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(54) Title: HOUSEHOLD APPLIANCE INCLUDING GLASS INTERIOR WALLS

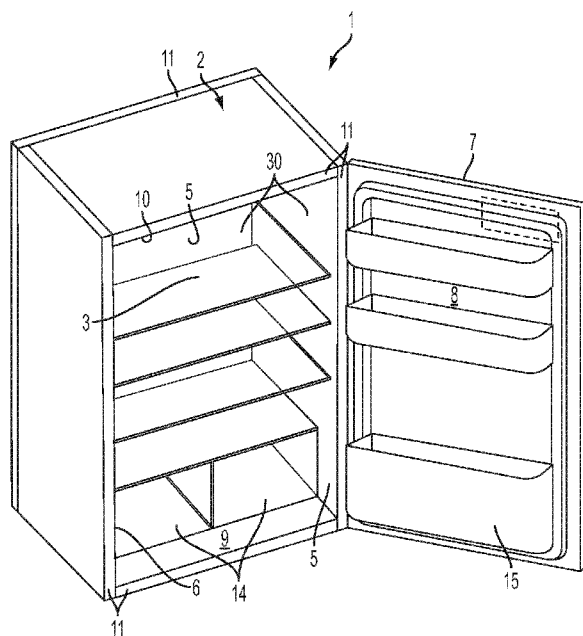


FIG. 1

(57) Abstract: A household appliance having a housing defining an interior space. In an exemplary embodiment, the housing may include a plurality of internal walls, wherein at least one of the plurality of internal walls is made of a glass material. Further, the interior space may be under a refrigeration condition.



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HOUSEHOLD APPLIANCE INCLUDING GLASS INTERIOR WALLS

BACKGROUND OF THE INVENTION

1. Field of the Invention

5 **[0001]** The present invention relates to a household appliance and more particularly, to a household appliance, such as a refrigerator or freezer, including glass interior walls.

2. Related Art

[0002] In a related art household appliance, such as a refrigerator, the interior of the refrigerator is usually illuminated using a light housing or a lamp that is
10 switched on and off on opening and closing the door of the appliance by a switch actuated by the door. The light housing or lamp is mounted on one of the inner walls of the refrigerator, usually on the ceiling area or one of the side walls. As a result of built-in components in the appliance such as base plates, pull-out drawers or door compartments
15 and as a result of food which has been inserted, which act as light barriers, large parts of the appliance are not reached or only inadequately reached by the light emanating from the lamp. Thus, only non-uniform illumination of the interior of the appliance may be possible.

[0003] The illumination may also be affected by the material making up the
20 inner walls of the refrigerator, such as stainless steel used in the related art. Additionally, the use of stainless steel for the inner walls naturally creates parting lines between an inner wall and adjacent light housing.

[0004] The present invention overcomes the problems associated with the related art by introducing a household appliance with one or more glass inner walls
25 providing increased illumination of the interior of the appliance and facilitating the ability to clean the inner walls by removing the parting lines.

SUMMARY OF THE INVENTION

[0005] A first aspect of the present invention is directed to a household
5 appliance. The household appliance may include a housing defining an interior space.
The housing may include a plurality of internal walls, wherein at least one of the plurality
of internal walls comprises a material including glass.

[0006] A second aspect of the present invention is directed to a housing
defining an interior space under a refrigeration condition. The housing may include a
10 plurality of internal walls, wherein at least one of the plurality of internal walls comprises a
material including glass.

[0007] The illustrative aspects of the present invention are designed to
solve the problems herein described and other problems not discussed.

15 BRIEF DESCRIPTION OF THE DRAWINGS

[0008] These and other features of this disclosure will be more readily
understood from the following detailed description of the various aspects of the disclosure
taken in conjunction with the accompanying drawings that depict various exemplary
20 embodiments of the disclosure, in which:

FIG. 1 depicts a household appliance including inner walls made from a glass
material according to an exemplary embodiment of the invention; and

FIG. 2 depicts an interface between a side wall of the household appliance and a
light housing according to an exemplary embodiment of the invention.

[0009] The drawings are merely schematic representations, not intended to portray specific parameters of the invention. The drawings are intended to depict only typical embodiments of the invention, and therefore should not be considered as limiting the scope of the invention. In the drawings, like numbering represents like elements.

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DETAILED DESCRIPTION OF THE INVENTION

[0010] FIG. 1 shows an exemplary embodiment of a household appliance, such as a refrigerator 1. The refrigerator 1 comprises a housing 2 which is formed from a plurality of housing panels 11. The refrigerator 1 may comprise the following inner walls:
10 a bottom area 9, respectively two side walls 6, a ceiling area 10 and a rear wall 5 and a door inner wall 8 of a door 7.

[0011] The refrigerating appliance 1 has an interior space 3 which may be fitted with base plates 13, containers 14 in the form of pull-out drawers 14, and door
15 compartments 15 for placing or inserting food.

[0012] The rear wall 5 and the two side walls 6 may each include an organic light-emitting diode (OLED) 30 or any other lighting technology such as, e.g., light-emitting diodes (LED) or halogen bulbs to illuminate the interior 3 of the refrigerating appliance 1. Of course, the OLED's, LED's, halogen bulbs, etc. may be placed in other
20 locations we well.

[0013] The OLED's, LED's, halogen bulbs, etc. may be integrated in the corresponding inner walls 5, 6 of the refrigerating appliance 1 in a manner such as disclosed in U.S. Patent No. 7,588,340, incorporated herein by reference, and commonly owned by BSH Bosch und Siemens Hausgeräte GmbH.

[0014] In FIG. 1, the inner walls may be comprised from a material including glass.

[0015] Using glass for the inner walls improves visibility within interior space 3 as opposed to related art inner walls formed from stainless steel, because glass helps distribute the lighting throughout the interior space 3. In addition, glass is a high-value material with regards to producing a quality product as opposed to some related art stainless steel materials.

[0016] Glass is also a versatile material. For decorative or illumination purposes, the glass may be back-painted allowing for good visibility within the interior space 3.

[0017] Further, in addition to or in place of back-painting, the glass may be a laminated glass including a sheet of a plastic material disposed between sheets of glass. The plastic material may be chosen for cosmetic purposes, for insulation, or to improve visibility within the interior space 3 based on the placement of the lighting within the interior space 3.

[0018] For safety purposes, the glass inner walls may be formed from a tempered glass. Also, the glass may include a plurality of panes, and wherein between adjacent panes, a gas, such as air is disposed. The air trapped between the adjacent panes of glass may serve as an insulator to increasing the energy efficiency of the refrigerator 1 and help prevent the formation of frost by reducing the movement of cooler air and the subsequent accumulation of water vapor.

[0019] Of course, the invention is not limited to the aforementioned glass compositions and other glass compositions known in the related art are envisioned including annealed glass, slumped glass, casted glass, laminated glass, etc.

[0020] FIG. 2 depicts another exemplary embodiment of the invention. In FIG. 2, rather than use OLED's, LED's, halogen bulbs, etc. to light the interior space 3 of the refrigerator 1, an internal lighting system 50 may be disposed within the housing for illuminating at least a portion of the interior space 3.

5 [0021] As shown in FIG. 2, the interface between a side wall 6 and the light housing 50 allows for a fabrication such that no parting lines are created. This helps to improve the ability to clean the refrigerator 1.

[0022] While only certain features of the invention have been illustrated and described herein, many modifications and changes will occur to those skilled in the art. It is, therefore, to be understood that the appended claims are intended to cover all
10 such modifications and changes as fall within the true spirit of the invention.

CLAIMS

1. A household appliance, comprising:
5 a housing defining an interior space, the housing including a plurality of internal walls, characterised in that at least one of the plurality of internal walls comprises a material including glass.
2. The household appliance according to claim 1, wherein the glass is back-painted.
10
3. The household appliance according to claim 1, wherein the glass is a tempered glass.
4. The household appliance according to claim 1, wherein the glass is a laminated
15 glass including one or more sheets of glass.
5. The household appliance according to claim 4, wherein the laminated glass further includes one or more sheets of a plastic material.
- 20 6. The household appliance according to claim 1, wherein the glass includes a plurality of planes, and wherein between adjacent planes, a gas is disposed.
7. The household appliance according to claim 6, wherein the gas is air.
- 25 8. The household appliance according to claim 1, further comprising an internal lighting system disposed within the housing for illuminating at least a portion of the interior space.
- 30 9. The household appliance according to claim 8, wherein the internal lighting system includes at least one of an organic light-emitting diode (OLED), a light-emitting diode (LED), and a halogen bulb for illuminating at least a portion of the interior space, the at least one of the OLED, the LED, and the halogen bulb being integrated into at least one of the internal walls.

10. The household appliance according to claim 1, further comprising an internal lighting system, and wherein an interface between the internal lighting system and the at least one of the internal walls is disposed in a flush manner.
- 5
11. A housing defining an interior space under a refrigeration condition, the housing including a plurality of internal walls, characterised in that at least one of the plurality of internal walls comprises a material including glass.
- 10 12. The housing according to claim 11, wherein the glass is back-painted.
13. The housing according to claim 11, wherein the glass is a tempered glass.
14. The housing according to claim 11, wherein the glass is a laminated glass
15 including one or more sheets of glass.
15. The housing according to claim 14, wherein the laminated glass further includes one or more sheets of a plastic material.
- 20 16. The housing according to claim 11, wherein the glass includes a plurality of planes, and wherein between adjacent planes, a gas is disposed.
17. The housing according to claim 16, wherein the gas is air.
- 25 18. The housing according to claim 11, further comprising an internal lighting system disposed within the housing for illuminating at least a portion of the interior space.
19. The housing according to claim 18, wherein the internal lighting system includes at least one of an organic light-emitting diode (OLED), a light-emitting diode (LED),
30 and a halogen bulb for illuminating at least a portion of the interior space, the at least one of the OLED, the LED, and the halogen bulb being integrated into at least one of the internal walls.

20. The housing according to claim 11, further comprising an internal lighting system, and wherein an interface between the internal lighting system and the at least one of the internal walls is disposed in a flush manner.

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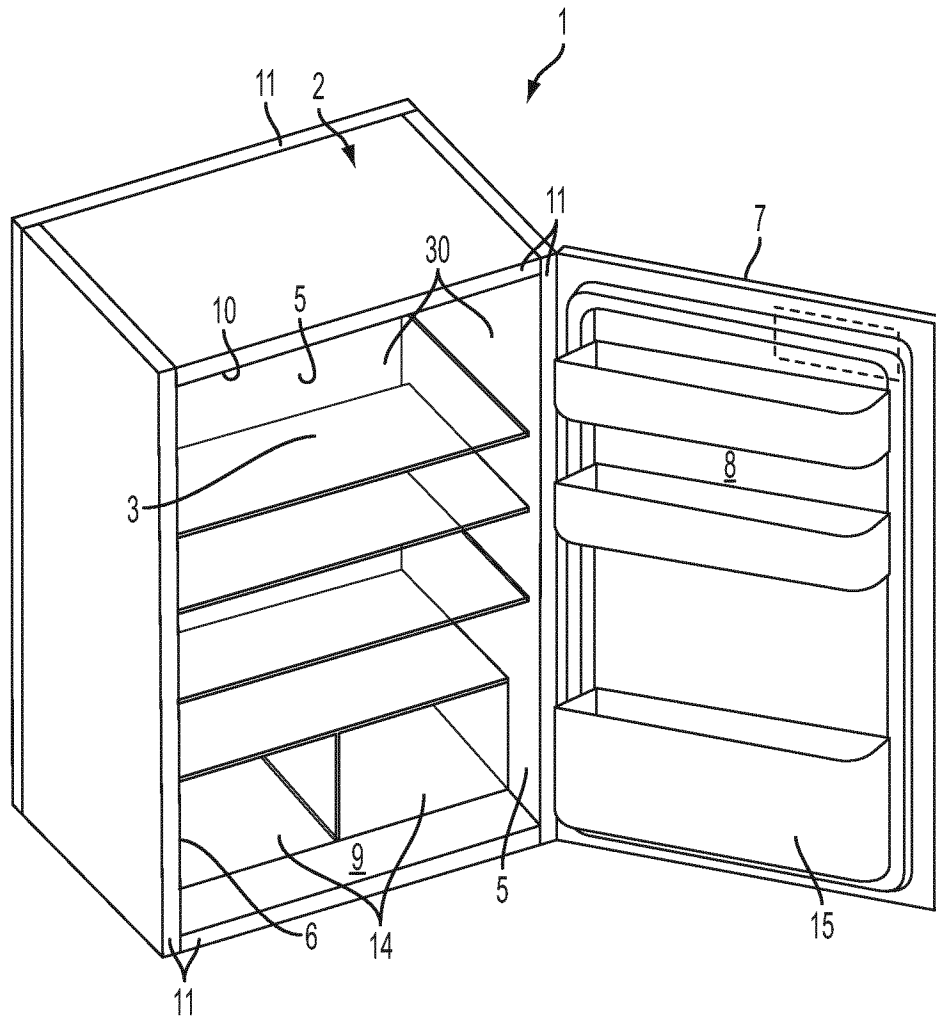


FIG. 1

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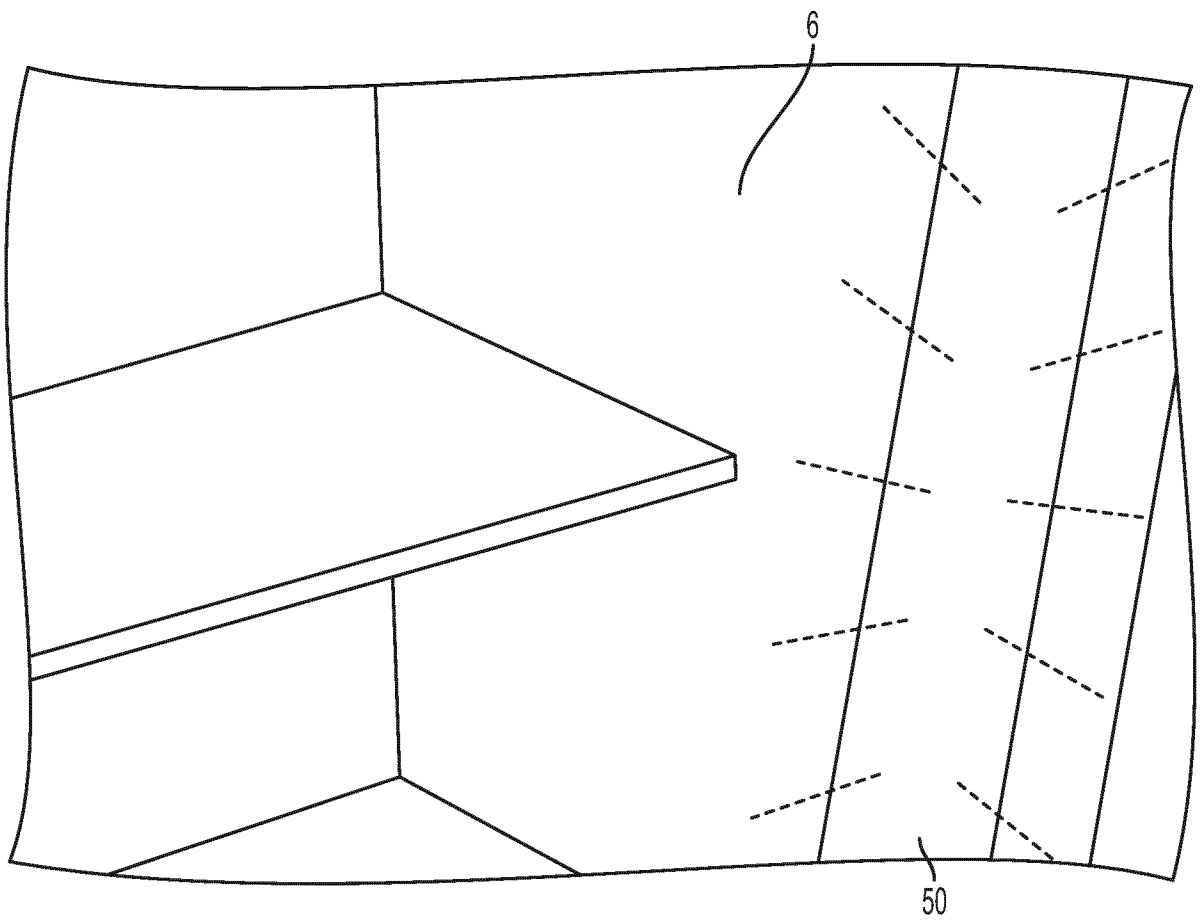


FIG. 2