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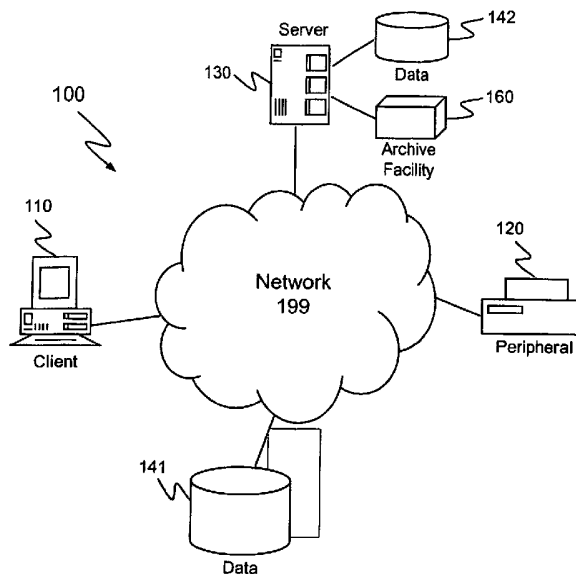
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[Continued on next page]

(54) Title: SYSTEM AND METHOD OF STORING AND RETRIEVING STORAGE ELEMENTS



(57) Abstract: Systems and methods of archiving and retrieving storage elements (420) are disclosed. In some embodiments, a fully automated sample storage and retrieval system (100) may be operative to achieve both very high storage density as well as very high sample processing throughput rates, for example, supporting throughput rates greater than one hundred samples per day. In some embodiments, a system and method may archive and retrieve a plurality of storage elements supported in a two dimensional configuration in a storage receptacle (401-40n)

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/28437

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC(7) : B01L 3/02, 3/00; G01N 21/00, 31/00, 33/00; B32B 27/04; B65B 35/50  
 US CL : 422/99, 100, 63, 65, 66, 67, 68.1, 102; 414/788  
 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)  
 U.S. : 422/99, 100, 63, 65, 66, 67, 68.1, 102; 414/788

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)  
 East keyword; plate, tray, stor\$4, stack\$3,

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,132,685 A (KERSCO et al.) 17 October 2000, see entire document	1-16, 28, 31, 33-47
Y, P	US 2002/0176803 A1 (HAMEL et al.) 28 November 2002, see entire document	1 11, 17, 28, 35, 42
X, E	US 6,652,724 B2 (MICHAEL et al.) 25 Novmeber 2003, see entire document	1-5, 7, 9, 11-14, 28, 35-39, 41, 42-43, 45
X, P	US 6,556,923 B2 (GALLAGHER et al.) 29 April 2003, see entire document	1-16, 28, 31, 33-47
Y, P	US 6,464, 942 B2 (COFFMAN et al.) 15 October 2002, see entire document	1-6, 11-13, 35, 38-39, 42, 44
Y	US 6,402,837 B1 (SHTRAHMAN et al.) 11 June 2002, entire document	1-47
Y	US 6,395,231 B1 (KRAEMER et al.) 28 May 2002, entire document	1-47
Y	US 6,182,719 B1 (YAHIRO) 06 February 2001, entire document	1-47

Further documents are listed in the continuation of Box C.  See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/28437

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claim Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claim 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.  Claim Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:  
Please See Continuation 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 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.  
 No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

PCT/US03/28437

### **BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING**

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-16 and 35-47, drawn to an archive.

Group II, claim(s) 17-34, drawn to a method of retrieving a storage element.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The special technical feature of Group I is the device requires a receptacle having a support surface. The method of Group II does not require the specific features of the apparatus claimed in Group I.