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[Continued on next page]

(54) Title: SAMPLE COLLECTION TUBES

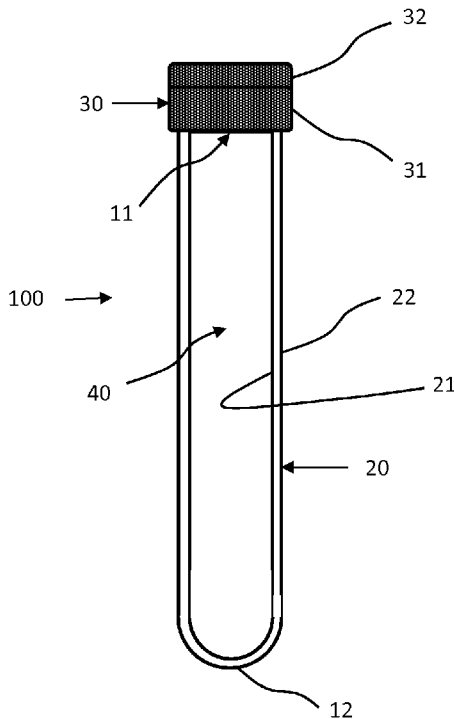


FIG. 1

(57) Abstract: A sample collection tube is disclosed for collecting a body fluid sample. The tube includes a closure arranged at an open end to close the open end and a partially evacuated inner space. The closure also includes a base portion connected to the sidewall and a cap portion coupled to the base portion, where the cap portion has an elastomeric material that is pierceable from outside of the tube for collecting a sample into the partially evacuated inner space and where the cap portion can be pivotable with respect to the sidewall such as to make the inner space accessible for withdrawing an aliquot of the sample. Alternatively, the cap portion can be separable from the base portion to make the inner space accessible and the base portion can include a self-resealable valve adapted to allow access of a pipetting unit into the inner space when the cap portion is separated and adapted to re-seal after withdrawal of the pipetting unit. Also disclosed is a work cell for handling sample collection tubes.





BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
B01L G01N
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)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2013/167768 A1 (SMITH BRADLEY [US] ET AL) 4 July 2013 (2013-07-04) paragraphs [0033] - [0035], [0043] figures 1, 3, 4, 11, 12 -----	1-9
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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	"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
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Date of the actual completion of the international search 30 September 2015	Date of mailing of the international search report 14/10/2015
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Bischoff, Laura

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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.
X	DE 203 13 316 U1 (KABE LABORTECHNIK GMBH [DE]) 23 October 2003 (2003-10-23) page 3, lines 5-9, 17-20 page 4, lines 2-6 - lines 19-22 figures 1, 2	1-9
X	----- US 2001/039058 A1 (IHEME MORDI I [US] ET AL) 8 November 2001 (2001-11-08) paragraphs [0068], [0079], [0081] - [0085] figures 1, 5, 6, 9	10-12
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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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A	FR 2 393 583 A1 (BECTON DICKINSON CO [US]) 5 January 1979 (1979-01-05) the whole document -----	10-12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2015/052431

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: 1-9

A sample collection tube for collecting a body fluid sample, the tube comprising: an open end, a closed end and a sidewall between the open end and the closed end, the sidewall having inner and outer walls; a closure arranged at the open end to close the open end; and a partially evacuated inner space between the inner walls, the closed end and the closure; wherein the closure comprises a base portion connected to the sidewall and a cap portion coupled to the base portion, the cap portion comprising an elastomeric material that is pierceable from outside of the tube for collecting a sample into the partially evacuated inner space, and wherein the cap portion is pivotable with respect to the sidewall to make the inner space accessible for withdrawing an aliquot of the sample, solving the problem to provide a sample collection tube with an alternative cap.

2. claims: 10-12

A sample collection tube for collecting a body fluid sample, the tube comprising: an open end, a closed end and a sidewall between the open end and the closed end, the sidewall having inner and outer walls; a closure arranged at the open end such as to close the open end; and a partially evacuated inner space between the inner walls, the closed end and the closure; wherein the closure comprises a base portion connected to the sidewall and a cap portion coupled to the base portion, wherein the cap portion comprises an elastomeric material that is pierceable from outside of the tube for collecting a sample into the partially evacuated inner space, wherein the cap portion is separable from the base portion to make the inner space accessible for withdrawing an aliquot of the sample, and wherein the base portion comprises a self-resealable valve adapted to allow access of a pipetting unit into the inner space when the cap portion is separated and adapted to re-seal after withdrawal of the pipetting unit, solving the problem to provide a sample collection tube with a self-resealable valve in order to maintain the tube closed after withdrawal of an aliquot of sample from the tube.

3. claims: 13-15

A work cell for handling sample collection tubes, the work cell comprising: a tube opening unit adapted to pivot a cap portion with respect to the sidewall or to separate the cap portion from the base portion of a sample collection tube of Claim 1 or Claim 10, solving the problem to provide an

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

alternative way of opening a sample collection tube.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2015/052431

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