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EXAMINER	
LU, JIPING	

ART UNIT	PAPER NUMBER
3743	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 12/682,989	Applicant(s) DURANCE ET AL.	
	Examiner JIPING LU	Art Unit 3743	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/9/14*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-37* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-37* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *8/5/14*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

1. The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Claims Status

2. Claims 1-37 are now in the case.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

> (a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-13, 16-23, 26-35 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly added limitations regarding "so as to tumble the organic material in the container" in claims 1, 16, 34-35 constitute new matter not supported by the original

specification. Nowhere in the original filed specification does the applicant discuss or mention anything about tumbling the organic material in the container. The "tumbling" function is clearly depending on the rotational speed. The organic material may not be tumbling due to the centrifugal force. Nowhere in the original filed specification does the applicant discuss or mention anything about rotational speed to enable such newly added functional limitation. Moreover the original specification does not disclose what causes this newly added limitation to function.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-6, 12 and 16-20, 26-29, 31 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wefers (US 6,442,866 B2) in view of Burger et al. (US 2005/0019209).

Regarding claim 1-6, and 12, 26-29, 31, 33, Wefers discloses an apparatus (fig. 2) for dehydrating organic material (col. 1, line 56-col. 2, line 6 describing drying food), comprising: (a) a vacuum chamber 1 (fig. 1, col. 3, lines 58-66 describing the chamber being at vacuum pressure) having an input end 5' (fig. 2) for introduction of a container 4 (fig. 2) for the organic material into the vacuum chamber 1 (fig. 1) and a discharge end 7 (fig. 2) for removal of the container; (b) a microwave generator 15 (fig. 2); (c) a microwave-transparent window ("window" col. 7, lines 40-43) for transmission of microwave radiation from the microwave generator 15 (fig. 2) into the vacuum chamber 1 (fig. 2); (d) means for reducing pressure 32 (fig. 2) inside the vacuum chamber 1 (fig. 2); (e) means for loading 2 (fig. 2, col. 4, lines 29-50

describing means for loading the container) the container into the input end 5' (fig. 2) of the vacuum chamber; . . . ; (g) means for moving 10 (fig. 2) the . . . container 4 (fig. 2) through the vacuum chamber 1 (fig. 2) from the input end 5" (fig. 2) to the discharge end 7 (fig. 2) thereof; and (h) means for unloading 14 (fig. 2, col. 10, lines 20-33 describing zone 14 as a lock chamber analogous to lock chamber 2 and col. 9, lines 55-65 describing means for unloading the container) the container of dehydrated organic material from the vacuum chamber 1 (fig. 2) at the discharge end 7 (fig. 2) thereof, further comprising means for cooling 18 (fig. 2 showing a dwell chamber) the dehydrated organic material at a pressure less than atmospheric (col. 3, lines 58-66 describing at vacuum pressure), wherein the means for cooling 18 (fig. 2) comprises: an equilibration chamber 18 (fig. 2) having an input end 7 (fig. 2) for introduction of the container of dehydrated organic material into the equilibration chamber 18 (fig. 2) and a discharge end 7' (fig. 2) for removal of the container; and means for reducing pressure 32 (fig. 2) inside the equilibration chamber, wherein the apparatus further comprises: means for loading 14 (fig. 2, col. 10, lines 20-33 describing zone 14 as a lock chamber analogous to lock chamber 2) the container of dehydrated organic material into the input end 7 (fig. 2) of the equilibration chamber 18 (fig. 2); . . . ; and means for unloading 3 (fig. 2) the container of dehydrated organic material from the equilibration chamber 18 (fig. 2) at the discharge end 7' (fig. 2) thereof, wherein the means for loading 2 (fig. 2, col. 4, lines 29-50 describing means for loading the container) the container into the input end 5' (fig. 2) of the vacuum chamber 1 (fig. 2) comprises: a container input chamber 2 (fig. 2) which is open to the vacuum chamber 1 (fig. 2) at the input end 5' (fig. 2) of the vacuum chamber; a loading channel 2 (fig. 2) having a first end 5 (fig. 2) for receiving the container and a second end 5' (fig. 2) adjacent to the container input chamber 2 (fig. 2); a

first airlock 5 (fig. 2 showing a door) at the first end of the loading channel 2 (fig. 2) and a second airlock 5' (fig. 2) at the second end of the loading channel 2 (fig. 2); . . . , and wherein the means for unloading 14 (fig. 2, col. 10, lines 20-33 describing zone 14 as a lock chamber analogous to lock chamber 2 and col. 9, lines 55-65 describing means for unloading the container) the container of dehydrated organic material from the vacuum chamber 1 (fig. 2) at the discharge end 7 (fig. 2) thereof comprises: a discharge chamber 2 (fig. 2, col. 10, lines 20-33 describing zone 14 as a lock chamber analogous to lock chamber 2) which is open to the vacuum chamber 1 (fig. 2) at the discharge end of the vacuum chamber; an unloading channel 2 (fig. 2) having a first end 5 (fig. 2) adjacent to the discharge chamber and a second end 5' (fig. 2); and a first airlock 5 (fig. 2 showing a door) at the first end of the unloading channel 2 (fig. 2) and a second airlock 5' (fig. 2) at the second end of the unloading channel 2 (fig. 2), except for (f) means for rotating the container inside the vacuum chamber and rotating, means for rotating the container of dehydrated organic material inside the equilibration chamber; means for moving the container of dehydrated organic material through the equilibration chamber from the input end to the discharge end thereof, wherein the means for rotating the container inside the vacuum chamber rotates the container about a horizontal axis, wherein the means for rotating the container of dehydrated material inside the equilibration chamber rotates the container about a horizontal axis. However, patent to Burger et al. teaches a concept of simultaneous rotation and transport of the containers 2 in a vacuum chamber 5 for treating the containers 2 under microwave. Burger et al. teach (f) means for rotating (Fig. 1 showing a means for rotating) a container (2) inside a vacuum chamber (5) so as to tumble the material in the container 2 (fig. 1), means for rotating (fig. 1 showing a means for rotating) a container 2 inside an equilibration

section (7); means for moving (fig. 1 showing means for moving containers through chambers) a container 2 through an equilibration section (7) from the input end to the discharge end thereof, wherein the means for rotating (fig. 1) the container (2) inside the chamber (5) rotates the container about a horizontal axis (fig.1), wherein the means for rotating (fig.1) the container (2) inside the equilibration section rotates the container about a horizontal axis (fig. 1). As shown in Figs.6-7, the means for rotating the container comprises a rotatable cage24 extending from the input end to the discharge end of the vacuum chamber, the rotatable cage being configured to receive the container 2 therein. The rotatable cage 24 is cylindrical and is configured for slidable support of the container 2 through the rotatable cage 24 (fig. 6) and is configured to hold a plurality of the containers therein abutting each other end-to-end (the cage 24 is capable of being used to hold a plurality of the containers therein abutting each other end-to-end). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Wefer's reference, to substitute the container 2 of Burger et al. for the container 4 of Wefer and to include (f) means for rotating the container inside the vacuum chamber so as to tumble the organic material in the container, means for rotating the container of dehydrated organic material inside the equilibration chamber; means for moving the container of dehydrated organic material through the equilibration chamber from the input end to the discharge end thereof, wherein the means for rotating the container inside the vacuum chamber rotates the container about a horizontal axis, wherein the means for rotating the container of dehydrated material inside the equilibration chamber rotates the container about a horizontal axis, as suggested and taught by Burger et al., for the purpose of balance out the microwave radiation on the surfaces of the container over the treatment time.

Regarding claim 16-20, 34-35, Wefers discloses a method for dehydrating an organic material (col. 1, line 56-col. 2, line 6 describing a method for drying food), comprising the steps of: (a) providing a microwave-transparent container (4, fig. 2) holding the organic material to be dehydrated; (b) introducing the container (4, fig. 2) into a vacuum chamber (1, fig. 1, col. 3, lines 58-66 describing the chamber being at vacuum pressure) at an input end (5', fig. 2) thereof, the vacuum chamber being at a pressure less than atmospheric (1, fig. 1, col. 3, lines 58-66 describing the chamber being at vacuum pressure); . . . ; (d) moving the . . . container (4, fig. 2) through the vacuum chamber (1, fig. 2) from the input end (5', fig. 2) to a discharge end (7, fig. 2) thereof while applying microwave radiation (15, fig. 2) to dehydrate the organic material; and (e) removing the container of dehydrated organic material from the vacuum chamber at the discharge end (14, fig. 2, col. 10, lines 20-33 describing zone 14 as a lock chamber analogous to lock chamber 2 and col. 9, lines 55-65 describing means for unloading the container), further comprising after step (e) the step of cooling the dehydrated organic material (18, fig. 2 showing a dwell chamber) at a pressure less than atmospheric (col. 3, lines 58-66 describing at vacuum pressure), wherein cooling the dehydrated organic material comprises the steps of: loading the container of dehydrated organic material into the input end (7, fig. 2) of an equilibration chamber (18, fig. 2), the equilibration chamber being at the pressure less than atmospheric (col. 3, lines 58-66 describing at vacuum pressure); . . . , while allowing the dehydrated organic material to cool (18, fig. 2 showing a dwell chamber in which the material cools); and unloading (3, fig. 2) the container of cooled, dehydrated organic material from the equilibration chamber (18, fig. 2) at the discharge end (7', fig. 2) thereof, except for (c) rotating the container inside the vacuum chamber, rotating, rotating the container of dehydrated organic material inside the equilibration

chamber; moving the container of dehydrated organic material through the equilibration chamber from the input end to a discharge end thereof, wherein the container inside the vacuum chamber is rotated about a horizontal axis, and wherein the container of dehydrated material inside the equilibration chamber is rotated about a horizontal axis. However, patent to Burger et al. teaches a concept of simultaneous rotation and transport of the containers 2 in a vacuum chamber 5 for treating the containers 2 under microwave. Burger et al. teach (c) rotating the container (Fig. 1 showing means for rotating a container 2) inside a chamber 5 so as to tumble the material in the container 2 (fig. 1), rotating (fig. 1 showing a means for rotating) a container 2 inside an equilibration section (7); moving (fig. 1 showing means for moving containers through sections) a container 2 through an equilibration section (7) from the input end to a discharge end thereof, wherein the container (2, fig. 1) inside the chamber 5 is rotated about a horizontal axis (fig. 1), and wherein the container (2, fig. 1) inside the equilibration section (7) is rotated about a horizontal axis (fig. 1). As shown in Figs.6-7, the means for rotating the container comprises a rotatable cage 24 extending from the input end to the discharge end of the vacuum chamber, the rotatable cage being configured to receive the container 2 therein. The rotatable cage 24 is cylindrical and is configured for slidable support of the container 2 through the rotatable cage 24 (fig. 6) and is configured to hold a plurality of the containers therein abutting each other end-to-end (the cage 24 is capable of being used to hold a plurality of the containers therein abutting each other end-to-end). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Wefer's reference, to substitute the container 2 of Burger et al. for the container 4 of Wefer and to include (c) rotating the container inside the vacuum chamber so as to tumble the organic material in the container , rotating the container of

dehydrated organic material inside the equilibration chamber; moving the container of dehydrated organic material through the equilibration chamber from the input end to a discharge end thereof, wherein the container inside the vacuum chamber is rotated about a horizontal axis, and wherein the container of dehydrated material inside the equilibration chamber is rotated about a horizontal axis, introducing the container into a rotatable cage, rotating the rotatable cage and thereby rotating the container therein, as suggested and taught by Burger et al. for the purpose of balance out the microwave radiation on the surfaces of the container over the treatment time.

7. Claims 7, 9, 10 and 21, 30, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wefers (US 6,442,866 B2 previously cited) in view of Burger et al. (US 2005/0019209) as applied to claims 1, 18 as above, and further in view of Mencacci (US 4,169,408).

The apparatus of method of Wefers as modified by Burger et al. as above includes all that is recited in claims 7, 9, 10, 21 except for wherein the means for rotating the container inside the vacuum chamber comprises: a rotatable cylindrical cage having a ring gear at each respective end thereof; and gears at the input and discharge ends of the vacuum chamber to support and rotate the respective ring gear, wherein the means for moving the container through the vacuum chamber comprises a piston arranged to push the container into the vacuum chamber, and a plurality of rails for slidable support of the container through the vacuum chamber, a piston arranged to push the container from the container input chamber into the vacuum chamber. Burger et al. show in figs. 6-7 means for rotating the container 2 inside a rotatable cylindrical cage 24. However, Mencacci teaches (f) means for rotating (figs. 12-13 showing a means for rotating) a container (289, figs. 12-13) inside a chamber (22b, fig. 12) and rotating (fig. 12),

wherein the means for rotating (figs. 12-13) the container (289, figs. 12-13) inside the chamber comprises: a rotatable cylindrical cage (figs. 12-13) having a ring gear (332, fig. 12) at each respective end thereof; and gears (278, fig. 12) at the input and discharge ends of the chamber to support and rotate the respective ring gear (332, fig. 12), wherein the means for moving (fig. 2A showing means for moving containers through chambers) the container through the chamber comprises a piston (fig. 2A) arranged to push the container into the chamber (22, fig. 2A), and a plurality of rails (68b, 70b, fig. 12) for slidable support of the container through the chamber (22b, fig. 12), a piston (fig. 2A) arranged to push the container from a container input chamber into a chamber (22, fig. 2A) in order to agitate food during processing using agitating carts moving through heating and cooling sections of an apparatus having air locks where the type of food product necessitates its use (col. 2, lines 5-42) and where Wefers suggests seeking other known means for agitating food during processing (Wefers, col. 5, lines 53-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Wefers reference, to include a rotatable cylindrical cage having a ring gear at each respective end thereof; and gears at the input and discharge ends of the vacuum chamber to support and rotate the respective ring gear, a piston arranged to push the container into the vacuum chamber, and a plurality of rails for slidable support of the container through the vacuum chamber, a piston arranged to push the container from the container input chamber into the vacuum chamber, as suggested and taught by Mencacci, for the purpose of facilitate rotation and transport of containers and therefore improve the drying efficiency.

In regards to claim 21, Wefers in view of Burger et al. discloses the claimed invention, except for wherein the pressure in the equilibration chamber is less than the pressure in the

vacuum chamber. However, Mencacci further teaches wherein the pressure in an equilibration chamber is less than the pressure in a chamber (col. 2, lines 5-38 describing the pressure in the cooling chamber being less than that of the heating chamber) in order to further dry the material by using lower pressures in the cooling period (col. 2, lines 5-38) and where Wefers suggests using a pressure in the dwell chamber different from the treatment chamber for further drying (Wefers, col. 10, lines 20-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Wefers in view of Burger et al. reference, to further include wherein the pressure in the equilibration chamber is less than the pressure in the vacuum chamber, as suggested and taught by Mencacci, for the purpose of further drying the material by using lower pressures in the cooling period and where Wefers suggests using a pressure in the dwell chamber different from the treatment chamber for further drying. The modification merely involves the use of a known technique to improve similar methods in the same way. One would be motivated to combine Wefers in view of Burger et al. with Mencacci because Mencacci teaches the technique of using a pressure in the cooling step less than that of a heating step to further dry the material and the cooling step of Wefers could be similarly improved by being less than that of the heating step, thus further drying the material during the dwell period where Wefers suggests using different pressures.

8. Claims 8, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wefers (US 6,442,866 B2) in view of Burger et al. (US 2005/0019209) as applied to claims 1 and 16 above, and further in view of Bibb (US 3,308,332).

In regards to claims 8, 22, and 23, Wefers in view of Burger et al. discloses the claimed invention, except for further comprising means for blowing a stream of gas into the vacuum

chamber across the window, further comprising the step of blowing a stream of gas into the vacuum chamber across a microwave-transparent window of the vacuum chamber, and wherein the gas comprises air, nitrogen or helium. However, Bibb teaches further comprising means for blowing a stream of gas (fig. 4) into a chamber (17, fig. 2) across a window (14, fig. 2), further comprising the step of blowing a stream of gas ("air" col. 3, lines 42-45) into a chamber (17, fig. 2) across a microwave-transparent window (14, fig. 2) of a chamber, and wherein the gas comprises air ("air" col. 3, lines 42-45) in order to cool the window so that it does not rupture (col. 1, lines 36-41). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Wefers in view of Burger et al. reference, to include further comprising means for blowing a stream of gas into the vacuum chamber across the window, further comprising the step of blowing a stream of gas into the vacuum chamber across a microwave-transparent window of the vacuum chamber, and wherein the gas comprises air, as suggested and taught by Bibb, for the purpose of cooling the window so that it does not rupture. The modification merely involves combining prior art elements according to known methods to yield predictable results. One would be motivated to combine Wefers with Bibb because Bibb teaches that blowing a stream of air across a microwave permeable window can cool the microwave permeable window so that it does not rupture and the microwave permeable window of Wefers could be similarly improved by having a stream of air blow across its microwave permeable window, thus cooling the window so that it does not rupture requiring repair and downtime of the apparatus.

9. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wefers (US 6,442,866 B2) in view of Burger et al. (US 2005/0019209) and Mencacci (US 4,169,408) as applied to claim 10 above, and further in view of Semon (US 1,969,101 previously cited).

In regards to claim 11, Wefers in view of Burger et al. and Mencacci discloses the claimed invention, except for wherein the loading channel is sloped downward from the first end to the second end thereof and wherein the unloading channel is sloped downward from the first end to the second end thereof. However, Semon teaches wherein a loading channel (21, fig. 1) is sloped downward from a first end to a second end thereof (fig. 1 showing sloping from end to end) and wherein an unloading channel (34, fig. 1) is sloped downward from a first end to a second end thereof (fig. 1 showing sloping from end to end) in order to have gravity assist with the loading and unloading of items in a tunnel dryer (page 1, lines 75-79 and page 2, lines 29-38). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Wefers in view of Burger et al. and Mencacci references, to include wherein the loading channel is sloped downward from the first end to the second end thereof and wherein the unloading channel is sloped downward from the first end to the second end thereof, as suggested and taught by Semon, for the purpose of having gravity assist with the loading and unloading of items in a tunnel dryer. The modification merely involves the use of a known technique to improve similar devices in the same way. One would be motivated to combine Wefers with Semon because Semon teaches that a tunnel dryer can be improved by using a technique where the loading and unloading of items is assisted by gravity through sloped channels and the tunnel dryer of Wefers could be similarly improved by using the technique of having its loading and unloading channels sloped, thus reducing the amount of energy used to

load and unload the tunnel dryer and reducing mechanical wear on the loading and unloading systems.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wefers (US 6,442,866 B2) in view of Burger et al. (US 2005/0019209) as applied to claim 12 above, and further in view of Semon (US 1,969,101 previously cited).

In regards to claim 13, Wefers in view of Burger et al. discloses the claimed invention, except for wherein the loading channel is sloped downward from the first end to the second end thereof and wherein the unloading channel is sloped downward from the first end to the second end thereof. However, Semon teaches wherein a loading channel (21, fig. 1) is sloped downward from a first end to a second end thereof (fig. 1 showing sloping from end to end) and wherein an unloading channel (34, fig. 1) is sloped downward from a first end to a second end thereof (fig. 1 showing sloping from end to end) in order to have gravity assist with the loading and unloading of items in a tunnel dryer (page 1, lines 75-79 and page 2, lines 29-38). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Wefers in view of Burger et al. reference, to include wherein the loading channel is sloped downward from the first end to the second end thereof and wherein the unloading channel is sloped downward from the first end to the second end thereof, as suggested and taught by Semon, for the purpose of having gravity assist with the loading and unloading of items in a tunnel dryer. The modification merely involves the use of a known technique to improve similar devices in the same way. One would be motivated to combine Wefers with Semon because Semon teaches that a tunnel dryer can be improved by using a technique where the loading and unloading of items is assisted by gravity through sloped channels and the tunnel dryer of Wefers

could be similarly improved by using the technique of having its loading and unloading channels sloped, thus reducing the amount of energy used to load and unload the tunnel dryer and reducing mechanical wear on the loading and unloading systems.

11. Claims 14, 15, 24, 25, and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durance et al. (US 5,676,989 previously cited) in view of Bibb (US 3,308,332) and Behnke et al. (US 7,092,668).

Regarding claims 14, 15, 24, and 25, Durance et al. discloses an apparatus (fig. 2) for dehydrating organic material (col. 1, line 53-col. 2, line 26 describing drying potato chips), comprising: (a) a vacuum chamber (60, fig. 2); (b) a microwave generator (70, fig. 2); (c) a microwave-transparent window (74, fig. 2) for transmission of microwave radiation from the microwave generator (70, fig. 2) into the vacuum chamber (60, fig. 2); . . . , and a method of dehydrating an organic material (fig. 1), comprising the steps of: (a) evacuating (20, fig. 1) a vacuum chamber (60, fig. 2); (b) transmitting microwave radiation (20, fig. 1) into the vacuum chamber (60, fig. 2) through a microwave-transparent window (74, fig. 2); . . . ; (d) introducing the organic material to be dehydrated into the vacuum chamber (col. 3, lines 15-37 describing introducing potato chips into the vacuum chamber) and allowing the material to be dehydrated inside the vacuum chamber (col. 4, lines 29-32 describing drying); and (e) removing the dehydrated organic material from the vacuum chamber (28, fig. 1), except for (d) means for reducing arcing of microwave radiation in the vacuum chamber by blowing a stream of gas into the vacuum chamber across the window, wherein the gas comprises air, nitrogen or helium, (c) blowing a stream of gas into the vacuum chamber across the window and thereby reduce arcing of the microwave radiation in the vacuum chamber, and further comprising a frame extending

around the microwave-transparent window, and the means for blowing a stream of gas is arranged to blow the stream of gas inwardly of the frame. However, Bibb teaches (d) means for blowing a stream of gas (fig. 4) into a chamber (17, fig. 2) across a window (14, fig. 2), wherein the gas comprises air ("air" col. 3, lines 42-45), (c) blowing a stream of gas ("air" col. 3, lines 42-45) into a chamber (17, fig. 2) across a window (14, fig. 2), and further comprising a frame (15, fig. 2) extending around the microwave-transparent window (14, fig. 2), and the means for blowing a stream of gas is arranged to blow the stream of gas inwardly (fig. 4) of the frame in order to cool the window so that it does not rupture (col. 1, lines 36-41). Behnke et al. teach a concept of generating air streams 27 to avoid arcing of the microwave field 40 (col. 17, lines 3-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Durance et al. reference, to include (d) means for blowing a stream of gas into the vacuum chamber across the window, wherein the gas comprises air, (c) blowing a stream of gas into the vacuum chamber across the window, and further comprising a frame extending around the microwave-transparent window, and the means for blowing a stream of gas is arranged to blow the stream of gas inwardly of the frame, as suggested and taught by Bibb, for the purpose of cooling the window so that it does not rupture and for the purpose of reducing arcing of microwave radiation as taught by Behnke et al. The modification merely involves combining prior art elements according to known methods to yield predictable results. One would be motivated to combine Durance et al. with Bibb because Bibb teaches that blowing a stream of air across a microwave permeable window inwardly of its frame can cool the microwave permeable window so that it does not rupture and the microwave permeable window of Durance et al. could be similarly improved by having a frame where a stream of air blows

inwardly across its microwave permeable window, thus cooling the window so that it does not rupture requiring repair and downtime of the apparatus. With regard to claims 36-37, it is known in the art that blowing air across the window would create a pressure gradient between the window and the interior of the vacuum chamber and prevent condensation of water on the inside of the window. Both create a pressure gradient and prevent condensation of water are resulted by blowing air across the window.

Response to Arguments

12. Applicant's arguments filed on 9/9/2014 with respect to claims have been considered but are not persuasive to overcome the rejection. First, claims presented fail to define over the prior art references. Second, on page 10 of the Remarks, the applicant argues that the secondary reference, Burger patent, US Pat. Pub. 2005/0019209, does not pertain to dehydration of organic material. The Office does not agree with the applicant's narrow interpretation of the teachings of the Burger patent. The primary reference, Wefers, US Pat. 6,442,866) shows an overall combination similar to the applicant's. Burger patent was used to show the teachings of rotating means for rotating a container inside the chamber so as to tumble the material in the container; means for moving through chamber section 7 from the input end to the discharge end thereof (Figs.6-7). Therefore, it is the Office's position that it would have been obvious to one skilled in the art to modify the Wefers reference, to include the means for rotating the container inside the vacuum chamber so as to tumble the organic material in the container, means for rotating the container of dehydrated organic material inside the equilibration chamber; means for moving the container of dehydrated organic material through the equilibration chamber from the input end to

the discharge end thereof, as suggested and taught by Burger et al., for the purpose of balance out the microwave radiation on the surfaces of the container over the treatment time. Third, on page 11 of the Remarks, the applicant argues that the newly added function that the rotating container inside the vacuum chamber enhances tumbling of the organic material to be treated. This is merely an inherent function of all rotating containers. The organic material in the container 2 will tumble when the container is in rotation as explained in the above rejection. Fourth, on page 11 of the Remarks, the applicant argues that Wefer's patent teaches away from agitating the products. This line of argument is not persuasive because nowhere in the Wefers patent does Wefers indicate the proposed combination will not work. Fifth, on pages 11-12 of the Remarks, the applicant argues that the dependent claims 2-13 and 26-32 are equally patentable over the prior art references for the same reasons as stated for the independent claims. Since the applicant did not provide any specific arguments for each and every dependent claim, then, these dependent claims will stand and fall with the independent claims. Sixth, on pages 12-13 of the Remarks, the applicant traverses the rejection of claims 14-15, 24-25 and 36-37. In particular, the applicant argues that the prior art patents to Durance US Pat. 5676989, Bibb US Pat. 3308332 and Behnke US Pat. 7092668 fail to teach the claimed features as set forth in claims 14-15, 24-25 and 36-37. The Office disagrees with the applicant's arguments. Durance patent teaches an overall combination similar to the applicant's. In particular, Durance discloses an apparatus (fig. 2) for dehydrating organic material with a microwave generator 70 in a vacuum chamber 60. A microwave-transparent window 74 for transmission of microwave radiation from the microwave generator into the vacuum chamber is provided. Bibb teaches a blower for blowing a stream of gas (figs. 2-4) into a chamber 17 across a window 14. Behnke et al. teach a concept of

generating air streams 27 to avoid arcing of the microwave field 40. Therefore, in view of the combined teachings of the prior art references, it would have been obvious to one skilled in the art to modify the Durance et al. reference, to include a blower means to blow a stream of gas into the vacuum chamber across the window as suggested and taught by Bibb for the purpose of cooling the window so that it does not rupture and for the purpose of reducing arcing of microwave radiation as taught by Behnke et al. The modification merely involves combining prior art elements according to known methods to yield predictable results. One would be motivated to combine Durance et al. with Bibb because Bibb teaches that blowing a stream of air across a microwave permeable window inwardly of its frame can cool the microwave permeable window so that it does not rupture and the microwave permeable window of Durance et al. could be similarly improved by having a frame where a stream of air blows inwardly across its microwave permeable window, thus cooling the window so that it does not rupture requiring repair and downtime of the apparatus. With regard to claims 36-37, it is known in the art that blowing air across the window would create a pressure gradient between the window and the interior of the vacuum chamber and prevent condensation of water on the inside of the window. Both create a pressure gradient and prevent condensation of water are resulted by blowing air across the window. Lastly, on page 13 of the Remarks, the applicant argues that the claims 15, 25, 35-36 are also patentable over the prior art references for the same reasons as stated in their arguments. Since the applicant did not provide any specific arguments for each and every claim, then, claims 15, 25, 35 and 36 will stand and fall with the independent claims.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JIPING LU whose telephone number is (571)272-4878. The examiner can normally be reached on Monday-Friday, 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KENNETH RINEHART can be reached on 571-272-4881. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jiping Lu/
Primary Examiner
Art Unit 3743

J. L.