

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)**

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2013/066365

International filing date (day/month/year)
05.08.2013

Priority date (day/month/year)
07.08.2012

International Patent Classification (IPC) or both national classification and IPC
INV. B67B3/20 B67B7/18

Applicant
CEDREX A/S

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application


2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:



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Date of completion of this opinion

see form
PCT/ISA/210

Authorized Officer

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed
 - a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
 - a. (means)
 - on paper
 - in electronic form
 - b. (time)
 - in the international application as filed
 - together with the international application in electronic form
 - subsequently to this Authority for the purposes of search
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of

- the entire international application
- claims Nos. 8-11, 13-17(completely); 18-20(partially)

because:

- the said international application, or the said claims Nos. relate to the following subject matter which does not require an international search (*specify*):
- the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed (*specify*):
- no international search report has been established for the whole application or for said claims Nos. 8-11, 13-17(completely); 18-20(partially)
- a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:
 - furnish a sequence listing on paper complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in a form and manner acceptable to it.
 - furnish a sequence listing in electronic form complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in a form and manner acceptable to it.
 - pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rules 13~~ter~~.1(a) or (b).
- See Supplemental Box for further details

Box No. IV Lack of unity of invention

1. In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has, within the applicable time limit:
- paid additional fees
 - paid additional fees under protest and, where applicable, the protest fee
 - paid additional fees under protest but the applicable protest fee was not paid
 - not paid additional fees
2. This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- complied with
 - not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- all parts.
 - the parts relating to claims Nos. 1-7, 12(completely); 18-20(partially)

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-6(completely); 18-20(partially)</u>
	No: Claims	<u>7, 12</u>
Inventive step (IS)	Yes: Claims	<u>1-6(completely); 18-20(partially)</u>
	No: Claims	<u>7, 12</u>
Industrial applicability (IA)	Yes: Claims	<u>1-7, 12(completely); 18-20(partially)</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item IV

Lack of unity of invention

1 INVENTIONS

1.1 This authority considers that the application does not meet the requirements of unity of invention and that there are 7 inventions covered by the claims indicated as follows:

1.2 (1) Claims 1-7, 12. Partial claims 18-20. Capping and de-capping apparatus and method for tubes disposed in a rack.

(2) Claim 8. Partial claims 18-20. Capping and de-capping gripper with attachable and detachable socket unit.

(3) Claims 9, 10. Partial claims 18-20. Capping and de-capping gripper comprising a rotation actuator unit for the ejector pin.

(4) Claim 11. Partial claims 18-20. Capping and de-capping gripper with individual control.

(5) Claim 13. Partial claims 18-20. Socket unit comprising biasing means.

(6) Claims 14, 15. Partial claims 18-20. Socket unit comprising a friction pin.

(7) Claims 16, 17. Partial claims 18-20. Socket unit made of plastic.

2 PRIOR ART

2.1 The prior art has been identified as the patent document US 4,519,276 -in the following it will be referred to as D1- and discloses (references into brackets apply to this document):

2.2 A capping and de-capping gripper (10) comprising- a capping and de-capping socket unit (50) capable of engaging and retaining a cap, having a through going passage (52, 54, 56); an ejector pin guide (38) also having a through going passage; and an ejector pin (62); and wherein said socket unit and said ejector pin guide are so aligned that when said socket unit is attached to said guide (see fig. 3 and 4), said ejector pin can perform a translational movement within the said guide and said socket unit.

2.3 D1 also discloses a corresponding socket for use with the gripper in the socket unit (50) comprising a gripper connector (20), a socket (52) and a mechanical connection (40, 42) between said gripper connector and said socket, each of them having a through passage (see fig. 3 and 4), wherein in

the assembled form the through going passages are aligned (see fig. 3 and 4), and said ejector-pin can perform a translational movement within the said guide and said socket unit.

2.4 Therefore all features of independent claims 7 and 12 are known from D1.

3 SPECIAL TECHNICAL FEATURES AND RELATED TECHNICAL PROBLEMS

3.1 INVENTION (1)

3.1.1 It follows that the following technical feature of claim 1 makes a contribution over D1 and can be considered as a special technical feature within the meaning of Rule 13.2 PCT:

3.1.2 - The apparatus comprises a rack support, a head unit supporting a two-dimensional array of capping and de-capping grippers, a drive mechanism for moving the rack support and head unit, a drive system for rotating the gripper and socket unit.

3.1.3 The technical effect of this feature is achieving simultaneous opening and/or closing of containers.

3.1.4 The objective technical problem solved by this feature may be regarded as increasing working pace.

3.2 INVENTION (2)

3.2.1 The remaining technical features of claim 8, not known from D1, relate to an attachable and detachable socket unit and can be considered as special technical features within the meaning of Rule 13.2 PCT.

3.2.2 The technical effect of this feature is versatility and ease of change.

3.2.3 The objective technical problem solved by this feature may be regarded as improving cost effectiveness of the machine with regard to spare parts or tooling changes.

3.3 INVENTION (3)

3.3.1 The remaining technical features of claims 9, 10, not known from D1, relate to a rotational actuator unit for the ejector pin and can be considered as special technical features within the meaning of Rule 13.2 PCT.

3.3.2 The technical effect of this feature is transmitting a rotational movement to the ejector pin so as to measure torque.

3.3.3 The objective technical problem solved by this feature may be regarded as avoiding an excessive torque of capping.

3.4 INVENTION (4)

3.4.1 The remaining technical features of claim 11, not known from D1, relate to an individual control of every gripper and can be considered as special technical features within the meaning of Rule 13.2 PCT.

3.4.2 The technical effect of this feature is the possibility of capping or de-capping only some and not all containers.

3.4.3 The objective technical problem solved by this feature may be regarded as selectively capping and/or de-capping containers.

3.5 INVENTION (5)

3.5.1 The remaining technical features of claim 13, not known from D1, relate to biasing means of the socket unit and can be considered as special technical features within the meaning of Rule 13.2 PCT.

3.5.2 The technical effect of this feature is a biased relation of the socket in relation to the mechanical connection.

3.5.3 The objective technical problem solved by this feature may be regarded as easily and effectively positioning the mechanical connection and the socket.

3.6 INVENTION (6)

3.6.1 The remaining technical features of claims 14, 1, not known from D1, relate to a friction pin of the socket and can be considered as special technical features within the meaning of Rule 13.2 PCT.

3.6.2 The technical effect of this feature is the holding of a cap.

3.6.3 The objective technical problem solved by this feature may be regarded as providing effective means for grabbing a cap.

3.7 INVENTION (7)

- 3.7.1 The remaining technical features of claim 16, not known from D1, relate to the material of the socket being plastic and can be considered as special technical features within the meaning of Rule 13.2 PCT.
- 3.7.2 The technical effect of this feature is cheap and easy manufacturing, weight reduction.
- 3.7.3 The objective technical problem solved by this feature may be regarded providing an improved alternative socket.

4 CONCLUSION

- 4.1 The general concept linking the above mentioned invention, i.e. the above mentioned gripper and socket according to claim 7 (see paragraph II, Prior Art), is disclosed in D1 and hence it is not new nor inventive.
- 4.2 The special technical features of the different inventions are not the same nor corresponding. When examining the possible correspondence by technical effect, one finds that the technical effects of inventions (1) to (7) are not the same nor corresponding. Consequently, neither the objective problem underlying the subjects of the claimed inventions, nor their solutions defined by the special technical features allow for a relationship to be established between the said inventions, which involves a single general inventive concept.
- 4.3 In conclusion, the groups of claims are not linked by common or corresponding special technical features and define different inventions not linked by a single general inventive concept.
- 4.4 The application, hence, does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Reference is made to the following documents:

D1 US 4 519 276 A (GRABARSKI DAVID L [US] ET AL) 28 May 1985 (1985-05-28)

- D2 EP 1 882 949 A1 (AUTOM PARTNERSHIP CAMBRIDGE [GB])
30 January 2008 (2008-01-30)cited in the application
- D3 JP 2010 100312 A (MICRONICS KK; CAN KK; NIKKYO
TECHNOS KK) 6 May 2010 (2010-05-06)
- D4 WO 03/034038 A2 (MONOGEN INC [US]; PRESSMAN NORMAN
J [US]; MAYER WILLIAM J [US]; WROBLE) 24 April 2003
(2003-04-24)
- D5 EP 2 385 015 A1 (CECCHERINI VIERI [IT]) 9 November 2011
(2011-11-09)
- D6 EP 1 424 307 A1 (KHS MASCHINEN UND ANLAGENBAUAG
[DE] KHS MASCH & ANLAGENBAU AG [DE]) 2 June 2004
(2004-06-02)

2 ART. 33(2)(3) PCT - INDEPENDENT CLAIMS 1, 18-20

- 2.1 D2 is regarded as being the prior art closest to the subject-matter of claim 1, and discloses (view fig. 1-17 with capping and de-capping sequence):
- 2.2 A capping and de-capping apparatus for capping and de-capping capable tubes disposed in a rack with a two dimensional array of apertures for holding said tubes, said apparatus comprising:
- a rack support for supporting said rack,
 - a head unit supporting a two-dimensional array of capping and de-capping grippers, each capping and de-capping gripper including a capping and de-capping socket unit configured for engaging and retaining a cap, said capping and de-capping grippers being aligned with tube apertures defined by the array in said rack,
 - a drive mechanism for moving the rack support and head unit relatively towards and away from one another, to cause engagement or disengagement of at least one capping and de-capping socket unit with or from a cap of at least one tube; and
 - a drive system for rotating at least one capping and de-capping gripper and the capping and de-capping socket unit attached thereto, wherein rotation of the capping and de-capping socket unit, after engagement of the at least one capping and de-capping socket unit with at least one cap, causes attachment of the at least one cap to the at least one tube within the rack when the at least

one capping and de-capping gripper rotates in one direction and causes detachment of the at least one cap from the at least one tube when the at least one capping and de-capping gripper rotates in the opposite direction.

- 2.3 The subject-matter of claim 1 therefore differs from this disclosure in that:
- the at least one capping and de-capping gripper has a through going passage extending through the at least one capping and de-capping gripper and the capping and de-capping socket unit attached thereto,
 - an ejector pin movably arranged within said through going passage;
 - and wherein said ejector pin is configured to perform a translational movement relative to the at least one capping and de-capping gripper and capping and de-capping socket unit attached to said gripper thereby effecting a release of a cap retained within the capping and de-capping socket unit.

2.4 Claim 1 is therefore new (Art. 33(2) PCT).

2.5 The problem to be solved by the present invention may therefore be regarded as improving the apparatuses of the prior art by including an effective system for ejecting caps which is susceptible of eject caps individually.

2.6 The solution proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

Claim 1 proposes a translatable ejector pin which is able to slide inside a through going passage of every capping head. In this way, an individual cap can be ejected.

Ejecting rods or pins are known in the field of capping and uncapping of bottles or containers in many kinds of machines. For instance, D1 shows an individual uncapping head for uncapping bottles. D4 shows another type of individual uncapping head for uncapping small containers containing samples. D5 and D6 show capping/uncapping heads for capping/uncapping of bottles.

None of these capping heads are suitable to be combined with a machine of the kind of D2, for uncapping racks of test tubes, due to its size and complexity. The skilled person would, therefore, not be prompted by any of these documents to modify the apparatus of D2 to include an ejector pin in each and every capping head. Moreover, the skilled person, when looking for solutions to the problem posed above, would be confronted with D3, which proposes a complete different solution for ejecting all caps of a machine for capping and uncapping test tubes.

2.7 Independent claim 1 therefore involves an inventive step (Art. 33(3) PCT). The same reasoning applies, mutatis mutandis, to the subject-matter of independent claims 18-20 so long as they relate to independent claim 1, and they are also considered as involving an inventive step.

3 ART. 33(2)(3) PCT - DEPENDENT CLAIMS 2 - 6.

3.1 Claims 2 - 6 are dependent on claim 1 and, as such, also meet the requirements of the PCT in terms of novelty (Art. 33(2) PCT) and inventive step (Art. 33(3) PCT).