywords: funnel, filter, membrane, paper, bed, deform, expand, piston and shaft

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6921480 B2 (POST, LAURIE ANN) 26 July 2005 See column 1, line 27 - column 2, line 54 and figures 1-6.	1,3
Y		2
A		5-7
Y	US 6443314 B2 (SHIRAIWA et al.) 03 September 2002 See column 4, line 64 - column 5, line 5 and figure 1.	2
A	US 5421997 A (GERTEIS, HANS) 06 June 1995 See column 1, line 64 - column 3, line 52 and figures 1-2.	1-3,5-7
A	US 5234585 A (ZUK, JR., PETER) 10 August 1993 See column 2, line 50 - column 3, line 43 and figure 1.	1-3,5-7
A	US 4533472 A (VERRI et al.) 06 August 1985 See column 2, line 43 - column 4, line 20 and figures 1-2.	1-3,5-7

☐ 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 application or patent 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 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	Date of mailing of the international search report
08 August 2013 (08.08.2013)	**08 August 2013 (08.08.2013)**

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/041568

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.: 14
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:
The claim refers to a multiple dependent claim that refers to other multiple dependent claims. Therefore, the meaning of the technical feature to which it refers is vague and unclear. (PCT Article 6)

3. ☒ Claims Nos.: 4,8-13,15-16
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 addtional 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 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/US2012/041568

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6921480 B2	26/07/2005	US 2004-0222147 A1	11/11/2004
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		WO 93-12853 A1	08/07/1993
		WO 95-04585 A1	16/02/1995
US 4533472 A	06/08/1985	None	