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(71) Applicant: **B/E AEROSPACE, INC.** [US/US]; 1400 Corporate Center Way, Wellington, FL 33414 (US).

(72) Inventors; and

(71) Applicants : **SCHOOTSTRA, Siebe** [NL/NL]; Rosalie Lovelingpad 23, NL-4103 VD Culemborg (NL). **VAN ZWIETEN, Nicolaas, Johannes** [NL/NL]; Donkerstraat 7, NL-4119 LX Ravenswaaij (NL). **KLOK, Martijn** [NL/NL]; Populierlaan 93, NL-2282 LA Rijswijk (NL). **JASPERS, Marcus, Michael Cornelis** [NL/NL]; Ganzerikveld 30, NL-3448 GW Woerden (NL).

(74) Agents: **BERGNER, Mark** et al.; Drinker Biddle & Reath LLP, 191 N. Wacker Drive, Suite 3700, Chicago, IL 60606-1698 (US).

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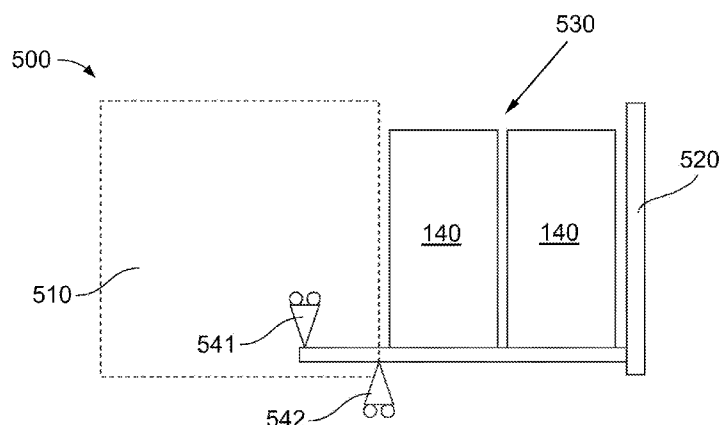


FIG. 5

(57) Abstract: An oven having a drawer mechanism includes: a housing having an interior and a front opening; a drawer mechanism disposed in the housing; an oven drawer slidably coupled with the drawer mechanism and operable to slide out of the interior of the housing; and an oven door fixedly attached to the oven drawer to cover the front opening of the housing. A galley work area for heating food includes a corner work deck and a galley insert disposed on the corner work deck.

OVEN HAVING SLIDABLE DRAWER MECHANISM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the priority benefit of U.S. Provisional Patent Application No. 61/616,840 entitled “OVEN HAVING SLIDABLE DRAWER MECHANISM” and filed on March 28, 2012, which is hereby incorporated herein by reference in its entirety.

BACKGROUND

Field

[0002] Embodiments relate to an oven for heating food, and more specifically to an oven having a slidable drawer mechanism.

Related Art

[0003] There are prior ovens for use in a galley of a vehicle, for instance, an aircraft. These ovens typically have hinged doors and can hold meal carriers. A meal carrier holds several meal trays. To access the meal carriers, the hinged oven doors must be opened outward into the space in front of the galley. When users open the doors of the prior ovens to place the meal carriers into or retrieve the meal carriers from the ovens, the inner surfaces of the oven doors are usually hot when opened. Furthermore, the users often must reach into the ovens when retrieving the meal carriers. Accordingly, the users incur the risk of burns from accidentally touching the hot inner surfaces of the oven doors.

SUMMARY

[0004] Various embodiments may overcome problems of prior ovens to facilitate more space on the galley work deck and to reduce the risk of burns from the hot inner surfaces of the oven doors.

[0005] An advantage of an oven described herein is the drawer mechanism of the oven. In various embodiments, the oven is configured to open like a drawer. The oven includes a housing, a door, and an oven drawer. The oven door is fixedly attached to the oven drawer. The oven drawer is slidably attached to an interior of the oven via a slidable drawer

mechanism, for example, a friction slide, a bearing slide, or other slidable drawer mechanisms known in the art. When the oven drawer is extended or slid out of the oven housing, the meal carriers may be placed into or retrieved from a side of the open oven drawer. With this configuration, the oven may hold more than one meal carrier depth-wise without increasing the width of the oven. Because the oven is narrower in width than other oven designs having similar capacities, more space is available on the galley work deck for other uses.

[0006] In various embodiments, the oven having the drawer mechanism may be placed on and be supported by a corner work deck, like those found in an aft galley of an aircraft. The aft galley typically has a U-shape configuration. By placing the oven on the corner work deck of the aft galley, the work deck may support the oven drawer when the oven drawer is pulled open from the oven housing. This configuration prevents the opened oven drawer from hanging in midair without support. Alternatively, the oven drawer may run on rails or other support elements to transfer the load of the oven drawer to the oven housing. In this embodiment, the oven drawer is self-supported and does not need a work deck for support. These configurations facilitate the placement of ovens in tight and underutilized spaces on the galley work deck, since users may easily access the meal carriers from the sides of the opened oven drawers.

[0007] In an embodiment, an oven includes a housing having an interior and a front opening, a drawer mechanism disposed in the housing, an oven drawer slidably coupled with the drawer mechanism and operable to slide out of the interior of the housing, and an oven door fixedly attached to the oven drawer to cover the front opening of the housing.

[0008] The drawer mechanism may include at least one rail disposed at a bottom region of the interior of the housing, and the oven drawer may include at least one slide disposed at a bottom region thereof that slidably couples with the at least one rail. The at least one rail may support a load of the oven drawer when the oven drawer is slid out of the housing. The oven drawer may also include a support element disposed on a bottom region thereof that supports the oven drawer when slid out of the housing over a work deck.

[0009] In another embodiment, the drawer mechanism may include at least one slide disposed at a bottom region of the interior of the housing, and the oven drawer may include at

least one rail disposed at a bottom region thereof that slidably couples with the at least one slide. The at least one slide may support a load of the oven drawer when the oven drawer is slid out of the housing. The oven drawer may also include a support element disposed on a bottom region thereof that supports the oven drawer when slid out of the housing over a work deck.

[0010] The oven drawer may include a bottom surface slidably coupled with the drawer mechanism and a front cover fixedly attached to the oven door. The oven drawer may also include a side region perpendicular to the bottom surface and the front cover, the side region having an opening sized to receive a plurality of meal carriers. The oven drawer may have a depth of about a sum of widths of the plurality of meal carriers. The oven drawer may have a width of about a depth of one of the plurality of meal carriers. Alternatively, the oven drawer may have a width of about a sum of depths of two of the plurality of meal carriers. The plurality of meal carriers may be disposed in the oven drawer side-by-side.

[0011] In another embodiment, a galley work area for preparing food includes a corner work deck and a galley insert disposed on the corner work deck. The galley insert includes a housing having an interior and a front opening, a drawer mechanism disposed in the housing, a drawer slidably coupled with the drawer mechanism and operable to slide out of the interior of the housing, and a door fixedly attached to the drawer to cover the front opening of the housing. The galley insert may include an apparatus selected from the group consisting of an oven, a refrigerator, a freezer, and a beverage chiller.

[0012] The drawer mechanism may include at least one rail disposed at a bottom region of the interior of the housing, and the drawer may include at least one slide disposed on a bottom region thereof that slidably couples with the at least one rail. The drawer may include a support element disposed on a bottom region thereof that supports the drawer when slid out of the housing over the corner work deck.

[0013] In another embodiment, the drawer mechanism may include at least one slide disposed on a bottom region of the interior of the housing, and the drawer may include at least one rail disposed on a bottom region thereof that slidably couples with the at least one slide. The drawer may include a support element disposed on a bottom region thereof that supports the drawer when slid out of the housing over the corner work deck.

[0014] The drawer may include a bottom surface slidably coupled with the drawer mechanism, a front cover fixedly attached to the door, and a side region perpendicular to the bottom surface and the front cover, the side region having an opening sized to receive a plurality of carriers. The drawer may have a width of about a depth of one of the plurality of carriers. The plurality of carriers may be disposed in the drawer side-by-side and be accessible through the opening on the side region of the drawer when the drawer is slid out the housing.

[0015] While the exemplary embodiments described herein are presented in the context of an oven having a drawer mechanism disposed in an aircraft galley, these embodiments are exemplary only and are not to be considered limiting. The embodiments of the apparatus and configuration may be adapted to fit within other sizes or locations of areas in an aircraft or vehicle galley. Various embodiments may thus be used in any vehicle, including aircraft, spacecraft, ships, buses, trains, recreational vehicles, trucks, automobiles, and the like. Embodiments of the apparatus may also be used in homes, offices, hotels, factories, warehouses, garages, and other buildings where it may be desirable to use an oven having a drawer mechanism. In general, the embodiments may be used in any location or application in which an oven having a drawer mechanism is desired.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The above and other features and advantages of the invention will become more apparent by describing in detail exemplary embodiments thereof with reference to the attached drawings listed below.

[0017] FIG. 1 is a perspective view illustrating a user attempting to retrieve a meal carrier from a conventional single oven having a hinged door.

[0018] FIG. 2A is a perspective view illustrating a hinged-door multiple-carrier oven located on a work deck of a galley.

[0019] FIG. 2B is a perspective view illustrating an oven having a drawer mechanism located on the work deck illustrated in FIG. 2A, according to an embodiment.

[0020] FIGS. 3A and 3B are perspective views illustrating a user attempting to retrieve a meal carrier from the oven of FIG. 2B.

[0021] FIG. 4 is a perspective view illustrating an oven having a drawer mechanism that is located in a corner work deck, according to an embodiment.

[0022] FIG. 5 is a side view illustrating an oven having a drawer mechanism that is self-supported, according to another embodiment.

DETAILED DESCRIPTION

[0023] While the following exemplary embodiments are presented in the context of an oven with a drawer mechanism, these embodiments are exemplary only and are not to be considered limiting. Embodiments of the apparatus and configuration may be adapted for any galley insert for use in a vehicle galley. For example, a galley insert may include an oven, a beverage chiller (e.g., a mini-bar), a refrigerator, or a freezer. An oven may include a convection oven, an electric oven, a microwave oven, or other ovens known in the art.

[0024] FIG. 1 is a perspective view illustrating a user attempting to retrieve a meal carrier 140 from a conventional single oven 102 having a hinged door 122 located on the galley work deck 11. The single oven 102 has a housing 112 to which the hinged door 122 is attached. The hinged door 122 swings open into the space in front of the galley work deck 11. The opening of the meal carrier 140 faces the user when the hinged door 122 is open, enabling the user to access meal trays 150 held in the meal carrier 140. As illustrated, the user attempts to retrieve the meal carrier 140 that is located inside the oven housing 112 by holding the top of the meal carrier 140. The user's hand and arm are near to the inner surface of the hinged door 122. Because the inner surface of the hinged door 122 may be hot, the user's arm may be burned if the user moves his hand or arm too close to the hinged door 122. Moreover, if the conventional single oven 102 is placed in a corner work deck of an aft galley or other difficult to reach areas in the galley workspace, the user must awkwardly bend or contort his body to reach the meal carriers 140 inside the oven housing 112. If the single oven 102 is placed in a corner work deck, the hinged oven door 122 may not swing open completely if it is stopped by the galley wall. In that case, the user could further incur the risk of being burned while attempting to retrieve the meal carrier 140 from inside the oven housing 112.

[0025] FIG. 2A is a perspective view illustrating a hinged-door multiple-carrier oven 100 located on a work deck 11 of a galley 10. The hinged-door multiple-carrier oven 100 has a

housing 110 and hinged doors 120. The arrows shown at the hinged doors 120 in FIG. 2A indicate the directions in which that the hinged doors 120 open. As shown, the hinged doors 120 open outward into the space in front of the work deck 11 and into the galley 10. Meal carriers 140 are disposed inside the hinged-door multiple-carrier oven 100 side-by-side widthwise so that the openings of the meal carriers 140 face the hinged doors 120. Accordingly, the hinged-door multiple-carrier oven 100 has a greater width than the combined widths of the meal carriers 140. While the hinged-door multiple-carrier oven 100 is shown to hold three meal carriers 140 in FIG. 2A, this should not be construed as limiting. In other embodiments, a multiple-carrier oven may hold at least two meal carriers.

[0026] To cook food more efficiently, embodiments of multiple-carrier ovens for use in a vehicle galley may hold more than one meal carrier at a time side-by-side. A meal carrier is an embodiment of a carrier, which is suitable for holding and carrying food products and beverages and may be used in any galley insert. Typically, a meal carrier is only open widthwise and is closed height-wise and depth-wise. To retrieve the meal carriers from the multiple-carrier ovens, users must be facing the open ends of the carriers. Accordingly, to be easily accessible, the meal carriers are placed adjacent side-by-side to each other in the multiple-carrier ovens so the openings of the carriers face the oven doors. This configuration, however, increases the width of the multiple-carrier ovens, since the meal carriers must be placed adjacent side-by-side to each other. As the widths of the ovens increase, the more space the ovens occupy on the galley work deck. Thus, the amount of galley work deck space available for other uses is decreased due to the wider side-by-side multiple-carrier ovens. Because galleys have limited work deck space, ovens that occupy valuable galley work deck space may be cumbersome.

[0027] The hinged-door multiple-carrier oven 100 illustrated in FIG. 2A provides efficiencies compared to the conventional single oven 102 illustrated in FIG. 1, because more meal carriers and meal trays may be heated or cooked at a time by the hinged-door multiple-carrier oven 100 than the single oven 102. In addition, the hinged-door multiple-carrier oven 100 would have a lower weight and total cost of ownership than an equivalent number of single ovens 102 needed to heat or cook a same number of meals because oven components and enclosures would not be unnecessarily duplicated. However, the hinged-door multiple-

carrier oven 100 has a greater width than the width of the conventional single oven 102 and thereby occupies more space on the galley work deck 11.

[0028] One advantage of another oven described herein over the conventional single oven and hinged-door multiple-carrier oven in which multiple meal carriers are placed side-by-side, is the drawer mechanism of the oven. In various embodiments, the oven is configured to open like a drawer. The oven includes a housing, a door, and an oven drawer. The oven door is fixedly attached to the oven drawer. The oven drawer is slidably attached to an interior of the oven via a slidable drawer mechanism, for example, a friction slide, a bearing slide, or other slidable drawer mechanisms known in the art. When the oven drawer is slid out of the oven housing, meal carriers may be placed into or retrieved from a side of the open oven drawer. Furthermore, the oven may hold more than one meal carrier depth-wise without increasing the width of the oven. Because the oven is narrower in width than other oven designs having similar capacities, more space is available on the galley work deck for other uses.

[0029] FIG. 2B is a perspective view illustrating an oven 200 having a drawer mechanism located on the same galley work deck 11 as illustrated in FIG. 2A, according to an embodiment. The oven 200 includes a housing 210 having an interior and a front opening. A drawer mechanism (see e.g., FIGS. 3B and 4) is disposed in the housing 210. An oven drawer 230 is slidably coupled with the drawer mechanism and is operable to slide out of the interior of the housing 210. An oven door 220 is fixedly attached to the oven drawer 230 to cover the front opening of the housing 210. The drawer mechanism may be, for example, a friction slide, a bearing slide, or other drawer mechanisms known in the art. The oven 200 may also include a heating element (not shown), for example, electric heating element, thermo-electric Peltier device, or other standard heating element known in the art.

[0030] As illustrated by the arrow shown at oven door 220 in FIG. 2B, the oven 200 may be opened by pulling on the oven door 220 and the oven drawer 230, which extends or slides the oven drawer 230 out of the oven housing 210 into the space in front of the galley work deck 11. In this embodiment, the width of the oven 200 is about the width or depth of one meal carrier 140. When compared to the hinged-door multiple-carrier oven 100 as illustrated in FIG. 2A, the oven 200 is narrower even with the same capacity for holding meal carriers 140. The oven 200 thus occupies less space on the galley work deck 11 than the hinged-door

multiple-carrier oven 100. Accordingly, more space is available on the galley work deck 11 for other uses when the oven 200 is installed instead of the hinged-door multiple-carrier oven 100.

[0031] FIGS. 3A and 3B are perspective views illustrating a user attempting to retrieve a meal carrier 140 from the oven 200 of FIG. 2B. As illustrated in FIG. 3A, the oven 200 includes a housing 210, an oven door 220 (see FIG. 2B), and an oven drawer 230 slidably coupled with a drawer mechanism 250 disposed in the housing 210. In the current embodiment, the oven drawer 230 includes a bottom surface slidably coupled with the drawer mechanism 250 and a front cover fixedly attached to the oven door 220. The oven drawer 230 also includes a side region perpendicular to the bottom surface and the front cover, where the side region has an opening sized to receive a plurality of meal carriers 140. The oven drawer 230 may have a depth of about a sum of widths of the plurality of meal carriers 140 and a width of about a depth of one of the plurality of meal carriers 140. As shown in FIG. 3B, the plurality of meal carriers 140 is disposed in the oven drawer 230 side-by-side.

[0032] In the oven 200, the drawer mechanism 250 may include at least one rail disposed at a bottom region of the interior of the housing 210, and the oven drawer 230 may include at least one slide disposed at a bottom region thereof that slidably couples with the at least one rail. In other embodiments, the drawer mechanism 250 of the oven 200 may include at least one slide disposed at a bottom region of the interior of the housing 210, and the oven drawer 230 may include at least one rail disposed at a bottom region thereof that slidably couples with the at least one slide.

[0033] As shown in FIG. 3A, when a user pulls on the oven door 220, the oven drawer 230 is partially pulled out or slid out of the oven housing 210. The meal carrier 140 may be placed into or retrieved from the oven 200 using the opening on the side region of the oven drawer 230. Unlike the hinged oven door 122 of the conventional single oven 120, in this embodiment, the inner surface of the oven door 220 is not easily accessible to a user. Accordingly, the user's risk of burns from touching the inner surface of the oven door 220 is significantly reduced.

[0034] As illustrated in FIG. 3B, the oven drawer 230 is further extended or slid out of the oven housing 210. The user is illustrated as accessing the meal carriers 140 from a side of the

oven 200 through the opening on the side region of the oven drawer 230. However, the user may also access the meal carriers 140 from the opposite side of the oven 200 through the opening on the other side region of the oven drawer 230. Here, the oven drawer 230 includes space to hold at least two meal carriers 140 side-by-side along the depth-wise direction of the oven 200. As illustrated, only one of the two meal carriers 140 contains meal trays 150, but this should not be construed as limiting. Typically, all meal carriers 140 would contain meal trays 150 to cook food more efficiently. For example, there may be eight meal trays 150 in a meal carrier 140. Furthermore, the oven 200 has a depth of at least a sum of the widths of two meal carriers 140 and a width of only about a depth of one of the two meal carriers 230. Because the oven 200 is narrower than the hinged-door multiple-carrier oven 100 having similar capacity for holding meal carriers 140—the oven 200 holds the meal carriers 140 side-by-side in the depth-wise direction while the hinged-door multiple-carrier oven 100 holds the meal carriers 140 side-by-side along the widthwise direction—the oven 200 occupies less space on the galley work deck 11 and more galley work deck space is available for other tasks.

[0035] In another embodiment, the oven 200 may be a double oven having a drawer mechanism. The oven drawer may have a width of about a sum of depths of two of the plurality of meal carriers 140. With this configuration, two users may access meal carriers 140 contained in the oven 200 from opposite sides of the oven drawer 230 at the same time. For example, when a first user accesses a first meal carrier from the opening on the first side of the oven drawer 230, a second user may simultaneously access a second meal carrier from the opening on the second side of the oven drawer 230.

[0036] In other embodiments, a galley insert having a drawer mechanism may be supported by a corner work deck, like that found in an aft galley of an aircraft. The aft galley typically has a U-shape configuration. The galley insert may be disposed on the corner work deck. The galley insert may include a housing having an interior and a front opening, a drawer mechanism disposed in the housing, a drawer slidably coupled with the drawer mechanism and operable to slide out of the interior of the housing, and a door fixedly attached to the drawer to cover the front opening of the housing. By placing the galley insert in the corner work deck of the aft galley, the work deck may support the drawer of the galley insert when the drawer is extended or slid out of the housing of the galley insert. This

configuration prevents the extended drawer from hanging in midair without any support. Alternatively, the drawer may run on rails or other support elements to transfer the load of the drawer to the housing, which in turn is transferred onto the work deck. In this embodiment, the drawer is self-supported and does not need a countertop or a work deck for direct support.

[0037] FIG. 4 is a perspective view illustrating an oven 400 having a drawer mechanism 450 that is located in a corner work deck 12, according to an embodiment. As illustrated, a galley work area for heating food includes a corner work deck 12 and an oven 400 disposed on the corner work deck 12. The oven 400 may include a housing 410 having an interior and a front opening. A drawer mechanism 450 is disposed in the housing 410. An oven drawer 430 is slidably coupled with the drawer mechanism 450 and is operable to slide out of the interior of the housing 410. An oven door 420 is fixedly attached to the oven drawer 430 to cover the front opening of the housing 410.

[0038] In FIG. 4, the oven 400 is disposed on the corner counter top space of the corner work deck 12. The oven 400 is positioned at the corner work deck 12 so that when the oven drawer 430 is extended or slid out of the oven housing 410, the oven drawer 430 may be supported by the surface of the work deck 12. As illustrated in FIG. 4, the oven drawer 430 is partially extended out of the oven housing 410, exposing the meal carriers 140. As shown, the meal carriers 140 are easily accessible from the side of the oven 400 when the oven drawer 430 is slid open. Moreover, a user's risk of getting burned by the inner surface of the oven door 420 is reduced because the inner surface of the oven door 420 is not in the way of the user accessing the meal carriers 140. Furthermore, because the sides of the meal carriers 140, which provide direct access to the meal trays, are facing the sides of the oven drawer 430, the meal carriers 140 do not need to be removed to access the meal trays.

[0039] In contrast, if the conventional single oven 102 illustrated in FIG. 1 is positioned on the corner work deck 12, a user must awkwardly bend or contort his body so he can reach the meal carriers 140 from the front of the oven 102. In addition, if the single oven 102 were reconfigured to hold the meal carriers 140 in the same orientation as in the oven 400, the meal carriers 140 would need to be removed from the single oven 102 in order to access the meal trays because the meal carriers 140 are closed on the long sides or the sides in the depth-wise direction. This would further increase the risk of burns.

[0040] In the oven 400, the drawer mechanism 450 may include at least one rail disposed at a bottom region of the interior of the housing 410, and the oven drawer 430 may include at least one slide disposed on a bottom region thereof that slidably couples with the at least one rail. In an embodiment, the at least one rail may support a load of the oven drawer 430 when the oven drawer 430 is slid out of the housing 410. Alternatively, the oven drawer 430 may include a support element disposed on a bottom region thereof that supports the oven drawer 430 when slid out of the housing 410 over the corner work deck 12.

[0041] In another embodiment, the drawer mechanism 450 may include at least one slide disposed on a bottom region of the interior of the housing 410, and the oven drawer 430 may include at least one rail disposed on a bottom region thereof that slidably couples with the at least one slide. In an embodiment, the at least one slide may support a load of the oven drawer 430 when the oven drawer 430 is slid out of the housing 410. Alternatively, the oven drawer 430 may include a support element disposed on a bottom region thereof that supports the oven drawer 430 when slid out of the housing 410 over the corner work deck 12.

[0042] FIG. 5 is a side view illustrating an oven 500 having a drawer mechanism that is self-supported, according to another embodiment. The oven 500 includes a housing 510 having an interior and a front opening, a drawer mechanism disposed in the housing 510, an oven drawer 530 slidably coupled with the drawer mechanism and operable to slide out of the interior of the housing 510, and an oven door 520 fixedly attached to the oven drawer 530 to cover the front opening of the housing 510. Furthermore, the oven drawer 530 includes an upper support element 541 and a lower support element 542 disposed on a bottom region of the oven drawer 530. The upper and lower support elements 541 and 542 support the oven drawer 530 when it is slid out of the housing 510 over a work deck, such as work deck 11. In various embodiments, the upper and lower support elements 541 and 542 may include, for example, load bearing guide rails, load bearing roller-guided slides, load bearing ball guided runners, or other support elements known in the art. In other embodiments, the upper and lower support elements 541 and 542 may be a part of the drawer mechanism.

[0043] When the oven drawer 530 is extended or slid out of the oven housing 510 as shown in FIG. 5, the oven drawer 530 provides direct access to meal carriers 140 stored within the oven drawer 530. The meal carriers 140 may be placed into or retrieved from the side of the oven 500 when the oven drawer 530 is slid open. Furthermore, when the oven

drawer 530 is slid open, the upper support element 541 and the lower support element 542 may transfer the load of the oven drawer 530 including the meal carriers 140 to the oven housing 510. Accordingly, the upper and lower support elements 541 and 542 facilitate the oven drawer 530 as being self-supporting when the oven drawer 530 is slid out of the housing 510 and hanging in midair.

[0044] All references, including publications, patent applications, and patents, cited herein are hereby incorporated by reference to the same extent as if each reference were individually and specifically indicated to be incorporated by reference and were set forth in its entirety herein.

[0045] For the purposes of promoting an understanding of the principles of the invention, reference has been made to the embodiments illustrated in the drawings, and specific language has been used to describe these embodiments. However, no limitation of the scope of the invention is intended by this specific language, and the invention should be construed to encompass all embodiments that would normally occur to one of ordinary skill in the art. The terminology used herein is for the purpose of describing the particular embodiments and is not intended to be limiting of exemplary embodiments of the invention. In the description of the embodiments, certain detailed explanations of related art are omitted when it is deemed that they may unnecessarily obscure the essence of the invention.

[0046] The use of any and all examples, or exemplary language (e.g., “such as”) provided herein, is intended merely to better illuminate the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. Numerous modifications and adaptations will be readily apparent to those of ordinary skill in this art without departing from the spirit and scope of the invention as defined by the following claims. Therefore, the scope of the invention is defined not by the detailed description of the invention but by the following claims, and all differences within the scope will be construed as being included in the invention.

[0047] No item or component is essential to the practice of the invention unless the element is specifically described as “essential” or “critical”. It will also be recognized that the terms “comprises,” “comprising,” “includes,” “including,” “has,” and “having,” as used herein, are specifically intended to be read as open-ended terms of art. The use of the terms

“a” and “an” and “the” and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless the context clearly indicates otherwise. In addition, it should be understood that although the terms “first,” “second,” etc. may be used herein to describe various elements, these elements should not be limited by these terms, which are only used to distinguish one element from another. Furthermore, recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein.

CLAIMS

What is claimed is:

1. An oven comprising:

a housing having an interior and a front opening;

a drawer mechanism disposed in the housing;

an oven drawer slidably coupled with the drawer mechanism and operable to slide out of the interior of the housing; and

an oven door fixedly attached to the oven drawer to cover the front opening of the housing.

2. The oven of claim 1, in which the drawer mechanism comprises at least one rail disposed at a bottom region of the interior of the housing, and the oven drawer comprises at least one slide disposed at a bottom region thereof that slidably couples with the at least one rail.

3. The oven of claim 2, in which the at least one rail supports a load of the oven drawer when the oven drawer is slid out of the housing.

4. The oven of claim 2, in which the oven drawer comprises a support element disposed on a bottom region thereof that supports the oven drawer when slid out of the housing over a work deck.

5. The oven of claim 1, in which the drawer mechanism comprises at least one slide disposed at a bottom region of the interior of the housing, and the oven drawer comprises at least one rail disposed at a bottom region thereof that slidably couples with the at least one slide.

6. The oven of claim 5, in which the at least one slide supports a load of the oven drawer when the oven drawer is slid out of the housing.

7. The oven of claim 5, in which the oven drawer comprises a support element disposed on a bottom region thereof that supports the oven drawer when slid out of the housing over a work deck.
8. The oven of claim 1, in which the oven drawer comprises:
- a bottom surface slidably coupled with the drawer mechanism;
 - a front cover fixedly attached to the oven door; and
 - a side region perpendicular to the bottom surface and the front cover, the side region having an opening sized to receive a plurality of meal carriers.
9. The oven of claim 8, in which the oven drawer has a depth of about a sum of widths of the plurality of meal carriers.
10. The oven of claim 8, in which the oven drawer has a width of about a depth of one of the plurality of meal carriers.
11. The oven of claim 8, in which the oven drawer has a width of about a sum of depths of two of the plurality of meal carriers.
12. The oven of claim 8, in which the plurality of meal carriers is disposed in the oven drawer side-by-side.
13. A galley work area for preparing food comprising:
- a corner work deck; and
 - a galley insert disposed on the corner work deck, the galley insert comprising:
 - a housing having an interior and a front opening;

- a drawer mechanism disposed in the housing;
- a drawer slidably coupled with the drawer mechanism and operable to slide out of the interior of the housing; and
- a door fixedly attached to the drawer to cover the front opening of the housing.

14. The galley work area of claim 13, in which the drawer mechanism comprises at least one rail disposed at a bottom region of the interior of the housing, and the drawer comprises at least one slide disposed on a bottom region thereof that slidably couples with the at least one rail.

15. The galley work area of claim 14, in which the drawer comprises a support element disposed on a bottom region thereof that supports the drawer when slid out of the housing over the corner work deck.

16. The galley work area of claim 13, in which the drawer mechanism comprises at least one slide disposed on a bottom region of the interior of the housing, and the drawer comprises at least one rail disposed on a bottom region thereof that slidably couples with the at least one slide.

17. The galley work area of claim 16, in which the drawer comprises a support element disposed on a bottom region thereof that supports the drawer when slid out of the housing over the corner work deck.

18. The galley work area of claim 13, in which the galley insert comprises an apparatus selected from the group consisting of an oven, a refrigerator, a freezer, and a beverage chiller.

19. The galley work area of claim 13, in which the drawer comprises:

a bottom surface slidably coupled with the drawer mechanism;
a front cover fixedly attached to the door; and
a side region perpendicular to the bottom surface and the front cover, the side region
having an opening sized to receive a plurality of carriers.

20. The galley work area of claim 19, in which the drawer has a width of about a depth of one of the plurality of carriers.

21. The galley work area of claim 19, in which the plurality of carriers is disposed in the drawer side-by-side and is accessible through the opening on the side region of the drawer when the drawer is slid out the housing.

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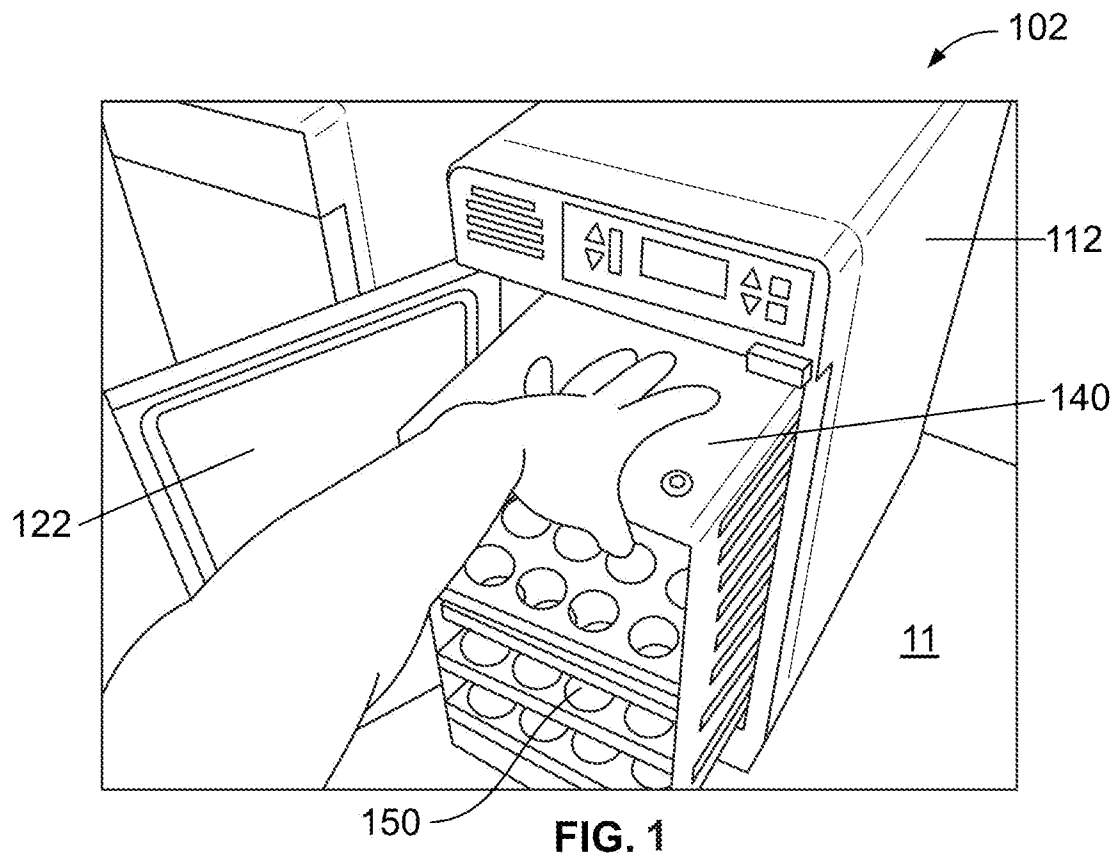


FIG. 1
(Conventional Art)

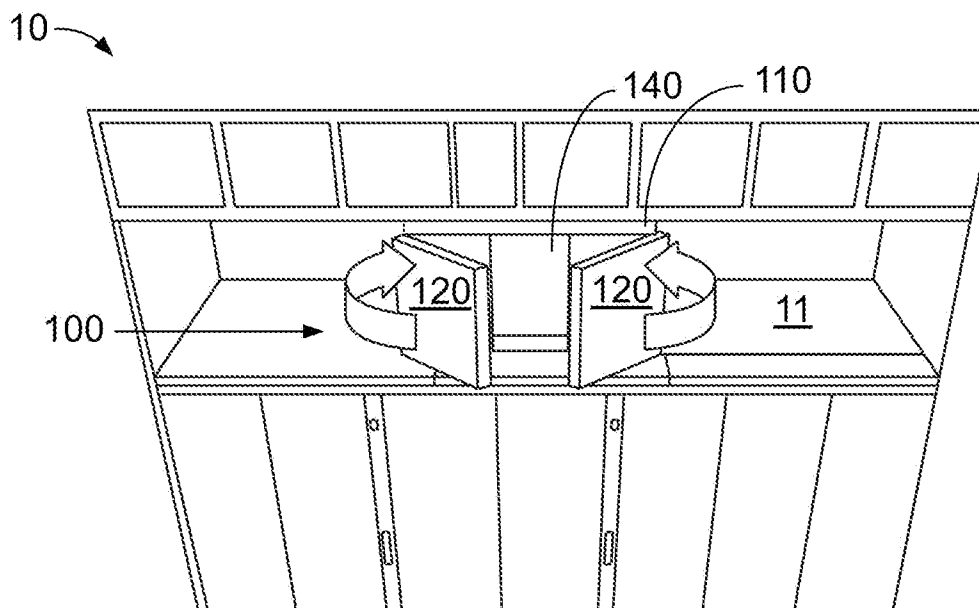


FIG. 2A

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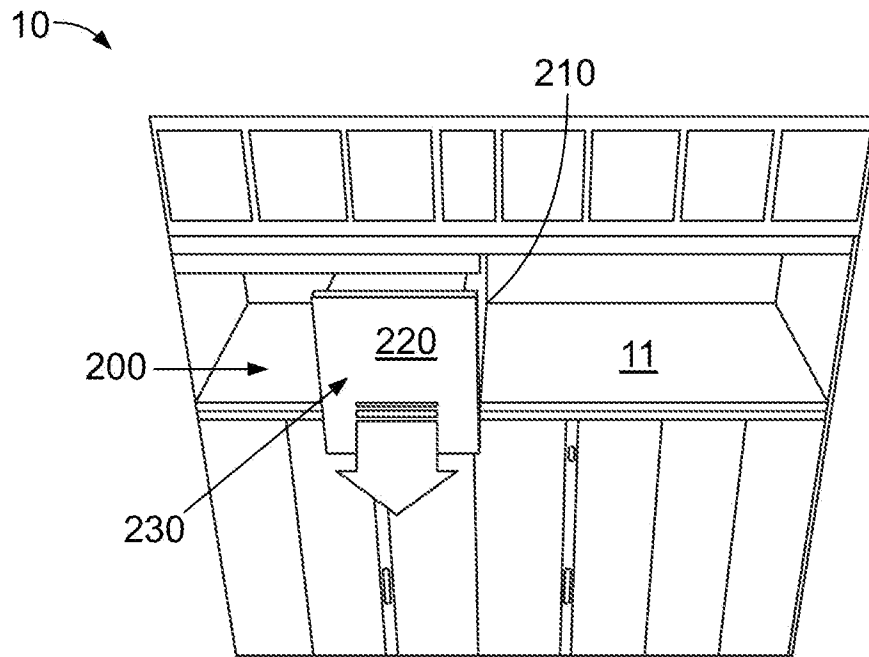


FIG. 2B

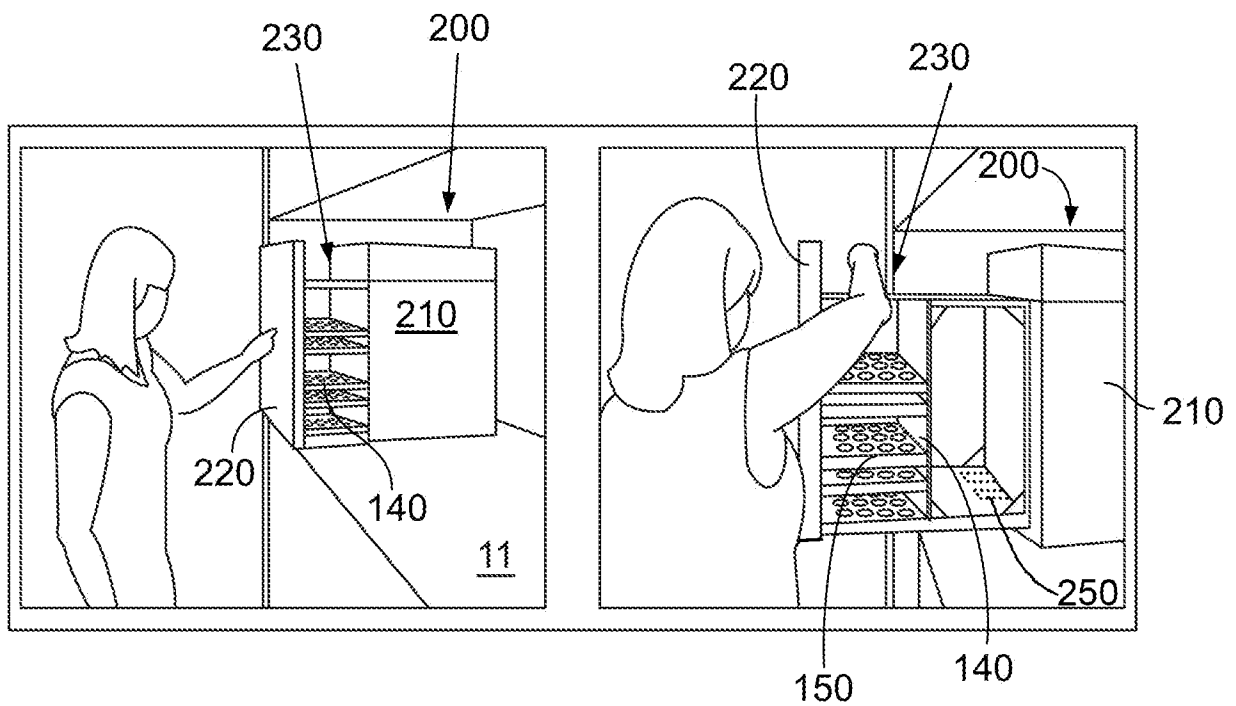


FIG. 3A

FIG. 3B

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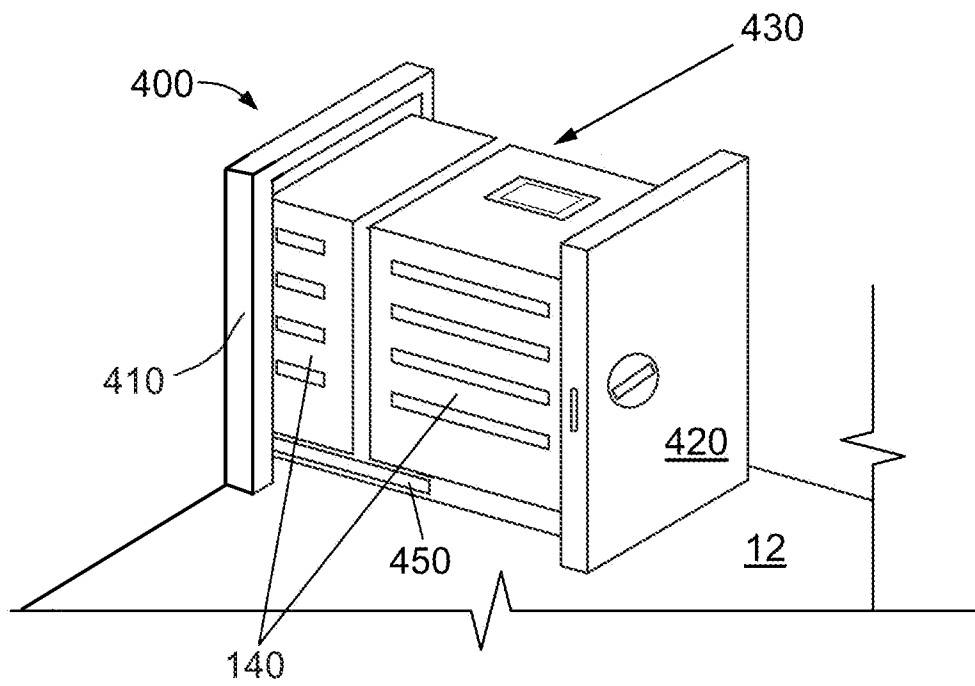


FIG. 4

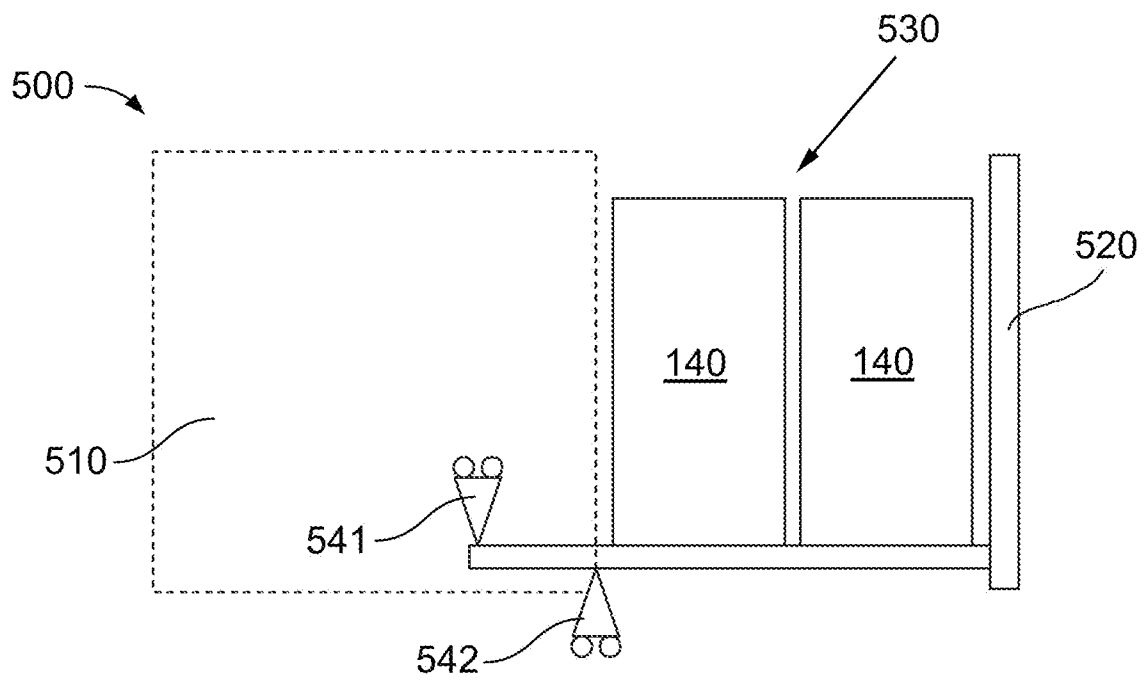


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2013/034505

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B64D 11/04 (2013.01)

USPC - 244/118.5

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) - B64D 11/04; F24C 15/16 (2013.01)

USPC - 165/918; 221/150R; 244/118.5; 312/236, 330.1, 334.34, 334.35

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

CPC - B64D 11/04; F24C 15/16 (2013.01)

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

PatBase, Google Patent

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/0191923 A1 (YOSHIDOME) 31 August 2006 (31.08.2006) entire document	1-3
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Y		4-21
Y	US 2007/0102416 A1 (WURM) 10 May 2007 (10.05.2007) entire document	4, 7, 15, 17
Y	US RE32,176 E (VERNON) 10 June 1986 (10.06.1986) entire document	4, 7, 9-12, 15, 17, 20-21
Y	US 6,124,572 A (SPILGER et al) 26 September 2000 (26.09.2000) entire document	5-7, 16-17
Y	US 6,114,665 A (GARCIA et al) 05 September 2000 (05.09.2000) entire document	8-12, 19-21
Y	US 2008/0001031 A1 (DOEBERTIN et al) 03 January 2008 (03.01.2008) entire document	13-21

☐ Further documents are listed in the continuation of Box C.



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"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

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"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

"&" document member of the same patent family

Date of the actual completion of the international search

10 June 2013

Date of mailing of the international search report

28 JUN 2013

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450

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Authorized officer:

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300

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