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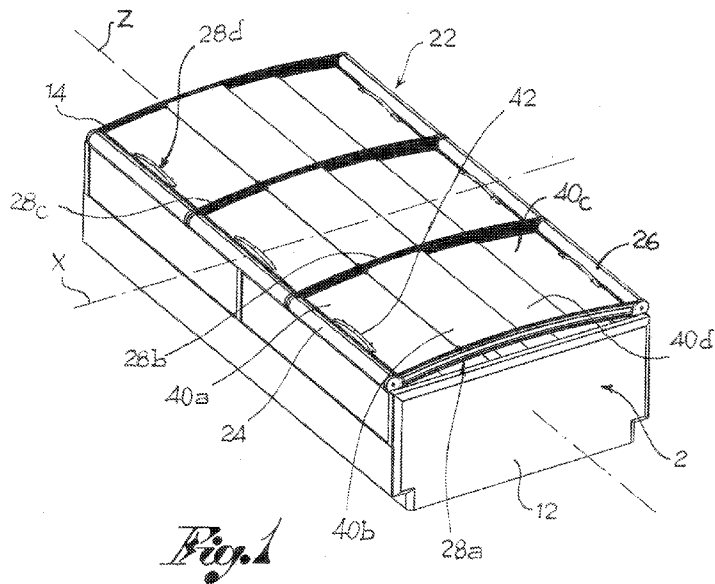
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[Continued on next page]

(54) Title: COVER FOR REFRIGERATOR ISLANDS FOR THE STORAGE OF FROZEN AND/OR FRESH PRODUCTS



(57) Abstract: A cover of a refrigerator island (1) comprises on one side a first proximal panel (40a) and a second distal panel (40b) positioned alongside the first, sliding transversally, and on the side transversally opposite a further proximal panel (40c) and a further distal panel (40d) transversally placed alongside the further proximal panel, they too also sliding transversally. The proximal panel and the distal panel form a telescopic system reciprocally engaging each other on opening and closing and in the terminal regional next to the centreline of the tub of the island, the distal panel (40b) of one side and the distal panel of the other side (40d) have an area in which they surmount each other, sliding on overlapping tracks.

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**DESCRIPTION****"Cover for refrigerator islands for the storage of frozen  
and/or fresh products"**

[0001] The present invention relates to a cover for  
5 refrigerator islands, generally used in mass distribution  
for the storage of frozen or fresh products.

[0002] Numerous solutions of covers for refrigerator  
islands exist.

[0003] For example, documents EP 1391171 and EP 1332698  
10 show a cover comprising a fixed central sheet in glass  
and sliding sheets positioned alongside the central  
sheet, for access to the compartment inside the island.

[0004] The aforementioned solution is particularly  
appreciated because it allows a saving of energy during  
15 normal use of the island. Aperture is in fact limited to  
a region of the mouth of the compartment corresponding to  
the sliding sheets; thereby reducing the dispersion of  
cold outside the compartment.

[0005] However the aforesaid solution limits the  
20 possibility of access to the products contained in the  
compartment, in some circumstances proving awkward.

[0006] The purpose of the present invention is to overcome  
the drawbacks connected with the known solutions, and  
in particular to conciliate energy saving by limiting the  
25 dispersion of cold with improved access to the

compartment of the island.

[0007] The characteristics and advantages of the cover according to the present invention will be evident from the description given below, made by way of a non-limiting example with reference to the appended drawings wherein:

[0008] - figure 1 shows a view of a refrigerator island fitted with a cover according to the present invention, in one embodiment;

10 [0009] - figure 2 shows a lateral cross-section view of the island in figure 1;

[0010] - figure 3 shows lateral view of the cover, in a limit closing position;

15 [0011] - figure 4 shows an enlargement of the area IV in figure 3;

[0012] - figure 5 shows a lateral view of the cover, in a partially open intermediate configuration;

[0013] - figure 6 shows an enlargement of the area VI in figure 5;

20 [0014] - figure 7 shows a lateral view of the cover, in a limit opening position; and

[0015] - figure 8 shows an enlargement of the area VIII in figure 7;

25 [0016] - figure 9 shows a lateral view of the cover, according to a further embodiment, in a limit closing

position; and

[0017] - figure 10 shows the cover in figure 9 in a limit opening position.

[0018] With reference to the appended drawings, reference  
5 numeral 1 globally denotes a refrigerator island, generally used in mass distribution for the storage of frozen or fresh products.

[0019] The island 1 comprises a tub 2 extending in a longitudinal direction Z, which conventionally defines  
10 the "long side" of the island and in a transversal direction X, orthogonal to the longitudinal direction, which conventionally defines the "short side".

[0020] The tub 2 has an internal compartment 4 to contain the products, defined by a bottom 6, by side walls 8, 10  
15 extending mainly in the longitudinal direction Z and by sides 12, 14, extending mainly in the transversal direction X.

[0021] Access to the compartment is given by an access aperture defined by the perimeter of the tub, formed by  
20 the free upper rim of the side walls 8, 10 and the sides 12, 14.

[0022] According to one embodiment, the tub 4 is separated by a separation wall 16, extending mainly in the longitudinal direction Z, generally positioned along the  
25 centreline of the compartment 4, so as to define relative

compartments 4a, 4b.

[0023] The island 1 comprises a cover 20 suitable to cover, at least partially, the access aperture to the compartment 4.

5 [0024] According to a preferred embodiment, the cover 20 can be coupled to and separated from the tub 2 as needed, for example for maintenance or assembly.

[0025] According to a further embodiment, the cover 20 is incorporated with the tub.

10 [0026] The cover 20 comprises a frame 22 positioned along the perimeter of the tub 2, that is along the rim of the access aperture to the compartment 4.

[0027] The frame 22 comprises longitudinal beams 24, 26 positioned along the rim of the side walls 8, 10 preferably having a tubular cross-section, and transversal guides 28a, 28b, 28c, 28d which join the longitudinal beams 24, 26 to the ends of these or in intermediate positions between the ends.

15 [0028] According to a further embodiment (not shown), an intermediate longitudinal beam is provided, positioned in an intermediate position between the ends of the transversal guides.

[0029] Preferably, the transversal guides 28a, 28b, 28c, 28d are arched, for example with an outline symmetrical to the transversal centreline of the tub 2.

25

[0030] According to a further embodiment (not shown), the transversal guides are rectilinear.

[0031] Each transversal guide 28a, 28b, 28c, 28d comprises a plurality of tracks 32, overlapping each other; for  
5 example four overlapping tracks 32a, 32b, 32c, 32d are provided.

[0032] Preferably, the tracks 32 extend for the entire extension of the respective transversal guide.

[0033] According to a further embodiment (not shown), the  
10 tracks extend only for a part of the extension of the respective transversal guide.

[0034] The cover 20 further comprises a plurality of panels, mounted on tracks 32, sliding transversally, that is to say sliding in the transversal direction X.

15 [0035] Preferably, the panels are made as glass sheets. According to further embodiments, the panels are made from colourless or coloured transparent sheets in polymer material, such as plexiglass.

[0036] Preferably, in addition, the panels have an arched  
20 transversal progress, so as to adapt to the curvature of the transversal guides which support them and enable sliding.

[0037] According to a further embodiment (not shown), the panels are flat, to slide on respective rectilinear  
25 guides.

[0038] On one side of the island, the cover has at least a first proximal panel 40a which extends transversally from the longitudinal beam 24, and a first distal panel 40b transversally placed alongside the proximal panel 40a, so as to extend substantially as far as the central area of the tub 2.

[0039] For example, the first proximal panel 40a is supported by the third track 32c and the respective distal panel 40b is supported by the fourth track 32d (figures 1 to 8).

[0040] On the other side of the island, the cover has at least one further proximal panel 40c which extends transversally from the longitudinal beam 26, and a further respective distal panel 40d, transversally placed alongside the further proximal panel 40c, so as to extend substantially as far as the central area of the tub 2.

[0041] In the terminal regional next to the centreline of the tub, the distal panel 40b of one side of the island and the distal panel 40d of the other side of the island have an area in which they surmount each other at least partially, sliding on overlapping tracks.

[0042] For example, the further proximal panel 40c is supported by the first track 32a and the further respective distal panel 40d is supported by the second track 32b (figures 1 to 8).

[0043] According to a further embodiment, the proximal panel 40a, 40c surmounts the respective distal panel 40b, 40d (figures 9 and 10).

[0044] According to such embodiment, on one side of the island, the first proximal panel 40a is supported by the fourth track 32d and the respective distal panel 40b is supported by the third track 32c, while on the other side of the island, the further proximal panel 40c is supported by the second track 32b and the further respective distal panel 40d is supported by the third track 32b.

[0045] The proximal panel 40a, 40c has a longitudinal abutment rim, which in the limit closing configuration substantially abuts with the beam 24, 26, and an opposite terminal longitudinal rim, while longitudinally it is defined by transversal rims.

[0046] Preferably, the proximal panel 40a, 40c comprises a handle 42, attached to the top side of the panel near the longitudinal abutment rim, for example projecting from said side.

[0047] Preferably, in addition, the proximal panel 40a, 40c comprises a coupling lip 50', projecting from the side of the panel, positioned near the terminal longitudinal rim.

[0048] The distal panel 40b, 40d has a longitudinal engagement rim, which in the limit opening configuration

is near the terminal longitudinal rim of the proximal panel 40b, 40d, and an opposite free longitudinal rim, while longitudinally it is defined by transversal rims.

[0049] Preferably, the distal panel 40b, 40d comprises a  
5 further coupling lip 50", projecting from the side of the distal panel, positioned near the longitudinal engagement rim, suitable to structurally interact with the coupling lip 50' of the respective proximal panel.

[0050] For example, when the distal panel surmounts the  
10 proximal panel, the coupling lip 50' of the proximal panel projects from the bottom side of said panel, while the further coupling lip 50" of the distal panel projects from the top side of this.

[0051] Vice versa, when the proximal panel surmounts the  
15 distal panel, the coupling lip 50' of the proximal panel projects from the top side of said panel, while the further coupling lip 50" of the distal panel projects from the bottom side of this.

[0052] Preferably, in addition, when the proximal panel  
20 surmounts the distal panel, the handle 42 comprises at least one extension 42a which projects from the base of the handle, through the thickness of the panel and protrudes from the bottom side of said panel, so to structurally interact, during sliding of the proximal  
25 panel, with the underlying distal panel.

[0053] During normal use of the cover, in a limit closing configuration, the proximal panels 40a, 40c occupy a limit closing position in which they abut with the respective beams 24, 26 and the distal panels 40b, 40d occupy a limit closing position in which they present the minimum overlap with the respective proximal panels 40a, 40c (or even no overlap); the compartment 4 of the tub 2 is thereby not accessible to the user through the apertures closed by the panels.

10 [0054] When the user needs to access the compartment 4 to take out or replace a product he normally grasps the handle 42 of the proximal panel 40a, 40c which is nearer him than the distal panel, and pushes said panel, making it slide on the tracks 32 it rests on.

15 [0055] Initially, while the proximal panel slides, the distal panel, despite being mounted to slide, remains immobile.

[0056] If the product is replaced in the vicinity of the side wall 24, 26 of the tub 2, the movement of the proximal panel alone is sufficient to permit access to the relevant area of the compartment 4; after taking out the product, it is therefore sufficient to pull the proximal panel back to make it return to the limit closing position.

25 [0057] If the product is replaced in the central area of

the compartment, the proximal panel 40a, 40c needs to be pushed open further; during the stroke of the proximal panel 40a, 40c, the handle 42 abuts with the longitudinal engagement rim of the overlying distal panel 40b, 40d or  
5 the extension 42a of said handle 42 abuts with the longitudinal engagement rim of the underlying distal panel 40b, 40d.

[0058] In such configuration of initial engagement the proximal panel 40a, 40c and the distal panel 40b, 40d are  
10 in the condition of maximum overlap, while the distal panel is still in the limit closing position.

[0059] Continuing to push the proximal panel 40a, 40c causes dragging of the distal panel 40b, 40d too.

[0060] By shifting the distal panel the user can therefore  
15 conveniently access the central area of the compartment 4.

[0061] In the limit opening configuration, the proximal panel 40a, 40c and the distal panel 40b, 40d are in a  
20 limit opening position wherein said panels are in a condition of maximum reciprocal overlap and abut with a fixed element along the transversal guide, which prevents any further opening movement.

[0062] After taking out the product, it is sufficient to pull back the proximal panel, until the coupling lip 50'  
25 which projects from the proximal panel abuts with the

further coupling lip 50" projecting from the distal panel; this way the distal panel will be dragged backwards until it reaches the limit closing position.

[0063] In other words, the proximal panel and the relative  
5 distal panel form a telescopic system in opening and in closing.

[0064] The handle 42 which abuts with the distal panel, dragging it in translation, or its extension 42a, form an example of means of engagement of the proximal panel and  
10 the distal panel, said means of engagement being suitable to firmly engage the proximal panel and the distal panel in sliding, from the limit closing position to the limit opening position. Preferably, said means of engagement are activated by the sliding proximal panel with a delay  
15 in relation to the sliding of said proximal panel.

[0065] The coupling lips of the proximal panel and the distal panel, which abut in the return stroke to bring the panels to the limit closing position, form an example of return means, said return means being suitable to  
20 firmly engage the proximal panel and the distal panel in sliding, from the limit opening position to the limit closing position. Said return means are activated by the sliding proximal panel with a delay in relation to the sliding of said proximal panel.

25 [0066] Innovatively, the cover according to the present

invention permits extreme ease of access to all areas of the refrigerator island combined with considerable energy savings.

[0067] In fact, the sliding of the distal panel is limited to the effective needs of the user; when it is not necessary to access the central area of the compartment, the distal panel is not moved, and this permits a considerable saving of energy and improved conservation of the foods.

[0068] By way of example, the refrigerator island illustrated in the appended drawings is accessible from two sides of the tub and on each side of the tub three compartments are provided.

[0069] According to further embodiments, the number of adjacent compartments is variable, it being possible to produce islands with more than three or less than three compartments.

[0070] In particular, according to a further embodiment, the island has a single compartment.

[0071] In addition, according to further embodiments, the island is only accessible from one side of the tub, on the other side being placed for example against a wall or other item of furniture.

[0072] It is clear that a person skilled in the art may make further modifications to the cover described above

while remaining within the sphere of protection as defined by the following claims.

**Claims**

1. Cover of a refrigerator island (1) for the conservation of frozen and/or fresh products, associable with a tub (2) extending in a longitudinal direction (Z) and a transversal direction (X), and provided with a compartment (4) for the products, comprising
- 5
- a frame (22) comprising at least one longitudinal beam (24, 26) and transversal guides (28a, 28b, 28c, 28d) distanced longitudinally, each guide being provided with
- 10
- at least two overlapping tracks;
  - on one side:
    - a) a first proximal panel (40a) supported by the transversal guides so as to slide in a transversal direction on the first tracks; and
- 15
- b) a second distal panel (40b) transversally placed alongside the first proximal panel, supported by the transversal guides so as to slide in a transversal direction on second tracks;
- and on the side transversally opposite:
    - 20 a) a further proximal panel (40c) supported by the transversal guides so as to slide in a transversal direction on the first tracks; and
    - b) a further distal panel (40d) transversally placed alongside the further proximal panel, supported by the
- 25
- transversal guides so as to slide in a transversal

direction on second tracks;

wherein the proximal panel and the distal panel form a telescopic system reciprocally engaging each other on opening and closing, and wherein

5 - in the terminal regional next to the centreline of the tub, the distal panel (40b) of one side and the distal panel of the other side (40d) have an area in which they surmount each other at least partially, sliding on overlapping tracks.

10 2. Cover according to claim 1, comprising means of engagement between the proximal and distal panel, said means of engagement being suitable to firmly engage the proximal panel and the distal panel in sliding, from the limit closing position to the limit opening position.

15 3. Cover according to claim 2, wherein said means of engagement are activated by the sliding proximal panel with a delay in relation to the sliding of said proximal panel.

4. Cover according to claim 2 or 3, wherein the means of  
20 engagement comprise a handle (42) attached to the proximal panel and projecting from the top side of the same.

5. Cover according to any of the previous claims, wherein the means of engagement comprise a protrusion (42a)  
25 attached to the proximal panel and protruding from the

bottom side of the same.

6. Cover according to any of the previous claims, comprising return means suitable to firmly engage the sliding proximal panel and distal panel, from the limit opening position to the limit closing position.

7. Cover according to claim 6, wherein said return means are activated by the sliding proximal panel with a delay in relation to the sliding of said proximal panel.

8. Cover according to claim 6 or 7, wherein said return means comprise coupling lips projecting from the side of said proximal panel (40a, 40c) and further coupling lips projecting from the side of said distal panel (40b, 40d), said lips being suitable to structurally interact for the relative sliding of the panels.

9. Cover according to any of the previous claims, wherein the distal panel (40b, 40d) at least partially surmounts the proximal panel (40a, 40c).

10. Cover according to any of the claims from 1 to 8, wherein the proximal panel (40a, 40c) at least partially surmounts the distal panel (40b, 40d).

11. Cover according to any of the previous claims, wherein the transversal guides are arched and the panels are arched to slide in contact with said guides.

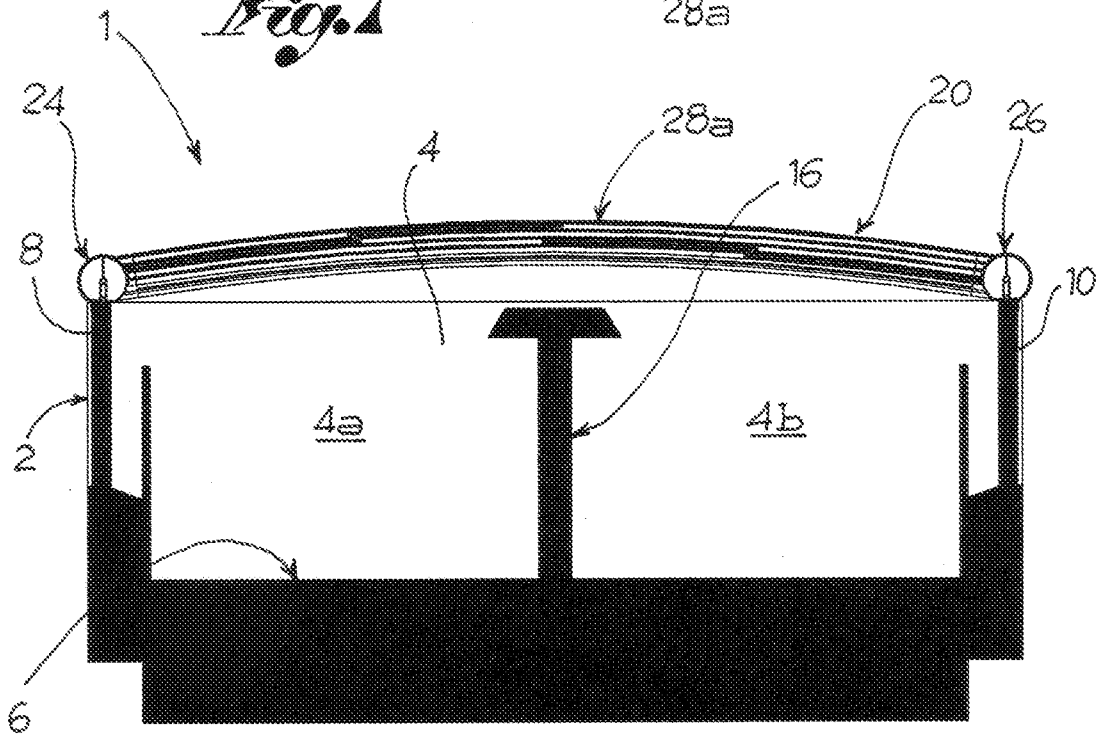
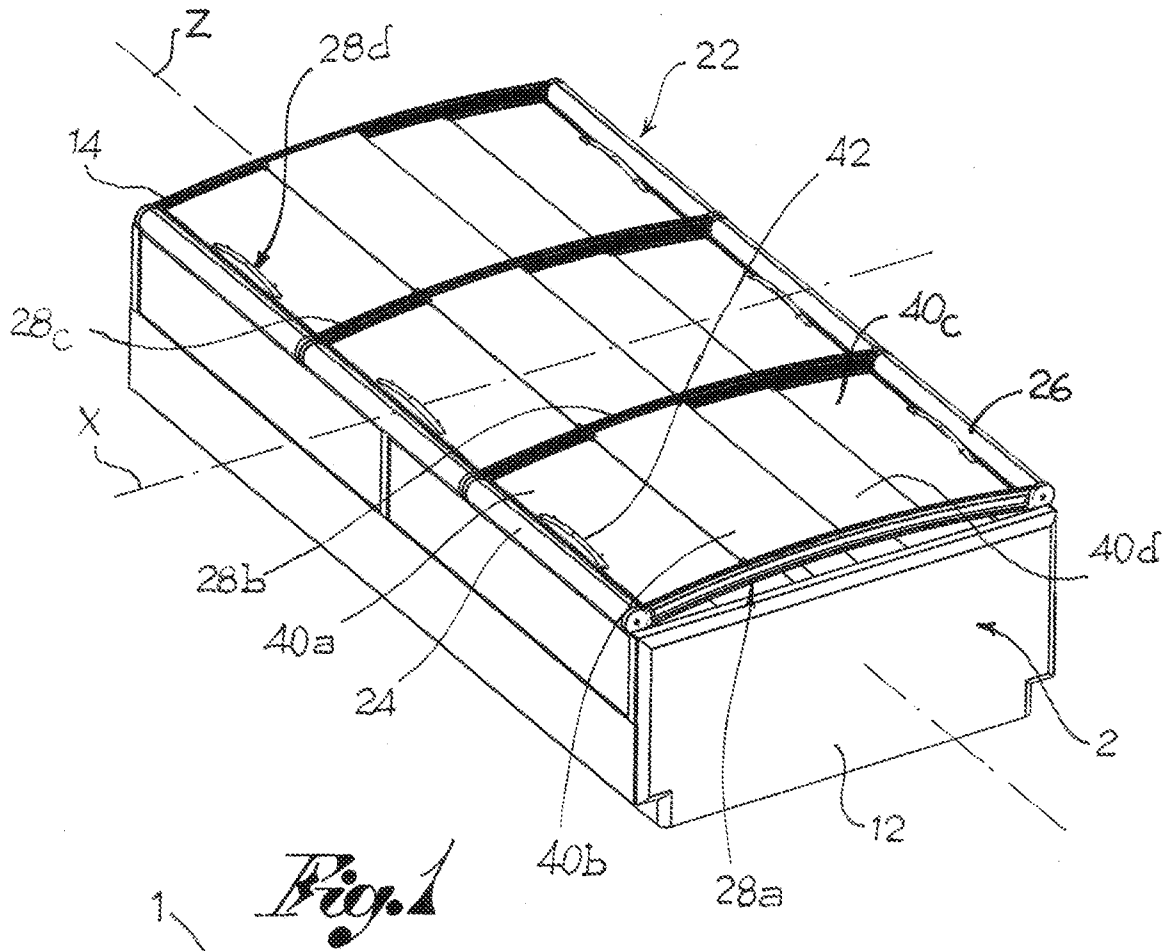
12. Cover according to any of the previous claims, wherein the panels are made from glass sheets.

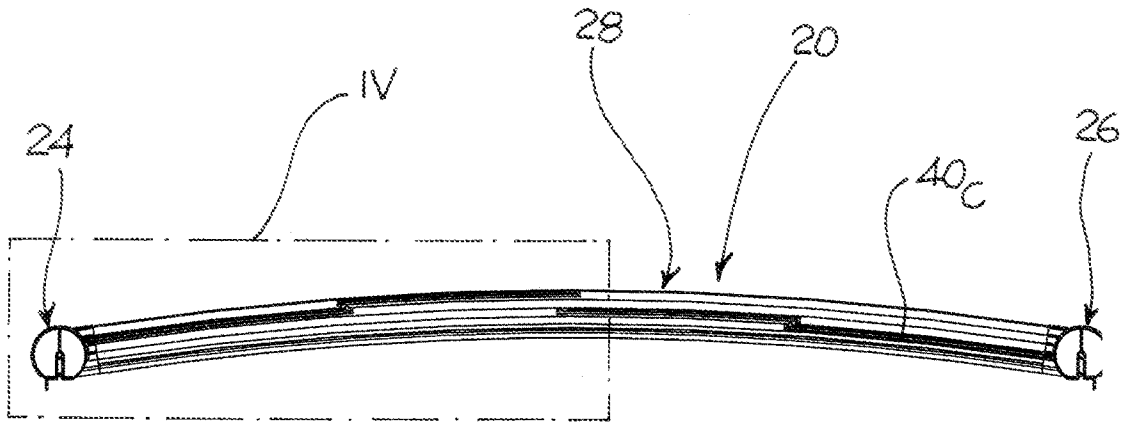
13. Refrigerator island (1) for the conservation of frozen and/or fresh products, comprising a tub (2) provided with a compartment (4) and a cover according to any of the previous claims to enable/prevent access to  
5 the compartment (4).

14. Refrigerator island according to claim 13, wherein a plurality of proximal panels placed longitudinally side by side and a plurality of respective distal panels are provided.

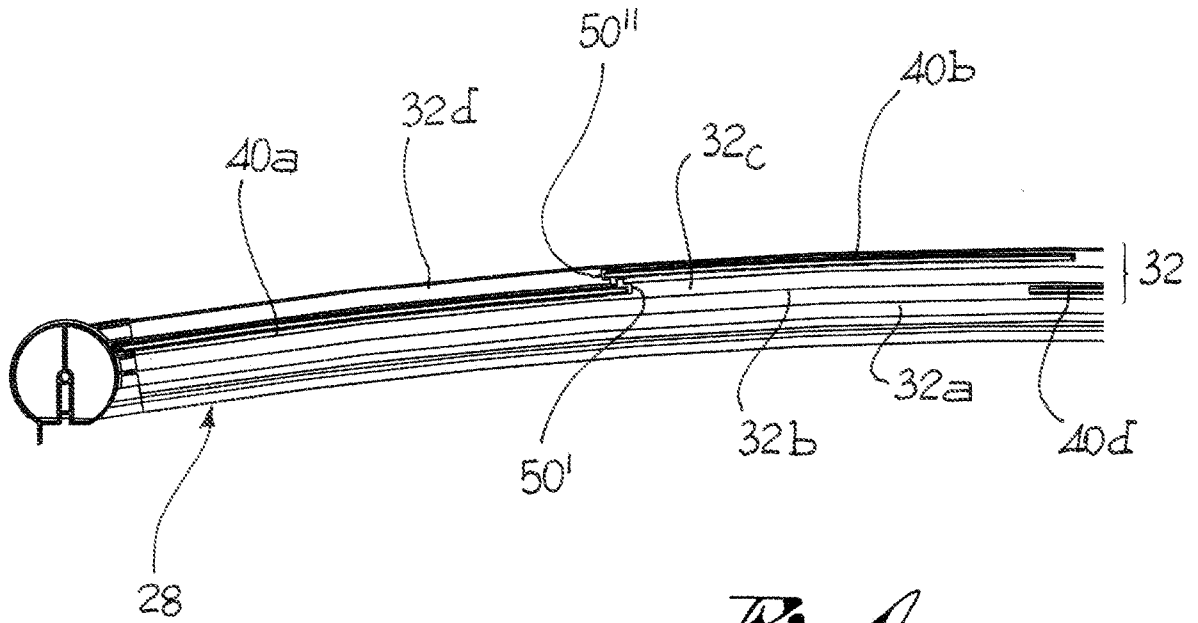
10 15. Refrigerator island according to claims 13 or 14, wherein the cover is separable from the tub.

16. Refrigerator island according to claims 13 or 14, wherein the cover is incorporated with the tub.

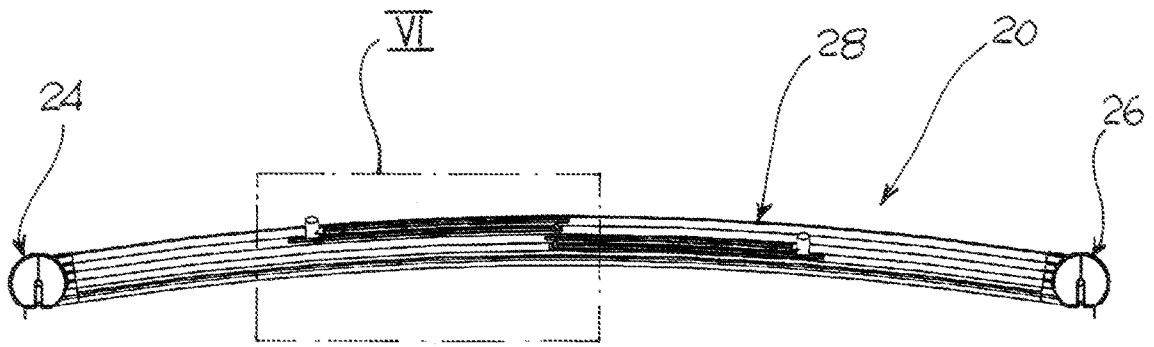




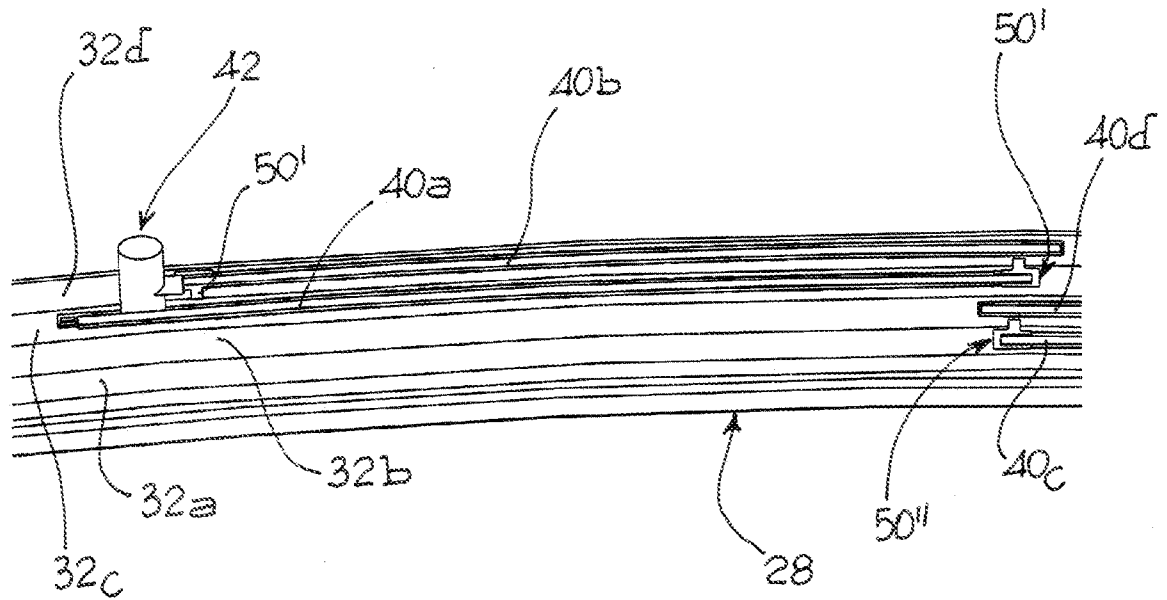
*Fig. 3*



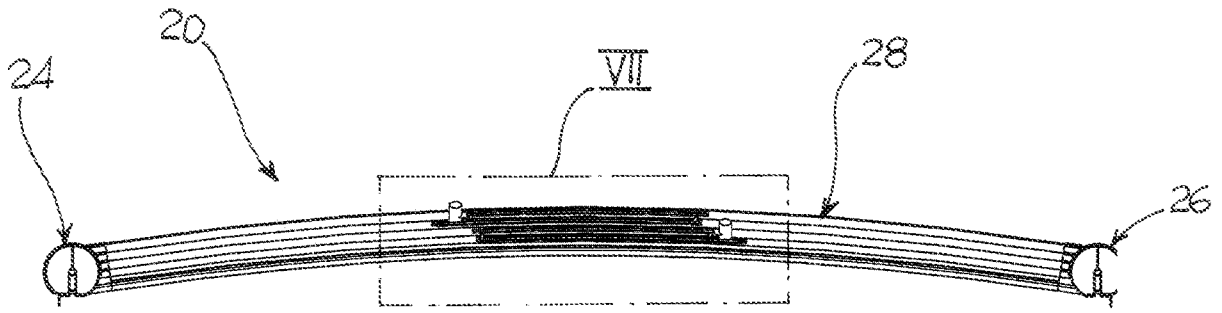
*Fig. 4*



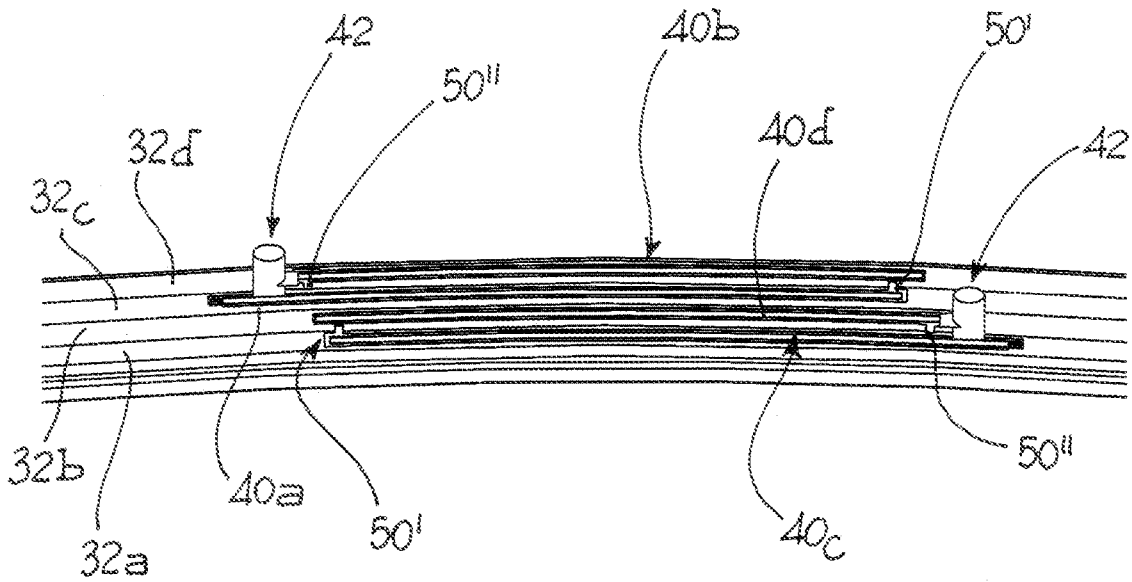
*Fig. 5*



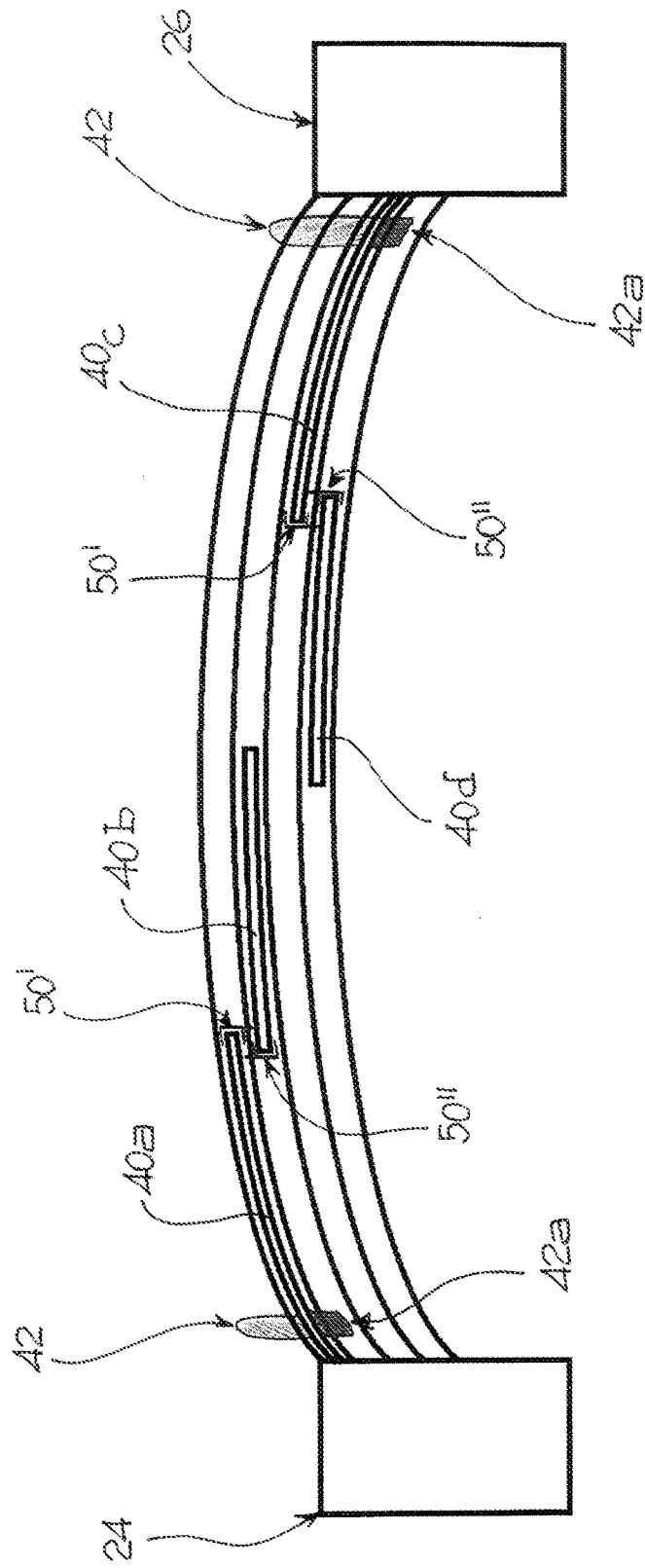
*Fig. 6*



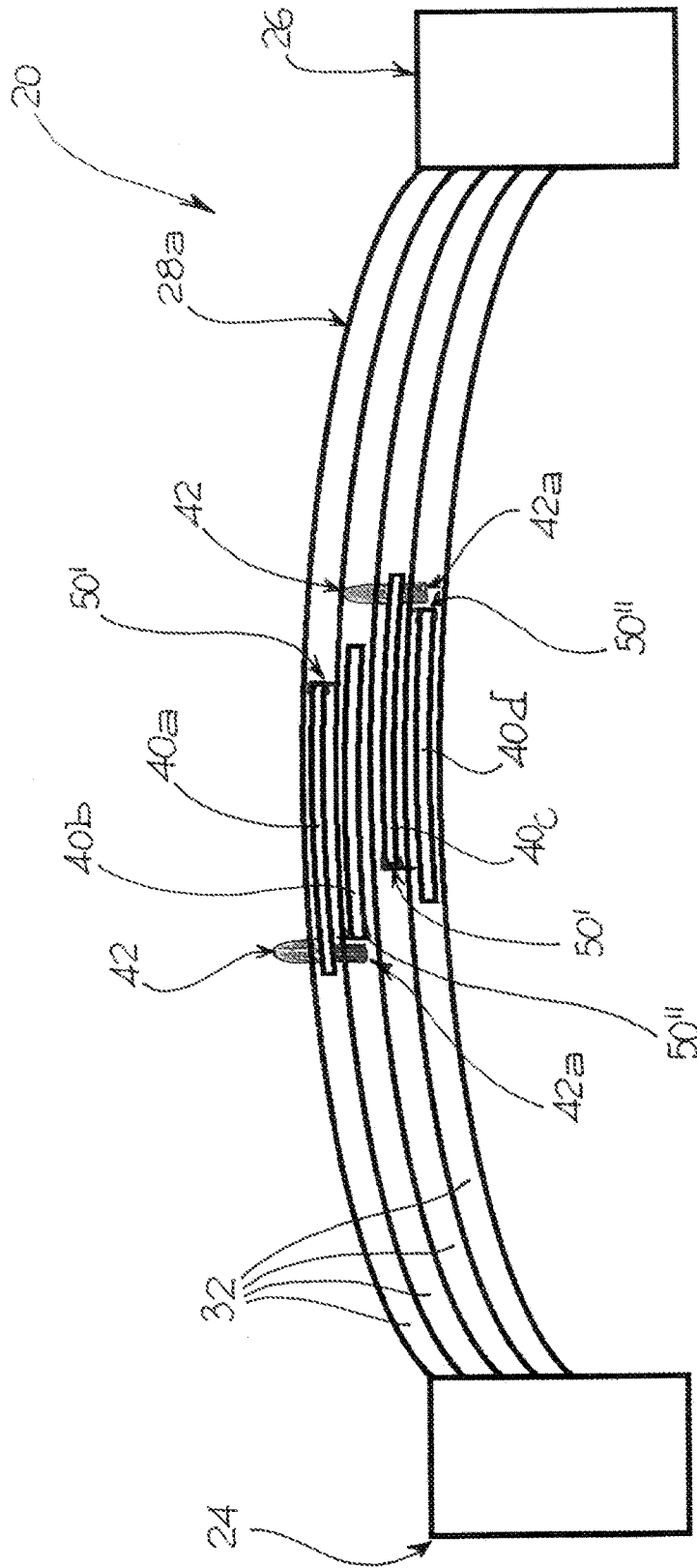
*Fig. 7*



*Fig. 8*



*Fig. 9*



*Fig. 10*

# INTERNATIONAL SEARCH REPORT

International application No <b>PCT/IB2011/053874</b>
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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. A47F3/04 ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) A47F F25D		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 391 171 A1 (BEHR KRISTIAN [DK]; BEHR PETER [DK] BEHR AS [DK]) 25 February 2004 (2004-02-25) cited in the application the whole document -----	1-16
A	WO 97/19621 A1 (TERMOFROST SWEDEN AB [SE]; NILSSON HANS [SE]; DIRENIUS BO [SE]; OLOFSS) 5 June 1997 (1997-06-05) page 5, line 3 - page 5, line 27; figures -----	1-16
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<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <span style="margin-left: 200px;"><input checked="" type="checkbox"/> See patent family annex.</span>		
* Special categories of cited documents :		
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"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 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "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	Date of mailing of the international search report	
10 November 2011	22/11/2011	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Ottesen, Rune	

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International application No  
PCT/IB2011/053874

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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Information on patent family members

International application No PCT/IB2011/053874
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