Title: DEVICE FOR PRESERVING AND DELIVERING ICE-CREAM

Abstract: A device for preserving and delivering of loose ice cream is provided with a plurality of containing means (2) and of cooling means (4) the ice cream (3). At least one of the containing means (2) is provided with respective distribution means (5) that can be operated for the controlled distribution of ice cream contained in said at least one containing means (2).
DEVICE FOR PRESERVING AND DELIVERING ICE CREAM

TECHNICAL FIELD

The present invention relates to the preservation and selling food and refers to a device for preserving and delivering of loose ice cream and other similar foods.

BACKGROUND ART

There are known showcase devices for preserving, exposing and selling of loose ice creams, granulate or similar alimentary products contained in refrigerated tubs and accessible to the operators through rear access openings of the showcase devices.

Such known devices, generally horizontal, are sometimes provided with ventilation or heating means for avoiding the mist on the glasses and allowing the vision of the products by consumers.

A drawback of such known devices consists in that when the operators’ hands access to the tubs, provokes harmful rise in temperature and pollution risks, and the rear opening cause thermal dispersions and contamination risks made by environmental dusts or bacterium of the alimentary products.

Other drawback of said devices is constituted by the fact that the ice creams conserved therein, must be prepared and portioned for the consumption in completely manual way from skilled and experienced persons, hence resulting slow and expensive.

Further drawback of said devices consists in that, in order not to mix and alter the various tastes of aliments, it is necessary to use a slice or a spoon for each tub.

They are also known devices of mechanical ice cream distributors allowing a fast preparation for the consumption of hygienic ice cream which is carried out with the
distribution.

These latter devices have the drawback to provide an ice cream with the quality and taste which are non comparable with those of "semi-liquid ice cream" generally used in the known window devices, and with one or two tastes only.

DISCLOSURE OF THE INVENTION

An object of the present invention is to propose a preserving and delivering device for homemade or industrial "semi-liquid" loose ice cream with a great variety of tastes, granulate and other aliments in order to reduce the thermal dispersions.

Other object is to propose a hygienic and safe device to assure an excellent safety to the users.

Further object is to propose a device that allows to prepare the ice creams for the consumption in fast, safe and simple way, also for non specialized operators without running the risk to obtain the undesirable mix of the tastes.

The above mentioned objects are achieved in accordance with the claim contents.

BRIEF DESCRIPTION OF THE DRAWINGS

The characteristics of the invention are underlined in the following with particular reference to the attached drawings, in which:

- figure 1 shows a schematic view in transversal section of the device, object of the present invention;
- figure 2 shows a front view of the device of figure 1;
- figures 3 and 4 respectively show transversal section view and front view of a variant of the device of figure 1;
- figure 5 shows a partial longitudinal section view of an ice cream container of the
device of figure 1;
- figure 6 shows a partial longitudinal section view of an ice cream container of the
device of figure 3;
- figures 7 and 8 respectively show longitudinal section view and transversal section
view of a variant of the device of figure 1.

BEST MODE OF CARRYING OUT THE INVENTION

With reference to figures 1, 2 and 5, numeral 1 indicates the preserving and delivering
device for loose ice cream, granulate or other aliments similar to ice cream, provided
with several containing means 2, for instance, of stainless steel or of transparent
polycarbonate, and with cooling means 4 for the ice cream 3.

Each of the containing means 2 is provided with respective distribution means 5
consisting in a tap, valve, electric valve or similar, which can be manual or remote
operate for the controlled distribution of the ice cream contained in such containing
means 2.

The device 1 comprises manual or automatic compression or pressure means 6, fit to
give force to the ice cream to favorite the output thereof from the distribution means 5.

The pressure means 6 comprise a pressure 9, consisting in a heavy pressure sliding in
the containing means, superimposed to ice cream and fit to compress this latter for
gravity favoring the output thereof through the distribution means.

The pressure 9 can be peripherally equipped with, or not, a sealing washer for the lateral
walls of the containing means 2.

The pressure 9 can be optionally equipped with compression means for ice cream
consisting, for instance, of a pressure level of known type and not showed,
interconnected between the pressure and the containing means or other fixed points of
the device or with other known means.

The device comprises an insulated and refrigerated chamber 10 delimited by insulating walls, at least one of these walls can be opened or removed away to allow insertion and withdrawal of the containing means 2.

The distribution means 5 flow externally to the chamber 10 through a back wall of this latter easily accessible for the operator specialized for ice cream preparation.

The pressure 9 and at least one wall of the chamber 10 are transparent to allow the users to see the ice cream.

The cooling means 4 are of compressor type and include an evaporator situated under the chamber 10 to cool a fluid consisting in air, nitrogen or other gas put in circulation by circulation means 11, for instance consisting of one or more electric fans, to pass through the chamber 10 and therefore to cool the containing means 2 and the ice cream 3.

In alternative the invention provides that the evaporator is positioned in the chamber 10 preferably above the containing means 2 or that the cooling means 4 are of compressor type with direct expansion, by means of a nozzle or capillary, in the chamber 10.

In order to allow the users to see the ice cream even if the containers 2 and/or the chamber 10 are opaque, the invention provides that the device comprises visualization means exposed to the consumer and giving images and/or the names of the ice cream varieties of the containing means 2.

Particularly the visualization means can comprise supports or frames for the images printed on transparent support, for instance slide photos in real format like the kind used in the "fast food" to illustrate the offered dishes.

The visualization means comprise also retro-illumination means of the images
consisting of, for instance, fluorescent or neon tubes seated behind the transparent photo printings to allow an optimal vision of the images.

In the variant of figures 3, 4 and 6 the containing means 2 are closed hermetically and the respective pressure means 6 comprise a respective duct 8 for a fluid in pressure, for instance air or other gas for compressing the ice cream.

The duct of the pressured fluid 8 flows between a mobile piston 7 and a wall 12 of the containing means 2 adjacent or opposite to the wall with the distribution means 5. The duct can also flow directly into the containing means without the respective pistons.

In alternative the duct of the pressured fluid 8 can flow in a flexible and seal sack, whose illustration is not necessary for understanding the variant, located between the ice cream and a wall of the containing means 2 adjacent or opposite to the wall of the distribution means 5.

In this case it is not necessary that the containing means 2 are hermetic because the pressured fluid is contained in the sack that, by pressing the ice cream, favors the output of ice cream from the distribution means 5 operated in opening.

A further variant of the invention comprises a plurality of watertight and collapsible housings, not showed, each of them fit to contain an ice cream type and to be inserted into one of the containing means 2 in order to be connected and to flow into the respective distribution means 5.

In this case the compressed gas between the hermetic containing means 2 and the watertight housings presses the ice cream favoring the distribution thereof.

The cooling 4 means of the variation comprise diffusion tubular means 11, consisting of a duct transiting above the containers and having outlet holes in the chamber 10 for a cooling fluid consisting of air or other cooled gas of the cooling means 4.
The duct 8 for the compression pressurized fluid for the ice cream is at least partially contained in the diffusion tubular means 11 to contribute to the cooling of ice cream.

The containing means 2 or its one portion, and at least a wall of the chamber 10 are transparent to allow the user to see the varieties of ice cream or, also this variant can be provided with the visualization means described above.

The operation provides that, in an operational condition of the device in which the ice creams varieties are in the containing means, the operator acting on the distribution means prepares the ice cream for example in tubs or cones ready for consumption.

In the variant of figures 7 and 8, the longitudinal and central portion of the bottom, having overturned roof shape, of the container 2 has a concave and longitudinal seat 13 for the pressure means 6 consisting of a motorized or manually operated cochlea 14, and it extents until to the distribution means 5 consisting in a tubular nozzle.

The operation of this variant provides that the activation of the motorized cochlea, or of an handle, known and not showed, connected to the manual cochlea, pushes the ice cream to come out from the container 2 by the distribution means 5.

The main advantage of the present invention is to provide a preserving and delivering device for loose ice cream of semi-fluid type, homemade or industrial made, granulate and other aliments fit to reduce the thermal dispersions being without access openings to the ice cream.

Other advantage is to provide a hygienic and safe device to assure an excellent safety to the users.

Further advantage is to provide a device which allows to prepare the ice creams for the consumption in rapid, safe and simple way, also for the operator not specialized without running the risk to get undesirable taste mix.
CLAIMS

1) Device for preventing and delivering loose ice cream comprising a plurality of containing means (2) and cooling means (4) for the ice cream (3) characterized in that at least one of the containing means (2) is provided with respective distribution means (5) that can be operated for the controlled distribution of ice cream contained in said at least one containing mean (2).

2) Device according to claim 1 characterized in that each of the distribution means (5) consists of a tab, a valve, an electric valve or similar, manually or remote operable.

3) Device according to claim 1 characterized in that comprises compression or pressure means (6) fit to compress the ice cream to favorite the output thereof from the distribution means (5).

4) Device according to claim 3 characterized in that at least one of the containing means (2) is hermetically closed and the respective pressure means (6) comprise a respective duct (8) for a fluid in pressure for compressing the ice cream.

5) Device according to claim 4 characterized in that the duct of the under pressure fluid (8) flows between a movable piston (7) and the sealed lid or a wall of the containing means (2) adjacent or opposite to the wall having the distribution means (5).

6) Device according to claim 4 characterized in that the duct of the under pressure fluid (8) flows into a flexible sealed sack and placed between the ice cream and a wall of the containing means (2) adjacent or opposite to the wall of the distribution means (5).

7) Device according to claim 4 characterized in that the ice cream is contained in a plurality of watertight and collapsible housings flowing into the distribution means
(5) and fit to be inserted into respective containing means (2).

8) Device according to claim 3 characterized in that the pressure means (6) comprise a pressure (9) positioned above the ice cream and fit to compress this latter by gravity and/or by means of acting one lever or other known means.

9) Device according to anyone of the preceding claims characterized in that comprises an insulated and refrigerated chamber (10) partially delimited by walls at least partially insulating in which at least one wall can be opened or removed and fit to contain the containing means (2).

10) Device according to claim 9 characterized in that the distribution means (5) flow externally to the chamber (10) through a wall of this latter.

11) Device according to the claim 9 characterized in that the cooling means (4) are of compressor type and comprise an evaporator positioned in the chamber (10) preferably above the containing means (2).

12) Device according to claim 9 characterized in that the cooling means (4) are of compressor type for expanding directly into the chamber (10).

13) Device according to claim 9 characterized in that the cooling means (4) include circulation means (11) for crossing the chamber (10) by a cooling fluid.

14) Device according to claim 9 or 12 characterized in that the cooling means (4) comprise diffusion tubular means (11) of a cooling fluid in the chamber (10).

15) Device according to claims 4 and 14 characterized in that the duct (8) for the under pressure fluid for compressing the ice cream is at least partially contained in the diffusion tubular means (11).

16) Device according to claim 9 characterized in that the containing means (2) and at
least one wall of the chamber (10) are transparent.

17) Device according to claims 8 and 9 characterized in that the pressure (9) and at least one wall of the chamber (10) are transparent.

18) Device according to claim 3 characterized in that the pressure means (6) consist of a cochlea (14).

19) Device according to claim 18 characterized in that the bottom of the container (2) has a seat (13) for the cochlea (14) of the pressure means (6).

20) Device according to claim 18 characterized in that the cochlea (14) is of motorized type or manually operated.

21) Device according to claim 18 characterized in that the cochlea (14) extends until the distribution means (5) consisting of a tubular nozzle.

22) Device according to anyone of the preceding claims characterized in that comprises visualization means exposed to the consumer and having images and/or the names of the ice cream varieties of the containing means (2).

23) Device according to claim 20 characterized in that the visualization means comprise supports for the printed images on transparent support and comprise image means with retro-illumination.
**INTERNATIONAL SEARCH REPORT**

A. CLASSIFICATION OF SUBJECT MATTER
   A23G9/28

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)
   A23G

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, WPI Data, PAJ, FSTA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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| See patent family annex. |

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Authorized officer: Boddart, P
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