

PATENT COOPERATION TREATY

REC'D 13 APR 2006
WIPO PCT

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

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

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/B2005/002692

International filing date (day/month/year)
09.09.2005

Priority date (day/month/year)
01.03.2005

International Patent Classification (IPC) or both national classification and IPC
INV. B65G47/80 B65G47/84 B29C45/72 B29C49/36

Applicant
SACMI COOPERATIVA MECCANICI IMOLA SOCIETA' ...

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 or 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"). However, 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 three 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.

3. For further details, see notes to Form PCT/ISA/220.


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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, unless otherwise indicated under this item.
 - This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material:
 - in written format
 - in computer readable form
 - c. time of filing/furnishing:
 - contained in the international application as filed.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto 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.
4. 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. 190

because:

- the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*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.
- no international search report has been established for the whole application or for said claims Nos. 190
- the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
 - the written form has not been furnished
 - does not comply with the standard
 - the computer readable form has not been furnished
 - does not comply with the standard
- the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
- See separate sheet for further details

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/002692

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:
- paid additional fees.
 - paid additional fees under protest.
 - 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.

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	1- 61,64, 65,69- 84,88-96, 98-114, 119- 128, 130- 133, 137- 152, 154, 156,165-180,182-189,195-198,201-204,207-218,227-258
	No: Claims	62, 63,66- 68,85-87, 97,109- 113,115- 118,129, 134-136, 153,155,157-164,181,191-194,199,200,205,206,219-226
Inventive step (IS)	Yes: Claims	1- 61,71- 84,88- 96,105- 108, 114, 119-

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/B2005/002692

Re Item IV.

The separate inventions are:

Invention 1 : Claims 1-61

Apparatus comprising carousel means, operating devices and conveying units.

Invention 2 : Claims 62-84

Apparatus comprising rotatable carousel means, operating means and flexible moving means.

Invention 3 : Claims 85-108

Apparatus comprising rotatable carousel means, operating units and receiving elements.

Invention 4 : Claims 109-133

Apparatus comprising rotatable carousel means, operating means and longitudinally acting actuating means.

Invention 5 : Claims 134-180

Apparatus comprising carousel means, conveying unit means and cam driving means for moving the conveying unit means.

Invention 6 : Claims 181-189

Apparatus comprising carousel means, arm means and removing means.

Invention 7 : Claims 191-206,215-228

Method for moving objects providing a rotatable carousel and an associated conveying unit and a further conveying unit.

Invention 8 : Claims 207-214

Method for moving objects providing a rotatable carousel, a conveying unit and a further conveying unit movable in relation to the carousel, and a plurality of operating units in each conveying unit arranged to interact with objects, arranging an object in each operating unit of each conveying unit.

Invention 9 : Claims 229-258

Method comprising rotating carousel means, associated conveying unit means, housing means, conveying means, transferring objects near a zone.

These inventions are not so linked as to form a single general inventive concept (Rule 13.1 PCT) for the following reasons:

The features of the nine claimed inventions solve different technical problems by means of different special (or potentially special) technical features.

The problem to be solved by the first invention is to increase capacity on a carousel with minimum dimensions.

The problem to be solved by the second invention is to provide a time of interaction between the transferring means and the operating means which is significantly long.

The problem to be solved by the third invention is to provide high apparatus productivity without increasing carousel rotation.

The problem to be solved by the fourth invention is to provide a limit to the extent of the mechanical stresses to which the operating means are subjected.

The problem to be solved by the fifth invention is to drive the conveying unit means in a controlled manner with great repeatability.

The problem to be solved by the sixth invention is to enable objects to be deposited and removed with ease to/from the periphery of a rotatable carousel.

The problem to be solved by the seventh invention is to provide a method of maintaining an object on a carousel for a considerable time.

The problem to be solved by the eighth invention is to provide a method of inserting a plurality of objects into the operating units at very close intervals of time.

The problem to be solved by the ninth invention is to provide a method which increases the time during which the conveying means interact with the carousel means to remove or deliver an object from/to the housing.

The prior art document US-B1-6308816 discloses a carousel having the technical features of the preamble of claim 1. The special technical feature is the provision of a plurality of operating devices on each conveying unit.

The second invention of claim 62 yields the potential special technical feature of providing flexible moving means.

The third invention of claim 85 yields the potential special technical feature of providing more receiving element than the operating units.

The fourth invention of claim 109 yields the potential special technical feature of providing a longitudinally acting actuating means.

The fifth invention of claim 134 yields the potential special technical feature of providing cam driving means for the conveying units.

The sixth invention of claim 181 yields the potential special technical feature of providing cam driving means for moving the arm means.

The seventh invention of claim 191 yields the potential special technical feature of providing successive arrangement of objects on a conveying unit and on a further conveying unit on the carousel.

The eighth invention of claim 207 yields the potential special technical feature of providing successive arrangement of objects on an operating unit and on a further operating unit on the successive conveying units.

The ninth invention of claim 229 yields the potential special technical feature of providing a transferring in a zone of interaction between the carousel and the conveying means, in an

advancing direction of the housing means opposite to the rotation of the carousel in that zone.

The technical features of the nine inventions are different and solve different technical problems, hence there are no common or corresponding special technical features on which a technical relationship can be based, within the meaning of PCT Rule 13.2, between the first, the second, the third, the fourth, the fifth, the sixth, the seventh, the eighth and the ninth inventions. Therefore the application does not meet the requirements for unity of invention as defined by PCT Rule 13.1.

Re Item V.

1. Reference is made to the following documents:

- D1 : US 6 308 816 B1 (BANKUTY GEZA E ET AL) 30 October 2001 (2001-10-30)**
- D2: EP-A-1 352 835 (AZIONARIA COSTRUZIONI MACCHINE AUTOMATICHE-
A.C.M.A.-S.P.A) 15 October 2003 (2003-10-15)**
- D3: PATENT ABSTRACTS OF JAPAN vol. 014, no. 281 (M-0986), 18 June 1990
(1990-06-18) & JP 02 086513 A (II S P:KK), 27 March 1990 (1990-03-27)**
- D4: US 2004/009257 A1 (GALLONI BRUNO) 15 January 2004 (2004-01-15)**
- D5: EP-A-1 484 160 (SIG TECHNOLOGY LTD) 8 December 2004 (2004-12-08)**
- D6: WO 02/34500 A (KRONES AG; VOTH, KLAUS; STOIBER, CHRISTIAN) 2 May
2002 (2002-05-02)**
- D7: WO 2004/103674 A (SACMI-COOPERATIVA MECCANICI IMOLA-SOC.
COOP. A R.L; BELTRANDI, DARIO;) 2 December 2004 (2004-12-02)**
- D8: WO 03/090989 A (SACMI COOPERATIVA MECCANICI IMOLA S.C.R.L;
BATTILANI, MAURO) 6 November 2003 (2003-11-06)**
- D9: US-A-3 934 714 (MATSUMOTO ET AL) 27 January 1976 (1976-01-27)**
- D10: US-B1-6 779 651 (LINGLET STEPHANE ET AL) 24 August 2004 (2004-08-**
- D11: US-A-4 428 474 (GAU ET AL) 31 January 1984 (1984-01-31)**
- D12: US-A-5 232 717 (VOSS ET AL) 3 August 1993 (1993-08-03)**

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4
)

D13: WO 2004/094280 A (MCNEIL-PPC, INC) 4 November 2004 (2004-11-04)

Claim 1

2. Document D1, which is considered to represent the most relevant state of the art, discloses in column 3, line 33 to column 9, line 18, figures 1-12 (the references in parentheses applying to this document):

Apparatus, comprising carousel means (36), operating devices (18a-h) associated with said carousel means and arranged for interacting with objects (12) and conveying units (42) supported by said carousel means (36) and movable in relation to said carousel means (36) to transfer said objects (12).

From this, the subject-matter of independent claim 1 **differs in that** each of said conveying units supports a plurality of said operating devices.

- 2.1 The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).
The problem to be solved by the present invention may be regarded as how to increase capacity on a carousel with minimum dimensions.

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

None of the available prior art discloses this provision of a plurality of operating devices **supported** by each of the conveying units thus increasing the capacity of the carousel depending on how many conveying units one can fit, at minimum dimension increase.

Dependent Claims 2-61

- 2.3 Claims 2-61 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Claim 62

3. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 62 is not new in the sense of Article 33(2) PCT.

3.1 Document D2, discloses in column 3, line 23 to column 4, line 58, figures 1, 2 (the references in parentheses applying to this document):

Apparatus, comprising rotatable carousel means (7), operating means (17) associated with said carousel means (7) and arranged for interacting with objects (P) and moving means arranged for transferring said objects (P) to, and/or removing said objects (P) from, whereby moving means comprises flexible moving means (5).

Dependent Claims 63-70

3.2 Dependent claims 63-70 **do not** contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

Dependent Claims 71-84

3.3 The combination of the features of dependent claims 71-84 are neither known from, nor rendered obvious by, the available prior art.

Claim 85

4. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 85 is not new in the sense of Article 33(2) PCT.

4.1 Document D3, discloses in the abstract, figures 1-5 (the references in parentheses applying to this document):

Apparatus, comprising rotatable carousel means (5), operating units (2) associated with said carousel means (5) and arranged for interacting with objects (W), receiving

elements (1, 6) associated with said carousel means (5) and arranged for receiving said objects (W) coming from, or directed to, said operating units (2), wherein said receiving elements (1, 6) are more numerous than said operating units (2).

Dependent Claims 86, 87, 97-104

- 4.2 Dependent claims 86, 87, 97-104 **do not** contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

Dependent Claims 88-96, 105-108

- 4.3 The combination of the features of dependent claims 88-96, 105-108 are neither known from, nor rendered obvious by, the available prior art.

Claim 109

5. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 109 is not new in the sense of Article 33(2) PCT.

- 5.1 Document D4, discloses in page 1, paragraph 20 to page 2, paragraph 35, figures 1-4 (the references in parentheses applying to this document):

Apparatus, comprising rotatable carousel means (14), operating means (20) associated with said carousel means (14) and arranged for interacting with objects (10), actuating means (34, 22, 24) arranged for moving said operating means (20) between an open position (upper retracted position out of the mould) and a closed position (lower blow-molding position), maintaining means (34, 22, 24) arranged for maintaining said operating means (20) in said closed position, whereby said actuating means (34, 22, 24) is shaped in such a way as to act along a longitudinal axis of said operating means (20).

- 5.2 Documents D5, D6, D7, D8 also disclose all the technical features of claim 109.

Dependent Claims 110-113, 115-118, 129

- 5.3 Dependent claims 110-113, 115-118, 129 **do not** contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

Dependent Claims 114, 119-128, 130-133

- 5.4 The combination of the features of dependent claims 114, 119-128, 130-133 are neither known from, nor rendered obvious by, the available prior art.

Claim 134

6. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 134 is not new in the sense of Article 33(2) PCT.

- 6.1 Document D9, discloses in column 2, line 51 to column 5, line 13, figures 1,2 (the references in parentheses applying to this document):

Apparatus, comprising carousel means (1), conveying unit means (4) supported by said carousel means (1) and movable in relation to said carousel means (1) to transfer objects (9) and driving means (3, 3a, 25) arranged for moving said conveying unit means (4) in relation to said carousel means (1), whereby said driving means comprises cam driving means (3, 3a).

Dependent Claims 135, 136, 147, 153, 155-164, 169-178

- 6.2 Dependent claims 135, 136, 147, 153, 155-164, 169-178 **do not** contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

Dependent Claims 137-146, 148-152, 154, 165-168, 179, 180

- 6.3 The combination of the features of dependent claims 137-146, 148-152, 154, 165-168, 179, 180 are neither known from, nor rendered obvious by, the available prior art.

Claim 181

7. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 181 is not new in the sense of Article 33(2) PCT.
- 7.1 Document D10, discloses in column 3, line 16 to column 5, line 9, figures 1-3 (the references in parentheses applying to this document):

Apparatus, comprising carousel means (14, 16), arm means (18) slidably coupled with said carousel means (14, 16) and removing means (28) rotatably supported by said arm means (18) and arranged for interacting with objects (32), cam driving means (22, 24) arranged for moving said arm means (18) in relation to said carousel means (14) and further cam driving means (36, 40) arranged for moving said removing means (28) in relation to said arm means (18).

Dependent Claims 182, 187-189

- 7.2 Dependent claims 182, 187-189 **do not** contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

Dependent Claims 183-186

- 7.3 The combination of the features of dependent claims 183-186 are neither known from, nor rendered obvious by, the available prior art.

Claim 191

8. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 191 is not new in the sense of Article 33(2) PCT.

8.1 Document D1, discloses (the references in parentheses applying to this document):

Method comprising providing a rotatable carousel (36) and rotating said carousel (36), wherein during said rotating arranging an object (12) in a conveying unit (42, under station 18a) is provided, said conveying unit (42) being associated with said carousel (36) and movable in relation to said carousel (36), and furthermore arranging a further object (12) in a further conveying unit (42, under station 18b) is provided, said further conveying unit (42) being associated with said carousel (36) and movable in relation to said carousel (36).

8.2 Document D9 also discloses all method steps of claim 191.

Dependent Claims 192-194, 199, 200, 205, 206, 215-228

8.3 Dependent claims 192-194, 199, 200, 205, 206, 215-228 **do not** contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

Dependent Claims 195-198, 201-204

8.4 The combination of the features of dependent claims 195-198, 201-204 are neither known from, nor rendered obvious by, the available prior art.

Claim 207

9. Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document):

Method comprising providing a rotatable carousel (36) that supports a conveying unit (42) that is movable in relation to said carousel (36) and a further conveying unit (42)

that is movable in relation to said carousel (36).

From this, the subject-matter of independent claim 207 **differs in that** said conveying unit and said further conveying unit being provided with a plurality of operating units, arranged for interacting with objects, arranging an object in each operating unit of said conveying unit and subsequently further arranging a further object in each operating unit of said further conveying unit.

- 9.1 The subject-matter of claim 207 is therefore novel (Article 33(2) PCT).
The problem to be solved by the present invention may be regarded as how to provide a method of inserting a plurality of objects into the operating units at very close intervals of time, furthermore ensuring a longer interval of time between the supply of one conveying unit bearing a group of operating units and the supply of a further conveying unit bearing another group of operating units.
- 9.2 The solution to this problem proposed in claim 207 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

None of the available prior art discloses this provision of a plurality of operating units **arranged** on each of the conveying units, thus increasing the capacity of the carousel and giving the ability to load objects into the operating units at very short intervals of time.

Dependent Claims 208-214

- 9.3 Claims 208-214 are dependent on claim 207 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Claim 229

10. Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document):

Method, comprising rotating carousel means (36) in a rotating direction, conveying unit means (42) being associated with said carousel means (36), which conveying unit means (42) is movable in relation to said carousel means (36) and is provided with housing means (42, plate) arranged for receiving objects (12), transferring said objects between said housing means (42) and conveying means (28, 29) arranged for conveying said objects, said transferring being provided in a zone wherein said conveying means (28, 29) interacts with said carousel means (36), moving said housing means (42), near to said zone,

From this, the subject-matter of independent claim 229 **differs in that** the carousel means move the housing means in an advancing direction that is substantially opposite said rotating direction.

10.1 The subject-matter of claim 229 is therefore novel (Article 33(2) PCT).
The problem to be solved by the present invention may be regarded as how to provide a method which increases the time during which the conveying means interact with the carousel means to remove or deliver an object from/to the housing. As the removal and delivery time increases, removal and delivery gets easier and more reliable.

10.2 The solution to this problem proposed in claim 229 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

None of the available prior art discloses this provision of moving (rotating) the housing means in an opposite direction to the rotation of the carousel as it approaches the conveying means in the loading, unloading zones.

Dependent Claims 230-258

10.3 Claims 230-258 are dependent on claim 229 and as such also meet the requirements of the PCT with respect to novelty and inventive step.