

[72] Inventor **Claus Ebert**
Schonberg, Taunus, Germany
 [21] Appl. No. **842,255**
 [22] Filed **July 16, 1969**
 [45] Patented **June 22, 1971**
 [73] Assignee **Itur AG**
Schutzenweg, Switzerland
 [32] Priority **July 18, 1968**
 [33] **Germany**
 [31] **P 17 61 888.1**

| | | | |
|-----------|---------|-------------------|-------------|
| 1,542,115 | 6/1925 | Weis..... | (220/97 UX) |
| 1,579,014 | 3/1926 | Maertz..... | 220/15 X |
| 2,591,151 | 4/1952 | Hansen et al..... | 220/15 X |
| 2,725,733 | 12/1955 | Davis..... | 220/9 X |
| 2,895,636 | 7/1959 | Martin..... | 220/15 |
| 3,121,522 | 2/1964 | Ragnow..... | (220/15 UX) |
| 3,406,855 | 10/1968 | McKechnie..... | 220/97 X |

Primary Examiner—Joseph R. Leclair
Assistant Examiner—James R. Garrett
Attorney—Walter Becker

[54] **NONWETTING PACKING FOR FRESH FISH**
 19 Claims, 20 Drawing Figs.

[52] U.S. Cl. **220/9,**
 137/533, 217/66, 220/55, 220/60, 220/97
 [51] Int. Cl. **B65d 25/18**
 [50] Field of Search..... 220/9 F, 13,
 15.97, 97 F.9

[56] **References Cited**

UNITED STATES PATENTS

| | | | |
|-----------|--------|---------------|-------|
| 860,991 | 7/1907 | Reynolds..... | 220/9 |
| 1,152,299 | 8/1915 | Corr..... | 220/9 |

ABSTRACT: The invention concerns a double wall container for shipping perishable goods, such as fish which must be kept cold. The container has a foamed plastic inner boxlike part open at the top and having a lid. The container also has an unfoamed plastic outer part which embraces the inner part at the top thereof but is spaced from the inner part at the sides, ends, and bottom of the inner part, a drain opening in the bottom wall of the inner part drains fluids, as from melted ice, into the space between the parts and the outer part has a drain port which can be opened when desired. The container is arranged for being stacked in interlocking relation with other like containers and can be provided with banding straps to lock the lid in place or to hold stacked containers together.

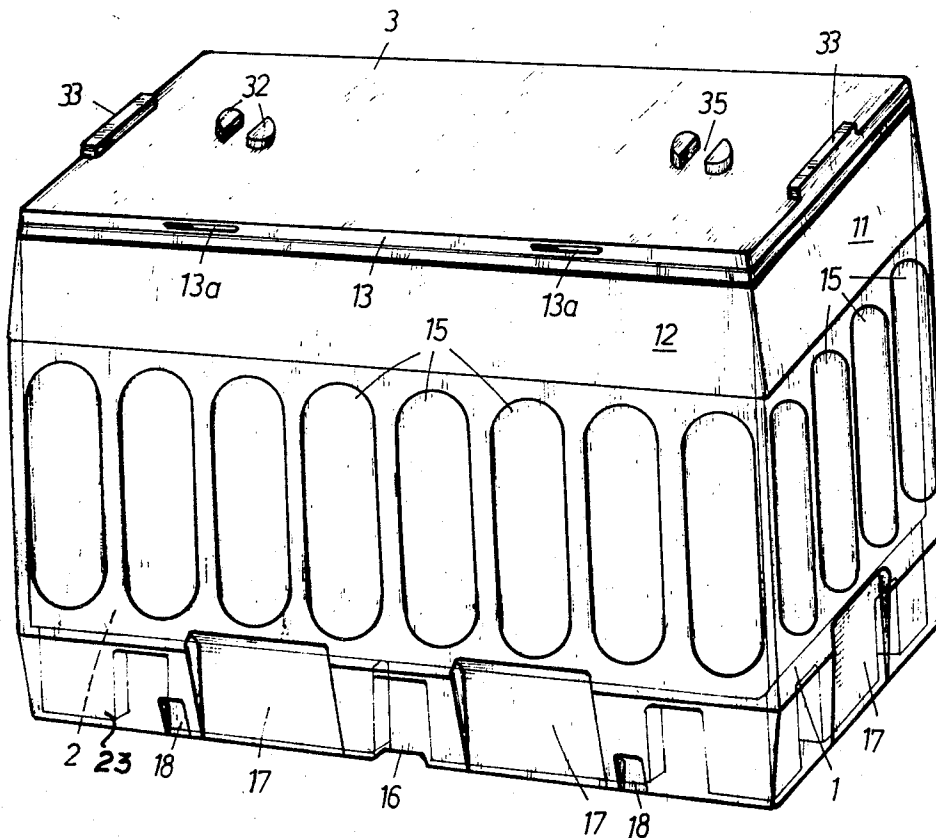


Fig. 1

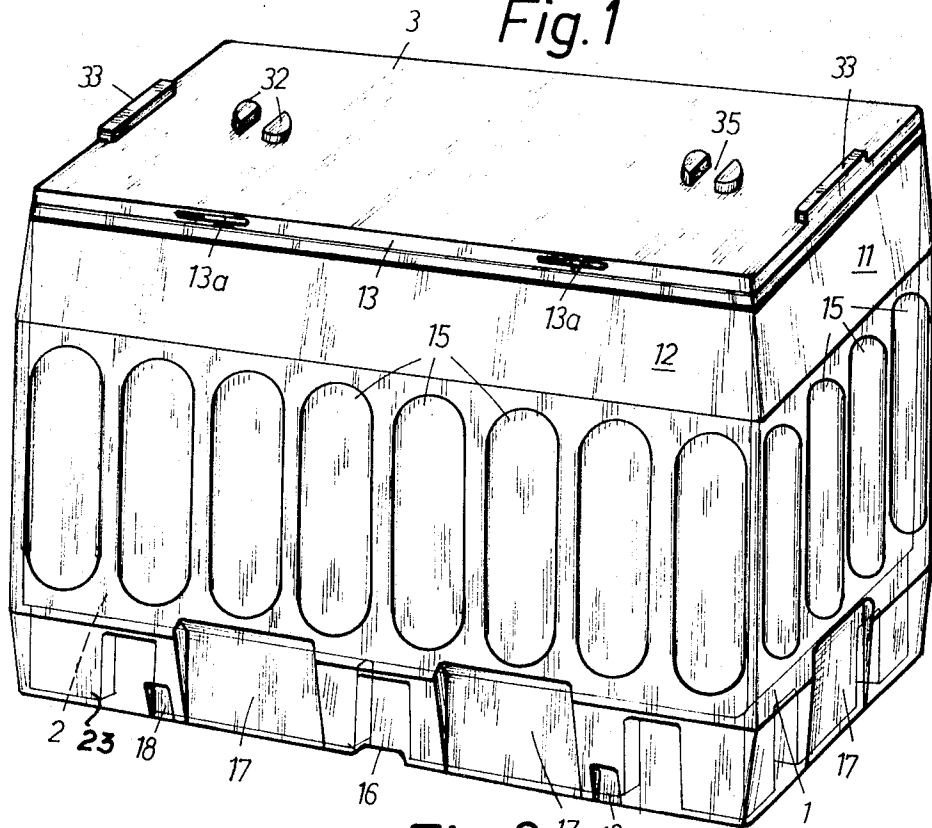
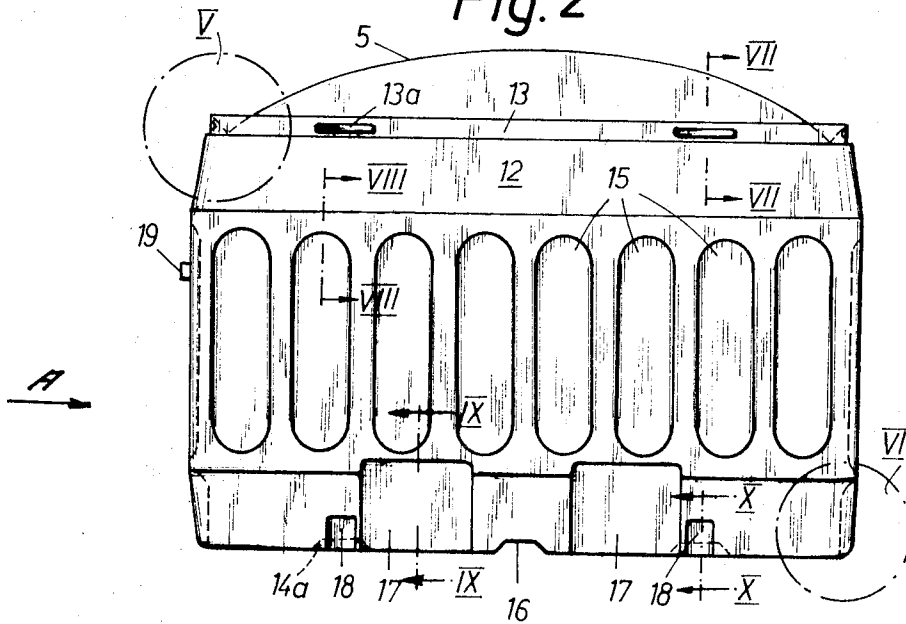


Fig. 2



INVENTOR.

Claus Ebert

BY

Walter Buhz

Fig. 4

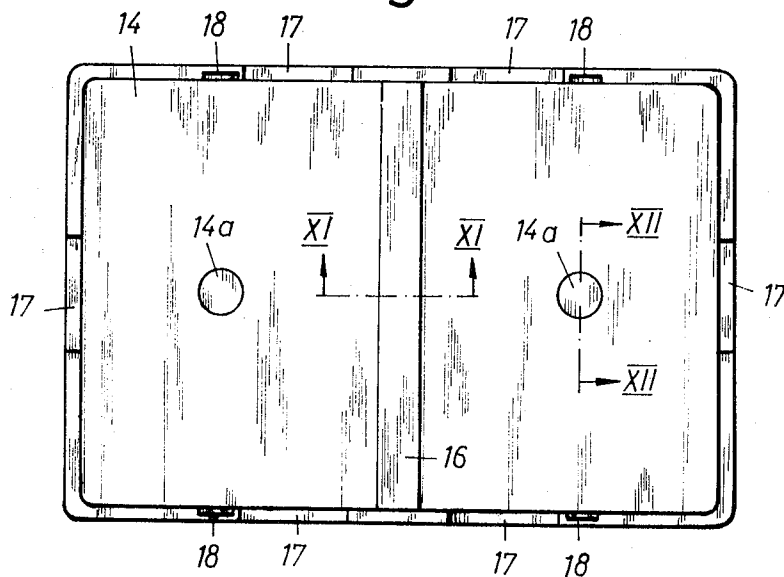


Fig. 3

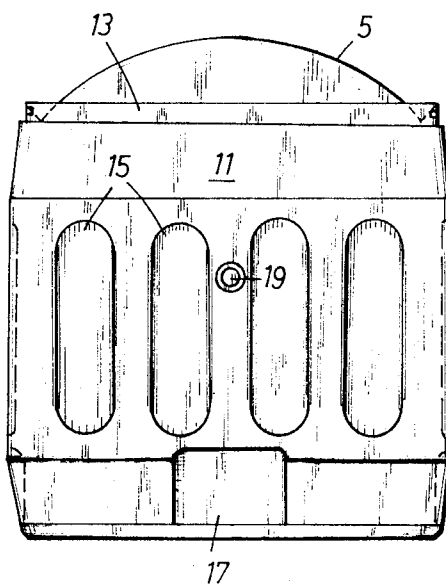
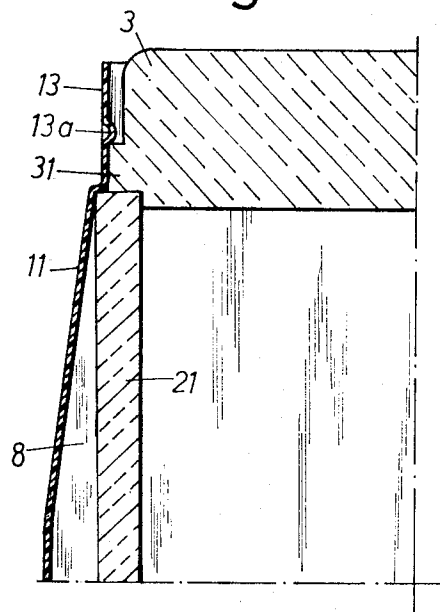


Fig. 5



INVENTOR.
Claus Ebert

BY

Walter Bueh

Fig. 6

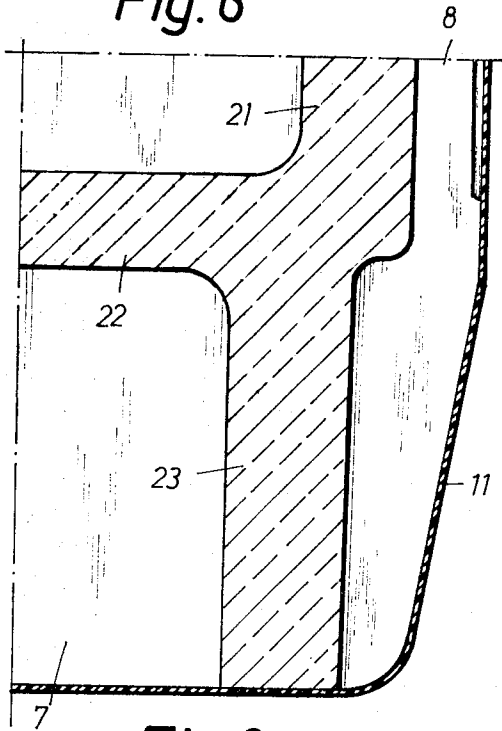


Fig. 7

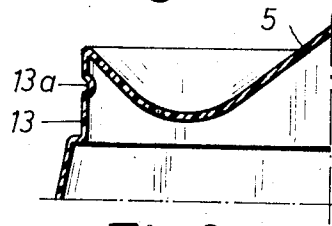


Fig. 8

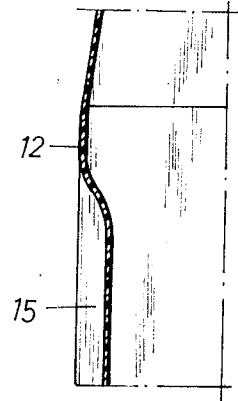


Fig. 9

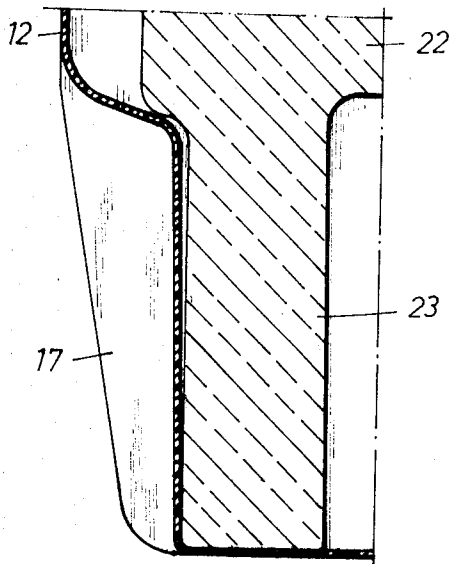
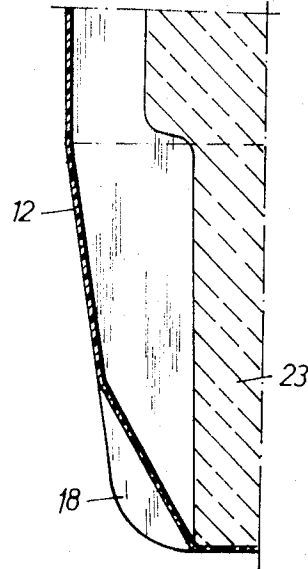


Fig. 10



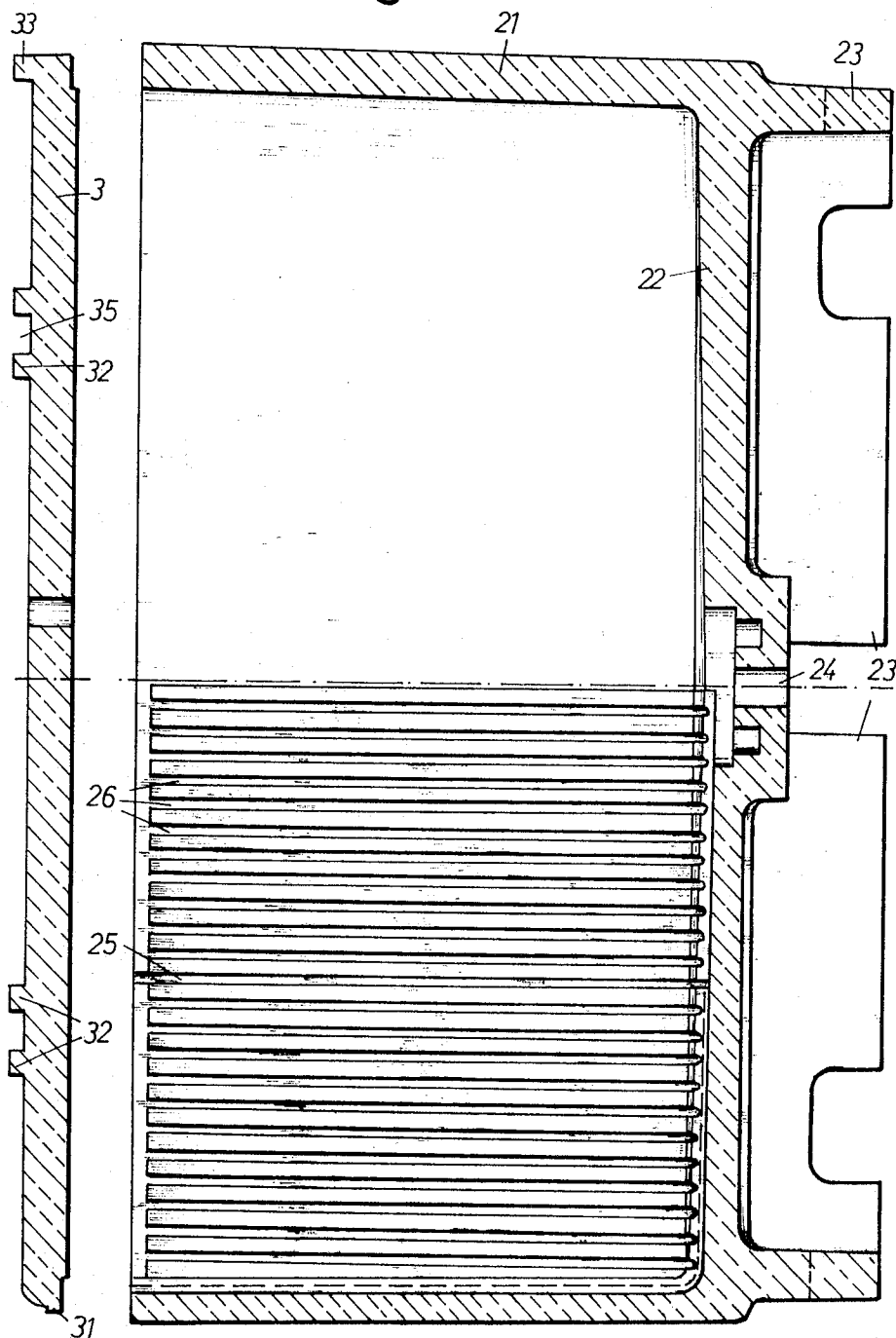
INVENTOR.

Claus Ebert

BY

Walter Boley

Fig. 13



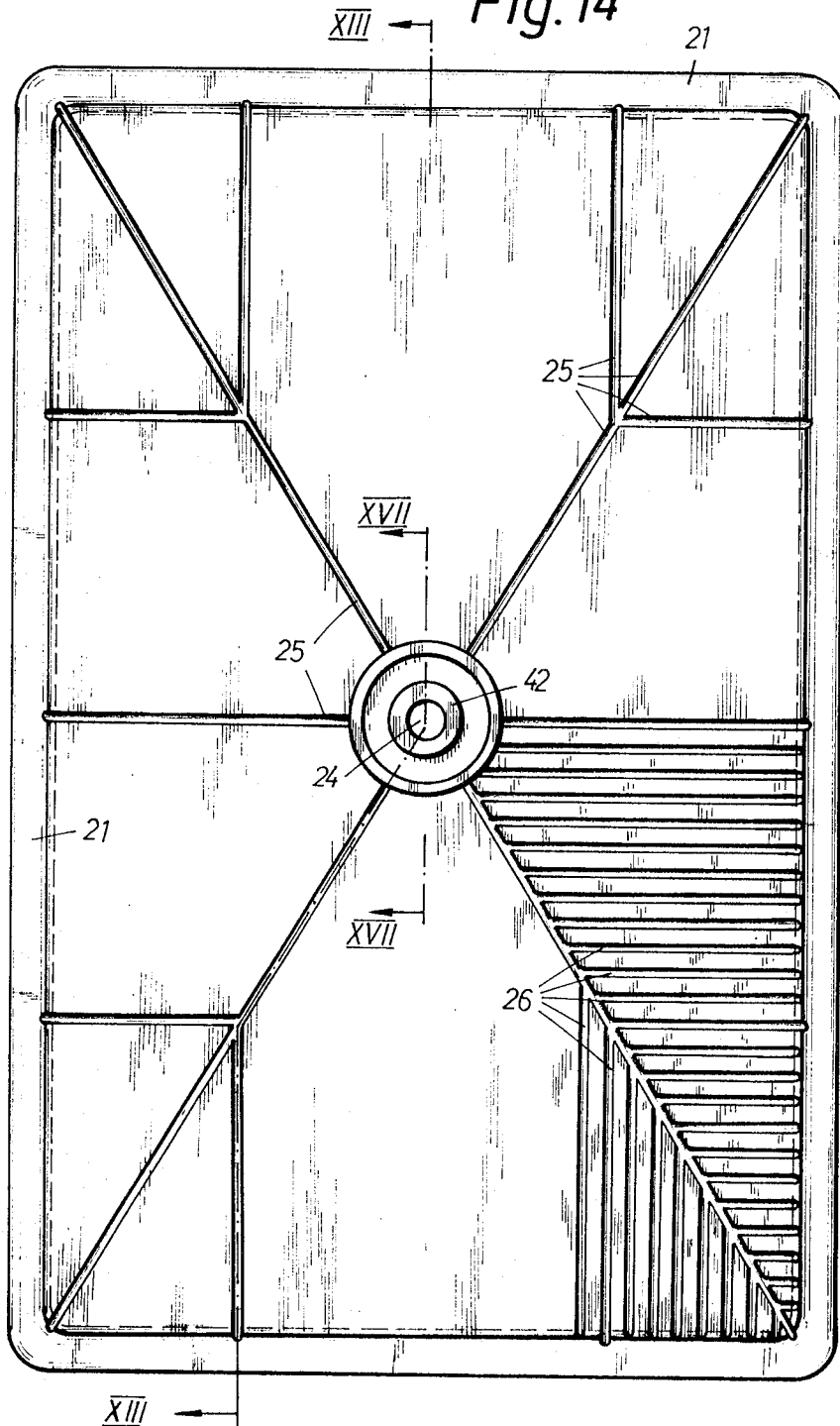
INVENTOR.

Claus Ebert

BY

Walter Buehler

Fig. 14



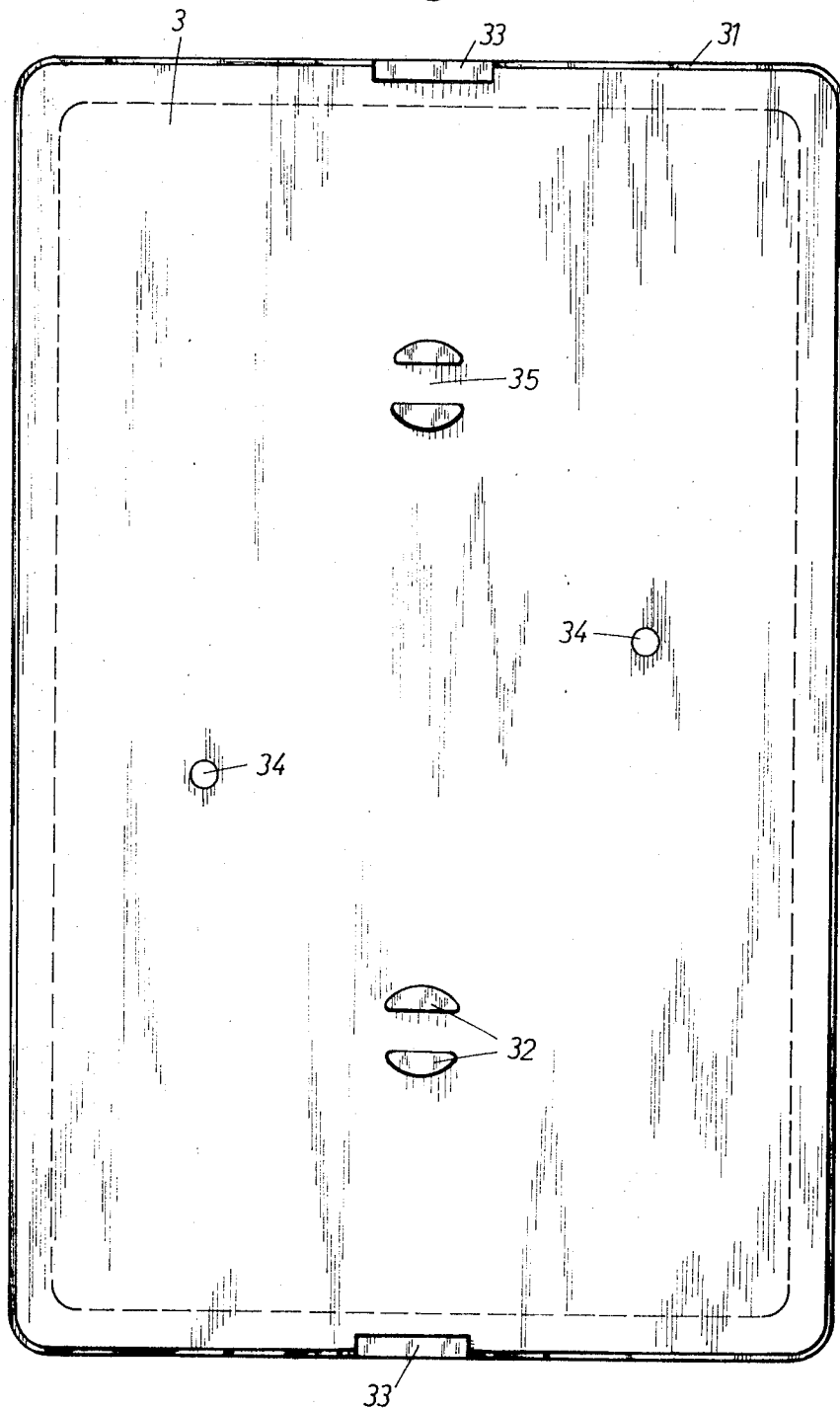
INVENTOR.

Claus Ebert

BY

Walter Buehler

Fig. 15



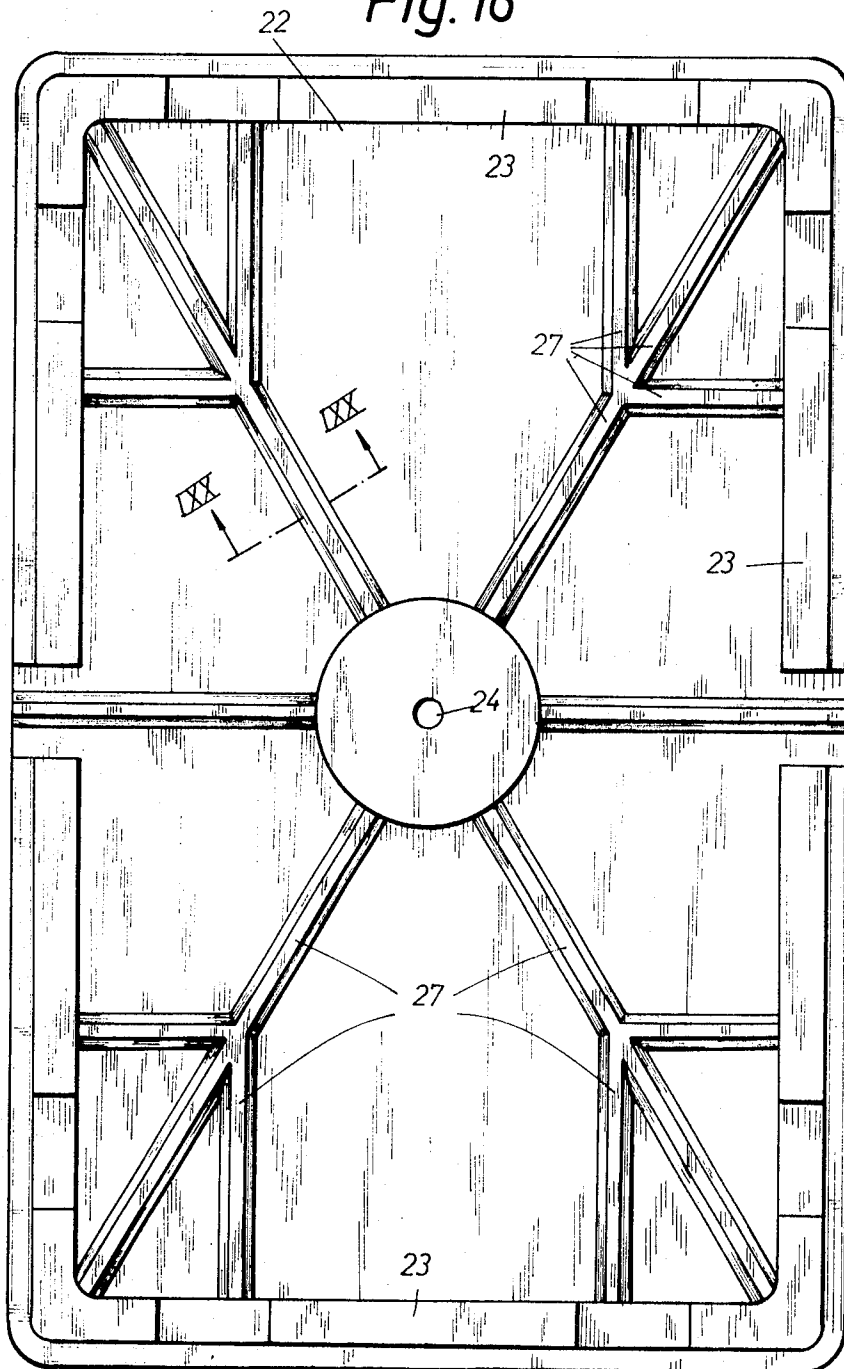
INVENTOR.

Claus Ebert

BY

Walter Bulky

Fig. 16



INVENTOR.

Claus Ebert

BY

Walter Duhay

Fig. 17

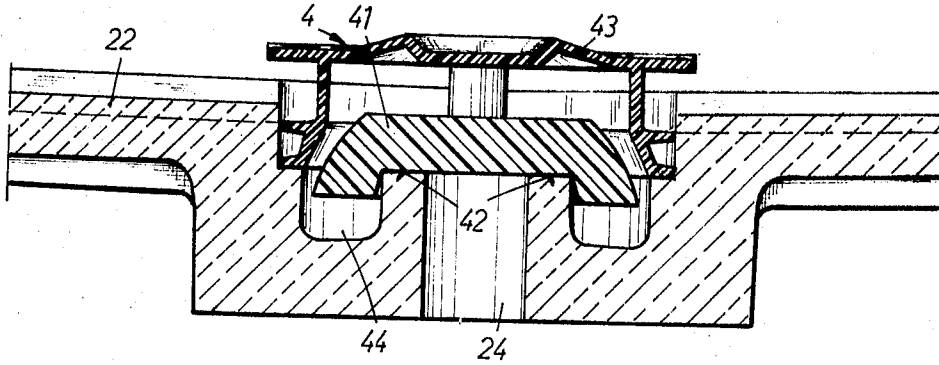


Fig. 18

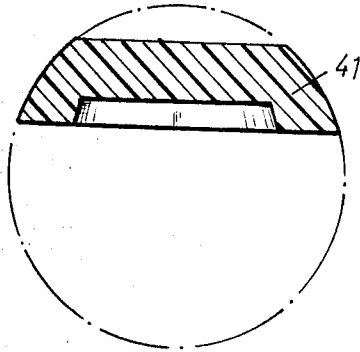


Fig. 19

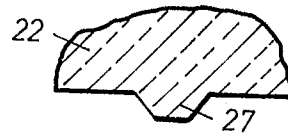


Fig. 20

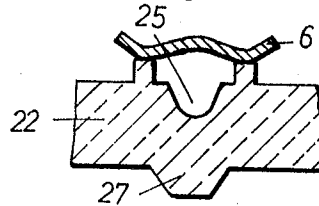


Fig. 12

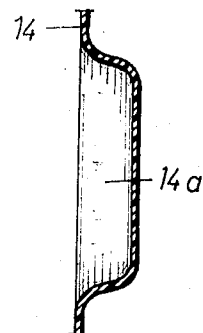
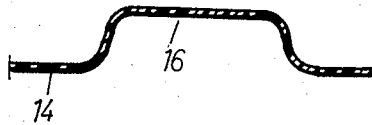


Fig. 11



INVENTOR.

Claus Ebert

BY

Walter Buehler

NONWETTING PACKING FOR FRESH FISH

The present invention concerns a nonwetting packing for fresh fish packed in ice, which packing comprises a double-walled container adapted to be closed by a lid or cover.

Heretofore, fresh fish were transported from the coast to the interior of the country in baskets which for purposes of keeping the fish cool were filled with ice. Ice and fish are placed in layers one above the other. Inasmuch as during the transport a portion of the ice melts and the water formed thereby will together with the tissue water of the fish escapes from the baskets, it was necessary for transporting fresh fish to employ special vehicles, special trucks and railway vehicles.

It is, therefore, an object of the present invention to provide a nonwetting packing for fresh fish packed in ice, which will avoid the escape of water resulting from melted ice and the escape of fish tissue water.

It is another object of this invention to provide a packing as set forth in the preceding paragraph in which the water resulting from melted ice and the fish tissue water will after being formed be separated from the fish and will be so collected that the water, even when moving the container and when the container is subjected to shocks during the transport thereof, will not contact the sensitive food.

It is still another object of this invention to provide a packing as set forth above which while being air permeable will have a high insulating effect, can easily be handled and will have the necessary stability for stacking.

These and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawings, in which:

FIG. 1 is an isometric view of a container according to the invention which comprises a container envelope, a container insert and a cover or lid.

FIG. 2 is a side view of the container envelope.

FIG. 3 is an end view of the container envelope.

FIG. 4 is a bottom view of the container envelope.

FIG. 5 shows a section through a detail of the assembled container, said section being taken along the upper edge thereof.

FIG. 6 is a section through the lower corner of the container.

FIG. 7 represents a section along the line VII-VII of FIG. 2.

FIG. 8 is a section along the line VIII-VIII of FIG. 2.

FIG. 9 is a section taken along the line IX-IX of FIG. 2.

FIG. 10 is a section taken along the line X-X of FIG. 2.

FIG. 11 is a section taken along the line XI-XI of FIG. 4.

FIG. 12 is a section taken along the line XII-XII of FIG. 4.

FIG. 13 is a longitudinal section through the container insert and the lid.

FIG. 14 is a top view of the container insert.

FIG. 15 is a top view of the lid.

FIG. 16 is a bottom view of the container insert.

FIG. 17 represents a section taken along the line XVII-XVII of FIG. 14.

FIG. 18 is a longitudinal section through a valve body forming part of the present invention.

FIG. 19 represents a section taken along the line XIX-XIX of FIG. 16.

FIG. 20 illustrates a section similar to that of FIG. 19 with a profiled strip mounted thereon.

The packing according to the present invention is characterized primarily in that a thick-walled container insert of insulating foam material is inserted into a thin-walled watertight container envelope while the vertical walls of said container insert are arranged in spaced relationship to the end walls and sidewalls of the container envelope, said container insert being provided with a plurality of foot portions which define a main collecting chamber and is also provided with an inlet opening while being adapted to be closed by a lid.

A packing of the above-mentioned type will safely prevent the escape of water due to melting of ice and of the fish tissue

water, and which comprises a main collecting chamber for the said water below the bottom of the container insert and also has additional collecting chambers between the vertical walls of the container insert and the end and sidewalls of the container envelope while having a high insulating effect and being of considerable strength.

In order safely to maintain the container insert in the container envelope without expensive provisions, it is suggested according to a further feature of the present invention to provide the container envelope with an inwardly offset marginal portion the step of which serves as abutment edge for the container insert. In order to be able to firmly hold the lid on the container insert, it is furthermore suggested at the marginal area of the container envelope to provide a plurality of holding cams which serve as abutment for a marginal flange on the lid.

In conformity with the present invention, the lid likewise consists of insulating foam material and is provided with stacking cams for which corresponding recesses are provided in the bottom of the container envelope. Furthermore, venting openings are provided in the lid. In order to assure that the venting openings will be in communication with the surrounding air even when the containers are stacked one above the other, the container envelope has its bottom provided with a venting passage which extends over the entire width and/or length thereof.

According to a further feature of the present invention, the end and sidewalls of the container envelope are provided with reinforcing or stiffening surface corrugations or beads so that the container insert can rest against the deeper surfaces. In this way, the surface corrugations or beads not only bring about a stiffening and reinforcement of the end and sidewalls but also form an additional orientation for the container insert. For purposes of facilitating the transport of the container, the end and/or sidewalls of the container envelope are provided with depressions adapted to be engaged by the hand of the person handling the container.

According to a further development of the invention, the lid may be provided with stacking strips adapted to engage the handling depressions of the respective container placed thereon. These stacking strips may take the place of the above mentioned stacking cams or may be arranged in addition thereto.

In conformity with the present invention, each sidewall of the container envelope has two oppositely located depressions for guiding and receiving straps by means of which the lid of the packing will be held safely and in a watertight manner. In order to provide for a further guiding of the straps on the upper portion of the packing, the stacking cams in the lid may be arranged above the depressions for the straps in the container envelope and may respectively be provided with a strap guiding slot into which the strap is placed.

For purposes of obtaining a good drainage of the water being formed from the melting ice and of the fish tissue water, the bottom of the container insert is provided with a plurality of main discharge passages leading to the feeding opening and being in communication with discharge channels uniformly distributed over the bottom, said discharge channels having a smaller cross section than the main discharge passages. The main discharge passages and the discharge channels may be contained in the sidewalls which means may extend upwardly into the sidewalls. In order to prevent the main discharge passages from being clogged up, they may be covered with a profile strip in spaced relationship thereto. In order not to affect or impair the insulating effect of the container insert by the reduction in the cross section which is brought about by the main discharge passages, the bottom of the container insert has its outside provided with reinforcing ribs which may extend in conformity with the main discharge passages.

It is also suggested in conformity with the present invention to provide a valve in the feeding opening of the container insert, which valve will interrupt the continuous connection of the interior of the container with the collecting chambers but

will nevertheless assure an instantaneous discharge of the collected water. This valve comprises a valve body which is movable between a valve seating surface annularly surrounding the through flow opening and a valve cover. The said valve cover is inserted above the valve seating surface in the bottom of the container insert. The valve body preferably consists of a material known under the trade name "Styropor," whereas the valve cover may consist of polystyrol.

In order to be able to discharge the water derived from the melting of the ice and the fish cell water, the container envelope is provided with a discharge opening adapted to be closed. According to a preferred embodiment of the invention, the container envelope is produced in the form of a hollow body by a blowing method. The arched portion formed above the marginal area of the container envelope is cut off and the blowing-in gate is employed as discharge opening.

Referring now to the drawings in detail, the container envelope 1 is shown in heavy lines, whereas the container insert 2 is shown in thin lines. The end walls 11 and sidewalls 12 of the container envelope 1 are provided with reinforcing surface corrugations or beads or depressions 15. The opening of the container envelope 1 is defined by the marginal area 13.

From the side view of FIG. 2 and the end view of FIG. 3, there will be clearly evident the shape of the container envelope 1 and how the container envelope 1 can be made from polyethylene by blowing. Inasmuch as for the most economical blowing method, it is necessary first to produce a hollow body, the later open upper side is originally closed by an arched portion 5 the connection of which to the marginal area 13 is clearly shown in FIG. 7. This arched portion 5 is after cooling of the hollow body cut off at its connection with the marginal area 13 so that the container envelope 1 will be open at the top.

Inserted into the container envelope is the container insert 2 which is formed of a material known under the trade name "Styropor." The container insert 2 has vertical walls 21 and a bottom 22 which is provided with downwardly protruding foot portions 23. These foot portions 23 define a chamber between the bottom 14 of the container envelope 1 and the bottom 22 of the container insert 2. This chamber forms the main collecting chamber 7. Inasmuch as the vertical walls 21 of the container insert 2 are arranged in spaced relationship to the end walls 11 and sidewalls 12 of the container envelope 1, chambers forming auxiliary collecting chambers 8 are formed between the said walls.

The bottom 22 has a feeding opening 24 to which lead a plurality of main discharge passages 25 which are distributed over the bottom surface and are particularly clearly shown in FIG. 14. Discharge channels 26 uniformly distributed over the bottom 22 of the container insert 2 lead into the main discharge passages 25. The main discharge passages 25 as well as the discharge channels 26 extend into the vertical walls 21 as will be seen from FIGS. 13 and 14.

The container insert 2 is from the top inserted into the container envelope 1. The marginal area 13 of the container envelope 1 is somewhat offset toward the interior as shown in FIG. 5. The thus formed step will serve as abutment edge for the container insert 2 so that the latter cannot drop out of the container envelope 1 even when the container is inverted.

Placed upon the container insert 2 is a lid 3 which is provided with a marginal flange 31 (see FIG. 5). In order to exert a certain holding effect upon the lid 3, above the marginal flange 31 at the marginal area 13 of the container envelope 1 there are provided a plurality of holding cams 13a which are clearly shown in FIGS. 1 and 2 and also in FIG. 5.

The upper surface of lid 3 is provided with stacking cams 32 which are adapted to engage into recesses 14a in the bottom 14 on a container envelope 1 placed thereupon. The stacking cams 32 may be provided with a guiding slot 35 for straps, said slot serving for guiding on the lid 3 a nonillustrated strap which may be provided for a safe connection of the lid 3 to the container. With the embodiment illustrated in the drawing, two straps may be provided which are guided in depressions 18 provided in the lower portion of the container envelope 1.

For purposes of facilitating the transport of the container according to the invention, the container envelope 1 has each end wall 11 thereof provided with a handling depression and has each sidewall 12 provided with two handling depressions 17 the design of which is shown on a larger scale in FIG. 9. Stacking strips 33 may extend into said handling molds 17 and may be formed on the lid 3 in case additional elements are desired for facilitating the stacking.

As will be seen in particular from FIG. 17, the opening 24 is, with regard to the main collecting chamber 7, closed by a valve 4 having a valve body 41. This valve body 41 which is shown in FIG. 18, consists preferably of "Styropor" and normally seals the opening 24 along an annular valve seat surface 42 which is in the shape of an upwardly extending neck. Above the valve body 41, a valve cover 43 of synthetic material is inserted into the bottom 22 of the container insert 2. This cover 43 limits the movement of the valve body 41 during the lifting-off movement of the latter and thus prevents the valve body 41 from being subjected to a load.

The fresh fish alternately to be packed with ice is inserted into the container insert 2 in the container envelope 1 whereupon the container insert 2 is closed by the lid 3. The container insert 2 will with the subsequent transport of the fresh fish provide for a good insulation which is increased by the double-walled design of the packing. In order to prevent the fresh fish from becoming sticky, a plurality of venting openings 34 are provided in the lid 3. In order to assure that these venting openings 34 will communicate with the outside air also when the containers are stacked upon each other, the bottom 14 of the container envelope 1 has a venting passage 16 which in a position corresponding to the venting openings 34 extends transverse or in longitudinal direction over the entire bottom 14. The water which is formed by melting of the ice during a longer transport of the container and the cell water released from the fresh fish is passed by means of the discharge channels 26 arranged in the walls 21 and in the bottom 22 of the container insert 2 into the main discharge passages 25 and from here to the opening 24. As soon as below the valve body 41 in the there provided valve collecting chamber 44 a sufficient quantity of water has collected, the valve body 41 is lifted off so that further entering water will enter through opening 24 into the main collecting chamber 7 therebelow. This main collecting chamber 7 is so dimensioned that it will be able to collect the maximum quantity of water being formed.

If during the transport of the container the latter is tilted or by mistake placed on one side surface, the water can pass from the main collecting chamber 7 into the auxiliary collecting chambers 8 which are located between the walls 21 of the container insert 2 and the end and sidewalls 11, 12 of the container envelope 1. In this way, it will be assured that also during a careless transport or faulty storing, no water formed by the melting ice and no cell water can return to the interior of the container. Thus, the taste and quality of the fresh fish will not be affected.

In order to prevent a clogging, especially of the main discharge passages 25, these passages may, in conformity with FIG. 20, be covered by a profile strip 6. Furthermore, it will be possible to reinforce the bottom 22 of the container insert 2 in conformity with the reduction in the cross section by the main discharge passages 25, by providing reinforcing ribs 27 so that also at these areas no reduction in the insulating effect will occur. The design of the reinforcing ribs 27 is shown in FIGS. 16, 19 and 20 which also show that the reinforcing ribs 27 extend parallel to the main discharge passages 25.

The container envelope 1 is furthermore provided with a discharge opening 19 through which after a certain time period but at the latest prior to opening of the container, the water collected in the main collecting chamber 7 is discharged. The discharge opening 19 is during the transport of the container closed by a nonillustrated stopper. When producing the container envelope 1 by a blowing method, the blowing gate will form the discharge opening 19.

It is, of course, to be understood that the present invention is, by no means, limited to the particular showing in the drawings but also comprises any modifications within the scope of the appended claims.

It may furthermore be added that while various types of thermoplastic synthetic material may be used for the container envelopes 1, low pressure polyethylene or cardboard with a foil of polyethylene have proved very successful as thermoplastic synthetic material for the container envelope 1. Similarly, while various substances may be used as insulating foam material for the container insert 2, foam polystyrol has proved particularly successful in this connection for the container insert 2.

What I claim is:

1. A container adapted for receiving articles and ice and comprising: an inner boxlike body member having side, end, and bottom walls and open at the top and a lid therefore, said body member and lid being formed of heat insulating material and having walls thick enough to impart structural strength to the container to permit ready handling of the container when loaded, said body member having foot portions dependent from the bottom wall thereof, an outer thin walled water impervious envelope member surrounding said inner body member and having side and end walls spaced from the adjacent side and end walls of said body member, said envelope member having a bottom wall engaging the lower ends of said foot portions, said envelope member being open at the top and having a marginal portion embracing the periphery of said body member at the top thereof, and a drain opening in the bottom wall of said body member, the space between the bottom walls of said body member and envelope member forming a primary chamber for receiving fluid draining from said body member and the spaces between the side and end walls of said body member and envelope member forming secondary chamber means in communication with said primary chamber.

2. A container according to claim 1, in which said body member and lid are formed of a foamed plastic material and said envelope member is unfoamed plastic material.

3. A container according to claim 1, in which said marginal portion of said envelope member is inwardly offset at the upper edge of said body member to form a ledge engaging over said upper edge of said body member.

4. A container according to claim 1, in which the marginal portion of said envelope extends beyond the upper edge of said body member to form a pocket to receive said lid and is provided with inwardly formed protuberances which engage over the upper edge of the peripheral region of said lid when the latter is mounted on the open upper side of said body member.

5. A container according to claim 1, in which each sidewall of said envelope member is provided with a pair of notches to receive banding straps.

6. A container according to claim 1, in which said envelope member is provided with a closeable drain port.

7. A container according to claim 1, in which said lid is sub-

stantially flat on top to permit said containers to be stacked, projections upstanding from the top of said lid, and recesses in the said bottom wall of said envelope member in vertical registration with said projections and of a size closely to receive said projections whereby stacked containers are locked together against relative lateral movement.

8. A container according to claim 7, in which said lid includes venting aperture means therein and said bottom wall of said envelope member has groove means extending thereacross directly below said aperture means for ventilation of the containers when stacked.

9. A container according to claim 7, in which each sidewall of said envelope member is provided with a pair of notches to receive banding straps, said pairs of notches being in the same vertical planes as said projections on the lid, said projections also being notched to receive the banding straps.

10. A container according to claim 1, in which spaced vertical rib means are provided on one of the outside surface of said body member and the inside surface of said body member and the inside surface of said envelope member extending between said members and supporting the side and end walls of said envelope member.

11. A container according to claim 10, in which said rib means are in the form of corrugations formed in the end and sidewalls of said envelope member.

12. A container according to claim 1, in which said envelope member is provided with finger notches near the bottom for ease of handling the container.

13. A container according to claim 12, in which said notches include a notch at the bottom of each end wall of said envelope member and the said lid has projections thereon vertically over said notches and of a size to fit therein upon placement of said lid beneath said envelope member bottom wall.

14. A container according to claim 1, in which the upper surface of the said bottom wall of said body member is provided with grooves directing drainage fluids to said drain opening.

15. A container according to claim 14, in which the insides of the side and end walls of said body member have grooves formed therein leading to the grooves in said bottom wall.

16. A container according to claim 14, in which said grooves includes larger main grooves leading directly to said drain opening and other smaller grooves leading to said main grooves, said bottom wall of said body member having ribs on the underside in alignment with said main grooves to reinforce said bottom wall.

17. A container according to claim 16, in which cover strips are provided covering said main grooves.

18. A container according to claim 1, which includes a valve in said drain opening.

19. A container according to claim 18, in which a valve seat is provided surrounding said drain opening and said valve rests on said seat, said valve being buoyant in the drainage fluid so as to open to release fluid from said body member and to close when the fluid is drained from said body member.