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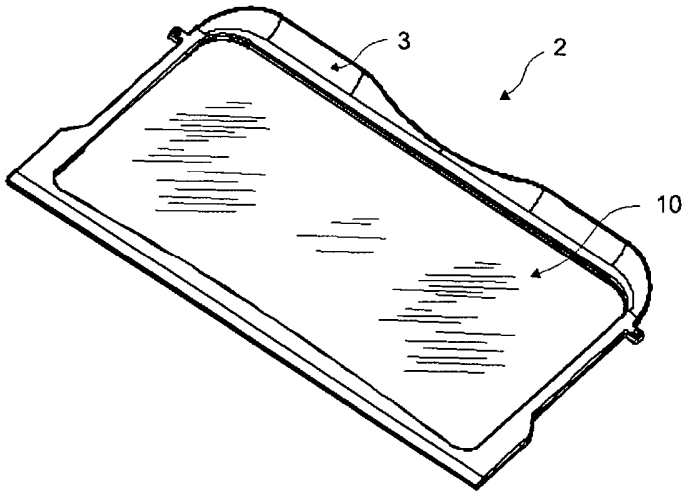
(54) Title: A COOLING DEVICE




(57) Abstract: This invention relates to a cooling device (1) comprising a shelf (2) having a support surface (10) preferably made of glass material.

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# Description

## A COOLING DEVICE

[001] This invention relates to a cooling device comprising a shelf having a support surface preferably of glass material.

[002] In cooling devices, there are one or more shelves on which food, beverages and other items to be cooled are stored. The support surface of the shelf is preferably made of glass for hygienic and aesthetic purposes. However, in this type of shelving systems where glass surfaces are used, mechanical processing problems like cutting, drilling etc. may occur. Moreover, it is important that the sides of the glass be processed in such a way not to cause any harm to the user.

[003] In the current state of the art, the German Patent DE19706285 and the European Patent document EP701098, glass shelves framed in the perimeter by a plurality of plastic parts, which are joined together later on are described.

[004] In other embodiments of the state of the art, English Patent documents GB2124483 and GB2322073, glass shelves, which are positioned into a "U" shaped frame and closed by another piece with an open orifice are described.

[005] In other embodiments of the state of the art, the English Patent document GB2165747 and the German Patent Document DE9402164 describe glass shelves positioned in between two "U" shaped frames having channels.

[006] In other embodiments of the state of the art, German Patent documents DE9408011 and DE9100802 and European Patent Document EP1271078, description of glass shelves is given of which only one or two sides are framed.

[007] In another embodiment of the state of the art, the United States Patent Document US4934541 describes a shelf containing glass positioned between upper and lower frames.

[008] The object of this invention is to accomplish a cooling device comprising a shelf preferably of glass material having a support surface framed in such a way that no harm is inflicted on the user.

[009] The cooling device designed to fulfill the object of the present invention is illustrated in the attached figures, wherein

[010] Figure 1 – is the perspective view of a cooling device

[011] Figure 2 – is the perspective view of a shelf

[012] Figure 3 – is the perspective view of a shelf, the support surface of which is partly taken out of the channel

[013] Figure 4 – is the rear perspective view of a shelf locked in by a fixing element

[014] Figure 5 – is the X detail view of a shelf

[015] Figure 6 – is the rear perspective view of an unlocked shelf

[016] Figure 7 – is the Y detail view of a shelf

[017] Figure 8 – is the perspective view of a fixing element

[018] Figure 9 – is the rear perspective view of an alternative shelf

[019] Figure 10 – is the Z detail view of a shelf

[020] Elements shown in figures are numbered as follows:

1. Cooling device
2. Shelf
3. Frame
4. Channel
5. Fixing element
6. Projection
7. Fixing element housing
8. Projection housing
9. Stopper
10. Support surface
11. Body
12. Door
13. Opening

[021] The cooling device (1) comprises a body (11) in which food, beverages and items to be cooled are stored, at least one door (12) which may be opened and closed enabling the storing of the items to be cooled in the body (11), and one or more shelves (2) positioned in the body (11) and/or on the door (12) on which items to be cooled are stored.

[022] The shelf (2) comprises preferably one or more support surfaces (10) on which items are stored, a frame (3) produced in one piece into which the support surface (10) is positioned, bordering all the sides of the support surface (10), an opening (13) situated on one side of the frame (3), through which the support surface (10) is inserted into the frame (3), and as the support surface (10) is fitted in and out of the frame (3), guiding the support surface (10) with its sides contacting the support surface(10) and one or more fixing elements (5) which ensure that the support surface (10) does not disengage from the frame (3).

[023] The frame (3) comprises one or more channels (4) the entrance of which is the opening (13) and into which the support surface (10) is inserted through the opening (13) by sliding, one or more stoppers (9) partly covering the opening (13) in order to prevent the support surface (10) positioned into the channel (4) from getting loose from the opening (13), one or more projections (6) which serve to attach the fixing element (5), and a fixing element housing (7) on the projection (6) into which the fixing element (5) is positioned.

[024] The fixing element (5) comprises projection housings (8) corresponding to the projections (6) in shape and in number into which the projections (6) are seated.

[025] In the preferred embodiment of the present invention, the support surface (10) is manufactured of glass material and the frame of plastic material.

[026] In another embodiment of the present invention the support surface (10) is produced of a colored, ceramic material.

[027] In the embodiment of the present invention, the support surface (10) is fitted into the frame (3) by pushing in through the opening (13) and bypassing the stoppers (9) it is pushed in to be positioned at the back of the stoppers (9). After the support surface (10) is positioned, the fixing elements (5) are fixed by pushing into the fixing element housings (7) through the open orifices of projections (6) for ensuring the frame (3) to support entirely the support surface (10) and to hide from sight the fixing element housings (7) between the frame (3) and the support surface (10). The rear end surface where the support surface (10) is fitted in through the opening (13), is positioned facing the interior surface of the body (11). In this way, the contact of the user with uncovered and probable harm inflicting parts of the support surface (10) is prevented.

[028] In another embodiment of the present invention, the stopper (9) comprises projection housings (8) corresponding to the projections (6) in shape and in number into which the projections (6) are seated. In this embodiment where fixing element (5) is not utilized, the support surface (10) is fitted into the channel (4) after bypassing the stopper (9), the projections (6) are attached on the projection housings (8) and the shelf (2) is formed by means of a one-piece frame (3) without using any appended parts and the support surface (10) is fixed into this frame (3). (Figure 9, Figure 10)

[029] Since the embodiment of the present invention comprises a few parts, it facilitates assemblage and utilization, and during the production phase provides benefits in costs and production time. Especially differing from known embodiments, the frame (3) with its one-piece and rigid structure, ensures the facile assembly and fixing of the support surface (10) and avoids easy disengagement after being fixed, thus enabling a practical production resulting in a durable product which also finds grounds in the utilization of the shelf (2). Furthermore, since the contact of the user is prevented with the support surface (10), probable injuries that may result as a consequence of such contact are prevented.

# Claims

[001] A cooling device (1) comprising a body (11) in which food, beverages and other items to be cooled are stored, at least one door (12) which may be opened and closed enabling the storing of the items to be cooled in the body (11), and characterized by one or more shelves (2), positioned inside the body (11) and/or on the door (12), onto which items to be cooled are stored, comprising preferably one or more support surfaces (10) onto which items are stored, a frame (3) into which the support surface (10) is positioned, produced as one-piece and bordering all the sides of the support surface (10), an opening (13) situated on one side of the frame (3) and as the support surface (10) is fitted in and out of the frame (3) through which the support surface (10) is inserted into the frame (3), guiding the support surface (10) with its sides contacting the support surface (10).

[002] A cooling device (1) as in Claim 1, characterized by shelf (2) comprising frame (3) of which the opening (13) serve as the entrance for it, having one or more channels (4) into which the support surface (10) is inserted through the opening (13) by sliding.

[003] A cooling device (1) as in Claim 2, characterized by shelf (2) comprising frame (3) including one or more stoppers (9) that partly cover the opening (13) in order to prevent the support surface (10) positioned into the channel (4) from getting loose and disengaging from the opening (13).

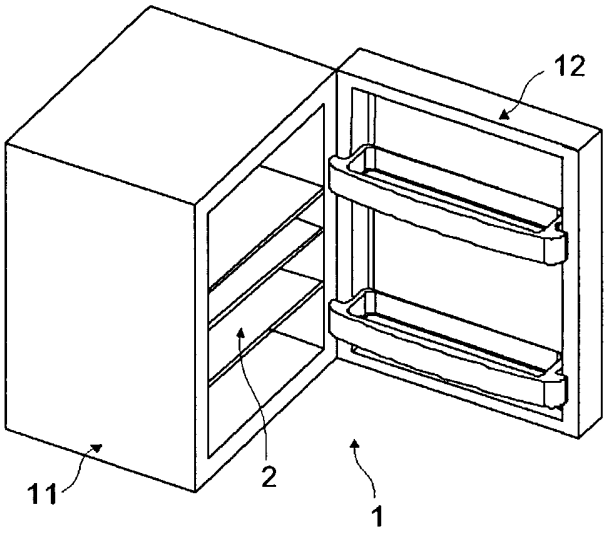
[004] A cooling device (1) as in Claim 1 to 3, characterized by shelf (2) comprising one or more fixing element (5) which serve to avoid disengaging of the support surface (10) from the frame (3).

[005] A cooling device (1) as in Claim 4, characterized by shelf (2) comprising frame (3) which includes one or more projections (6) that serve to attach the fixing element (5), and a fixing element housing (7) on the projection (6) into which the fixing element (5) is positioned.

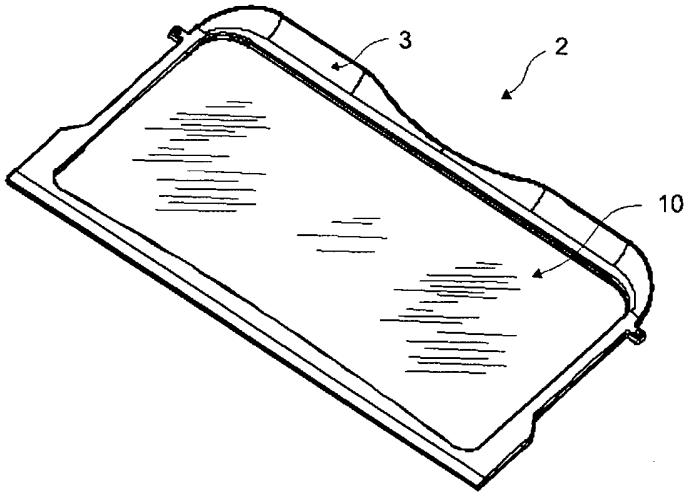
[006] A cooling device (1) as in Claim 5, characterized by shelf (2) having fixing element (5) including projection housings (8) corresponding to the projections (6) in shape and in number, into which the projections (6) are seated.

[007] A cooling device (1) as in Claim 1, characterized by shelf (2) comprising frame (3) having stopper (9) with one or more projections (6) and projection housings (8) corresponding to the projections (6) in shape and in number into which the projections (6) are seated.

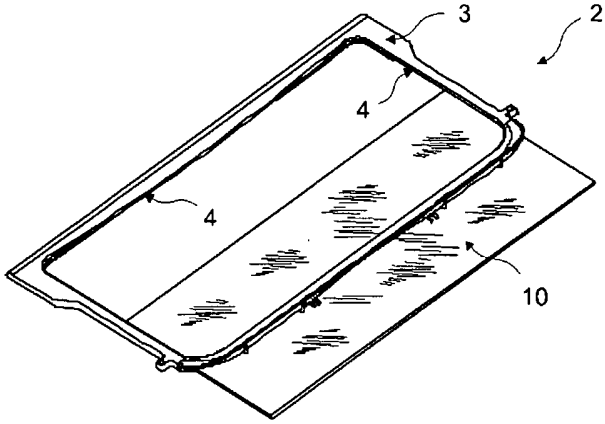
[Fig. 001]



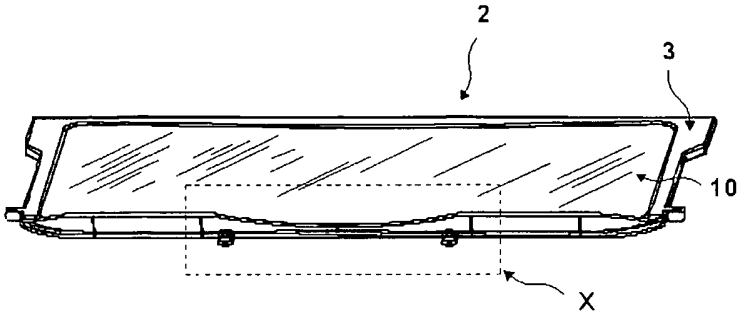

[Fig. 002]



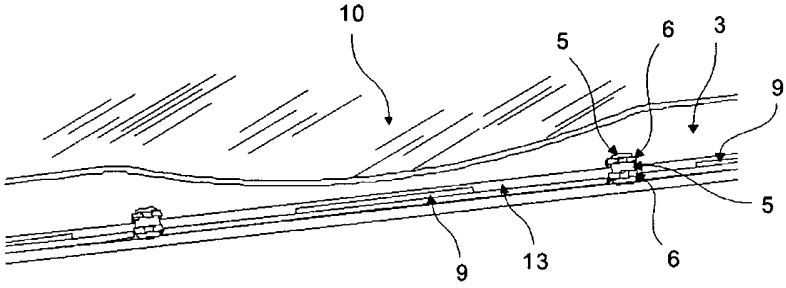

[Fig. 003]



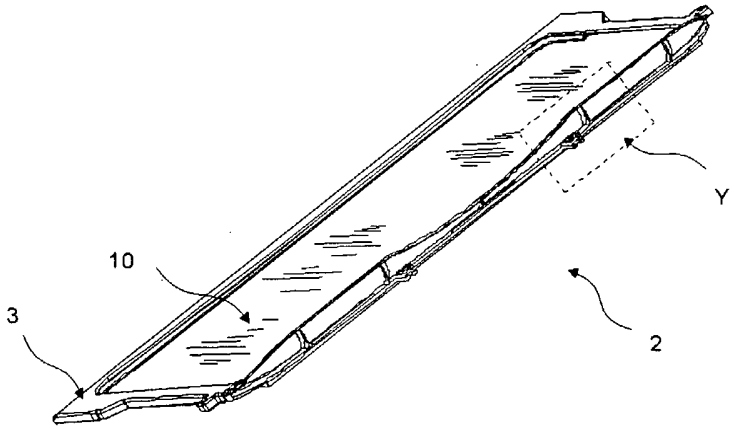
[Fig. 004]



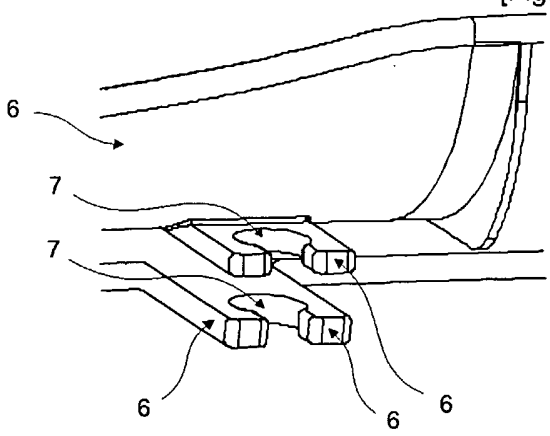

[Fig. 005]



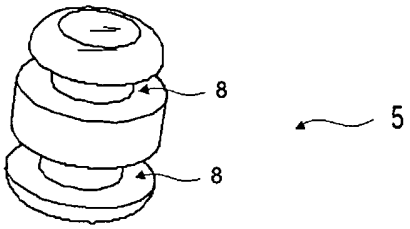

[Fig. 006]



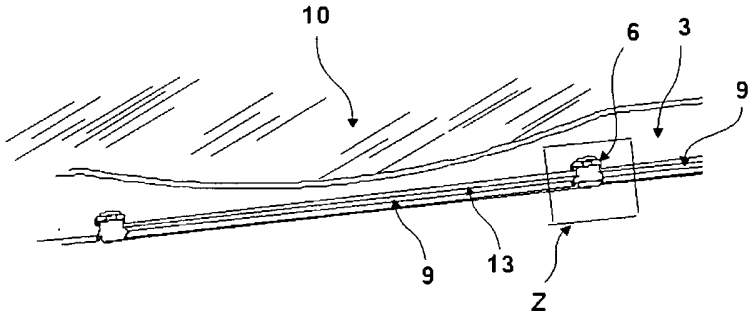

[Fig. 007]



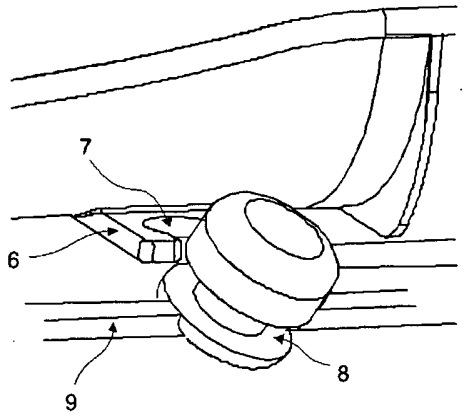
[Fig. 008]




[Fig. 009]




[Fig. 010]



# INTERNATIONAL SEARCH REPORT

Int[illegible]nal Application No
PC[illegible]/IB2005/052532

A. CLASSIFICATION OF SUBJECT MATTER
F25D25/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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|---|---|---|
| X | US 6 045 101 A (GOYETTE ET AL)<br>4 April 2000 (2000-04-04)<br>column 3, line 34 - column 5, line 56;<br>figures 6-8 | 1-7 |
| X | PATENT ABSTRACTS OF JAPAN<br>vol. 2000, no. 18,<br>5 June 2001 (2001-06-05)<br>-& JP 01 102270 A (MATSUSHITA REFRIG CO LTD), 19 April 1989 (1989-04-19)<br>abstract | 1-4 |
| A | US 6 422 673 B1 (BIENICK CRAIG)<br>23 July 2002 (2002-07-23)<br>column 4, line 27 - column 6, line 6;<br>figures 6-8 | 1,4 |

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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|---|---|
| 2 November 2005 | 29/11/2005 |

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Inter al Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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