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(54) **A BACK BAR REFRIGERATOR APPLIANCE**

(57) The present invention provides a back bar refrigerator appliance comprising a storage compartment and a door, wherein the door comprises an inner surface facing into the storage compartment when the door is closed and an opposite outer surface, wherein the door comprises an insulated panel and a window covering less than 75% of the outer surface of the door, and wherein the window is aligned with a shelf of the back bar refrigerator appliance to provide visual access to items positioned on the shelf.

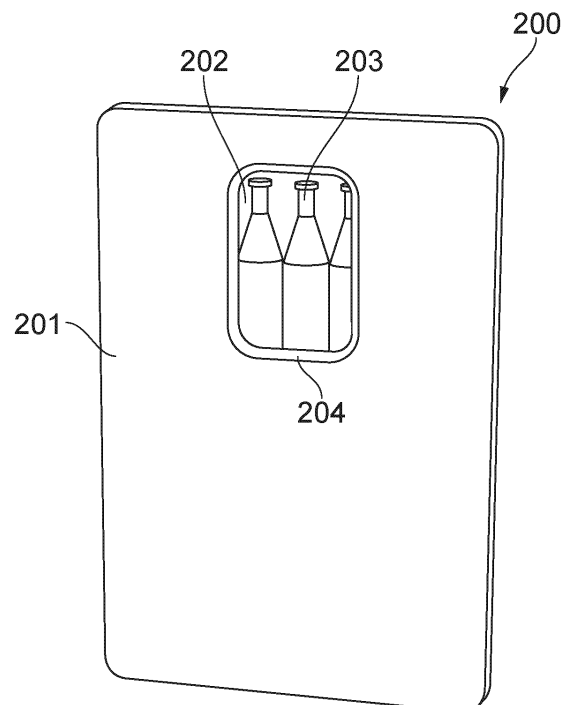


FIG. 2

Description

[0001] The invention relates generally to a refrigerator appliance such as a back bar refrigerator appliance of the type used in bars and restaurants to refrigerate and display containers such as beverage bottles.

Background

[0002] Known back bar refrigerator appliances 100 that are used for storing canned or bottled beverages and the like, comprise a storage compartment 101 and a door 102 having a handle 103, as shown in Figure 1. These appliances are used for keeping the beverages at a predetermined temperature or a range of temperatures.

[0003] The appliances 100 typically comprise at least one shelf 104 for storing and displaying bottles and cans. Visibility of the bottles and cans to the consumer is provided by making the door 102 from a transparent material, such as glass. Such visibility, on the one hand, provides the customer with information on the type of beverage available in the refrigerator 100. However, on the other hand, energy losses can be significant due to glass being a poor heat insulator.

[0004] One solution to improve the thermal insulation of the appliance is to use solid insulated doors. However, in this case it will be difficult to estimate the content and the amount of beverages available to the consumer, and the consumer has no visibility of the products inside the refrigerator.

[0005] The present invention provides at least an alternative to refrigerators of the prior art that solves the aforementioned problems.

Summary of the Invention

[0006] In accordance with the present invention there is provided a back bar refrigerator appliance and a refrigerator appliance according to the appended claims.

[0007] According to a first aspect of the present invention, there is provided a back bar refrigerator appliance comprising a storage compartment and a door, wherein the door comprises an inner surface facing into the storage compartment when the door is closed and an opposite outer surface, wherein the door comprises an insulated panel and a window covering less than 75% of the outer surface of the door, and wherein the window is aligned with a shelf of the back bar refrigerator appliance to provide visual access to items positioned on the shelf.

[0008] Advantageously, having a window covering less than 75% and a shelf aligned with the back of the window allows to provide visual access to the contents of the appliance, and the insulated panel of the door allows to reduce energy use by preventing dissipation of cold air inside the refrigerator through the surface of the door.

[0009] In examples, the window may cover less than 50% of the outer surface of the door, for example less than 40% of the outer surface of the door for example less

than 30% of the outer surface of the door. In a preferred example, the window covers less than 25% of the outer surface of the door.

[0010] In examples, the window may cover less than about 25% of the outer surface of the door, for example less than about 20% of the outer surface of the door, for example less than about 15% of the outer surface of the door, for example less than about 10% of the outer surface of the door.

[0011] In an embodiment, the insulated panel comprises a sandwich panel with an outer casing and a rigid insulation foam within the outer casing. The insulated panel is preferably opaque.

[0012] In an embodiment, the outer casing comprises stainless steel or aluminium sheet.

[0013] In an embodiment, the rigid insulation foam comprises polyurethane foam or polyisocyanurate foam.

[0014] In an embodiment, the window comprises glass or a composite material, said glass or composite material being at least partially transparent.

[0015] Advantageously, a transparent window allows to visualise contents of the storage compartment through the window.

[0016] In an embodiment, the back bar refrigerator appliance further comprises a light source configured to illuminate contents of the refrigerator visible through the window.

[0017] Advantageously, the light source illuminates the contents of the refrigerator that are visible in the window, avoiding the need to illuminate the entire storage compartment, and allows the contents to be viewed without opening the door of the appliance.

[0018] In an embodiment, the light source is attached to the door.

[0019] In an embodiment, the light source is disposed at an edge of the window.

[0020] Advantageously, positioning the light source on the edge of the window only illuminates containers viewable through the window.

[0021] In an embodiment, the light source comprises an LED and/or a light guide.

[0022] In an embodiment, the shelf is attached to the inner surface of the door and aligned with the window.

[0023] In examples, the shelf may be integrated into the door. For example, the shelf may be provided in a compartment formed between the window and a door panel located inwardly of the shelf (towards the storage compartment when the door is closed). In examples, the door panel behind the shelf may comprise a mirrored surface. In examples, the window may comprise a mirrored surface, for example a semi-transparent mirrored surface. The semi-transparent mirrored surface may be termed a one-way mirror, or half-silvered mirror. Advantageously, this arrangement may create an infinity mirror effect within the compartment, amplifying the appearance of the number of products stored in the compartment. Preferably, the infinity mirror arrangement creates an illusion that the products are arranged in rows extend-

ing into the storage compartment. Preferably, the door panel comprises insulation, for example the door panel is an insulated panel.

[0024] In an embodiment, the shelf is substantially the same width as the window.

[0025] Advantageously, it allows to minimise space used for displaying beverages.

[0026] In an embodiment, the shelf is removably attached to the door.

[0027] Advantageously, removing the shelf from the door allows for easy cleaning of the shelf in case soiling of the shelf or leakage of the beverages occurs during use.

[0028] In an embodiment, the shelf is integrally formed with the insulated panel of the door.

[0029] In an embodiment, the shelf is mounted in the storage compartment such that the shelf is approximately aligned with a lower edge of the window when the door is closed.

[0030] Advantageously, aligning the shelf with the lower edge of the window allows to display the beverages such that all the bottle or can be visible.

[0031] In an embodiment, the back bar refrigerator appliance comprises a second shelf mounted in the storage compartment such that the second shelf is positioned above the shelf and aligned with the window when the door is closed.

[0032] Advantageously, this allows to display additional quantity of beverages while still preserving insulating properties of the door.

[0033] In an embodiment, the window has a height of between about 15 centimetres and about 60 centimetres.

[0034] Advantageously, this equates to between one and three shelves in the storage compartment.

[0035] In an embodiment, the window has a height of between about 15 centimetres and about 30 centimetres, for example between about 18 centimetres and about 23 centimetres, for example about 20 centimetres.

[0036] Advantageously, this equates to about one shelf in the storage compartment.

[0037] In an embodiment, the window has a width of between about 10 centimetres and about 20 centimetres, for about 15 centimetres.

[0038] Advantageously, it allows to display up to three products that are visible on each shelf through the window.

[0039] In an embodiment, the back bar refrigerator appliance comprises a plurality of doors and wherein one or more of the plurality of doors comprises the window.

[0040] Advantageously, this allows to provide an appliance with multiple compartments/sections and possessing excellent insulating properties, and to display the beverages available to consumer through the window of at least one door.

[0041] According to a second aspect of the present invention there is also provided a refrigerator appliance comprising a storage compartment and a door, wherein

the door comprises an integrated compartment formed within the door, the integrated compartment being defined by a window on one side of the compartment, a door panel on an opposite side of the compartment, and a shelf for holding products.

[0042] Advantageously, the compartment is formed within the door, between the door panel and the window. Accordingly, the door panel provides insulation, improving the thermal insulation of the refrigerator appliance while still allowing products on the shelf to be viewed through the window.

[0043] In examples, the door panel comprises a mirrored surface. Preferably, an inner side of the window comprises a mirrored surface, for example a semi-transparent mirrored surface. The semi-transparent mirrored surface may be termed a one-way mirror, or half-silvered mirror.

[0044] Advantageously, this arrangement may create an infinity mirror effect within the compartment, amplifying the appearance of the number of products stored in the compartment. Preferably, the infinity mirror arrangement creates an illusion that the products are arranged in rows extending into the storage compartment.

[0045] In examples, the door panel comprises insulation. Advantageously, the thermal insulation provided by the door may improve the efficiency of the refrigerator appliance compared to a door with a window.

[0046] Any features of the first aspect of the invention, as described above, may be provided in combination with the second aspect of the invention. In particular, in examples, the window may cover less than about 75% of the outer surface of the door, for example the window may cover less than 50% of the outer surface of the door, for example less than 40% of the outer surface of the door for example less than 30% of the outer surface of the door. In a preferred example, the window covers less than 25% of the outer surface of the door.

[0047] Preferably, the shelf is aligned with the window. The shelf (and optionally the compartment) may be substantially the same width as the window.

[0048] The compartment may be accessible from a top of the door. A plugging piece, for example a removable piece of insulation material, may be provided above the compartment within the door. The plugging piece may be removed to access the compartment for adding/removing products, and cleaning.

[0049] Preferably, the refrigerator appliance comprises a light source configured to illuminate contents of the refrigerator visible through the window. In one embodiment, the light source is attached to the door. In an embodiment, the light source is disposed at an edge of the window. The light source may comprise an LED and/or a light guide. In an embodiment, the back bar refrigerator appliance comprises a plurality of doors, and wherein one or more of the plurality of doors comprises the compartment.

Brief Description of the Drawings

[0050] Embodiments of the invention are now described, by way of example only, hereinafter with reference to the accompanying drawings, in which:

Figure 1 illustrates a known back bar refrigerator;

Figure 2 illustrates a perspective view of the outer surface of the door comprising a window;

Figure 3 illustrates a perspective view of the inner surface of the door comprising a window;

Figure 4 illustrates a close up view of the window;

Figure 5 illustrates a perspective view of a back bar refrigerator comprising a plurality of doors;

Figure 6 illustrates a door of a refrigerator appliance, the door having an integrated compartment and infinity mirror arrangement;

Figure 7 illustrates a cross-section through the door of Figure 6.

Detailed Description

[0051] Certain terminology is used in the following description for convenience only and is not limiting. The words 'right', 'left', 'lower', 'upper', 'front', 'rear', 'upward', 'down' and 'downward' designate directions in the drawings to which reference is made and are with respect to the described component when assembled and mounted. The words 'inner', 'inwardly' and 'outer', 'outwardly' refer to directions toward and away from, respectively, a designated centreline or a geometric centre of an element being described (e.g. central axis), the particular meaning being readily apparent from the context of the description.

[0052] Further, as used herein, the terms 'connected', 'attached', 'coupled', 'mounted' are intended to include direct connections between two members without any other members interposed therebetween, as well as, indirect connections between members in which one or more other members are interposed therebetween. The terminology includes the words specifically mentioned above, derivatives thereof, and words of similar import.

[0053] Further, unless otherwise specified, the use of ordinal adjectives, such as, "first", "second", "third" etc. merely indicate that different instances of like objects are being referred to and are not intended to imply that the objects so described must be in a given sequence, either temporally, spatially, in ranking or in any other manner.

[0054] Like reference numerals are used to depict like features throughout.

[0055] It will be further understood that the term "back bar refrigerator" can be interchangeably used with the

term "bottle cooler". Back bar refrigerator appliances are typically sized to fit within a cavity or recess behind a bar, for example under a worksurface and/or between opposing walls.

5 [0056] Referring now to Figure 2, there is shown a door 200 of a back bar refrigerator appliance. The door 200 has an outer surface 201. The door 200 comprises a window 202, the window covering less than 25% of the total area of the outer surface 201. In this example, the window 202 covers approximately 5% to 10% of the total area of the outer surface 201. The window 202 can be made from a glass or composite material and can be at least partially transparent to allow visibility of containers 203 inside the refrigerator. The containers 203 of the refrigerator can be, without limitation, bottles, cans or other food-related consumer goods.

[0057] The door 200 can have a substantially rectangular shape, however other shapes, such as square, can also be contemplated. The door 200 is formed from a sandwich panel with an outer casing and a rigid insulation foam within the outer casing (not shown). In examples, the outer casing may comprise stainless steel or aluminium, and the rigid insulation foam may comprise polyurethane foam or polyisocyanurate foam. It will be appreciated that any other materials known in the art and suitable to be used as the outer casing and/or the insulation foam, can be used for the door 200.

[0058] In Figure 2, the window 202 is of a substantially rectangular shape with rounded corners. However, other shapes can also be contemplated. Without limitation, the window can be square, or oval, or round. The window 202 can have an edge 204, optionally a bevel edge, and the edge can accommodate a light source, (not shown in Figure 2) for example.

35 [0059] In Figure 2, the window 202 is located at or near the top of the door, however it is understood that the window can also be located on the left or on the right side from the door 200. In another example, the window can also be located at the back of the refrigerator appliance or at one of the side walls of the refrigerator appliance.

[0060] In examples, the window 202 is aligned with a shelf of the refrigerator so that the containers 203 in the refrigerator are visible through the window 202, as shown. The window 202 may be sized to approximately match the height of the containers and/or the spacing between two shelves in the refrigerator. The window 202 may have a width such that one, two, three, or four adjacent containers 203 are visible through the window 202.

50 [0061] Figure 3 shows a further example door 200 of a refrigerator that is similar to the example of Figure 2. In particular, Figure 3 shows an inner surface 205 of the door 200 with a window 202 formed as described with reference to Figure 2. In this example, the inner surface 205 of the door 200 comprises a shelf 206. In one example the shelf can be made integral with the inner surface 205 of the door 200. In other examples, the shelf can be removably attachable to the inner surface of the

door 200. It will be clear to the skilled person that any means of attachment known in the art can be used to attach the shelf 206, for example a sliding attachment, clamping, press-fit, screwing etc.

[0062] It will be understood that in the example of Figure 3 the shelf 206 is aligned with the window and has substantially the same width as the window, such that containers 203 on the shelf 206 are visible through the window 202. In another example, the shelf 206 can be integrally formed with the inner surface 205 of the door 200. For example, in this case, the shelf 206 can be manufactured together with the inner surface 205, for example by moulding (composite) or by folded sheet metal (stainless steel or aluminium). Alternatively, the shelf 206 can be glued or fastened to the inner surface 205 of the door 200.

[0063] The shelf 206 can be made of the same material as the inner surface 205 of the door 200. Alternatively, the shelf 206 can be made of a material that is different from the material of the door 200.

[0064] The shelf 206 can be of any shape suitable to receive a plurality of containers 203, for example bottles and/or cans, or any other beverage receptacles known in the art. In Figure 3 the shelf 206 is configured to accommodate 3 bottles, however any other amount is contemplated, for example 1, 2, or 4 containers 203.

[0065] Figure 4 shows a close up view of a further example the window 202, which may be as described with reference to Figure 2 or Figure 3. It can be seen that the window 202 is integrated into the door 200 and provides visual access to the containers 203 in the refrigerator as described above. A light source 207 is positioned on the edge 204 of the window 202. The light source 204 may be an LED, for example an LED strip, and/or a light guide with a light source (LED) at one location along the light guide. In another example, the light source 207 is not located at the edge of the window. For example, it can be located anywhere inside the refrigerator, such as on the inner surface of the door 200 or on a shelf or wall of the refrigerator, and the light source can be directed towards those containers 203 visible through the window 202. Advantageously, the light source 207 is arranged to only illuminate the containers 203 visible through the window 202, which avoids use of energy to illuminate the non-visible containers 203.

[0066] In the examples of Figures 2 to 4, the window 202 can have a height of between about 15 centimetres and about 30 centimetres, for example between about 18 centimetres and about 23 centimetres, for example about 20 centimetres. This may approximately equate to the spacing between two shelves in the refrigerator and allow some of the containers 203 on one shelf to be viewed through the window. The window 202 can have a width of between about 10 centimetres and about 20 centimetres, for about 15 centimetres. In this case, one, two or three products can be visible through the window.

[0067] Figure 5 shows a further example refrigerator 500. In this example, the refrigerator 500 is a back bar

refrigerator appliance or bottle cooler that is sized to fit within a cavity or recess behind a bar, for example under a worksurface and/or between opposing walls. The refrigerator 500 comprises a plurality of storage compartments 501, in this example three storage compartments, each having a door 502-504. At least one of the doors 502-504 can have a window 202, 202a configured to provide visual access to the contents 203 of the storage compartment 501. A first door 502 may be as described with reference to any of Figure 2 to Figure 4. In examples, more than one of the doors 502, 503, 504, for example all of the doors 502, 503, 504, may comprise a window 202 as described with reference to any of Figure 2 to Figure 4.

[0068] In the illustrated example a second door 503 of the refrigerator 500 comprises a larger window 202a. In this example, the window 202a may cover up to about 25% of the total area of the outer surface of the door 503. In such an example, the window 202a may provide visual access to more than one shelf 206a-206c in the storage compartment 501.

[0069] In particular, as seen in Figure 5, a first shelf 206a is mounted inside the storage compartment. The position of the first shelf 206a is such that the first shelf 206a is aligned with the window 202 of the first door 502 and with the window 202a of the second door 503 to provide visual access to the products positioned on the first shelf 206a.

[0070] As shown, the window 202a in the second door 503 is sized to provide visual access to containers on more than one shelf 206a-206c in the refrigerator. In particular, the window 202a is sized to correspond to first, second and third shelves 206a, 206b, 206c in the refrigerator so that some of the containers on the three shelves 206a, 206b, 206c are visible through the window 202a. In this embodiment, the window 202a can have a height of between about 15 centimetres and about 60 centimetres. The window 202a can have a width of between about 10 centimetres and about 20 centimetres, for about 15 centimetres. In this case, one, two or three containers on each shelf can be visible through the window 202a.

[0071] Additionally, the window 202a may have a light source as described with reference to Figure 4.

[0072] In some examples, more than one of the doors 502, 503, 504 may comprise the window 202a of the second door 503 as illustrated in Figure 5.

[0073] As shown in Figure 5, at least one door, in this example the third door 504, may not comprise a window. Instead, the third door 504 comprises a solid insulated panel. The solid insulated panel is preferably opaque.

[0074] As shown in Figure 5, the refrigerator 500 further comprises a cabinet 505 located adjacent to the one of the storage compartments, in this case adjacent to the storage compartment with the third door 504. The cabinet 505 houses part of the refrigeration system, particularly those parts that generate heat (i.e., the condenser and compressor), and may additionally house the expansion valve. One or more evaporators of the refrig-

eration system are typically positioned within the storage compartments and act to cool the storage compartments.

[0075] Figure 6 shows a door 600 of a further example refrigerator appliance. As with previous examples, the refrigerator appliance includes a cabinet (storage compartment) for holding products and the door 600 closes the storage compartment. Shelves may be located in the cabinet to hold products on multiple levels. The refrigerator appliance includes a technical cabinet (not shown) housing a refrigerant system that may include a compressor. The refrigerant system cools the interior space of the cabinet, for example by generating a flow of cool air into the cabinet.

[0076] The refrigerator appliance may be a commercial refrigerator appliance, for example a bottle cooler or back bar refrigerator of the type used to store and display beverages.

[0077] The door 600 is hingedly connected to the cabinet at one side and openable to provide access to the products in the cabinet. The door 600 has a solid construction, with insulation (e.g., one or more insulation panels), as described further with reference to Figure 7.

[0078] As illustrated, the door 600 comprises a front surface 602 and a window 604 formed in an opening 606 in the front surface 602 of the door 600. The window 604 covers only a part of the front surface 602 of the door 600, in particular less than 75% of the front surface 602 of the door 600, for example less than 60% of the front surface 602 of the door 600, for example less than 50% of the front surface 602 of the door 600, for example less than 40% of the front surface 602 of the door 600, for example less than 25% of the front surface 602 of the door 600.

[0079] The window 604 comprises a transparent pane, which may be polymer or glass.

[0080] A shelf 608 is integrated into the door 600, behind the window 604. One or more products 610 can be located on the shelf 608.

[0081] A door panel 612 extends behind the shelf 608, within the door 600. In this way, the shelf 608 is formed in a compartment within the door 600. The compartment is integrated into the door 600 and defined between the window 604, door panel 612, and shelf 608.

[0082] The door panel 612 may be an insulated panel. Therefore, the door 600 forms a solid door having insulation that covers the entire rear side (inside) of the door 600 and provides enhanced insulation of the cabinet.

[0083] In examples, the door panel 612 may comprise a mirrored surface facing the window 604. The inner surface of the window 604 may comprise a semi-transparent mirrored surface, allowing some light to pass through and mirroring some light back into the compartment where the products 610 are stored. The semi-transparent mirrored surface may be a one-way mirror, or a half-silvered mirror. A light (not illustrated) may be provided in the compartment. The light may be located above or below the products 610, or the light may extend about an inner edge of the window 604 in the same manner as the example illustrated in Figure 4.

[0084] The mirrored surfaces will create a depth illusion of the products 610 stored on the shelf 608. Accordingly, from the front side and with the door 600 closed, it will appear that the products 610 are arranged in regular and neat rows extending into the cabinet, even though that may not be the case within the cabinet itself.

[0085] Figure 7 shows a schematic cross-section through the door 600, coincident with the compartment. As shown, the shelf 608 is formed in a compartment within the door 600, between door panel 612 and window 604. Further insulation 614 may extend vertically either side of the shelf 608. Further insulation may be provided above the compartment and/or below the shelf. Insulation above the shelf 608 may be removable to permit access to the shelf 608. In examples, the insulation above the shelf 608 may be a removable insulation plug that can be removed to access the shelf 608.

[0086] The door 600 may include a shell 616 holding the components together. The shell 616 may be a stainless steel sheet construction. Hinges, handles and other ancillary components of the door 600 may be mounted to the shell 616.

[0087] In examples, the door 600 may be used as one or more doors of a multi-cabinet appliance such as that illustrated in Figure 5.

[0088] It will be appreciated by persons skilled in the art that the above detailed examples have been described by way of example only and not in any limitative sense, and that various alterations and modifications are possible without departing from the scope of the invention as defined by the appended claims. Various modifications to the detailed examples described above are possible.

[0089] Through the description and claims of this specification, the words "comprise" and "contain" and variations of them mean "including but not limited to", and they are not intended to (and do not) exclude other moieties, additives, components, integers or steps. Throughout the description and claims of this specification, the singular encompasses the plural unless the context otherwise requires. In particular, where the indefinite article is used, the specification is to be understood as contemplating plurality as well as singularity, unless the context requires otherwise.

[0090] Features, integers, characteristics, compounds, chemical moieties or groups described in conjunction with a particular aspect, embodiment or example of the invention are to be understood to be applicable to any other aspect, embodiment or example described herein unless incompatible therewith. All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive. The invention is not restricted to the details of any foregoing embodiments. The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompany-

ing claims, abstract or drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

[0091] It will be appreciated by persons skilled in the art that the above embodiment(s) have been described by way of example only and not in any limitative sense, and that various alterations and modifications are possible without departing from the scope of the invention as defined by the appended claims. Various modifications to the detailed designs as described above are possible.

[0092] Aspects of the disclosure are set out in the following numbered clauses:

Clause 1. A back bar refrigerator appliance comprising a storage compartment and a door, wherein the door comprises an inner surface facing into the storage compartment when the door is closed and an opposite outer surface, wherein the door comprises an insulated panel and a window covering less than 75% of the outer surface of the door,

and wherein the window is aligned with a shelf of the back bar refrigerator appliance to provide visual access to items positioned on the shelf.

Clause 2. The back bar refrigerator appliance of clause 1, wherein the window covers less than 50% of the outer surface of the door, for example less than 25% of the outer surface of the door.

Clause 3. The back bar refrigerator appliance of clause 1 or clause 2, wherein the insulated panel comprises a sandwich panel with an outer casing and a rigid insulation foam within the outer casing.

Clause 4. The back bar refrigerator appliance of clause 3, wherein the outer casing comprises stainless steel or aluminium sheet.

Clause 5. The back bar refrigerator appliance of clause 3 or clause 4, wherein the rigid insulation foam comprises polyurethane foam or polyisocyanurate foam.

Clause 6. The back bar refrigerator appliance of any of clauses 1 to 5, wherein the window comprises glass or a composite material, said glass or composite material being at least partially transparent.

Clause 7. The back bar refrigerator appliance of any of clauses 1 to 6 further comprising a light source configured to illuminate contents of the refrigerator visible through the window.

Clause 8. The back bar refrigerator appliance of clause 7, wherein the light source is attached to the door.

Clause 9. The back bar refrigerator appliance of clause 7 or clause 8, wherein the light source is disposed at an edge of the window.

Clause 10. The back bar refrigerator appliance of any of clauses 7 to 9, wherein the light source comprises an LED and/or a light guide.

Clause 11. The back bar refrigerator appliance of any of clauses 1 to 10, wherein the shelf is attached to the inner surface of the door and aligned with the window.

Clause 12. The back bar refrigerator appliance of clause 11, wherein the shelf is substantially the same width as the window.

Clause 13. The back bar refrigerator appliance of clause 11 or clause 12, wherein the shelf is removably attached to the door.

Clause 14. The back bar refrigerator appliance of clause 11 or clause 12, wherein the shelf is integrally formed with the insulated panel of the door.

Clause 15. The back bar refrigerator appliance of any of clauses 1 to 10, wherein the shelf is mounted in the storage compartment such that the shelf is approximately aligned with a lower edge of the window when the door is closed.

Clause 16. The back bar refrigerator appliance of clause 15, comprising a second shelf mounted in the storage compartment such that the second shelf is positioned above the shelf and aligned with the window when the door is closed.

Clause 17. The back bar refrigerator appliance of any of clauses 1 to 16, wherein the window has a height of between about 15 centimetres and about 60 centimetres.

Clause 18. The back bar refrigerator appliance of clause 17, wherein the window has a height of between about 15 centimetres and about 30 centimetres, for example between about 18 centimetres and about 23 centimetres, for example about 20 centimetres.

Clause 19. The back bar refrigerator appliance of any of clauses 1 to 18, wherein the window has a width of between about 10 centimetres and about 20 centimetres, for about 15 centimetres.

Clause 20. The back bar refrigerator appliance of any of clauses 1 to 19, comprising a plurality of doors and wherein one or more of the plurality of doors comprises the window.

Claims

1. A back bar refrigerator appliance comprising a storage compartment and a door, wherein the door comprises an inner surface facing into the storage compartment when the door is closed and an opposite outer surface, wherein the door comprises an insulated panel and a window covering less than 75% of the outer surface of the door, and wherein the window is aligned with a shelf of the back bar refrigerator appliance to provide visual access to items positioned on the shelf. 5
2. The back bar refrigerator appliance of claim 1, wherein the window covers less than 50% of the outer surface of the door, for example less than 25% of the outer surface of the door. 10
3. The back bar refrigerator appliance of any preceding claim, wherein the window comprises glass or a composite material, said glass or composite material being at least partially transparent. 15
4. The back bar refrigerator appliance of any preceding claim, wherein the shelf is attached to the inner surface of the door and aligned with the window. 20
5. The back bar refrigerator appliance of claim 4, wherein the shelf is substantially the same width as the window. 25
6. The back bar refrigerator appliance of claim 4 or claim 5, wherein the shelf is removably attached to the door. 30
7. The back bar refrigerator appliance of claim 4 or claim 5, wherein the shelf is integrally formed with the insulated panel of the door. 35
8. The back bar refrigerator appliance of claim 1 or claim 2, wherein the shelf is mounted in the storage compartment such that the shelf is approximately aligned with a lower edge of the window when the door is closed, optionally wherein the back bar refrigerator appliance further comprises a second shelf mounted in the storage compartment such that the second shelf is positioned above the shelf and aligned with the window when the door is closed. 40
9. A refrigerator appliance comprising a storage compartment and a door, wherein the door comprises an integrated compartment formed within the door, the integrated compartment being defined by a window on one side of the compartment, a door panel on an opposite side of the compartment, and a shelf for holding products. 45
10. The refrigerator appliance of claim 9, wherein the 50

door panel comprises a mirrored surface.

11. The refrigerator appliance of claim 9 or claim 10, wherein an inner side of the window comprises a mirrored surface, for example a semi-transparent mirrored surface. 55
12. The refrigerator appliance of any of claims 9 to 11, wherein the window covers less than about 75% of the outer surface of the door, for example less than 50% of the outer surface of the door, for example less than 25% of the outer surface of the door.
13. The back bar refrigerator appliance of any of claims 1 to 8 or the refrigerator appliance of any of claims 9 to 12, further comprising a light source configured to illuminate contents of the refrigerator visible through the window.
14. The back bar refrigerator appliance or refrigerator appliance of claim 13, wherein the light source is attached to the door.
15. The back bar refrigerator appliance or refrigerator appliance of claim 13 or claim 14, wherein the light source is disposed at an edge of the window.

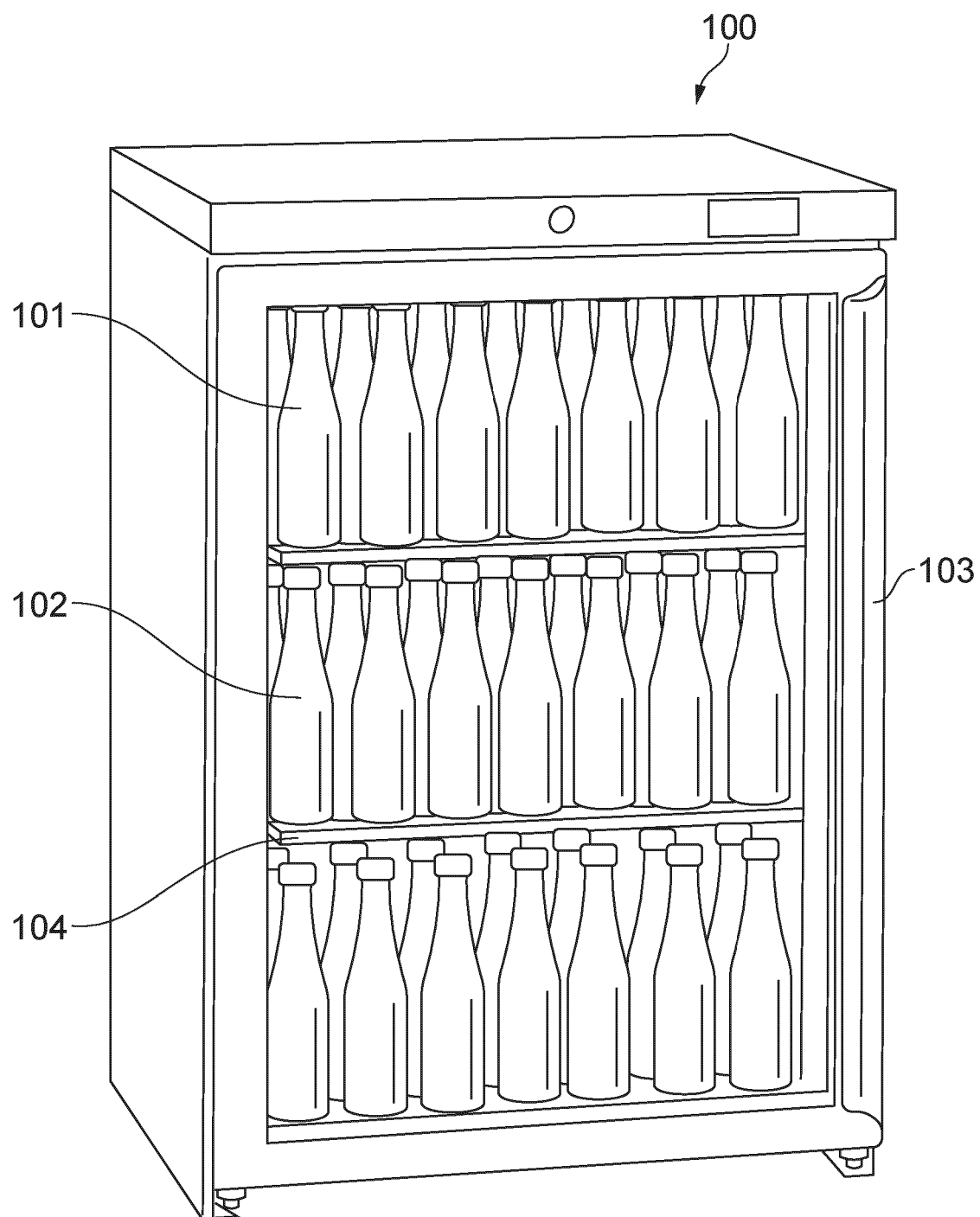


FIG. 1

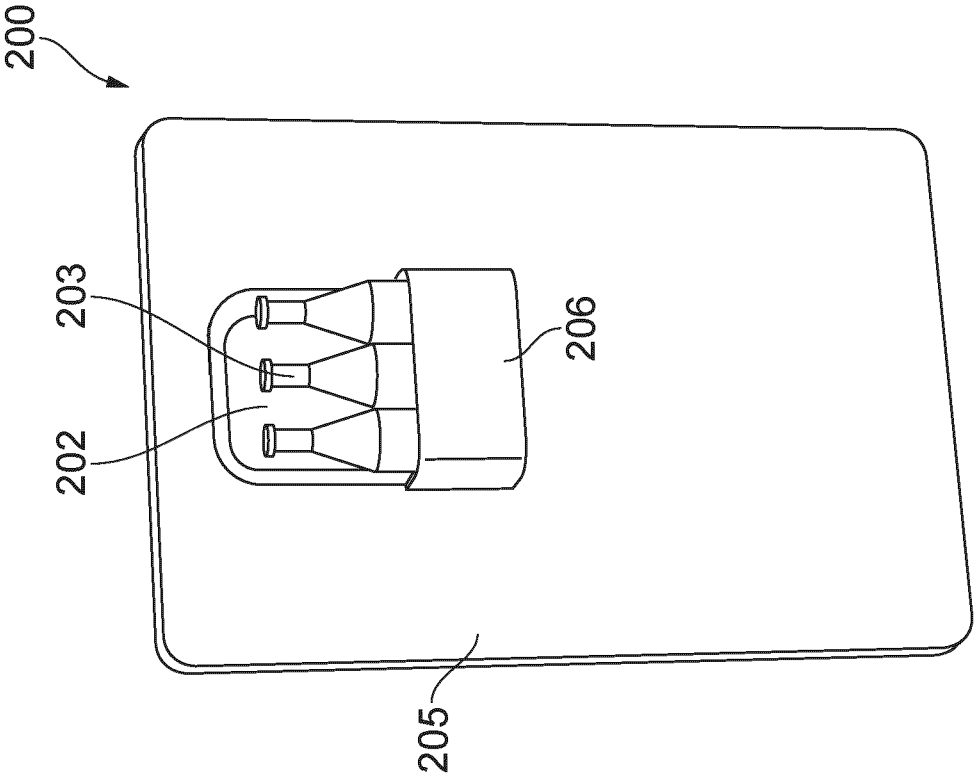


FIG. 2

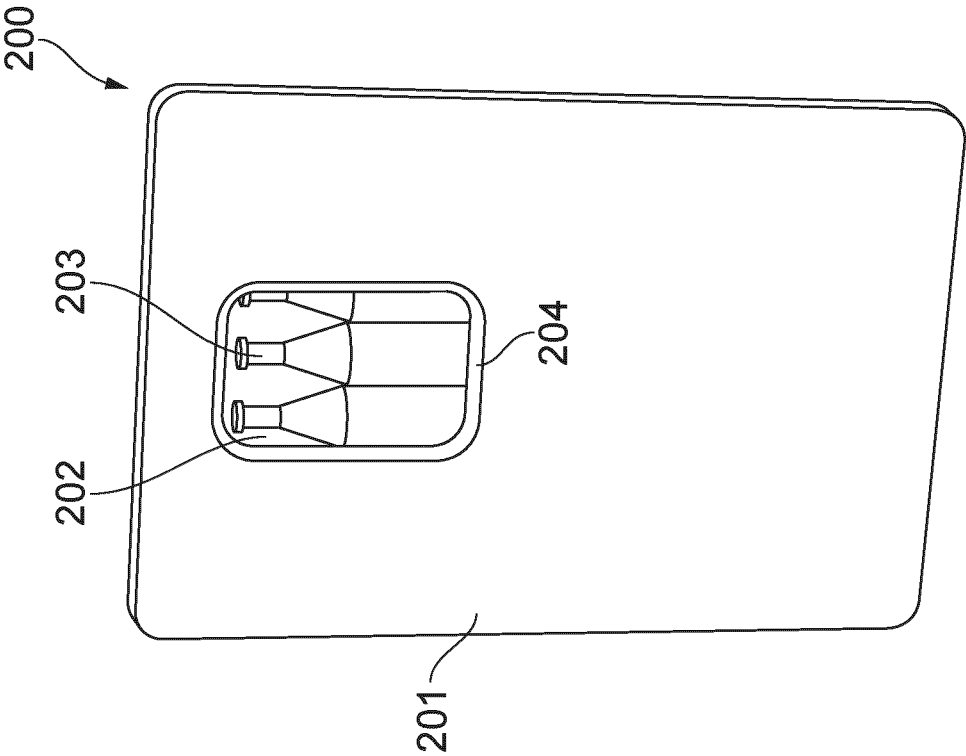


FIG. 3

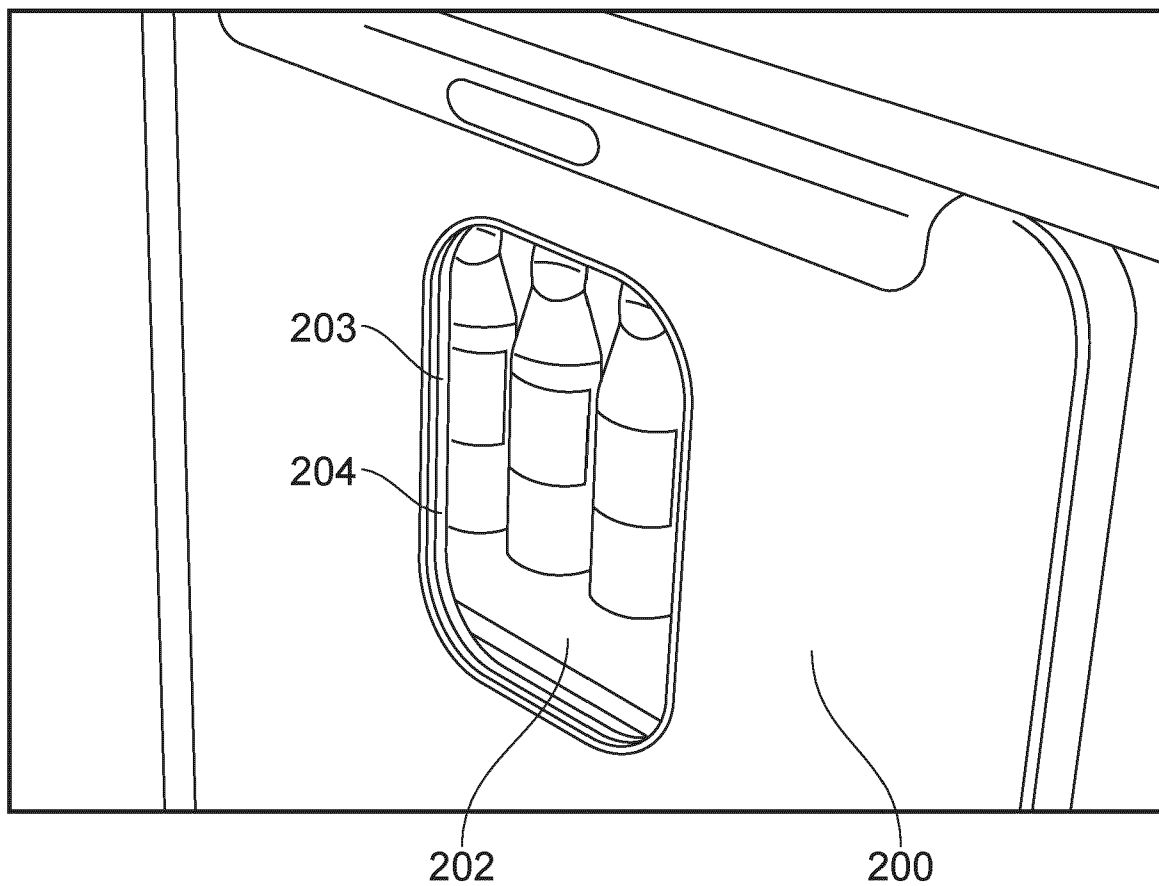


FIG. 4

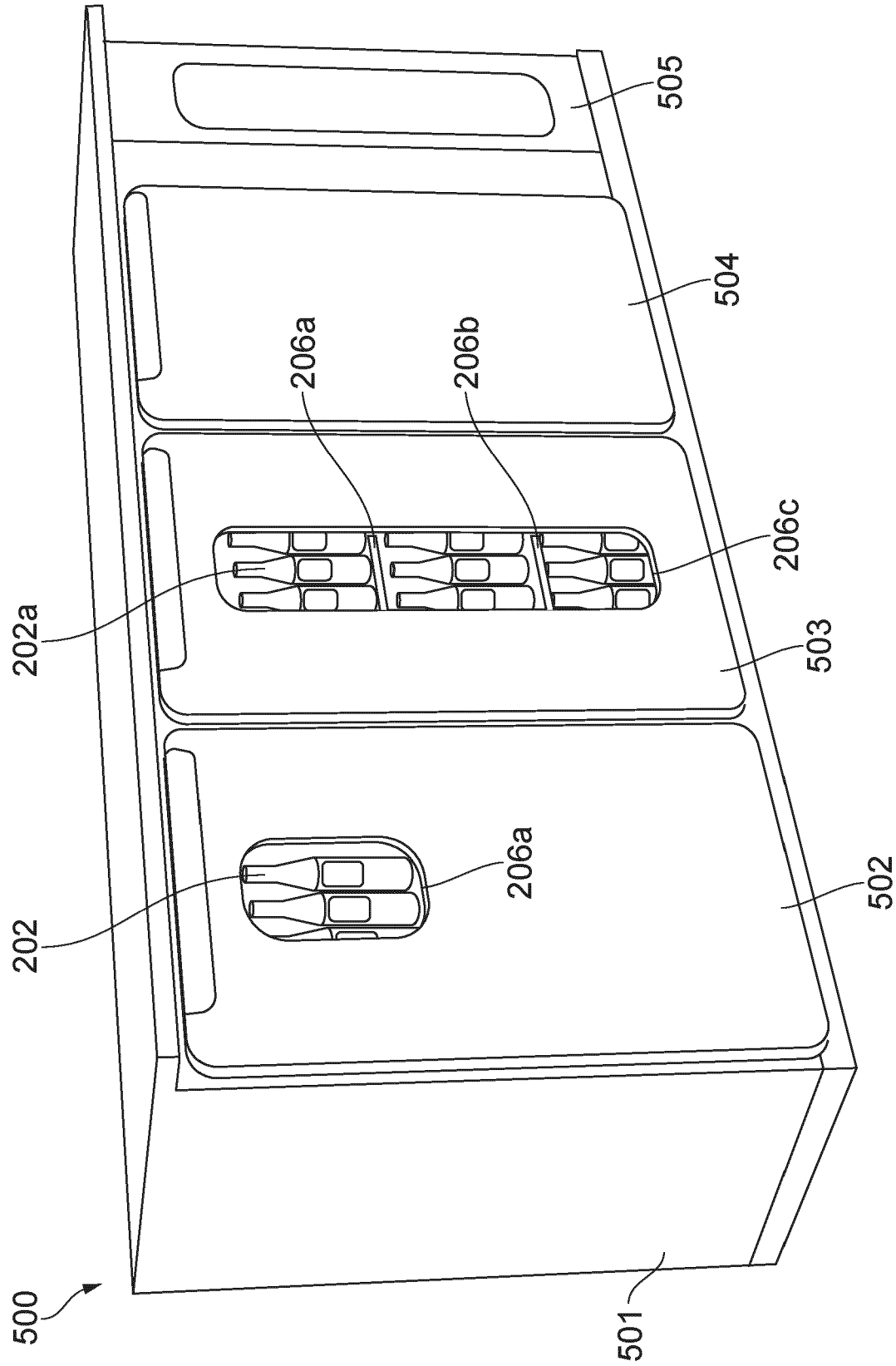


FIG. 5

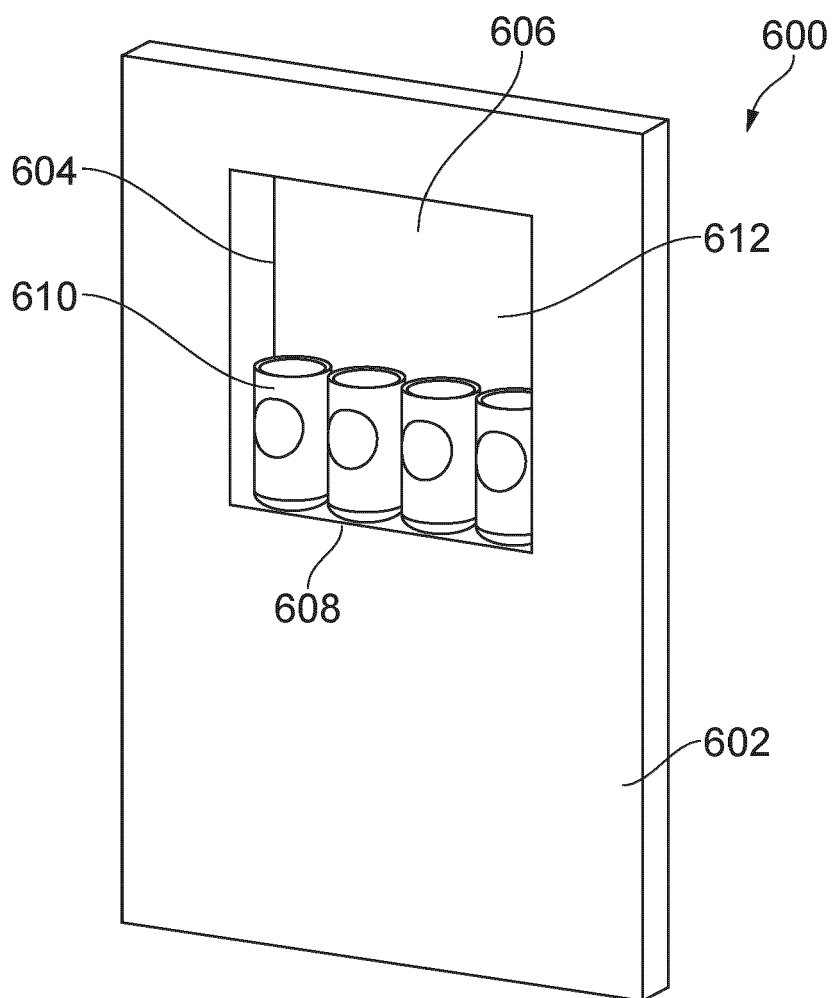


FIG. 6

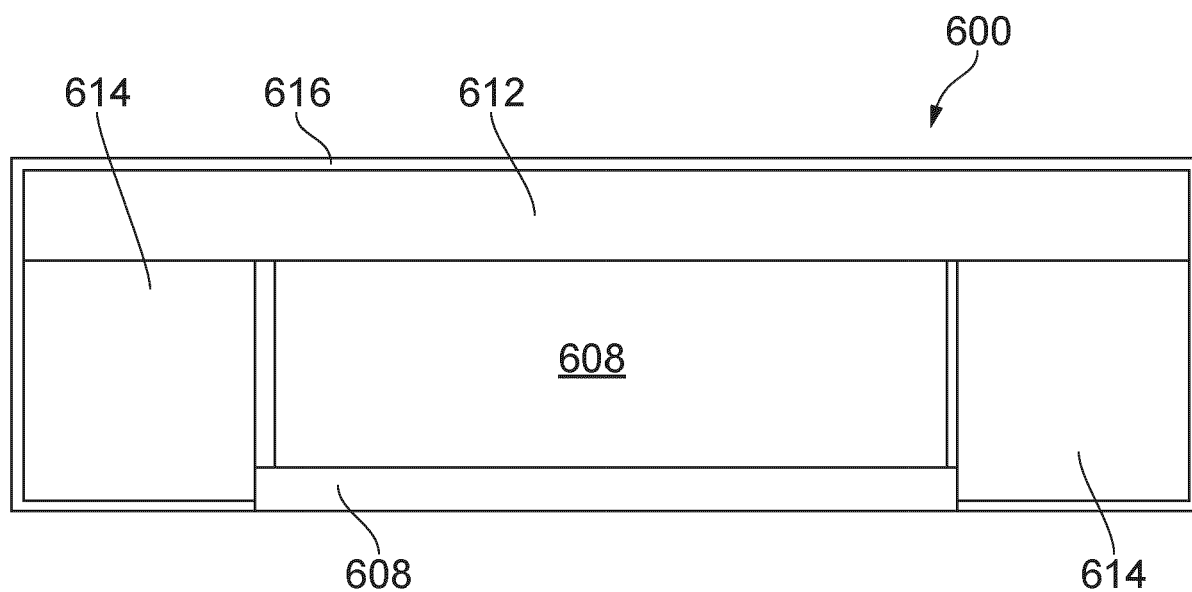


FIG. 7



EUROPEAN SEARCH REPORT

Application Number

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