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(71) Applicant: **MECFOR S.r.l.**
Via Fratelli Rosselli, 11
I-40121 Bologna(IT)

(72) Inventor: **Manfroni, Ezio**
56, Via Altopiano
I-40037 Sasso Marconi Bologna(IT)

(74) Representative: **Porsia, Attilio et al**
c/o Succ. Ing. Fischetti & Weber-Dr. Porsia
Via Caffaro 3/2
I-16124 Genova(IT)

(54) Refrigerated display counter for ice cream.

(57) A refrigerated display counter (1) for displaying and preserving ice cream, of the type comprising a counter body the top plane of which receives therein the ice cream-containg bowls (4), a base accommodating a refrigerating unit (M,C), and a fan (9) to circulate an air stream in a closed circuit from the space below said ice cream bowls (4) through the evaporator (6) of the refrigerating unit (M, C) across the space (10) above said ice cream bowls (4) and again to said fan (9), said counter being provided, above said ice cream bowls (4), at a short distance from the top edges thereof, with a transparent overturning lid (12) delimiting the refrigerated space (10).

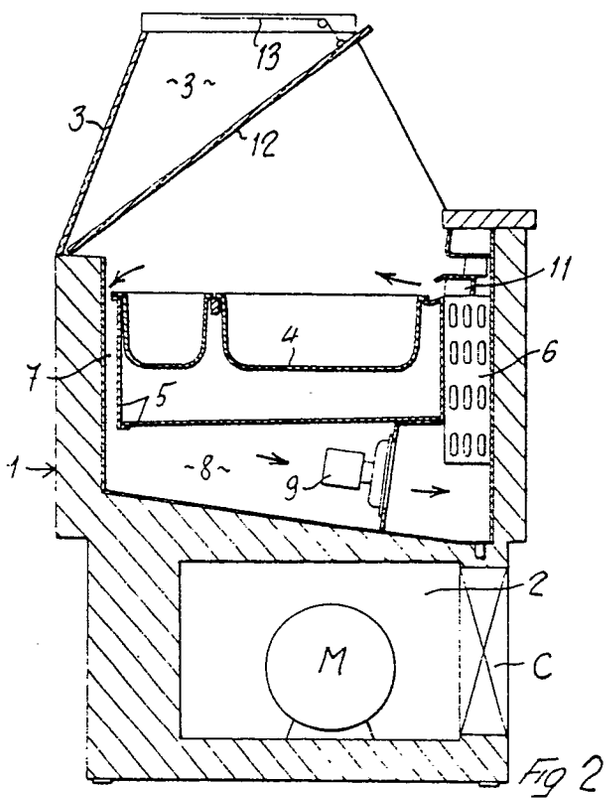

Fig 2

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This invention relates to the refrigerated display counters for displaying and preserving ice cream.

Conventional refrigerated display counters comprise a pedestal or base member housing in its upper portion the ice cream-storage bowls, and a display chamber, mounted above said base member, closed at the top and three sides thereof by walls usually made of glass, circumscribing the space which accommodates the ice cream-storage bowls, and provided with a large door for access to the ice cream-storage bowls. Usually, the said pedestal is divided into a lowermost portion, housing the motor driven compressor and the condenser of a refrigerating unit, and an intermediate portion just below the ice cream-storage bowls supporting structure, in which a fan is arranged, cooperating with the evaporator of the refrigerating unit to generate a cooled air flow which is conveyed, through suitable ducts, to one end of the refrigerated chamber which accomodates the ice cream bowls, so as to refrigerate the ice cream in said bowls and the surrounding space. Said air stream is continuously recirculated to said fan through suitable recirculation passages formed at the opposite end of the said refrigerated chamber.

Whenever the door for access into the space accommodating the ice cream bowls is opened, a considerable amount of ambient air enters said refrigerated chamber, with detrimental effects to the refrigerating cycle as a result of the considerable loss of cold, to the optimum preservation conditions for the ice cream in the bowls, and to the hygienic conditions due to the dust in the ambient air.

Therefore, the main object of this invention is to provide, in a display counter of the type mentioned above, an insulating transparent lid or cover which may be opened by an upward overturning movement and which, when closed, is closely spaced from the upper edges of the ice cream bowls, thus strictly minimizing the refrigerated space above said bowls and, at the same time, forcing the cold air stream being circulated therein to positively lap the ice cream in said bowls. In its opened position, said overturning lid will facilitate -due to the inclination that it assumes in the opening position-the conveyance of the cold air stream being fed into said space towards the recirculation passages therein.

During the subsequent lowering of the insulating cover lid to its rest position, at the end of the ice cream dispensing step, the warm ambient air is almost completely expelled from the space between the ice cream bowls and the cover lid, so that the optimal refrigerating conditions in said space are quickly restored.

Further characteristics and advantages of the device according to the present invention will be more apparent from the following detailed description thereof, made with reference to the accompanying drawing, wherein:

Figure 1 is a diagrammatic longitudinal sectional view of a display counter for ice cream, provided with the overturning lid according to the invention, the lid being shown in its closed position, and

Figure 2 is a view corresponding to that of Figure 1, with the lid in its opened position.

With reference to the drawing, the illustrated display counter comprises a counter proper 1 having a pedestal or base portion formed with a space 2 accommodating the motor-compressor M and the condenser C of a refrigerating unit, and an upper portion having an open space accomodating a supporting structure 5 for the ice cream containers or bowls 4. Said supporting structure 5 defines therebelow a chamber 8 accommodating the air-circulating fan 9. Above the body of the counter 1 there is formed a capacious dome-shaped chamber which is closed at the top and sides thereof by glass walls 3 and which is open at the front side or operating side thereof.

The chamber 8 communicates with the space above said bowls 4, at one side through a vertical passage 7 and at the other side through a nozzle 11 which supplies the air stream generated by the fan 9 which air stream is cooled by passing through the evaporator 6 of the refrigerating unit.

According to this invention, above the top plane of the counter 1 there is arranged an athermic transparent lid 12 constituting the overturning cover to give access to the refrigerated space 10 above the ice cream bowls. Said lid 12 may be made either of glass or of plastics. It rests, at one side on the corner area between the plane of the counter 1 and the glass wall 3, and at the opposite side on the plane above said cold air nozzle 11. Said lid 12 may be lifted by a pivotal movement about its edge parallel to said glass wall 3, so as to give access into the space 10. By virtue of the fact that the lid 12 is closely spaced from the top edges of said bowls 4, the air outflowing from the nozzle 11 is forced to lap the ice cream in the bowls 4. It is apparent that the volume of the refrigerated space 10 is thus minimized, with the resulting advantages. Whenever lifted in its opening position, the lid 12 (see Figure 2), tends to convey the flow of cold air from the nozzle 11 to the passage 7 by acting as a baffle.

Whenever lowered again to its rest position, after each ice cream dispensing step, the lid 12 expels almost completely the warm ambient air which entered the space beween the said lid 12 and the ice cream bowls, so that the optimal refrigeration conditions in the space 10 are quickly restored.

The lid or cover 12 may be lifted (and/or lowered) in several ways. It may be lifted manually, for example, by associating it with a suitable counterweight suspended from the free end of a cable 13, or it may be lifted by actuating the cable 13, for example, through a pedal control lever (not shown), or by actuating said cable 13 by means of a winding reel actuated by a small motor (not shown). Preferably, whether the opening is controlled manually or by a motor, means is provided to cause the lid 12 to be returned, preferably automatically, to its closed or rest position shown in Figure 1 when the ice cream dispensing step is over.

Moreover, although the lid 12 has been shown as not restrained at the hinge point on the counter 1, it may be understood that suitable hinges may be provided to connect it to the counter 1. However, the solution herein proposed and illustrated has the additional advantage of facilitating the removal of said lid 12, for example, for cleaning purposes.

The advantages of the device according to the invention may therefore be summarizzed as follows:

1) The air space between the ice cream bowls and the cover lid is reduced to a minimum.

2) The flow of cold air which is circulated in this space is compelled to uniformly lap all the ice cream-storage bowls.

3) When lifted for the dispensing of the ice cream, the cover lid acts as a baffle in conveying the flow of cold air flowing above the ice cream bowls.

4)When lowered again to its rest position, the cover lid expels during its lowering movement almost all warm ambient air from the space above the ice cream bowls.

Claims

1. A refrigerated display counter for displaying and preserving ice cream, of the type comprising a counter body the top plane of which receives therein the ice cream-storage bowls (4), a base portion accommodating a refrigerating unit (M,C) and means (6,9) to generate and circulate a cooled air stream in the space above said ice cream bowls (4), characterized in that above said ice cream bowls (4), closely spaced from the top edges thereof, there is arranged a transparent overturning lid (12) which defines the refrigerated space (10).

2. A refrigerated display counter according to claim 1, in which the said means to generate and circulate said cooled air stream comprises the evaporator (6) of said refrigerating unit (M.C), a fan (9) blowing an air stream through said evaporator (6), duct means (11) for conveying said refrigerated air in the space (10) above said ice cream bowls (4), and duct means (7,8) for returning said air stream in a closed circuit to said fan (9).

3. A refrigerated display counter according to any one of claims 1 or 2, in which means (13) are provided for lifting and lowering said overturning transparent lid (12).

4. A refrigerated display counter according to any one of the preceding claims, in which said overturning transparent lid (12) is made of glass, or of plastics, or from a composite glass-and plastics transparent pannel.

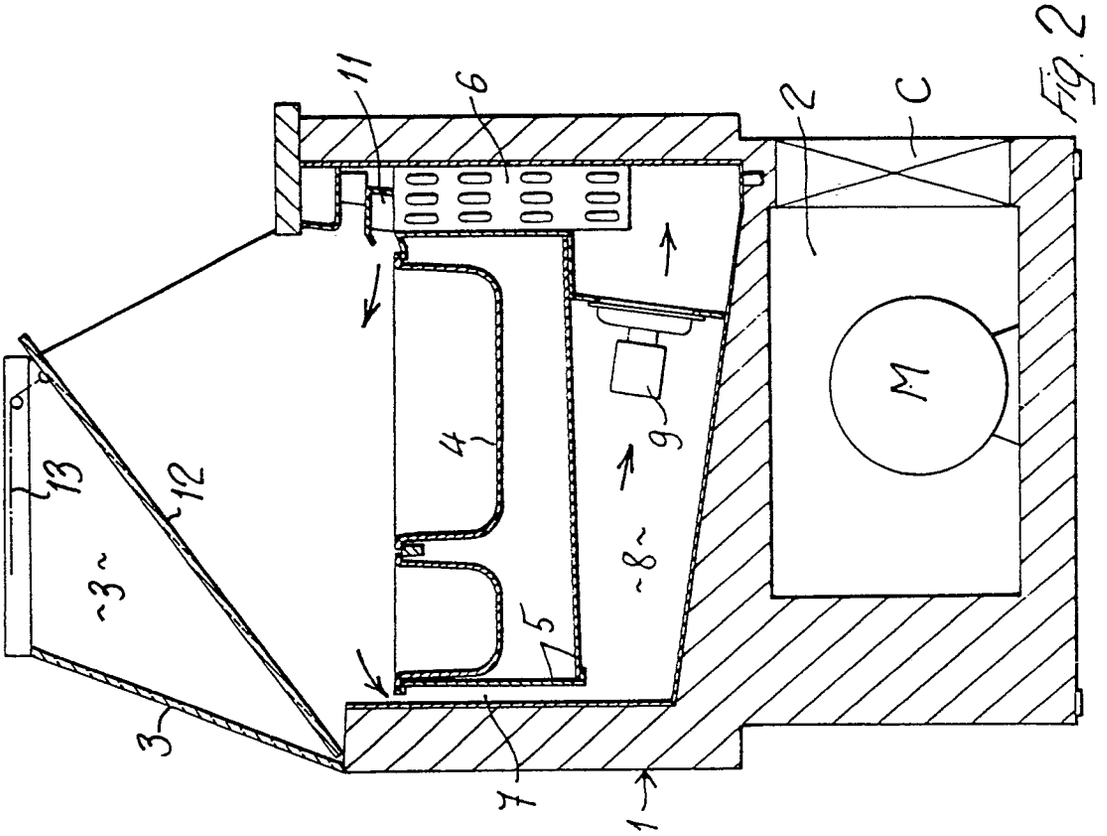

Fig. 2

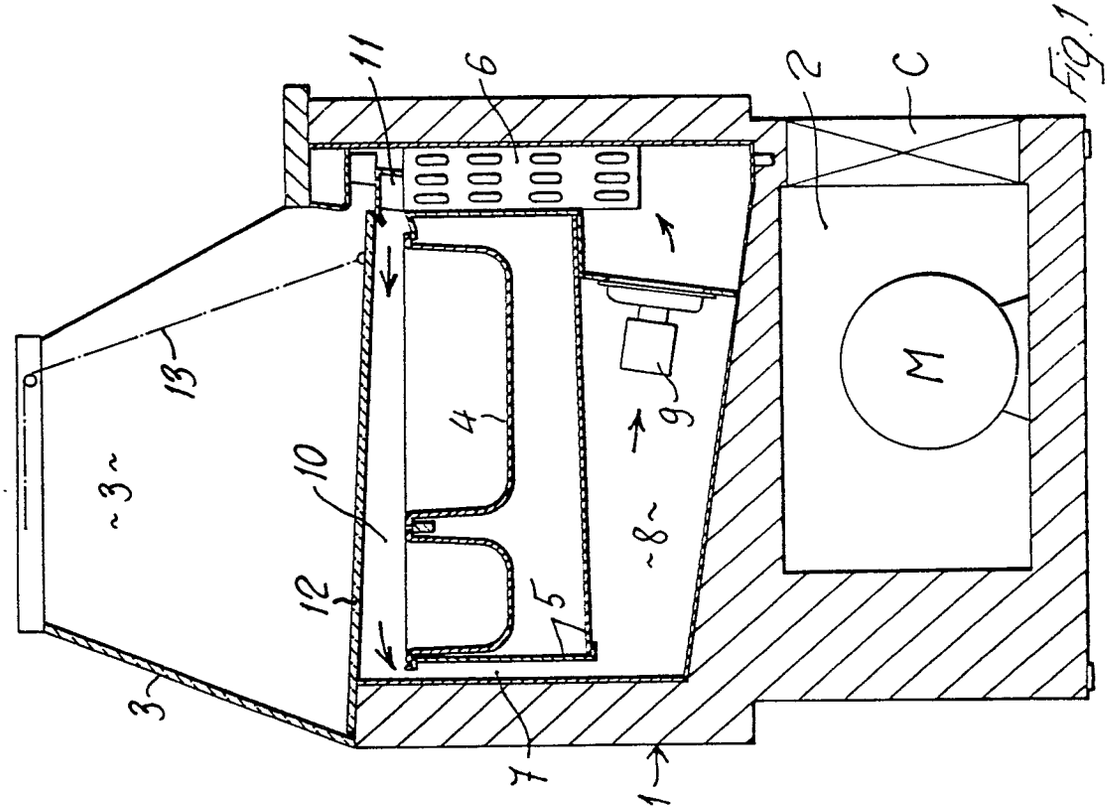

Fig. 1