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- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,

DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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**Declarations under Rule 4.17:**

— of inventorship (Rule 4.17(iv))

**Published:**

— with international search report (Art. 21(3))

(88) **Date of publication of the international search report:**  
4 December 2014

(54) **Title:** AUTOMATED ORDER HANDLING AND DELIVERY SYSTEM

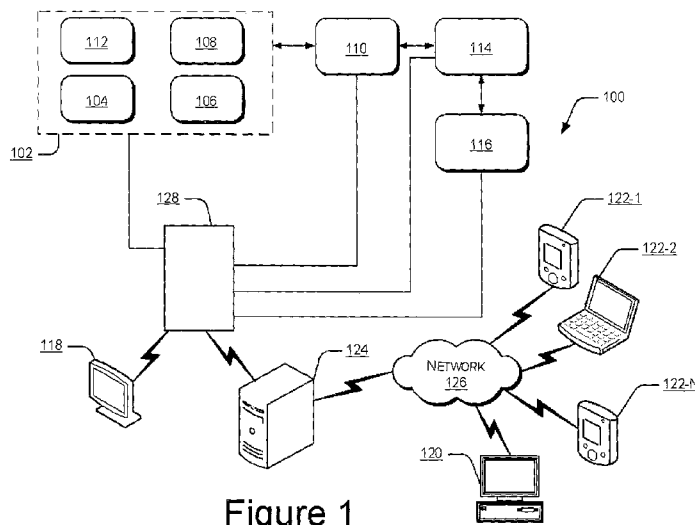
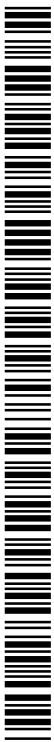


Figure 1

(57) **Abstract:** The present subject matter relates to a dispenser (102, 202, 302) for storing, preserving, and delivering a plurality of food items. The dispenser (102, 202, 302) includes a loading bay (104, 306) for placing the plurality of food items in the dispenser (102, 202, 302); a plurality of chambers (304) for storing each of the plurality of food items; an automated scanning unit (106, 308) for scanning the plurality of food items placed in the plurality of chambers (304); an automated dispensing unit (108, 310) for dispensing an identified food item from the plurality of chambers (304); and a controller (112) for controlling climate conditions within the dispenser (102, 202, 302); actuating the scanning unit (106, 308); identifying a food item, and operating the dispensing unit (108, 310) to dispense the identified food items.



**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/IB 14/00301

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(8) - F25D 25/04 (2014.01)

CPC - G07F 11/165

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC(8): F25D 25/04 (2014.01)

CPC: G07F 11/165 USPC: 221/150R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

IPC(8): G07F 9/02, G07F 11/04, F07F 11/10 (2014.01)

CPC: G07F 9/02, G07F 11/40, G06Q 10/635 USPC: 221/150HR, 221/133, 705/28

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase; ProQuest Dialog; Google Patents; Google Web; Google Scholar

Search Terms: first-in, first-out, barcode, bar code, lid, cover, pierc%, punctur%, cut%, punch%, food container, food package, steam vent%k, steam vent, aperture, vent, hole, food

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---		1-2, 4, 6, 11
Y ---	US 6,131,399 A (Hall) 17 October 2000 (17.10.2000), Figs. 1-2; col 3, ln 37-41, ln 49-62; col 4, ln 48-55; col 5, ln 1-6, ln 17-24, ln 58-col 6, ln 5; col 6, ln 35-53.	3, 5, 7-9, 12-13
A		10
Y ---	US 5,147,994 A (Smith et al.) 15 September 1992 (15.09.1992), Fig. 3; col 9, ln 3-8.	3
A		10
Y ---	US 4,860,876 A (Moore et al.) 29 August 1989 (29.08.1989), Figs. 2-3; col 3, ln 20-25; col 7, ln 9-23; col 10, ln 52-58.	5
A		10
Y ---	US 2012/0193345 A1 (Gonzalez) 02 August 2012 (02.08.2012), Figs. 1, 5; para [0039], [0040], [0042], [0051]-[0052].	7-9
A		10
Y ---	US 7,137,529 B2 (Martinelli et al.) 21 November 2006 (21.11.2006), Fig. 1; col 7, ln 22-41.	12
A		10
Y ---	US 2011/0264285 A1 (Mattos, Jr. et al.) 27 October 2011 (27.10.2011), Fig. 3; para [0039].	13
A		10

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search  
03 September 2014 (03.09.2014)

Date of mailing of the international search report  
**09 SEP 2014**

Name and mailing address of the ISA/US  
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**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/IB 14/00301

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y --- A	US 5,216,932 A (Takei) 08 June 1993 (08.06.1993), Figs. 1a-1b; col 4, ln 5-8, 17-19.	9 --- 10

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 14/00301

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

- 1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
- 2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
- 3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:  
-See Supplemental Page-

- 1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
- 2.  As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
- 3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
- 4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-13

**Remark on Protest**

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

-\*-Continued from Box III - Observations where unity is lacking\*-\*

This application contains the following inventions or groups of inventions which are not so linked as to form a single general concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: Claims 1-13, drawn to a dispenser for storing, preserving, and delivering a plurality of food items, the dispenser comprising a loading bay for placing the plurality of food items in the dispenser; a plurality of chambers for storing each of the plurality of food items; an automated scanning unit for scanning the plurality of food items in the plurality of chambers to generate a scan map indicative of locations and time tag of preparation of each of the plurality of food items; an automated dispensing unit for dispensing at least one food item from among the plurality of food items; and a controller for controlling climate conditions within the dispenser for preservation of the plurality of food items; actuating the scanning unit based on at least one of an order parameter and completion of the placing the plurality of food items in the dispenser; identifying the at least one food item from the plurality of food items based on the scan map; and operating the dispensing unit to dispense the identified food item.

Group II: Claims 14-17, drawn to a delivery control unit for controlling an automated order handling and delivery system, the delivery control unit comprising a processor; and a delivery module, coupled to the processor, to control a delivery apparatus for delivering at least one food item to a delivery station; selectively pass the at least one food item through a heating apparatus based on an order parameter related to the at least one food item; and trigger an alert notification on at least one display apparatus based on an arrival of the at least one food item at the delivery station, wherein a customer is notified by the alert notification to pick up the at least one food item; and a temperature control module coupled to the processor to actuate the heating apparatus based on the order parameter.

Groups III: Claims 18-32, drawn to an order handling and delivery system for automated ordering and delivering of at least one food item comprising an order handling unit for receiving at least one food item selection, wherein the at least one food item selection includes information relating to the at least one food item and information relating to a temperature preference of the at least one food item, and wherein the order handling unit generates at least one order parameter based on the at least one food item selection; one or more dispensers, for storing, preserving, and dispensing the at least one food item, wherein the dispenser provides for dispensing the at least one food item; a delivery apparatus for automatically conveying the dispensed at least one food item to a delivery station; and selectively moving the at least one food item through a heating apparatus; a heating apparatus for heating the at least one food item based on the at least one order parameter; and a delivery station for receiving food items.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group I requires the special technical features of a loading bay for placing the plurality of food items in the dispenser; a plurality of chambers for storing each of the plurality of food items; an automated scanning unit for scanning the plurality of food items in the plurality of chambers to generate a scan map indicative of locations and time tag of preparation of each of the plurality of food items; and a controller for controlling climate conditions within the dispenser for preservation of the plurality of food items; actuating the scanning unit based on at least one of an order parameter and completion of the placing the plurality of food items in the dispenser; identifying the at least one food item from the plurality of food items based on the scan map; and operating the dispensing unit to dispense the identified food item. These special technical features are not required in Groups II and III.

Group II requires a delivery module, coupled to the processor, to control a delivery apparatus for delivering at least one food item to a delivery station; and trigger an alert notification on at least one display apparatus based on an arrival of the at least one food item at the delivery station, wherein a customer is notified by the alert notification to pick up the at least one food item; and a temperature control module coupled to the processor to actuate the heating apparatus based on the order parameter. These special technical features are not required in Groups I and III.

Group III requires an order handling unit for receiving at least one food item selection, wherein the at least one food item selection includes information relating to the at least one food item and information relating to a temperature preference of the at least one food item, and wherein the order handling unit generates at least one order parameter based on the at least one food item selection. This special technical feature is not required in Groups I and II.

The only technical feature shared by Groups I and III, that would otherwise unify the Groups, is the provision of one or more dispensers for storing, preserving, and dispensing at least one food item. However, this technical feature does not represent a contribution over prior art, because the shared technical feature is anticipated by US 5,048,719 A to Empl et al. (hereinafter 'Empl').

Empl teaches a dispenser (1 in Figs. 1 and 3) for storing, preserving, and dispensing at least one food item (Figs. 1 and 3; col 2, ln 51-65).

The only technical features shared by Groups II and III, that would otherwise unify those Groups, are the provision of a delivery apparatus, a heating apparatus, and a delivery station, wherein the delivery apparatus is capable of selectively passing at least one food item through the heating apparatus. However, this technical feature does not represent a contribution over prior art, because the shared technical feature is anticipated by US 4,482,078 A to Reiss (hereinafter 'Reiss').

Reiss teaches a dispenser apparatus (10 in Fig. 1; col 3, ln 35-61) that includes a delivery apparatus (38, 42, 64, 66, 68 in Figs. 3-5; col 4, ln 31-col 5, ln 55); a heating apparatus (130 in Figs. 6-7; col 5, ln 56-col 7, ln 58); and a delivery station (128 in Fig. 2; col 8, ln 10-16), wherein the delivery apparatus (38, 42, 64, 66, 68 in Figs. 3-5; col 4, ln 31-col 5, ln 55) is capable of selectively passing the at least one food item through the heating apparatus (col 5, ln 44-55).

As the common technical feature was known in the art at the time of the invention, this cannot be considered a common technical feature that would otherwise unify Groups II and III. Therefore, Groups I through III lack unity under PCT Rule 13.