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(54) **Apparatus for the storage and usage of feeding-bottles**

(57) Apparatus for the storage and usage of feeding-bottles and/or milk for children and/or newborn and/or premature babies having at least a containing refrigerated zone for feeding-bottles with front access for storage and removal,
characterised in that it Includes:

- a) said refrigerated containing zone is divided by a vertical heat exchanging wall (21), which forms two opposite containing compartments frontally accessible through opposite folding doors (122);
- b) said compartments being with refrigerated air circulation respectively in anti-clockwise and clockwise direction (F);
- c) the refrigerating system (2) in said dividing wall (21) being placed in operative circulation by a compressor system (C) in rear and/or lower compartment;
- d) said apparatus being on movement wheels (121).

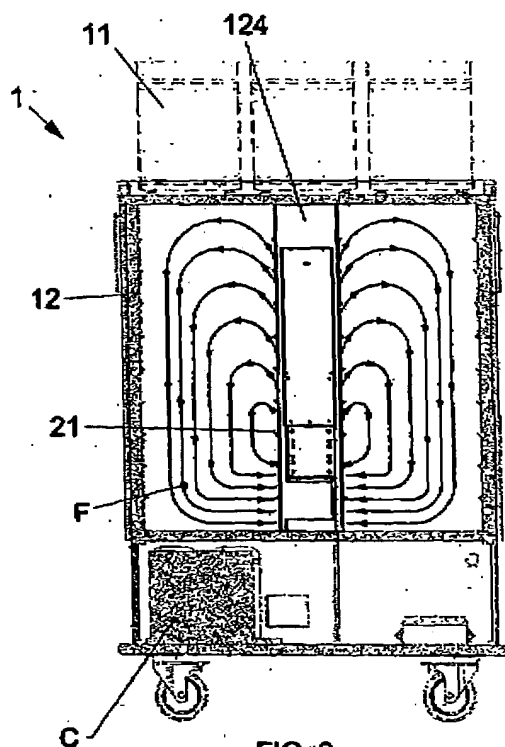


FIG. 6.
SEC. C-C

Description

Object

[0001] This invention relates to an apparatus for the storage and usage of feeding-bottles, whose characteristics correspond to the precharacterizing part of the main claim.

Application Field

[0002] The application field is substantially therefore directed to the refrigeration of feeding-bottle phials or respective food for children that must be stored for a certain period of time.

State of the art and respective problems

[0003] At the present time, it is well known that very consistent problems arise for use in the environments where a large quantity of ready-to-use feeding bottles must be immediately available, considering, in particular, environments for newly-born babies, day nurseries, etc.

[0004] In these cases, at the present time, feeding-bottles are kept in a normal refrigerator, which is not very suitable for this function. Current refrigerators must be opportunely set for said foods as, if too cold or too hot the food is not preserved well.

[0005] Furthermore, traditional refrigerators are shaped for storing a lot of different foods and are not adequately conceived for this specific type of food and in particular for more or less significant quantities.

[0006] Furthermore, the feeding-bottles that must be served to the newborns must at present be taken from the refrigerators and taken elsewhere, to heating ovens or provide for heating in a more or less optimal way.

[0007] Other problems can moreover arise without suitable temperature control on the bottles, because, as known, they are made of plastic material, and plastic material above certain low temperatures becomes fragile and at certain high temperatures emits substances which are toxic, not to say lethal, for newborns.

[0008] One of the greater problems is to ensure all feeding-bottles have a uniform temperature, otherwise one could be too cold and one too hot with all the resulting consequences, which commonly occur in normal refrigerators, which on the contrary present different temperatures in each zone of the same.

Scope of the invention

[0009] The scope of the invention is to solve the above-mentioned problems and drawbacks realizing a specific apparatus which is particularly functional and suitable for said function.

Solution of the problem and identification of the invention's features

[0010] The problem is solved with the characteristics of the main claim. The sub-claims represent advantageous preferential solutions that supply better efficiency.

Advantages

[0011] In this way, the advantage is being able to store the feeding-bottles in a rational and adequately refrigerated environment and at the moment of use have them directly in the required place promptly and have at the exact desired temperature the whole desired quantity of feeding-bottles ready-to-use and therefore without needing separate preparation and with the absolute certainty not only of the required temperature, but also of a homogeneous temperature throughout the whole food.

Description of the preferential solution

[0012] For a better understanding the invention is described in its preferential solution with the help of attached figures, wherein:

- Fig. 1. is the front sectional view of the storage apparatus on rotating wheels with three upper ready-to-use heaters for heating the feeding-bottles taken from the lower refrigerating compartment, for immediate use in loco;
- Fig. 2. is the side view;
- Fig. 3. is the plan view;
- Fig. 5. is the front view as Fig. 1;
- Fig. 4. is the vertical cross sectional view according to plan A-A of Fig. 5;
- Fig. 6. is the schematic sectional view of the interior of the storage room refrigerated with air circulation flow;
- Fig. 7. is the horizontal cross sectional view according to plan B-B of Fig. 5 where the central heat exchange separator section for the safe and uniform refrigeration of all the feeding-bottles can be seen.

Detailed description of the invention in relation to the figures

[0013] According to the figures one can observe that the invention refers to a feeding-bottle storage apparatus (1) on rotating wheels (121) and with upper surface for supporting feeding-bottle heating means (11) with downwards openable flap door forming a plane (111) for extract heated feeding-bottles by means of a trolley,

[0014] The feeding-bottles could be bottles e.g. with milk or other for children and/or new born babies and/or etc.

[0015] The container has two opposite access doors (122) and a double internal compartment divided by a refrigerated air exchanging wall (124) in an intermediate

structure (21) comprising of respective finned heat-exchanger (22) to let the air pass, said air being circulated by an upper ventilation unit (124) in the dividing compartment. The heat-exchanger (evaporator) (2) is operated by a lower compressor (C).

[0016] In the lower part of the dividing wall there are air suction slits (123) and on the upper part air delivery slits (123),

[0017] The airflow as claimed is a circulatory vortex in opposition starting from the dividing wall moving away upwards, downwards to the sides and descending, then re-flowing from the bottom upwards to the centre, realizing an anti-clockwise and clockwise circulation from and towards the centre.

[0018] Conveniently, the wheels have a braking system. The apparatus is predisposed to conveniently operate between +4 and -2°C.

[0019] As said the compressor zone is below the conservation compartment. In this way, the apparatus' complete mobility is guaranteed, as is a uniform and constant temperature, an easy, quick removal, heating and use for all the stored containers thanks also to the upper heating equipments.

[0020] Such a storage system can contain for example up to two hundred and fifty 240 cc feeding-bottles at a uniform temperature of 4°C for all feeding-bottles that will conveniently be stored in sliding grids with standing rows spaced in order to let the air pass between of them.

[0021] Around the upper-zone a handrail or bumper is provided and it acts as a handle, avoiding damages to the structure.

[0022] The two frontal doors fold open substantially with rotation up to 270°.

[0023] Advantageously, both the control and adjustment (temperature/thermostat) means and the internal temperature indicator with use of said thermometer/thermostat are provided externally on the front.

Electricity is supplied by means of a spiroidal cable.

wall (21) being placed in operative circulation by a compressor system (C) in rear and/or lower compartment;

d) said apparatus being on movement wheels (121).

2. Apparatus according to the previous claim, **characterised in that** said wheels (121) are pivoting.

3. Apparatus according to any of the previous claims, **characterised in that** at least one of said wheels (121) has braking means for locking.

4. Apparatus according to any of the previous claims, **characterised in that** said intermediate wall has upper opposite compartments (124) for air delivery and lower opposite compartments (123) for air suction.

5. Apparatus according to any of the previous claims, **characterised in that** it has an upper surface for positioning feeding-bottle heating means (11).

6. Apparatus according to any of the previous claims, **characterised in that** it has an upper surface for positioning feeding-bottle heating means (11) with flap door (111) and heated feeding-bottle extraction on extractable trolley.

7. Apparatus according to any of the previous claims 5-6, **characterised in that** it has an upper plane for positioning at least three feeding-bottle heating equipments (11).

Claims

1. Apparatus for the storage and usage of feeding-bottles and/or milk for children and/or newborn and/or premature babies having at least a containing refrigerated zone for feeding-bottles with front access for storage and removal,

characterised in that it includes:

a) said refrigerated containing zone is divided by a vertical heat exchanging wall (21), which forms two opposite containing compartments frontally accessible through opposite folding doors (122);

b) said compartments being with refrigerated air circulation respectively in anti-clockwise and clockwise direction (F);

c) the refrigerating system (2) in said dividing

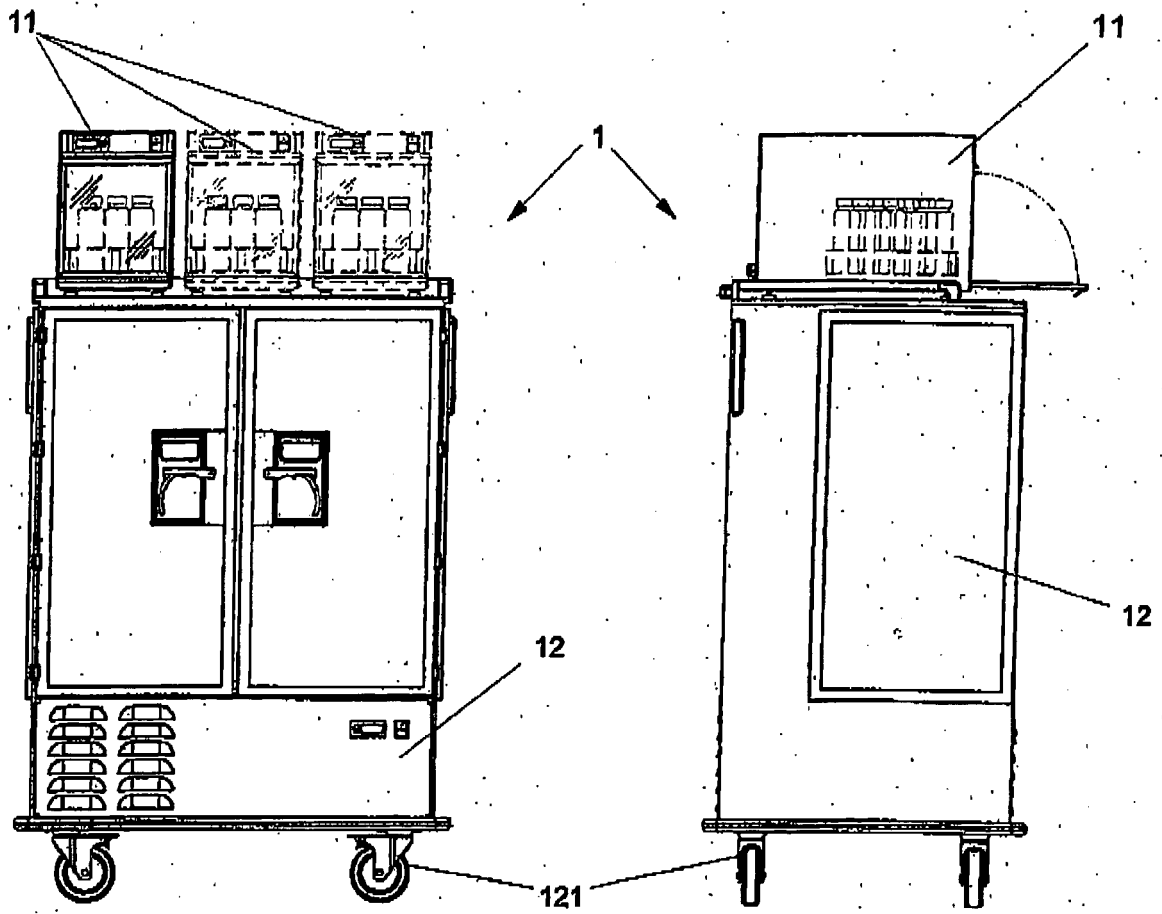


Fig. 1

Fig. 2

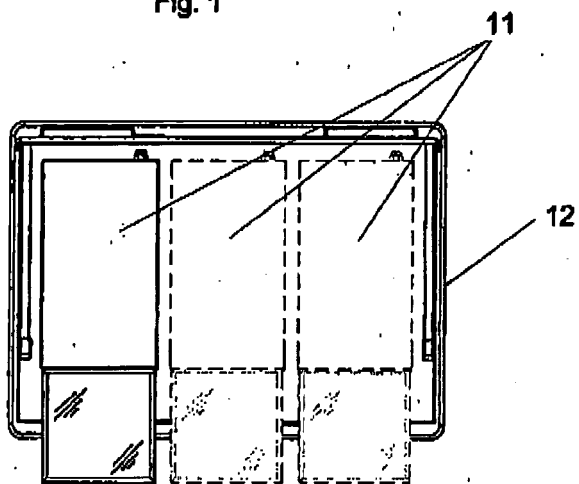


Fig. 3

