A container for preserving and transporting perishable goods

A container (10) for preserving and transporting perishable goods consists of a body (11) provided with walls of insulating material into which a casing (12) of high thermal capacity is introduced. The walls (13, 15, 16) of the insulating body (11) are lined with said casing (12).
Description

The present invention relates to a container for preserving and transporting perishable foodstuffs, such as fresh fish for example.

In the known art, preservation of perishables during the steps of temporary storage and transportation in which a refrigerating unit is available for keeping said goods to the appropriate temperature takes place by means of containers made of an insulating material, foamed polystyrene for example, into which the goods are introduced together with ground ice.

It has been found however, that this preservation method, although widely used, is lacking in its capacity of safeguarding the organoleptic properties of the goods.

Such properties become impaired in a short period of time due both to the progressive increase in the water level resulting from ice melting so that the goods are ultimately dipped in said water, and to the temperature unevenness within the containers, as a result of the different exposure of the individual walls and the often uneven distribution of ice within said containers, above all during transferring from a carrier to another. This involves overheating that are not consistent with the quality of the conveyed goods.

It is a general object of the present invention to obviate the above mentioned drawbacks by providing a container for preserving perishables, such as fresh fish, fruit and vegetable produces, flowers, etc. enabling the goods to be kept dry and at a substantially even temperature over a relatively long period of time, while being of simple structure, economical production and easy assembling, and also enabling the container to be utilized, also only partially, as a throw-away article.

In view of the above object, in accordance with the invention, a container for preserving and transporting perishables has been devised which consists of a body formed with walls of insulating material within which a casing of high thermal capacity is inserted, the walls of the insulating body being lined with said casing.

For better explaining the innovatory principles of the present invention and the advantages it offers over the known art, a possible embodiment putting into practice said principles will be given hereinafter by way of non-limiting example with the aid of the accompanying drawings, in which:

- Fig. 1 is an exploded perspective view of a container according to the invention;
- Fig. 2 is a cross-sectional view of the container shown in Fig. 1 in an assembled condition.

Referring to the drawings, a container for preserving and transporting perishable generally identified by 10 consists of a box-shaped body 11 of insulating material and a casing 12 of high thermal capacity, lining the box-shaped body 11.

The box-shaped body 11 comprises side walls 18 defining the upper edge 14, a lower bottom 19 and an upper closing cover 20. The side walls 13 and bottom 15 define a hollow space 17 within the body 11.

The casing 12 intended to receive the goods to be preserved comprises side walls 18, a lower bottom 19 and an upper closing cover 20. The walls 18, 19 and 20 can be mutually assembled so as to define a hollow space 21 for receiving the goods.

The casing of high thermal capacity 12 is housed within the hollow space 17 of the insulating body 11 and it covers the inner sides of the walls 13, 15, 16 of said body.

The walls 18, 19, 20 of the casing 12 can be made to advantage, as shown in Fig. 2, from a double plate of plastic material, polyethylene for example, delimiting an inner interspace 22 filled with fluid of high thermal capacity, such as an eutectic mixture having a predetermined freezing temperature substantially corresponding to the temperature that one intends to keep in the container.

By way of example, the eutectic mixture can be a mixture of water and the following products in the below stated percentages:

- sodium mg/l 3-5
- calcium mg/l 30-50
- potassium mg/l 3-8
- magnesium mg/l 5-10
- sulphate mg/l 30-50
- silicon mg/l 10-20

The above mixture has a freezing temperature of -2°C.

The walls 13, 15, 16 of the box-shaped body 11 can be made of a known thermally insulating material of low cost such as foamed polyurethane or polystyrene of a thickness appropriate to ensure the desired thermal insulation and a convenient solidity to the body itself.

According to another innovatory feature of the invention, the casing 12 can be advantageously formed of wall elements 18, 19 hinged to each other along the separation lines between the bottom 19 and walls 18.

In this manner, the casings 12, when the containers 10 are not used, or during the cooling step of the eutectic mixture, can be drawn out of the box-shaped bodies 11, flattened and stored arranged in a stack, their bulkiness being therefore greatly reduced.

The wall elements can be made as separate pieces joined to each other by pivot hinges or can be obtained from a double flat plate the pivoting lines 26 of which consist of appropriate scores enabling bending, which are made in the plastic material forming the plate. In a simple manner, said scores may be replaced by the welding lines between the two walls forming the interspaces. The cover 20 too can be optionally made as a portion hinged on one of the walls 18.

The lower portion of the container can be advantageously provided with housings 23 for receiving grasping members of handling means, the forks of a lift truck for example.

The cover 16 of the box-shaped body 11 can be provided with an appropriate shaping (a stepped shaping for example as shown at 24 in the figures) to enable fitting of same on the upper edge 14 of the walls 13.
The cover 16 can be separated from the walls of the box-shaped body 11, as shown in Fig. 1, and insertable thereon by pressure or restrained coupling, or can be linked to one of the walls 13 by means of a hinge 25, as shown in dotted line in Fig. 2.

The use cycle of the container according to the invention will be now briefly described. The casing 12 having high thermal capacity is previously cooled to a temperature at which the eutectic mixture is in the solid phase.

Subsequently the casing 12 is inserted in the hollow space 17 of the insulating box-shaped body 11 and filled with the goods to be preserved and transported, previously cooled to the preservation temperature.

While the goods stay in the container, heat from the external atmosphere is used to heat the eutectic mixture and cause its change from the solid to the liquid state; the temperature within the container therefore keeps substantially uniform and constant at all points thereof until the eutectic mixture has completely melted. During this step the container can be handled until its being stored in a refrigerating environment.

When the goods are drawn out of the container, the casing 12 can be removed, washed and newly cooled in view of a new use of same. If the insulating box-shaped body 11 has been damaged during transportation, it can be replaced without involving too high expenses, given its low production cost.

It is therefore apparent that a container according to the invention enables the organoleptic properties of perishable goods to be safeguarded during preservation and transportation of same, while other advantages are also achieved, such as a high degree of hygiene of the goods and a quick handling in passing from a carrier to another.

The container according to the invention is in addition very strong and, since it is of simple structural construction, can be made at low prices.

Obviously, the above description of an embodiment applying the innovatory principles of the invention is for purposes of illustration only and is not to be interpreted as a limitation of the scope of the invention as hereinafter claimed.

For example, the container can have forms different from those shown, depending on particular preservation and transportation requirements for specific goods.

In addition, provision may be made for a further container for the goods to be preserved which will be introduced into the casing of high thermal capacity. Said additional container will be made of a cheap material so as to enable a throwaway use of same for some specific goods or where particular requirements (for example in terms of hygiene) make this measure necessary.

Claims

1. A container (10) for preserving and transporting perishable goods, comprising a body (11) provided with walls of insulating material and into which a casing (12) of high thermal capacity is introduced, the casing (12) covering the inner sides of the walls (13, 15, 16) of the insulating body (11).

2. A container according to claim 1, characterized in that the walls of the insulating body (11) consist of side walls (13) and a lower bottom (15) integral therewith, defining a hollow space (17) within which the casing of high thermal capacity (12) is fitted in a removable manner, and an upper closing cover.

3. A container according to claim 1, characterized in that the casing of high thermal capacity (12) comprises side walls (18) and a lower bottom (19) defining a hollow space (21) for receiving the goods to be preserved, and an upper closing cover (20).

4. A container according to claim 1, characterized in that the casing (12) walls (18, 19, 20) are of a hollow type, so as to delimit an inner interspace (22) filled with fluid of high thermal capacity having a predetermined freezing temperature.

5. A container according to claim 3, characterized in that at least the side walls (18) and bottom (19) of the casing (12) are mutually hinged to enable flattening of the casing.

6. A container according to claim 5, characterized in that said hinging is provided along the junction lines between the bottom (19) and walls (18).

7. A container according to claim 2, characterized in that the closing cover (16) of the insulating body (11) is hinged on a wall (13) of said body (12).

8. A container according to claim 1, characterized in that the insulating material consists of foamed poly-styrene.

9. A container according to claim 4, characterized in that the walls (18, 19, 20) of the casing (12) are made of a pair of facing plates of plastic material.

10. A container according to claims 5 and 9, characterized in that the pivoting lines are the welding lines between the plates of said pair.

11. A container according to claim 1, characterized in that it comprises housings (23) at its lower part for receiving grasping members belonging to handling means.
European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 95 20 3004

DOCUMENTS CONSIDERED TO BE RELEVANT

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The present search report has been drawn up for all claims

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