

(19)



(11)

EP 3 581 069 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
18.12.2019 Bulletin 2019/51

(51) Int Cl.:
A47F 3/04^(2006.01) F25D 23/02^(2006.01)

(21) Application number: **19180218.0**

(22) Date of filing: **14.06.2019**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(72) Inventors:

- **SOLSONA CABALLER, Roberto**
12004 CASTELLON DE LA PLANA (ES)
- **BLANCO CASTRO, Javier**
12004 CASTELLON DE LA PLANA (ES)
- **NAVARRO RECATALÁ, Juan Vicente**
12004 CASTELLON DE LA PLANA (ES)

(30) Priority: **15.06.2018 ES 201830918 U**

(74) Representative: **Ungria López, Javier**
Avda. Ramón y Cajal, 78
28043 Madrid (ES)

(71) Applicant: **Frost-Trol S.A.**
12004 Castellón de la Plana (ES)

(54) **REFRIGERATED CABINET**

(57) The invention comprises a door (1) with a frame (2) and a transparent front panel (3) that projects from the frame (2), making up a cantilevered section (33) in which there is a control panel (4) with a touch screen (41) that is a continuation mimicking a front face (31) of the front panel (3). The touch screen comprises sensitive areas (411) and a viewing area (412). Furthermore, the control panel (4) comprises a motherboard (42) located in correspondence with a rear face (32) of the cantilevered section (33), and in correspondence with the position of the touch screen (41) on the front face (31). In the viewing area (412), said control panel (4) shows values related to the operational magnitudes of the refrigerated cabinet and allows the operations of the refrigerated cabinet to be controlled by means of pressing on the sensitive areas (411) of the touch screen (41).

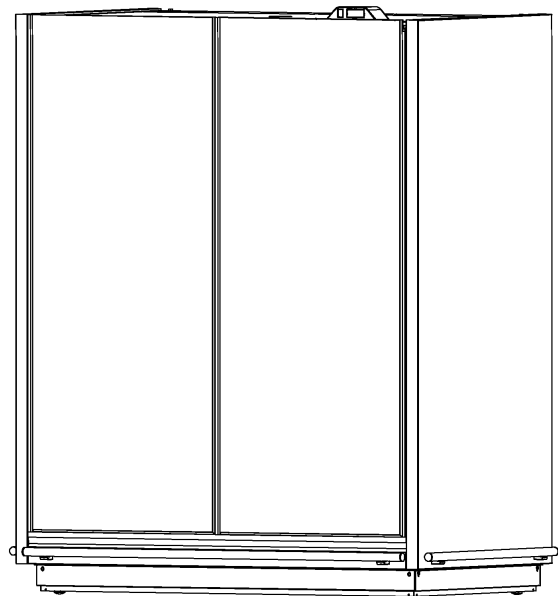


FIG. 1a

EP 3 581 069 A1

Description

Object of the invention

[0001] The present disclosure relates to a refrigerated cabinet which, in addition to allowing the content of the refrigerator to be viewed from the outside thereof, allows for an easy and ergonomic operation of the cabinet.

[0002] The refrigerated cabinet object of the present disclosure is especially applicable to the industry of design, distribution and sale of home appliances and, more specifically, refrigerators or fridges.

Technical problem to be resolved and Background of the invention

[0003] Different types of home appliances are known in the state of the art, among which there are refrigerators (also colloquially known as fridges).

[0004] Refrigerators comprise a door that guarantees thermal insulation from the outside in order to prevent heat from outside the refrigerator from entering the space inside. In this manner, the aim is to improve the efficiency of the refrigerator as much as possible.

[0005] Together with the door of the refrigerator, there is usually a control panel or button panel to control the functions of the refrigerator, according to the needs or preferences of the user.

[0006] Likewise, refrigerators are known in which the door is made of a transparent material, thereby serving as a display case showing the food stored in the refrigerator.

[0007] In this last case, the button panel or control panel represents an obstacle for viewing the contents of the refrigerator from the outside thereof.

Description of the invention

[0008] With the aim of solving the previously mentioned drawback, the present disclosure describes a novel refrigerated cabinet.

[0009] The refrigerated cabinet object of the present invention includes a door with a frame and a transparent front panel.

[0010] The frame is situated in correspondence with a rear face of the transparent front panel and opposite a front face of the transparent front panel.

[0011] The transparent front panel projects a certain distance from the frame, thereby constituting a cantilevered section situated in correspondence with the control panel of the refrigerated cabinet.

[0012] The control panel comprises a touch screen, said touch screen being a continuation mimicking the front face of the front panel.

[0013] The touch screen comprises sensitive areas and a viewing area.

[0014] The control panel includes a motherboard situated in correspondence with the rear face of the cantilevered section of the front panel and in correspondence with the position occupied by the touch screen on the front face of said cantilevered section.

levered section of the front panel and in correspondence with the position occupied by the touch screen on the front face of said cantilevered section.

[0015] The control panel is configured to show, in the viewing area, values related to the operational magnitudes of the operation of the refrigerated cabinet.

[0016] Likewise, the control panel is configured to control the operations of the refrigerated cabinet by means of pressing the sensitive areas of the touch screen.

[0017] Preferably, the sensitive areas comprise symbols or a legend indicating the operational magnitudes of the refrigerated cabinet.

[0018] Also preferably, the control panel incorporates a rear closure of the control panel and motherboard electric circuitry casing or cover.

[0019] According to a possible embodiment, the refrigerated cabinet incorporates a cable connected to a control board of the refrigerated cabinet, wherein said cable passes through the inside of the door, and wherein one end of said cable projects from the frame, such that by means of the connection of said cable to the motherboard, the refrigerated cabinet can be controlled from the touch screen of the control panel.

[0020] Alternatively to what is mentioned in the preceding paragraph, the control panel can incorporate a wireless transmitter/receiver for the connection to the refrigerated cabinet control plate and for the control of the operational magnitudes of the refrigerated cabinet.

Brief description of the figures

[0021] As part of the explanation of at least one exemplary embodiment of the refrigerated cabinet object of the present disclosure, the following figures have been included.

Figure 1a: Shows a schematic view of a refrigerated cabinet of the state of the art.

Figure 1b: Shows a detail of the control panel of the refrigerated cabinet of Figure 1a.

Figure 2a: Shows a schematic view of an embodiment of the refrigerated cabinet object of the present invention.

Figure 2b: Shows a detailed view of the front face of the door of the refrigerated cabinet of Figure 2a.

Figure 2c: Shows a detailed view of the touch screen of the control panel of the door of the refrigerated cabinet of Figure 2a.

Figure 3a: Shows a schematic view of the rear face of the door of the refrigerated cabinet of Figure 2a, wherein the cover of the mother board of the control panel is removed.

Figure 3b: Shows a detail of the motherboard of Figure 3a, with the connection cable to the control board of the refrigerated cabinet disconnected.

Figure 3c: Shows a detail of the motherboard of Figure 3a, with the connection cable to the control board of the refrigerated cabinet connected.

Figure 3d: Shows a detail of the motherboard of Figure 3a with the cover of the motherboard placed and protecting the electronic circuitry of the motherboard.

Detailed description

[0022] The present disclosure, as was previously mentioned, discloses a refrigerated cabinet.

[0023] In the state of the art, refrigerated cabinets are known in which the control panel is situated as a prominence or projection from the door, or even in another location of the refrigerated cabinet (Figure 1a and Figure 1b).

[0024] Figures 2a, 2b, 2c, 3a, 3b, 3c and 3d show the details of an embodiment of the refrigerated cabinet object of the present disclosure.

[0025] The refrigerated cabinet comprises a door (1) with a thermally insulating frame (2) and a transparent and thermally insulating front panel (3). The front panel (3) comprises a front face (31) and a rear face (32). The frame (2) is situated in correspondence with the rear face (32) of the front panel (3).

[0026] The front panel (3) has a width (X) substantially equal to the width of the frame (2), and a height (Y) slightly greater than the height of the frame (2), so that on the lower portion, the front panel (3) is substantially flush with the frame (2), such that on the upper portion, the front panel (3) comprises a cantilevered section (33) that projects from the frame (2).

[0027] On the upper portion of the transparent front panel (3), and on the front face (31) thereof, in correspondence with the cantilevered section (33), a control panel (4) is situated which comprises a touch screen (41), said touch screen (41) being a continuation of the front face (31) and mimicking the front face (31) of the front panel (3). In this manner, the control panel (4) comprises sensitive areas (411) provided with a legend or graphic symbols in correspondence with the touch screen (41), wherein the legend or graphic symbols are preferably xerigraphed and are indicative of the magnitudes related to the operation of the refrigerator, wherein the control panel (4) is configured to show the value of said magnitudes in a viewing area (412) next to the sensitive areas (411).

[0028] On the rear face (32) of the front panel (3) and situated in correspondence with the touch screen (41), the control panel (4) comprises a motherboard (42) of the touch screen (41).

[0029] There is a cable (5) connected to a control board of the refrigerator (not shown) which runs through the inside of the door (1). One end of said cable (5) projects from the upper portion of the frame (2). By means of the connection of the motherboard (42) to said cable (5) the refrigerator can be controlled from the touch screen (41) of the control panel (4).

[0030] Preferably, a casing (43) or cover closes the control panel (4) from behind and protects the electronic circuitry of the motherboard (42).

Claims

1. A refrigerated cabinet comprising a door (1) with a frame (2) and a transparent front panel (3), wherein the frame (2) is located in correspondence with a rear face (32) of the front panel (3), opposite a front face (31) of the front panel (3), **characterised in that:**

- the front panel (3) projects a certain distance from the frame (2), thereby constituting a cantilevered section (33) situated in correspondence with a control panel (4);

- wherein the control panel (4) comprises a touch screen (41), said touch screen (41) being a continuation mimicking the front face (31) of the front panel (3);

- wherein the touch screen comprises sensitive areas (411) and a viewing area (412);

- wherein the control panel (4) comprises a motherboard (42) situated in correspondence with a rear face (32) of the cantilevered section (33) of the front panel (3), and in correspondence with the position of the touch screen (41) on the front face (31);

- wherein the control panel (4) is configured to show in the viewing area (412) values related to the operational magnitudes of the refrigerated cabinet and for controlling the operations of the refrigerated cabinet by means of pressing on the sensitive areas (411) of the touch screen (41).

2. The refrigerated cabinet according to claim 1, **characterised in that** the sensitive areas (411) comprise symbols or a legend indicating the operational magnitudes of the refrigerated cabinet.

3. The refrigerated cabinet according to any of the preceding claims, **characterised in that** it comprises a control panel (4) rear closure and motherboard (42) electronic circuit protection casing (43).

4. The refrigerated cabinet according to any of the preceding claims, **characterised in that** it comprises a cable (5) connected to a control board of the refrigerated cabinet, wherein said cable (5) passes through the inside of the door (1), wherein one end of said cable (5) projects from the frame (2), wherein by means of the connection of the motherboard (42) to said cable (5), the refrigerated cabinet can be controlled from the touch screen (41) of the control panel (4).

5. The refrigerated cabinet according to any one of claims 1 to 3, **characterised in that** it comprises wireless communication means between the control panel (4) and a control board of the refrigerated cabinet for controlling the refrigerated cabinet from the

touch screen (41) of the control panel (4).

5

10

15

20

25

30

35

40

45

50

55

4

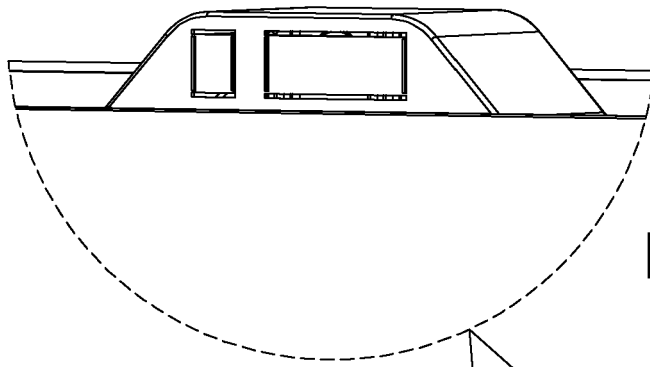


FIG. 1b

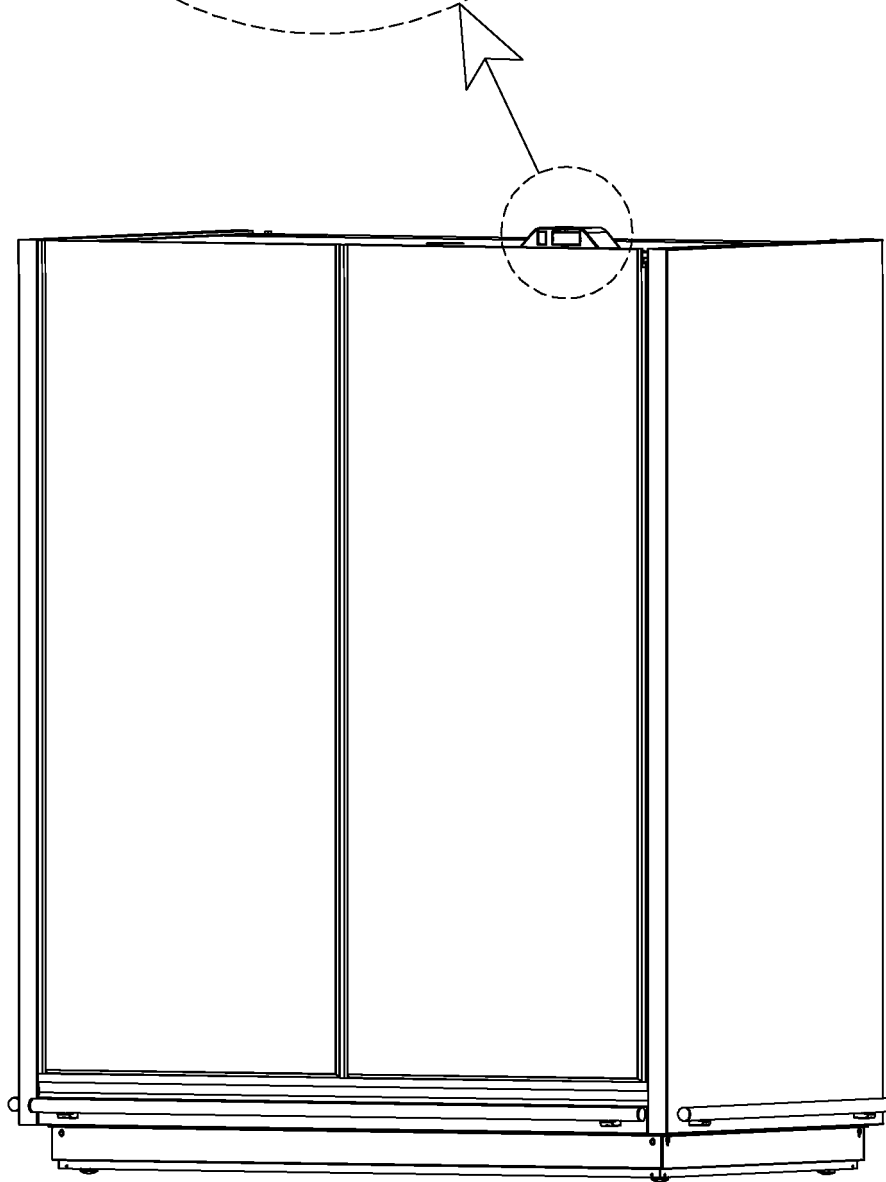


FIG. 1a

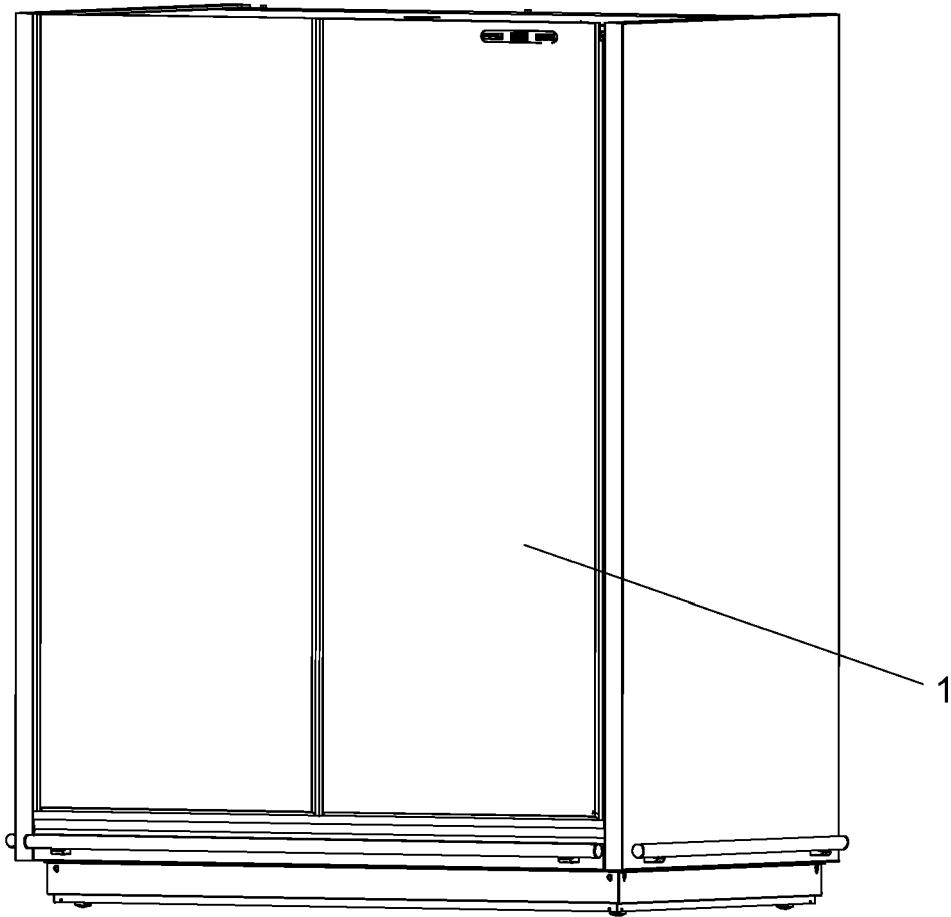


FIG. 2a

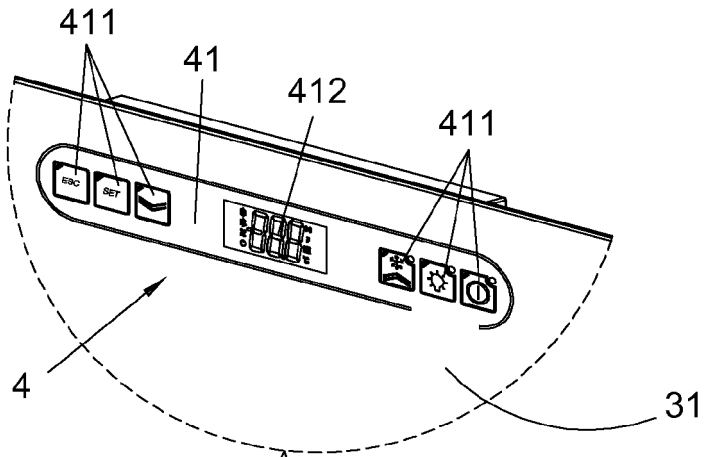


FIG. 2c

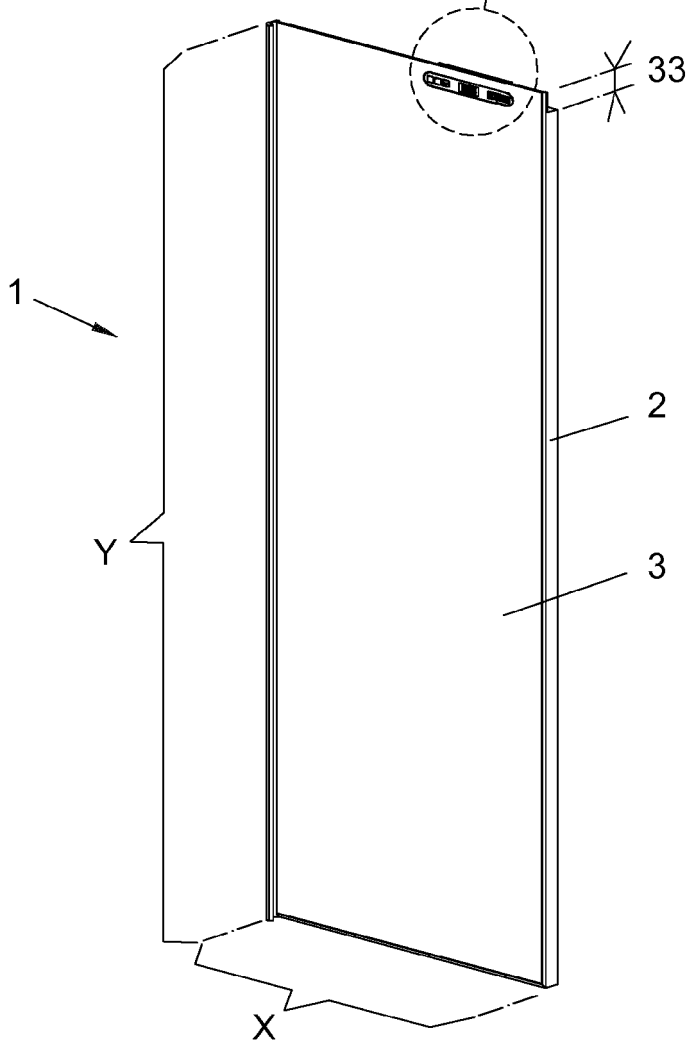


FIG. 2b

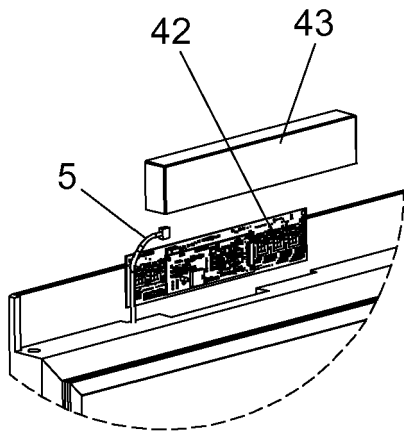


FIG. 3b

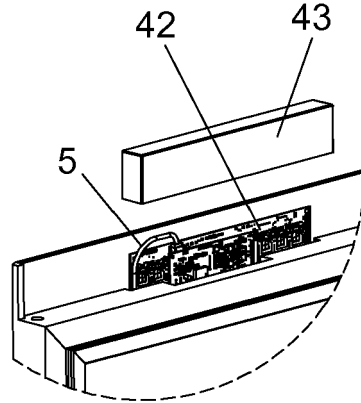


FIG. 3c

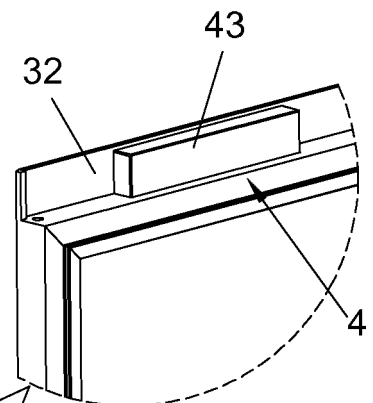


FIG. 3d

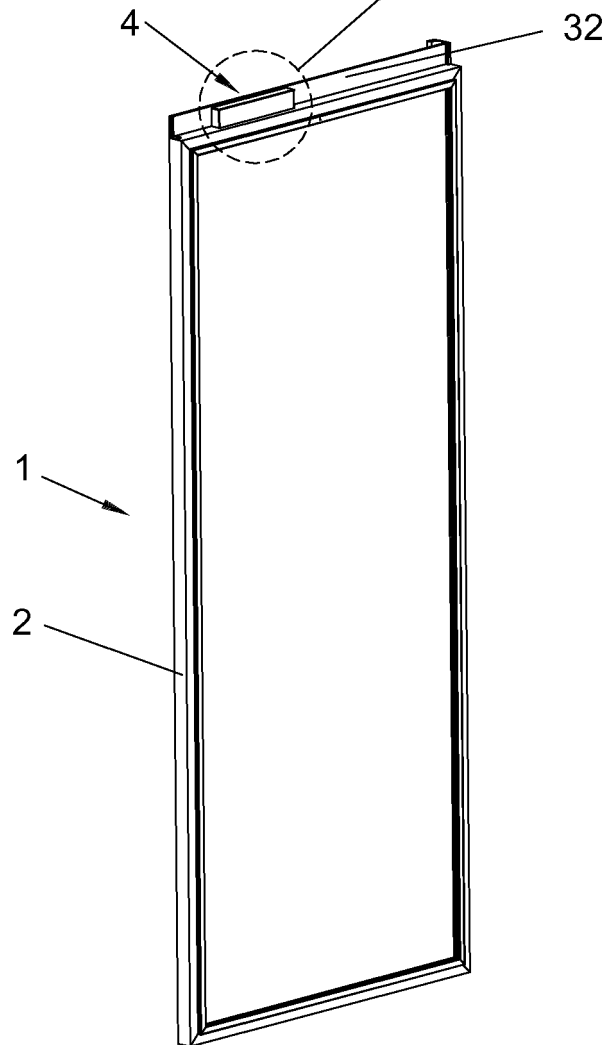


FIG. 3a



EUROPEAN SEARCH REPORT

Application Number
EP 19 18 0218

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2014/144083 A1 (ARTWOHL PAUL J [US] ET AL) 29 May 2014 (2014-05-29) * figures 1-12 *	1-5	INV. A47F3/04 F25D23/02
X,P	DE 10 2017 114276 A1 (LIEBHERR HAUSGERAETE LIENZ GMBH [AT]) 27 December 2018 (2018-12-27) * figures 1, 2 *	1-3	
X	US 2014/125599 A1 (SEELEY MICHAEL S [US]) 8 May 2014 (2014-05-08) * figures 1-10 *	1-5	
X	EP 3 037 758 A1 (LG ELECTRONICS INC [KR]) 29 June 2016 (2016-06-29) * figures 1-31 *	1-4	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			A47F F25D
Place of search		Date of completion of the search	Examiner
The Hague		16 August 2019	Linden, Stefan
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.02 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 19 18 0218

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-08-2019

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2014144083 A1	29-05-2014	US 2014144083 A1	29-05-2014
		US 2015216326 A1	06-08-2015
		US 2015335174 A1	26-11-2015

DE 102017114276 A1	27-12-2018	NONE	

US 2014125599 A1	08-05-2014	NONE	

EP 3037758 A1	29-06-2016	CN 105718080 A	29-06-2016
		EP 3037758 A1	29-06-2016
		KR 20160076390 A	30-06-2016
		US 2016178277 A1	23-06-2016
