Refrigerator ice cream showcase with reduced energetic consumption and with increased protection of the contained products

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ABSTRACT
Refrigerator ice cream showcase with reduced energetic consumption and with increased protection of the contained products, is provided with two thermo-insulating transparent panels (7) and (8) placed above basins (4) and (5), to which may be extended in order to cover the whole refrigerated place or superimposed towards the external edge to free the basins internal row and in this position, if required, can be raised by rotation, to keep accessible all the basins. The movements can be manually impressed or by motor means or actuators means.
REFRIGERATOR ICE CREAM SHOWCASE WITH REDUCED ENERGETIC CONSUMPTION AND WITH INCREASED PROTECTION OF THE CONTAINED PRODUCTS

TECHNICAL FIELD

[0001] The present invention refers to refrigerator showcases for loose ice-cream and similar and in particular it refers to a refrigerator ice cream showcase with reduced energetic consumption and with increased protection of the contained products.

BACKGROUND ART

[0002] The whisked ice-cream of industrial or artisan type is sold in suitable refrigerated showcases, equipped with basins containing different ice-cream types. Such showcases have open sides, to allow the operator to take the product with suitable spatula spoons.

[0003] The main disadvantage of the current showcases is the thermal dispersions through the duty opening.

[0004] Another disadvantage of the known showcases is the possibility of pollution or ice-cream contamination due to powders, bacteria or virus passing through the opening.

[0005] An additional disadvantage is the frequent defrosting need, because of the high humidity quantity contained in the air that settles in ice form on the pipes and on the heat exchanger thin plate. The defrosting needs to heat the entire cold zone: this operation involves considerable power consumption and causes damages to the exposed ice-cream.

DISCLOSURE OF THE INVENTION

[0006] The objects of the invention are to reduce the thermal dispersions, to ensure a greater integrity of the exposed and preserved products and to limit the defrosting operations.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The characteristics of the invention are evidenced in the following, with particular reference to the joined drawing tables, in which:

[0008] FIG. 1 shows a transversal section of the showcase, with the space completely refrigerated closed by cover panels;

[0009] FIG. 2 shows a transversal section of the showcase, with the panels superimposed in order to free a row of basins;

[0010] FIG. 3 shows a transversal section of the showcase, with the superimposed cover panels and rotated in order to make accessible all the basins;

[0011] FIG. 4 shows a plan view of the showcase;

[0012] FIG. 5 shows a transversal section of the showcase with the superimposed cover panels and rotated by a motor.

BEST MODE OF CARRYING OUT THE INVENTION

[0013] Referring to FIGS. 1-4, numeral 1 indicates the body of the refrigerator showcase, supported by a base 2. Numeral 3 indicates a duty plane. Numerals 4 and 5 indicate two rows of basins containing ice-cream or similar products. Numerals 7 and 8 indicate respectively a first and a second thermo insulating transparent panel placed above the rows 4 and 5 of the ice-cream basins, as far as not to limit their retaining ability and not to block the cold air flow that licks the same basins.

[0014] The first panel 7 slides on guides 20 fixed to the opposite lower sides of the refrigerated space and placed at a height corresponding to that of the upper surface of the panel 8, in such a way to allow the overlap of the two panels, as shown in FIG. 2 in correspondence with an intermediate condition 1.

[0015] When the two panels 7 and 8 are placed in superimposed position, namely in the intermediate condition 1, theirs lower external edges are inserted in a groove 29 of a longitudinal bar 21 engaged to the lower external edge of the refrigerated space by hinge means 22, essentially made up by a hinge.

[0016] A couple of gas pistons 23 are interposed between the refrigerated space showcase and the second panel 8 presenting an end hinged in the point 24 to the body 1 of the showcase and the other end in the point 25 to the second panel 8, thus facilitating the lifting by rotation of the two superimposed panels, compensating their weight.

[0017] To facilitate the sliding of the first panel 7 over the second panel 8 in addition to the guides 20 there is the upper handle 26 protruding upwardly from the first panel 7, while for lifting the two superimposed panels 7, 8 there is the lower handle 27, protruding downwardly from the edge of the second panel 8.

[0018] The thermo insulating panels 7, 8 are preferably made up by couples of plate glass with internal chambers and are transparent.

[0019] The refrigerated showcase is furthermore provided with a traditional transparent cover, over the thermo insulating panels 7, 8, opened towards the duty side that is known and not shown.

[0020] In the preferred embodiment shown in the figures from 1 to 4, the operation of the refrigerated showcase provides the passage by a closing condition C in which the first heat-insulating panel 7 and the second heat-insulating panel 8 are placed above rows 4, 5 to the intermediate condition 1 in which the panels 7, 8 are superimposed thanks to the sliding, manually operated using the upper handle 26, of the first panel 7 over the second 8 in such a way to free the internal row 4 of basins and both panels are blocked in the groove 29 of the longitudinal bar 21.

[0021] Always manually and using the lower handle 27, the operator carries out the passage from the intermediate condition 1 to an opening condition A in which the superimposed panels 7, 8 are raised by rotation means of the longitudinal bar 21 around the pin means 22. In the opening condition A all the basins rows 4, 5 contained in the refrigerated space area accessible and the panels are almost vertical working as barrier facing the ice-cream buyers also working as hygienic protection of the latter product.

[0022] In the FIG. 5 is shown a variant of the refrigerator showcase in which the two superimposed panels 7, 8 lifting is obtained by a motor mean 30, for example a ratio-motor or actuator contained in the hinge means 28 which are tubular shaped.

[0023] The refrigerator showcase includes a sensor 31, for example placed at the groove 29, that is destined to allow the motor mean 30 activation at the panels overlap 7, 8 or the closure at the incorrect overlap of the same panels.

[0024] The main advantage of the present invention is to supply a refrigerator showcase with two openable panels.
placed in position so as not to block the cold air flow of the cooling system and to differentiate more the temperature of the room containing the products from that of the external environment, so reducing the energetic use and preventing the product contamination through the duty opening.

[0025] Other advantage consists in the lower air volume contained in the refrigerated place and its lower thermal exchange with the outside so reducing the ice formations and therefore the need to frequent defrosting of the refrigerated place.

1-10. (canceled)

11. A refrigerator ice cream showcase providing reduced energetic consumption and increased protection of products contained therein, the showcase comprising:

- a cooling system;
- a space refrigerated by said cooling system, said refrigerated space including at least one internal row (4) and at least one external row (5) of basins for containing the products;
- a first thermal-insulation panel (7) and a second thermal-insulation panel (8) placed over a top of the refrigerated space, and being extendable over the internal and external rows (4, 5), the first thermal-insulation panel being slidable above the second thermal-insulation panel from 1), a closing condition (C), in which the first and second thermal-insulating panels (7, 8) extend over and cover the entire refrigerated space, to
- 2), an intermediate condition (I), in which the first thermal-insulating panel (7) is slid over and overlaps the second thermal-insulating panel (8) thus making accessible at least the internal row (4), the overlapped panels being blocked at an external inferior edge of the refrigerated space by engagement with a longitudinal bar (21), the longitudinal bar being hinged to the external inferior edge by hinge means, and to
- 3) an opening condition (A) in which the overlapped thermal insulating panels (7, 8) residing in engagement with the longitudinal bar are both raised upwardly by rotating the longitudinal bar (21) around the hinge means (22, 28), thus allowing access to the entire refrigerated space and both the at least one internal row and the at least one external row (4, 5) contained therein.

12. The showcase according to claim 11 wherein the first thermal-insulation panel (7) slides on guides (20) fixed to opposite sides of the refrigerated space at a height corresponding to an upper surface of the second thermal-insulating panel (8) to allow overlapping of the two panels (7, 8).

13. The showcase according to claim 11 wherein the longitudinal bar (21) has a groove (29) for receiving edges of the overlapped first (7) and second (8) panels therein.

14. The showcase according to claim 11 further comprising at least one extendable gas piston (23) interposed between the refrigerated space and the second panel (8), the gas piston facilitating the raising of the two overlapped panels by compensating for a portion of a weight thereof.

15. The showcase according to claim 11 wherein the movement of the first and second thermal-insulation panels (7, 8) from the closing condition (C) to the intermediate condition (I) to the opening condition (A) and vice versa is done manually.

16. The showcase according to claim 11 further comprising an upper handle (26) located on the first panel to facilitate the sliding of the first panel (7) onto the second panel (8), and an inferior handle (27) located on an inner side of the second panel to facilitate the raising of the two overlapped panels.

17. The showcase according to claim 11 further comprising motor means (30) engaged with the hinge means (28) for moving the two thermal-insulation panels (7, 8) from the intermediate overlapped condition (I) to the opening condition (A) and vice versa.

18. The showcase according to claim 17 further comprising a sensor (31) for automatically activating the motor means (30) when the two panels are overlapped.

19. The showcase according to claim 11 wherein the first thermal-insulation panel and the second thermal-insulating panel are each composed of glass.

20. The showcase according to claim 11 wherein the first thermal-insulation panel and the second thermal-insulating panel are each transparent.

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