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- (72) **Inventors:** OCHRANEK, Brian L.; 2803 Yorkshire Lane, Southlake, Texas 76092 (US). ARNQUIST, David C; 6204 Pebble Beach Lane, The Colony, Texas 75056 (US).
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- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,

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- with international search report (Art. 21(3))
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13 November 2014

(54) **Title:** DIAGNOSTIC ANALYZERS WITH PRETREATMENT CAROUSELS AND RELATED METHODS

(57) **Abstract:** Diagnostic analyzers with pretreatment carousels and related methods are disclosed. An example apparatus includes a first carousel that includes a first annular array of slots to receive a first vessel. The example first carousel also includes a first track of rotation about the first carousel having a first diameter and a second track of rotation about the first carousel having a second diameter smaller than the first diameter. The example apparatus includes a first diverter to move the first vessel from the first track to the second track. In addition, the example apparatus includes a second carousel coaxial with the first carousel. The example second carousel includes a second annular array of slots to receive a second vessel.



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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/078041

A. CLASSIFICATION OF SUBJECT MATTER
 INV. G01N35/02 G01N35/04
 ADD.

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

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 5 856 194 A (ARNQUIST DAVID C [US] ET AL) 5 January 1999 (1999-01-05) figures 2,4,8,9 , 16,26,28 column 7, line 9 - line 27 column 7, line 58 - line 64 column 9, line 8 - line 62 column 12, line 28 - line 45 column 12, line 64 - column 1, line 5 column 15 - column 16 column 29, line 54 - line 60 -----	1-28, 38-51
A	JP H05 26883 A (NITTEC CO LTD) 2 February 1993 (1993-02-02) abstract; figures 1,3 -----	1-28, 38-51
A	US 2005/014285 A1 (MILLER DAVID JEFFREY [US]) 20 January 2005 (2005-01-20) paragraphs [0016] , [0024] ; figures 1,2 ----- -/- .	1-28, 38-51



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

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"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

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"&" document member of the same patent family

Date of the actual completion of the international search

1 April 2014

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19/09/2014

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/078041

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 5 244 633 A (JAKUBOWICZ RAYMOND F [US] ET AL) 14 September 1993 (1993-09-14) claims 1,13; figure 10 -----</p>	<p>1-28, 38-51</p>

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/078041

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. :

see annex

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: 1-28, 38-51

a first carousel with an annular array of slots, two tracks of rotation and a diverter between these tracks, and a second coaxial carousel with an annular array of slots.

2. claims: 29-37, 52-65, 88-101

two coaxial carousels and a pipetting mechanism.

3. claims: 66-84

a carousel with an annular array of slots and a spiral track

4. claims: 85-87

two carousels with rotating through a plurality of intervals, each comprising an advancement and a stop

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/078041

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