PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	18 OCT 2018
Applicant's or agent's file reference MTC62729-WO	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2018/049211	31 August 2018	31 August 2017

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06Q 10/08; A01F 12/50; B65B 1/30; B65B 7/16; B65B 35/00; B65B 35/10 (2018.01)
CPC - G06Q 10/087; A01F 12/50; B65B 1/30; B65B 7/16; B65B 35/00; B65B 35/10; B65B 35/28; B65B 35/30; B65B 57/20; B65B 65/00; B65B 65/003; B65G 37/00; B65G 47/08; B65G 47/46; G06Q 10/08 (2018.08)

Applicant MONSANTO TECHNOLOGY LLC

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 43*bis*.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 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 66.1*bis*(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/US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	09 October 2018	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

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Box No. I Basis of this 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 43*bis*.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:

   a. ☐ forming part of the international application as filed:

      ☐ in the form of an Annex C/ST.25 text file.

      ☐ on paper or in the form of an image file.

   b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

   c. ☐ furnished subsequent to the international filing date for the purposes of international search only:

      ☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

      ☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

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 forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

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

1. Statement

Novelty (N)	Claims	2-11, 13, 14, 16, 19	YES
	Claims	1, 12, 15, 17, 18, 20	NO
Inventive step (IS)	Claims	2-11, 14, 16	YES
	Claims	1, 12, 13, 15, 17-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1, 12, 15, 17, 18, and 20 lack novelty under PCT Article 33(2) as being anticipated by Deppermann et al. (hereinafter Deppermann).

Regarding Claim 1, Deppermann discloses a seed fulfillment system (system and methods for packaging small objects; title; paragraph [0002] explains that the small objects may include seeds) comprising: a seed inventory handling system configured to handle inventory containers containing different seed types (Small object counting stations 22A-C shown in FIG. 1 must include inventory containers that may have different seed types.); an intermediary-container filling system configured to fill intermediary containers with selected seed types from the inventory containers (small object counting stations 22A-C for filling small object containers 34; FIG. 1; paragraph [0029]); a shipping-container loading system configured to load shipping containers with the seeds in the intermediary containers (offloading station 30 structured and operable to remove capped small object containers 34 from transport pallet 42 and place each small object container 34 into a container packing case 50; FIG. 6A; paragraph [0029]); and an intermediary-container handling system configured to convey the filled intermediary containers from the intermediary-container filling system to the shipping-container loading system (main hub conveyor system 14, which transports pallets 42 containing small object containers 34 to offloading stations 30; FIGS. 1 and 1A; paragraph [0029]).

Regarding Claim 12, Deppermann discloses the seed fulfillment system set forth in claim 1, wherein the intermediary-container filling system comprises a seed counter configured to count and deliver a selected quantity of seeds into the intermediary containers (The name of small object counting stations 22 implies a seed counter.).

Regarding Claim 15, Deppermann discloses the seed fulfillment system set forth in claim 1, wherein the intermediary-container handling system comprises a conveyor configured to convey the filled intermediary containers to the shipping-container loading system (main hub conveyor system 14, which transports pallets 42 containing small object containers 34 to offloading stations 30; FIGS. 1 and 1A; paragraph [0029]).

Regarding Claim 17, Deppermann discloses the seed fulfillment system set forth in claim 1, further comprising a plurality of the intermediary containers (plurality of small object containers 34; FIG. 2; paragraph [0029]), wherein each of the plurality of intermediary containers comprises a container body (body of a small object container shown in FIG. 2) and a machine readable label on the body configured to associate the intermediary container with the type of seed in the intermediary container (first container information label 38A comprising data matrix bar-code information on the type of object; paragraph [0037]).

Regarding Claim 18, Deppermann discloses the seed fulfillment system set forth in claim 17, further comprising: a conveyor system configured to convey the intermediary containers from the intermediary-container filling system to the intermediary-container handling system (Although not identified or described, FIG. 1 shows small object counting stations 22 including endless conveyors to transport the small object containers 34 to main hub conveyor system 14.); and a plurality of scanners configured to scan machine readable labels on the intermediary containers (first container information verification assembly 104 and second container information verification system 114; FIG. 3A; paragraphs [0041] and [0044]).

Regarding Claim 20, Deppermann discloses the seed fulfillment system set forth in claim 1, further comprising a controller in communication with and controlling operation of the seed inventory handling system, the intermediary-container filling system, shipping-container loading system, and the intermediarycontainer handling system (central control system 32; FIG. 7; paragraph [0098]).

Claim 19 lacks an inventive step under PCT Article 33(3) as being obvious over Deppermann et al. (hereinafter Deppermann).

Regarding Claim 19, Deppermann discloses the seed fulfillment system set forth in claim 17, but does not explicitly disclose wherein the machine readable labels on the intermediary containers includes a bar code extending 360 degrees about a circumference of the container body.
It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had the machine readable labels on the intermediary containers include a bar code extending 360 degrees about a circumference of the container body, since discovering the optimum value of a result effective variable involves only routine skill in the art. The motivation for doing so would be to allow the barcode to be read by a single scanner regardless of the orientation of the container.

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 6 is objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claim 6 is indefinite for the following reason:

There is no antecedent basis for "the inventor container." Claim 6 has been analyzed assuming "the inventory container" was intended.

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Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Claim 13 lacks an inventive step under PCT Article 33(3) as being obvious over Deppermann et al. (hereinafter Deppermann) in view of Liu.

Regarding Claim 13, Deppermann discloses the seed fulfillment system set forth in claim 1, further comprising the shipping containers (container packing case 50; FIG. 6A; paragraph [0029]), but does not explicitly disclose wherein each shipping container comprises a cassette with a plurality of cells for receiving seeds from a plurality of the intermediary containers.
Liu is directed to a portable closable container with individually closable cells (title) and teaches a shipping container comprising a cassette with a plurality of cells for receiving seeds from a plurality of the intermediary containers (container 10 having a base with a plurality of cells 26, which is capable of receiving small object containers 34 containing seeds; FIG. 1).
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Deppermann with the teaching of Liu for the purpose of improving the organization of the seeds.

Claims 2-11, 14, and 16 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest:

[Cl. 2] The seed fulfillment system set forth in claim 1, wherein the intermediary-container handling system comprises an accumulating sortation table configured to receive the filled intermediary containers from the intermediary-container filling system, wherein the accumulating sortation table includes a plurality of individual lanes in which the intermediary containers are receivable.

Claim 3 depends from claim 2, and therefore meets the criteria set out in PCT Article 33(2)-(3) for at least the same reasons as claim 2.

Regarding claim 2, Deppermann discloses the seed fulfillment system set forth in claim 1, but fails to disclose wherein the intermediary-container handling system comprises an accumulating sortation table configured to receive the filled intermediary containers from the intermediary-container filling system, wherein the accumulating sortation table includes a plurality of individual lanes in which the intermediary containers are receivable.

The prior art of record, individually or in combination, does not teach or fairly suggest the seed fulfillment system set forth in claim 1, wherein the intermediary-container handling system comprises an accumulating sortation table configured to receive the filled intermediary containers from the intermediary-container filling system, wherein the accumulating sortation table includes a plurality of individual lanes in which the intermediary containers are receivable.

[Cl. 4] The seed fulfillment system set forth in claim 1, wherein the seed inventory handling system comprises a robot configured to pick up, move and deliver inventory containers.

Claims 5 and 6 depend from claim 4, and therefore meet the criteria set out in PCT Article 33(2)-(3) for at least the same reasons as claim 4.

Regarding claim 4, Deppermann discloses the seed fulfillment system set forth in claim 1, but fails to disclose wherein the seed inventory handling system comprises a robot configured to pick up, move and deliver inventory containers.

The prior art of record, individually or in combination, does not teach or fairly suggest the seed fulfillment system set forth in claim 1, wherein the seed inventory handling system comprises a robot configured to pick up, move and deliver inventory containers.

[Cl. 7] The seed fulfillment system set forth in claim 1, further comprising seed containers sized and shaped to be received in the inventory containers, wherein the seed containers each include a machine readable label configured to associate information relating to the type of seed contained in the seed container.

Claims 8-11 depend from claim 7, and therefore meet the criteria set out in PCT Article 33(2)-(3) for at least the same reasons as claim 7.

Regarding claim 7, Deppermann discloses the seed fulfillment system set forth in claim 1, but fails to disclose further comprising seed containers sized and shaped to be received in the inventory containers, wherein the seed containers each include a machine readable label configured to associate information relating to the type of seed contained in the seed container.

The prior art of record, individually or in combination, does not teach or fairly suggest the seed fulfillment system set forth in claim 1, further comprising seed containers sized and shaped to be received in the inventory containers, wherein the seed containers each include a machine readable label configured to associate information relating to the type of seed contained in the seed container.

[Cl. 14] The seed fulfillment system set forth in claim 13, wherein the shipping-container loading system is configured to load a plurality of the cells of the cassette with respective selected ones of the plurality of the intermediary containers.

Regarding claim 14, Deppermann discloses the seed fulfillment system set forth in claim 13, but fails to disclose wherein the shipping-container loading system is configured to load a plurality of the cells of the cassette with respective selected ones of the plurality of the intermediary containers.

The prior art of record, individually or in combination, does not teach or fairly suggest the seed fulfillment system set forth in claim 13, wherein the shipping-container loading system is configured to load a plurality of the cells of the cassette with respective selected ones of the plurality of the intermediary containers.

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Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

[Cl. 16] The seed fulfillment system set forth in claim 15, wherein the intermediary-container handling system comprises one or both of an accumulating sortation table and a filling sortation table.

Regarding claim 16, Deppermann discloses the seed fulfillment system set forth in claim 15, but fails to disclose wherein the intermediary-container handling system comprises one or both of an accumulating sortation table and a filling sortation table.

The prior art of record, individually or in combination, does not teach or fairly suggest the seed fulfillment system set forth in claim 15, wherein the intermediary-container handling system comprises one or both of an accumulating sortation table and a filling sortation table.

Claims 1-20 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.