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[Continued on next page]

(54) Title: TEST TUBE CAPPING AND DE-CAPPING APPARATUS

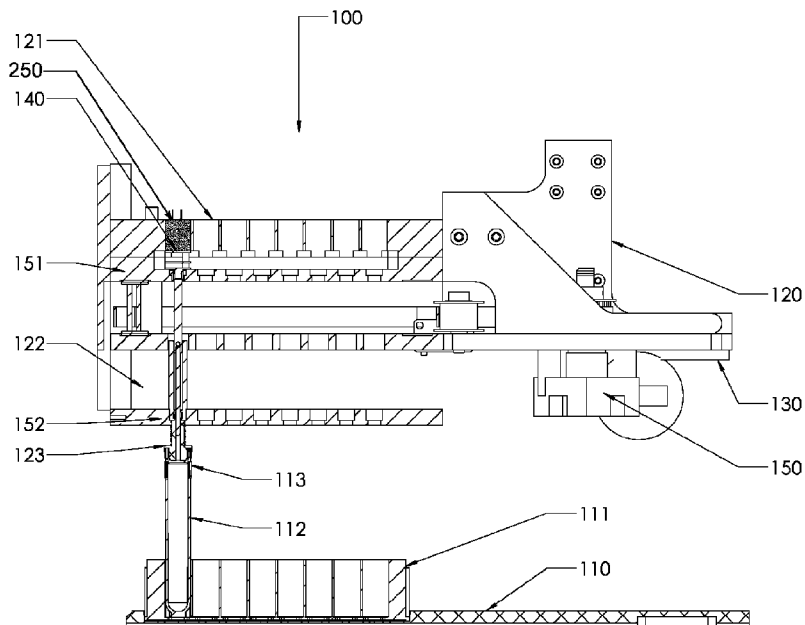


Figure 1b

(57) Abstract: An apparatus (100) for automated capping and de-capping of test tubes (112) having an ejector pin (230) system for individualized cap (113) ejection.



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10 April 2014

- *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))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/066365

A. CLASSIFICATION OF SUBJECT MATTER
INV. B67B3/20 B67B7/18
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)
B67B 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 A A	US 4 519 276 A (GRABARSKI DAVID L [US] ET AL) 28 May 1985 (1985-05-28) figures 1-4 column 2, line 21 - column 4, line 12 -----	7,12 1-6, 18-20
A	EP 1 882 949 A1 (AUTOM PARTNERSHIP CAMBRIDGE [GB]) 30 January 2008 (2008-01-30) cited in the application figures 1-18 paragraphs [0016] - [0031] -----	1,5, 18-20
A	JP 2010 100312 A (MICRONICS KK; CAN KK; NIKKYO TECHNOS KK) 6 May 2010 (2010-05-06) figures 1-13 abstract ----- -/--	1,18-20

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
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- "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 25 November 2013	Date of mailing of the international search report 21/02/2014
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 Pardo, Ignacio

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/066365

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 03/034038 A2 (MONOGEN INC [US]; PRESSMAN NORMAN J [US]; MAYER WILLIAM J [US]; WROBLE) 24 April 2003 (2003-04-24) figures 11,28,29 page 32, line 17 - page 34, line 12 -----	1,18-20
A	EP 2 385 015 A1 (CECCHERINI VIERI [IT]) 9 November 2011 (2011-11-09) figures 1-8 paragraphs [0008] - [0011] -----	1,18-20
A	EP 1 424 307 A1 (KHS MASCHINEN UND ANLAGENBAUAG [DE] KHS MASCH & ANLAGENBAU AG [DE]) 2 June 2004 (2004-06-02) figures 1-8 paragraphs [0009] - [0011] -----	1,18-20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2013/066365

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.:

1-7, 12(completely); 18-20(partially)

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: 1-7, 12(completely); 18-20(partially)

Capping and de-capping apparatus and method for tubes disposed in a rack.

2. claims: 8(completely); 18-20(partially)

Capping and de-capping gripper with attachable and detachable socket unit.

3. claims: 9, 10(completely); 18-20(partially)

Capping and de-capping gripper comprising a rotational actuator unit for the ejector pin.

4. claims: 11(completely); 18-20(partially)

Capping and de-capping gripper with individual control.

5. claims: 13(completely); 18-20(partially)

Socket unit comprising biasing means.

6. claims: 14, 15(completely); 18-20(partially)

Socket unit comprising a friction pin.

7. claims: 16, 17(completely); 18-20(partially)

Socket unit made of plastic.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/066365

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
US 4519276	A	28-05-1985	AU 3790085 A	12-07-1985
			EP 0165977 A1	02-01-1986
			US 4519276 A	28-05-1985
			WO 8502833 A1	04-07-1985

EP 1882949	A1	30-01-2008	AT 456057 T	15-02-2010
			DK 1882949 T3	10-05-2010
			EP 1882949 A1	30-01-2008
			US 2008022808 A1	31-01-2008

JP 2010100312	A	06-05-2010	NONE	

WO 03034038	A2	24-04-2003	AT 365312 T	15-07-2007
			AT 365909 T	15-07-2007
			AT 365910 T	15-07-2007
			AU 2002365134 A1	09-07-2003
			AU 2006235861 A1	30-11-2006
			AU 2006235918 A1	30-11-2006
			AU 2006246492 A1	04-01-2007
			AU 2006249272 A1	04-01-2007
			CA 2452797 A1	24-04-2003
			CA 2452800 A1	24-04-2003
			CA 2453252 A1	24-04-2003
			CA 2461734 A1	24-04-2003
			CA 2462238 A1	01-05-2003
			CA 2462447 A1	24-04-2003
			CA 2463573 A1	24-04-2003
			CA 2463673 A1	01-05-2003
			CA 2463940 A1	03-07-2003
			CA 2464219 A1	24-04-2003
			CA 2643133 A1	03-07-2003
			CN 1571921 A	26-01-2005
			CN 1571922 A	26-01-2005
			CN 1605023 A	06-04-2005
			CN 1605028 A	06-04-2005
			CN 1606518 A	13-04-2005
			CN 1606696 A	13-04-2005
			CN 1608025 A	20-04-2005
			CN 1678897 A	05-10-2005
			DE 60220813 T2	06-03-2008
			DE 60220932 T2	06-03-2008
			DE 60220937 T2	28-02-2008
			EP 1436199 A1	14-07-2004
			EP 1436585 A1	14-07-2004
EP 1436586 A2	14-07-2004			
EP 1436629 A1	14-07-2004			
EP 1436630 A2	14-07-2004			
EP 1438252 A1	21-07-2004			
EP 1438559 A2	21-07-2004			
EP 1438561 A2	21-07-2004			
EP 1438562 A2	21-07-2004			
EP 1438590 A1	21-07-2004			
ES 2289152 T3	01-02-2008			
JP 2005506253 A	03-03-2005			
JP 2005506531 A	03-03-2005			
JP 2005506533 A	03-03-2005			
JP 2005506534 A	03-03-2005			
JP 2005506535 A	03-03-2005			

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/EP2013/066365

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		JP 2005506537 A	03-03-2005
		JP 2005506538 A	03-03-2005
		JP 2005506933 A	10-03-2005
		JP 2005507079 A	10-03-2005
		JP 2005514594 A	19-05-2005
		KR 20040045827 A	02-06-2004
		KR 20040045828 A	02-06-2004
		KR 20040045829 A	02-06-2004
		KR 20040047910 A	05-06-2004
		KR 20040047911 A	05-06-2004
		KR 20040047912 A	05-06-2004
		KR 20040047926 A	05-06-2004
		KR 20040047928 A	05-06-2004
		KR 20040054716 A	25-06-2004
		KR 20050038577 A	27-04-2005
		US 2003087443 A1	08-05-2003
		US 2003088963 A1	15-05-2003
		US 2003089731 A1	15-05-2003
		US 2003090959 A1	15-05-2003
		US 2003092170 A1	15-05-2003
		US 2003092186 A1	15-05-2003
		US 2003097824 A1	29-05-2003
		US 2003099580 A1	29-05-2003
		US 2003100125 A1	29-05-2003
		US 2003118487 A1	26-06-2003
		US 2005195684 A1	08-09-2005
		US 2006120834 A1	08-06-2006
		US 2006120835 A1	08-06-2006
		US 2007151212 A1	05-07-2007
		US 2008164200 A1	10-07-2008
		US 2008166801 A1	10-07-2008
		US 2008209709 A1	04-09-2008
		WO 03033394 A1	24-04-2003
		WO 03034034 A2	24-04-2003
		WO 03034036 A1	24-04-2003
		WO 03034037 A2	24-04-2003
		WO 03034038 A2	24-04-2003
		WO 03034075 A1	24-04-2003
		WO 03034076 A1	24-04-2003
		WO 03035477 A1	01-05-2003
		WO 03036267 A2	01-05-2003
		WO 03054552 A2	03-07-2003

EP 2385015	A1	09-11-2011	NONE

EP 1424307	A1	02-06-2004	DE 20218523 U1 06-03-2003
			EP 1424307 A1 02-06-2004
