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(54) **FOOD CLIMATIZATION CONTAINER WITH ENHANCED FIXATION FOR ILLUMINATION**

(57) Food climatization container (1), wherein the container (1) comprises a compartment (2) for storage of food products (5), the compartment (2) being surrounded by a frame structure (10) and walls (11, 12, 13, 14) and closable by door (3) of the container (1), wherein the container (1) comprises or is connectable to a cooling unit for cooling the compartment (2),
wherein the frame structure (10) comprises one or more extruded profiles (20, 30, 40) interconnected with each other and comprising one or more mounting portions (21, 22, 31, 32) for a portion of an inner wall (11, 13) or outer wall (12, 14) of the container (1), wherein at least a first profile (20) of the one or more extruded profiles (20, 30, 40) comprises a trough (23, 33) facing towards the compartment (2), wherein an LED bar (50) is mounted in the trough (23).

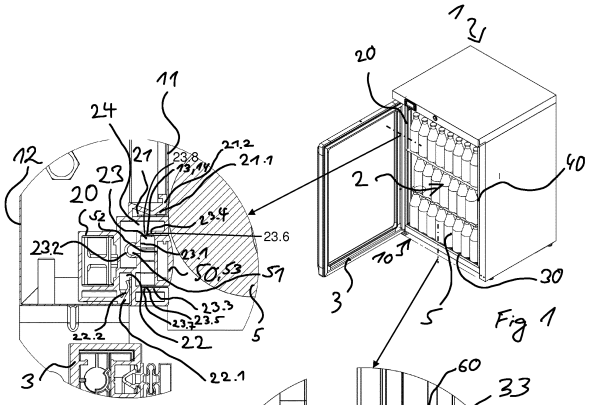

Fig 1

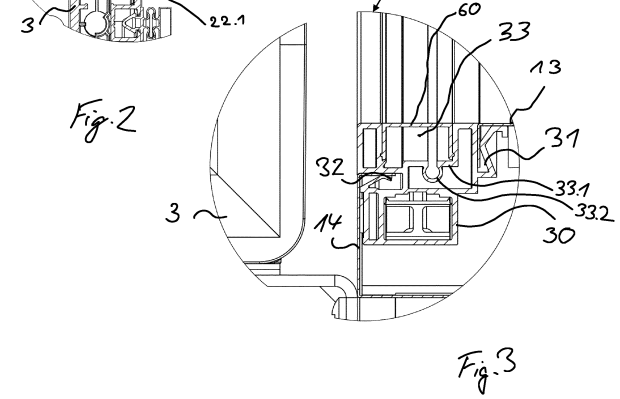

Fig.2

Fig.3

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Description

[0001] The invention relates to the field of food climatization containers, especially refrigerators.

[0002] Related art can be observed on the market and shows to refrigerators that have LED bars mounted on the inner wall or shelve of the refrigerator for illuminating the products in contained in the refrigerator.

[0003] Another related art concerns refrigerators built using walls and a frame structure built of extrusion profiles.

[0004] The inventors found it disadvantageous that it is often difficult to mount such LED bars and they require additional space.

[0005] The problem underlying the invention was to improve this disadvantage. The problem is solved by the invention, in particular according to the independent claims.

[0006] In particular, this problem is solved by a food climatization container, wherein the container comprises a compartment for storage of food products, the compartment being surrounded by a frame structure and walls and closable by a door of the container, wherein the container comprises or is connectable to a cooling unit for cooling the compartment, wherein the frame structure comprises one or more extruded profiles interconnected, preferably perpendicularly, with each other and comprising one or more mounting portions, preferably receptacles, for a portion, preferably bended edge portion, of an inner wall or outer wall of the container,
wherein at least a first profile of the one or more extruded profiles comprises a trough, preferably integrally formed with the profile, facing towards the compartment, wherein an LED bar, is mounted in the trough.

[0007] Hereby, a food climatization container is provided with an LED bar, which requires less parts and less compartment space for attaching it to the container. According to the invention, the term food can represent food and/or drinks or beverages.

[0008] Preferably, the profiles each have a longitudinal extension which is the extrusion direction. Preferably, the trough has a longest extension in longitudinal direction. Preferably, the one or more receptacles comprise a slit, preferably with a longest extension in longitudinal direction, for sliding in a bent edge of an outer or inner wall. Preferably, the slit is limited on one side by a web of the profile which is resilient by having a free end, such that the web engages onto the inserted wall at a certain force. Preferably, the LED bar has a plurality of LED's aligned in longitudinal direction on a common carrier component, e.g. a flexible strip or a rigid profile. The LED bar is preferably covered by a (semitransparent lid. Preferably, LEDs, carrier component and, eventually if present, the lid are preassembled and form a module.

[0009] In a further food climatization container according to the invention, the first profile and a second profile of the one or more extruded profiles have an identical cross-section, such that the second profile also has a trough, configured to receive an LED bar, wherein the trough of the second profile is covered by a blind.

[0010] Hereby, it is possible to use the same profile also for portions of the frame that shall not be equipped with an LED bar.

[0011] In a further food climatization container according to the invention, the trough comprises in a wall, preferably base wall, of the trough, a groove configured to receive an electric cable for the LED bar.

[0012] Hereby, the mounting of the LED bar can be further simplified. Preferably, the diameter of the groove has a diameter within the range of 1 mm to 10 mm, preferably 2 to 5mm.

[0013] In a further Food climatization container according to the invention, the trough comprises one or more structures configured to engage with snap-fit elements, preferably one or more hook elements, of the LED bar or a blind such that the LED bar or blind is mounted and held in the trough via a snap-fit.

[0014] Hereby, the mounting of the LED bar can be further simplified.

[0015] In a further Food climatization container according to the invention, the trough comprises in a wall, preferably one or more side walls, of the trough an edge with a surface next to it, whereby the surface is facing away from the compartment.

[0016] Hereby, the a snap-fit can be realized through means that can already be created in the extrusion step when extruding the profile.

[0017] In a further food climatization container according to the invention, the first profile comprises in addition to the mounting portions and the trough an insulation chamber wherein the insulation chamber is arranged between the trough an at least one of the mounting portions.

[0018] Hereby, condensation effects on the LED bar can be reduced.

[0019] The present invention will now be described - by way of example - with reference to the accompanying drawings, whereby

[0020] Fig. 1 to 4 a food climatization container according to the invention, wherein Fig. 1 shows a perspective view, Fig. 2 a portion of a horizontal cross-section through the container and Fig. 3 a portion of a vertical cross-section through the container, Fig. 4 the same horizontal cross-section as Fig. 2, however, without annotations for better overview.

[0021] Now follows a more detailed description of Fig. 1 to 3. The container 1 comprises a compartment 2 for storage of food products 5, the compartment 2 being surrounded by a frame structure 10 and walls 11, 12, 13, 14 and closable by door 3 of the container 1, wherein the container 1 comprises a cooling unit for cooling the compartment 2, wherein

the frame structure 10 comprises extruded profiles 20, 30, 40 interconnected, here perpendicularly, with each other and comprising mounting portions 21, 22, 31, 32, here receptacles, for a portion, here bended edge portion, of an inner wall 11, 13 or outer wall 12, 14 of the container 1, wherein at least a first profile 20 of the extruded profiles 20, 30, 40 comprises a trough 23, 33, here integrally formed with the profile 20, 30, 40, facing towards the compartment 2, wherein an LED bar 50 is mounted in the trough 23. In this example, the profiles 20, 30, 40 each have a longitudinal extension which is the extrusion direction. In this example, the trough 23, 33 has a longest extension in longitudinal direction. In this example, the one or more receptacles 21, 22, 31, 32 comprise a slit 21.1, 22.1, here with a longest extension in longitudinal direction, for sliding in a bent edge of a wall 11, 12, 13, 14. In Fig. 3, not all the details are referenced with reference signs for sake of cleaner visibility, but the extrusion profile30 has the same cross-section as extrusion profile 20. Furthermore, in this example, the slit is limited on one side by a web 21.2, 22.2 of the profile 20, 30 which is resilient by having a free end, such that the web engages onto the inserted wall at a certain force. In this example, the LED bar 50 has a plurality of LED's aligned in longitudinal direction on a common carrier component 52, here a rigid profile. The LED bar is here covered by a transparent lid 53. In this example, LEDs, carrier component 52 and the lid 53 are preassembled and form a module. The first profile 20 and the second profile 30 of the one or more extruded profiles 20, 30, 40 have an identical cross-section, such that the second profile 30 also has a trough 33, configured to receive an LED bar 50, wherein the trough 33 of the second profile 30 is covered by a blind 60. The trough 23, 33 comprises in a wall 23.1, 33.1, here base wall, of the trough 23, 33, a groove 23.2, 33.2 configured to receive an electric cable 51 for the LED bar 50. The trough 23, 33 comprises one or more structures configured to engage with snap-fit elements, here one or more hook elements, of the LED bar 50 or the lid 60 such that the LED bar or lid 60 50 is mounted and held in the trough 23 via a snap-fit. The trough 23, 33 comprises in a wall 23.3, 23.4, here one or more side walls, of the trough 23, 33 an edge 23.5, 23.6 with a surface 23.7, 23.8 next to it, whereby the surface 23.7, 23.8 is facing away from the compartment 2.The first profile 20 comprises in addition to the mounting portions 21, 22 and the trough 23 an insulation chamber 24 wherein the insulation chamber 24 is arranged between the trough 23 an at least one of the mounting portions 21.

Reference signs

1	food climatization container	23.3	wall of trough
2	compartment	23.4	wall of trough
3	door	23.5	edge
5	food products	23.6	edge
10	frame structure	23.7	surface
11	inner wall	23.8	surface
12	outer wall	24	insulation chamber
13	inner wall	30	extrusion profile
14	outer wall	31	mounting portion
20	extrusion profile	32	mounting portion
21	mounting portion	33	trough
21.1	slit of mounting portion	33.1	wall of trough
21.2	web of the profile	33.2	groove
22	mounting portion	40	extrusion profile
22.1	slit of mounting portion	50	LED bar
22.2	web of the profile	51	electric cable
23	trough	52	carrier component
23.1	wall of trough	53	(semi-)transparent lid
23.2	groove	60	blind

Claims

1. Food climatization container (1), wherein the container (1) comprises a compartment (2) for storage of food products (5), the compartment (2) being surrounded by a frame structure (10) and walls (11, 12, 13, 14) and closable by door (3) of the container (1), wherein the container (1) comprises or is connectable to a cooling unit for cooling the compartment (2),
wherein the frame structure (10) comprises one or more extruded profiles (20, 30, 40) interconnected with each other and comprising one or more mounting portions (21, 22, 31, 32) for a portion of an inner wall (11, 13) or outer wall (12, 14) of the container (1), **characterized in that** at least a first profile (20) of the one or more extruded profiles

(20, 30, 40) comprises a trough (23, 33) facing towards the compartment (2), wherein an LED bar (50) is mounted in the trough (23).

2. Food climatization container (1) according to claim 1, wherein the first profile (20) and a second profile (30) of the one or more extruded profiles (20, 30, 40) have an identical cross-section, such that the second profile (30) also has a trough (33), configured to receive an LED bar (50), wherein the trough (33) of the second profile (30) is covered by a blind (60).

3. Food climatization container (1) according to one of claims 1 to 2, wherein the trough (23, 33) comprises in a wall (23.1, 33.1) of the trough (23, 33), a groove (23.2, 33.2) configured to receive an electric cable (51) for the LED bar (50).

4. Food climatization container (1) according to one of claims 1 to 3, wherein the trough (23, 33) comprises one or more structures configured to engage with snap-fit elements of the LED bar (50) or a blind (60) such that the LED bar (50) or blind (60) is mounted and held in the trough (23) via a snap-fit.

5. Food climatization container (1) according to claim 4, wherein the trough (23, 33) comprises in a wall (23.3, 23.4) of the trough (23, 33) an edge (23.5, 23.6) with a surface (23.7, 23.8) next to it, whereby the surface (23.7, 23.8) is facing away from the compartment (2).

6. Food climatization container (1) according to one of claims 1 to 5, wherein the first profile (20) comprises in addition to the mounting portions (21, 22) and the trough (23) an insulation chamber (24) wherein the insulation chamber (24) is arranged between the trough (23) an at least one of the mounting portions (21).

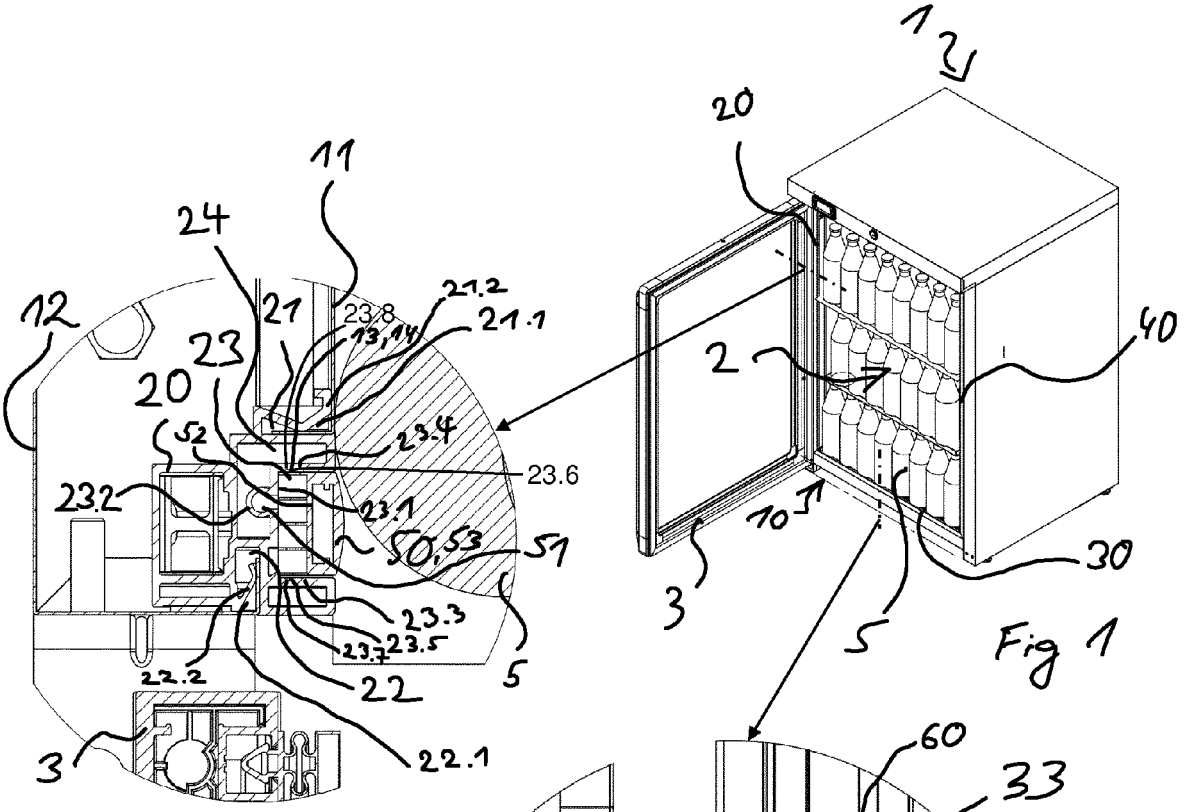

Fig 1

Fig.2

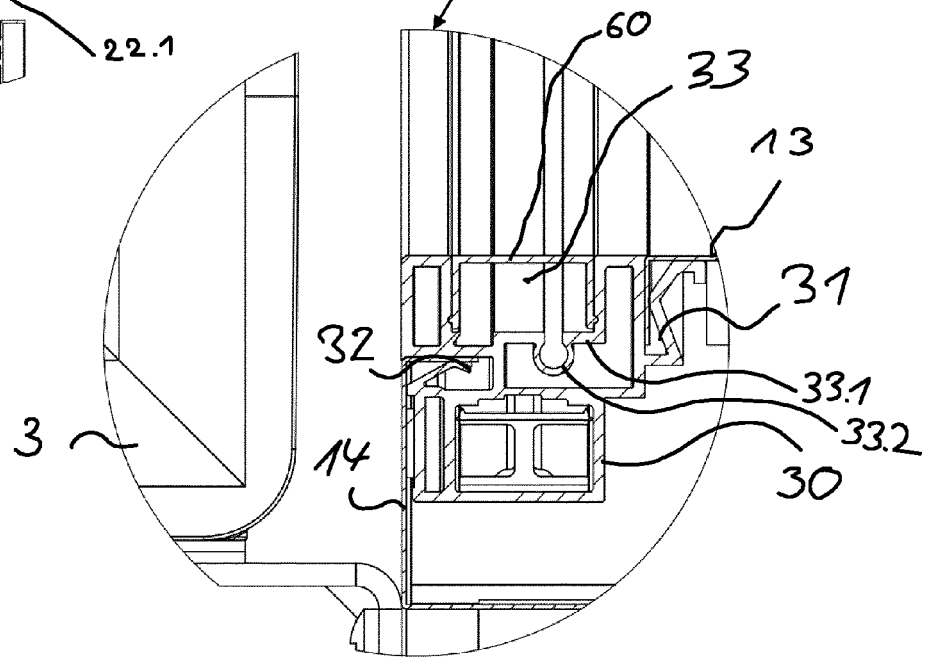

Fig.3

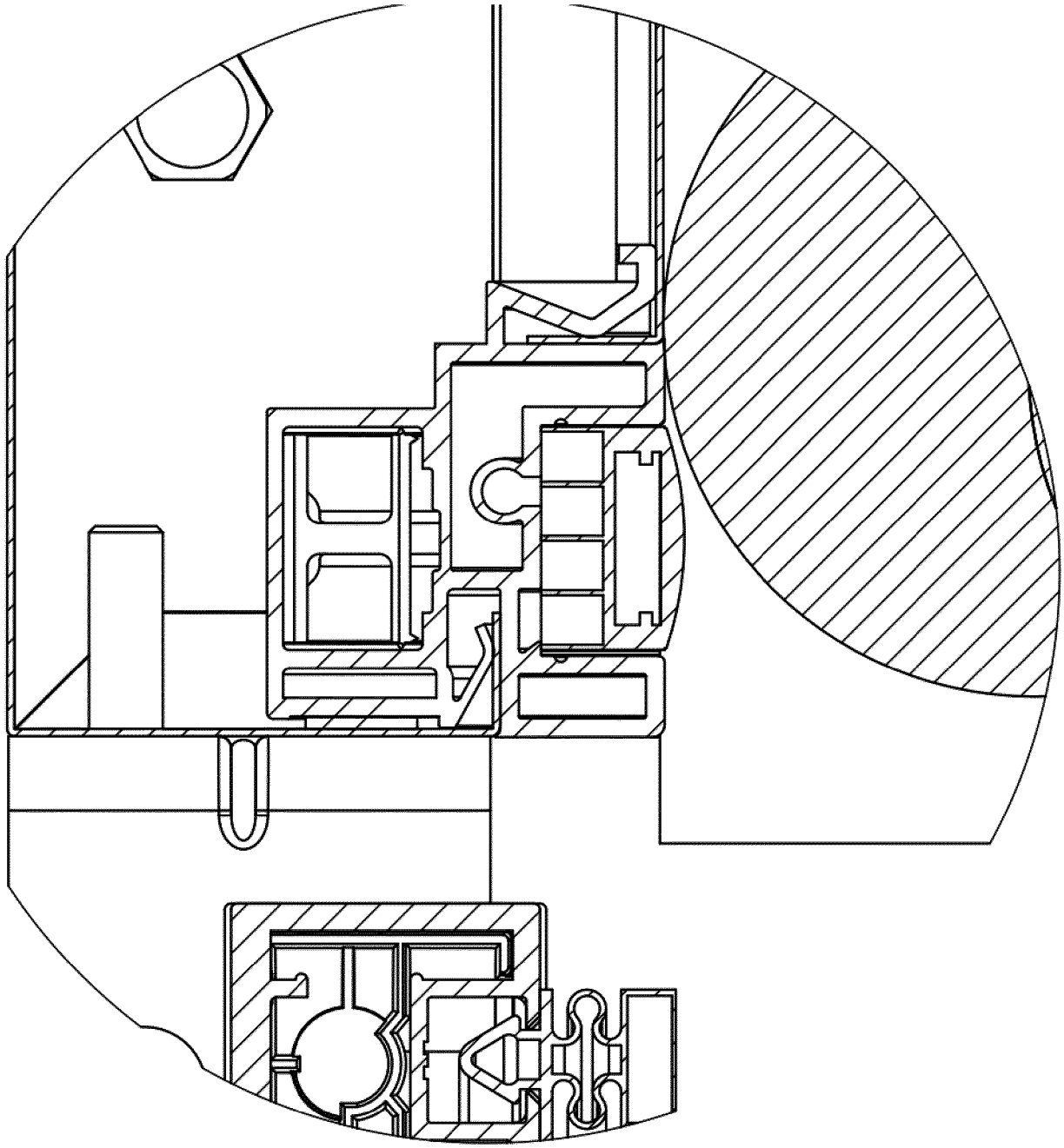

Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 19 18 0394

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 Y	EP 3 339 781 A1 (SAMSUNG ELECTRONICS CO LTD [KR]) 27 June 2018 (2018-06-27) * figures 1,3,5 *	1,2,4-6 3	INV. F25D23/06 F25D27/00
Y	DE 10 2010 023497 A1 (LIEBHERR HAUSGERAETE LIENZ [AT]) 15 September 2011 (2011-09-15) * figures 1-3 *	3	
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A	JP 2010 063536 A (NIKKEI PANEL SYSTEM KK) 25 March 2010 (2010-03-25) * paragraph [0025]; figures 1,2 *	1-6	
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TECHNICAL FIELDS SEARCHED (IPC)

F25D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	19 November 2019	Kuljis, Bruno

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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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
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