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71 Applicant: **WAVIN B.V.**
251 Händellaan
NL-8031 EM Zwolle(NL)

72 Inventor: **Ettema, Ernst**
9 Elzenlaan
NL-7771 DJ Hardenberg(NL)

74 Representative: **van der Veken, Johannes**
Adriaan et al,
3 & 4 Willem Witsenplein
NL-2596 BK The Hague(NL)

54 **A plastics crate or tray.**

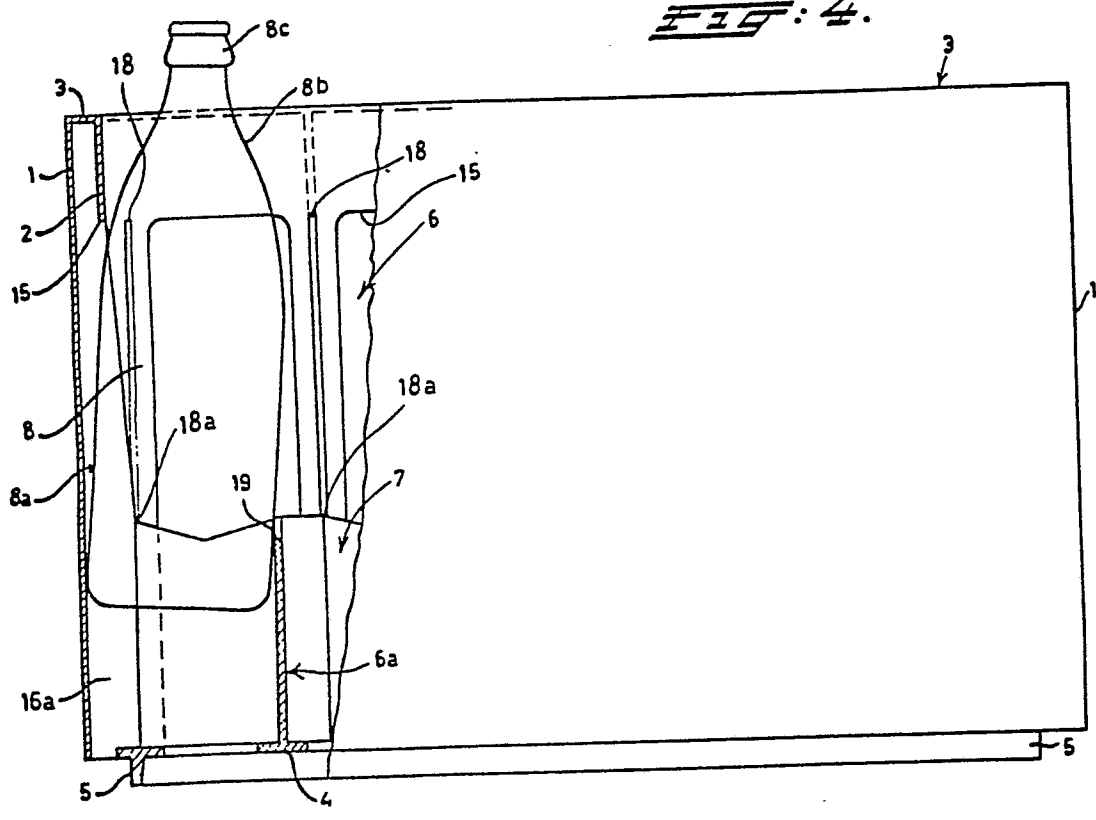
57 A plastics crate or tray comprises an outer wall 1 and an inner wall 2 as well as a partitioning 6, forming compartments 7, 16 and 16a.

Compartments 16, 16a along the side walls extend towards the outer wall due to partial absence of the inner wall 2. The lower edge of inner wall 2 in these compartments 16, 16a and a height 19 of partitioning walls 6' is such that bottles 8 may be positioned in said compartments 16, 16a, said bottles partially extending below the upper part of inner wall 2.

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FIG. 4.



-1-

A plastics crate or tray

The invention relates to a plastics crate or tray comprising a partitioning forming compartments, the outer walls of said crate or tray being whether or not entirely open, its side walls being at least partially double-walled.

5

A plastics crate or tray of this type is known. By making the walls of said crates or trays double walled, the crates or trays may be given the desired strength properties even if less plastics material is used for their production, so that
10 the walls of said crates or trays will not be deformed when they are stacked upon each other, even in a filled condition.

However, plastics crates or trays of the aforementioned type present the disadvantage that, in view of their prescribed
15 internal dimensions, their outer dimensions are too great.

Efforts have been made to accommodate a partitioning in said double walled plastics crates or trays, in such a way that they can receive an optimum number of bottles, but in actual
20 practice said efforts have mostly been insufficient.

The present invention aims to provide a plastics crate or tray of the aforementioned type, alleviating the foregoing inconveniences, in such a manner that, in accordance with the in-
25 vention, said plastics crate or tray may receive an optimum number of bottles, while the outer circumferences of a crate

-2-

or tray of this type are small.

This object is attained according to the present invention, in that in a plastics crate or tray comprising a partitioning
5 forming compartments, the outer walls of said crate or tray being whether or not entirely open, its side walls being at least partially double walled, the compartments situated along the wall sides of the crate or tray, extend towards the outer wall of the plastics crate or tray, ^{while} in said compartments the
10 inner walls of the crate or tray end at distance from an upper side of the partitioning, such that bottles fitting into said compartments at least partially extend below said inner walls, while being supported by the bottom of the plastics crate or tray.

15

The use of compartments of this type permits a greater number of bottles to be disposed in the crate or tray, as the space formed by the inner and outer wall of the crate or tray may now be used for receiving part of a bottle body, while the
20 crate or tray will keep its great strength properties.

The inner walls of the crate or tray appropriately extend from the upper edge of the crate or tray till at least the upper side of bottles to be disposed in such a crate or tray and at
25 most to the area situated above a cylindrical bottle-body. By suitably choosing the height of the inner wall and the height of partitioning a bottle when being disposed into such a compartment, will not get clamped between the lower side of the inner wall, an upper side of the partitioning and the
30 inner side of the outer wall.

The partitioning according to the invention appropriately forms rows of bottle compartments, a bottle compartment at one end of each row extending towards the outer wall of the
35 plastics tray or crate.

-3-

In this manner it is attained that the inner wall of the plastics crate or tray does not at both sides comprise recesses directly facing each other.

5 The latter measure causes a sufficient strength of the walls to be maintained when plastics crates or trays are stacked upon each other, even when they have been filled with filled bottles.

10 The partitioning should preferably be formed by means of walls being staggered with respect to each other.

The partitioning is preferably staggered in such a way that twenty bottles may be received in the crate or tray, divided
15 into four rows of five bottles, which rows extend into the longitudinal direction of the plastics crate or tray.

The partitioning is formed in such a way that the bottles are separated from each other, the height of the partitioning
20 being such, that the bottles cannot contact each other, for example when two bottles are placed in adjoining compartments of the partitioning.

The respective partitioning is advantageously lower in the
25 corners of the plastics crate or tray, so that adjoining bottles being disposed at that location, contact each other. The latter is essential, so as to easily receive bottles in compartments of the partitioning without much noise hindrance.

30 The invention will be illustrated with respect to an embodiment in the drawing, wherein:

- Fig. 1 shows a plan view of a plastics crate or tray according to the invention;

- Fig. 2 shows a longitudinal section through a plastics
35 crate or tray in accordance with the invention, according to line II-II;

- Fig. 3 is a section according to line III-III in Fig. 2,

-4-

- Fig. 4 shows the position of a bottle during disposing the same in a compartment which extends towards the outer wall;

- Fig. 5 shows a view from the bottom side, of a detail of
5 a corner part of a crate or tray in accordance with the invention.

Fig. 1 shows a plan view of a plastics crate or tray, comprising an outer wall 1 and an inner wall 2, which are interconnected at the upper side by an upper edge 3.

10

The outer walls 1 extend from the upper edge 3 towards the bottom 4 of the plastics crate or tray. Said outer walls 1 are whether or not closed walls.

15 So as to properly stack the respective crates or trays, their bottom sides comprise projecting edges 5, accommodated within the space bounded by the inner walls 2.

The plastics crate or tray comprises a partitioning 6 forming
20 compartments 7, 16 and 16a, each compartment being able to receive a bottle 8.

Such a bottle 8 comprises a cylindrical bottle body 8a, a neck part 8b and an upper part 8c.

25

As can be seen, the partitioning 6 forms four rows 9, 10, 11, 12 of compartments.

At the end of each row only one compartment 16, 16a is so
30 carried out that said compartment extend towards the outer wall 1 of the plastics crate or tray. The other end of the row, e.g. row 9, is closed by a partitioning wall 13 which ends at distance from the inner wall 2 of the plastics crate or tray and may join a reinforcing rib 20. The most upper
35 edge of wall 13 is referenced 18.

-5-

The same holds for wall 13a of second row 11 of compartments 7 and 16a of the partitioning.

Rows 10 and 11 of the compartments comprise at their opposite ends partitioning walls 14 and 14a, which are located at distance from the inner walls 2 of the plastics crate or tray.

It is obvious that, due to said configuration of the compartments of the partitioning, the partitioning walls have been applied staggered with respect to each other.

As can be seen in fig. 2, the inner wall 2 of the compartments 16, 16a ends through a lower edge part 15. Said lower edge part 15 of the inner wall 2 of the plastics crate or tray extends at least to beyond the upper edge 8c of a bottle 8 but does not extend beyond the neck part 8b, so that the bottle may be anyway received in the compartment bounded by the outer wall 1 of the plastics crate or tray, without getting clamped between an upper edge 19 of partitioning wall 6' of said compartment and lower edge part 15 of inner wall 2, when being disposed into said compartment 16a.

Figure 2 further shows that the inner walls 2 of compartments being located along the longitudinal walls of the crate or tray, are partially removed. Certain parts 17, 17a, 17b and 17c may, however, extend towards the bottom 4 of the plastics crate or tray.

Obviously, the inner wall 2 may also comprise a lower edge 15 along the entire inner side of said inner wall 2. In the latter case the inner side of outer wall 1 comprises reinforcement ribs 20, which are continued in the upper part of the crate or tray and interconnect the inner and outer wall with each other at that location (Fig. 3).

-6-

The height 18a of the partitioning⁶ is such, that the upper edges of said partitioning sufficiently prevent the bottles from coming into contact with each other.

- 5 The partitioning walls 6' of compartments of the partitioning extending towards the outer wall, located in the corners and preferably also along the walls 16, 16a are such, that bottles 8 may be easily and unimpaired by disposed in said compartments 16, 16a, when being suspended from and lowered by means
10 of the arm of a machine for filling crates or trays. Indeed, the partitioning walls 22 may have a height 18a exceeding the height of edge 19 of partitioning walls 6' as these walls 22 form compartments in which the bottles can be received without any sloping position.

15

The upper edge of the plastics crate or tray preferably has the shape of a straight rectangle with rounded corners.

- The partitioning walls of compartments 16a (vide fig. 2)
20 always extend to a height 18 along the reinforcing ribs 20.

Figure 5 shows that reinforcements in the form of reinforcing columns 24, may be applied at the location of the corners where the corner compartments 16 extend towards the outer
25 wall.

In opposite corners 23a, 23b the inner wall 2 extends from upper edge 3 to the crate or tray bottom 4.

-1-

Claims:

1. A plastics crate or tray comprising a partitioning forming compartments, the outer walls of said crate or tray being whether or not entirely open, its side walls being at least partially double walled,
- 5 characterised in that, compartments (16, 16a) situated along the wall sides of the crate or tray extend towards the outer wall (1) of the plastics crate or tray and in that in said compartments the inner walls (2) of the crate or tray extend at distance from
- 10 an upper side of the partitioning, so that bottles (8) fitting into said compartments (16, 16a), at least partially extend below said inner walls (2) while being supported by the bottom (4) of the plastics crate or tray.
- 15 2. A plastics crate or tray according to claim 1, wherein the inner walls (2) of the crate or tray extend from the upper edge of the crate or tray till at least the upper side of bottles (8) to be disposed in. such a crate or tray and at most to the area above a cylindrical bottle body (8a).
- 20 3. A plastics crate or tray according to any^{one} or more of the preceding claims, wherein the inner walls (2) of the plastics crate or tray extend from the upper edge of the crate or tray towards the height (18a) of the partitioning (6).
- 25 4. A plastics crate or tray according to anyone or more of the preceding claims, wherein all compartments (16, 16a) of the partitioning (6) which are situated along the longitudinal side of a plastics crate or tray, extend towards the outer
- 30 wall (1) of said plastics crate or tray.
5. A plastics crate or tray according to anyone or more of the preceding claims, wherein the partitioning (6) forms a plurality of rows (9, 10, 11, 12) of compartments, the last

-2-

compartment of each row extending towards the outer wall of the plastics crate or tray and the compartment at the other end of such a row being bounded by a partitioning wall (13, 14, 13a, 14a) which is situated at distance from the inner wall (2) of the plastics crate or tray.

6. A plastics crate or tray according to anyone or more of the preceding claims, wherein at least two other diagonal opposite corners (16a) are substantially double walled.

10

7. A plastics crate or tray according to any one or more of the preceding claims, wherein the inner wall (2) of a plastics crate or tray extends along a substantial part, preferably along the entire height, of said crate or tray over a distance at either side of a partitioning wall which adjoins said inner wall.

8. A plastics crate or tray according to any one or more of the preceding claims, wherein partitioning walls are lowered in corner compartments (16) which extend towards the outer wall of the plastics crate or tray.

9. A plastics crate or tray according to anyone or more of the preceding claims, wherein the upper edge (3) of the plastics crate or tray has the shape of a straight rectangle with rounded corners and/or the inner surface of the outer wall (1) comprises reinforcement ribs (21) which are connected with the inner wall (2) and which preferably extend between the upper edge (3) and the bottom (4) of the crate or tray, whilst the corner compartments (16), extending towards the outer wall (1), whether or not comprise reinforcement columns (24).

10. A plastics crate or tray according to anyone or more of the preceding claims, wherein the partitioning walls (6', 13) which bound compartments extending towards the outer wall, are lower than other partitioning walls (22).

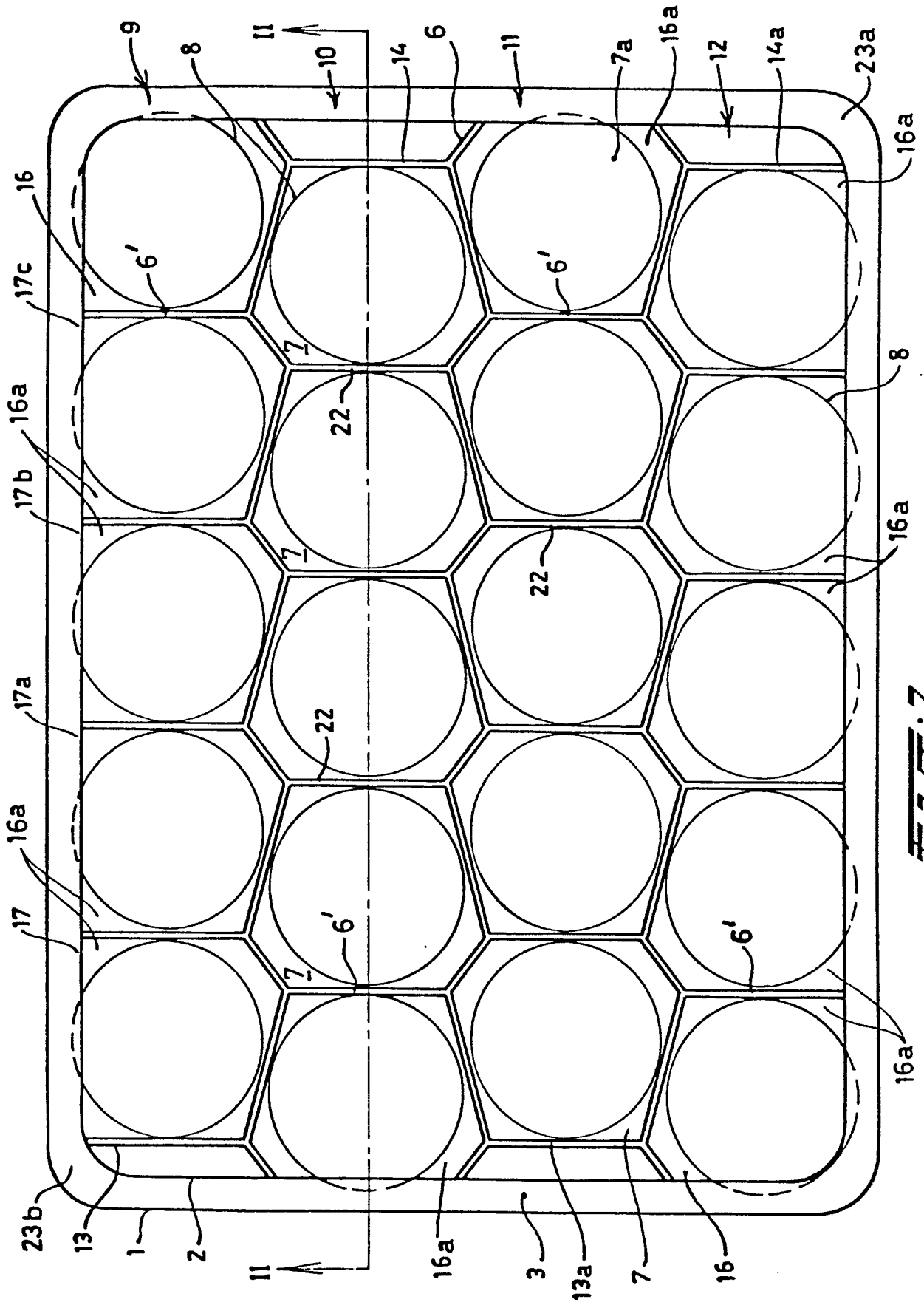


FIG. 2.

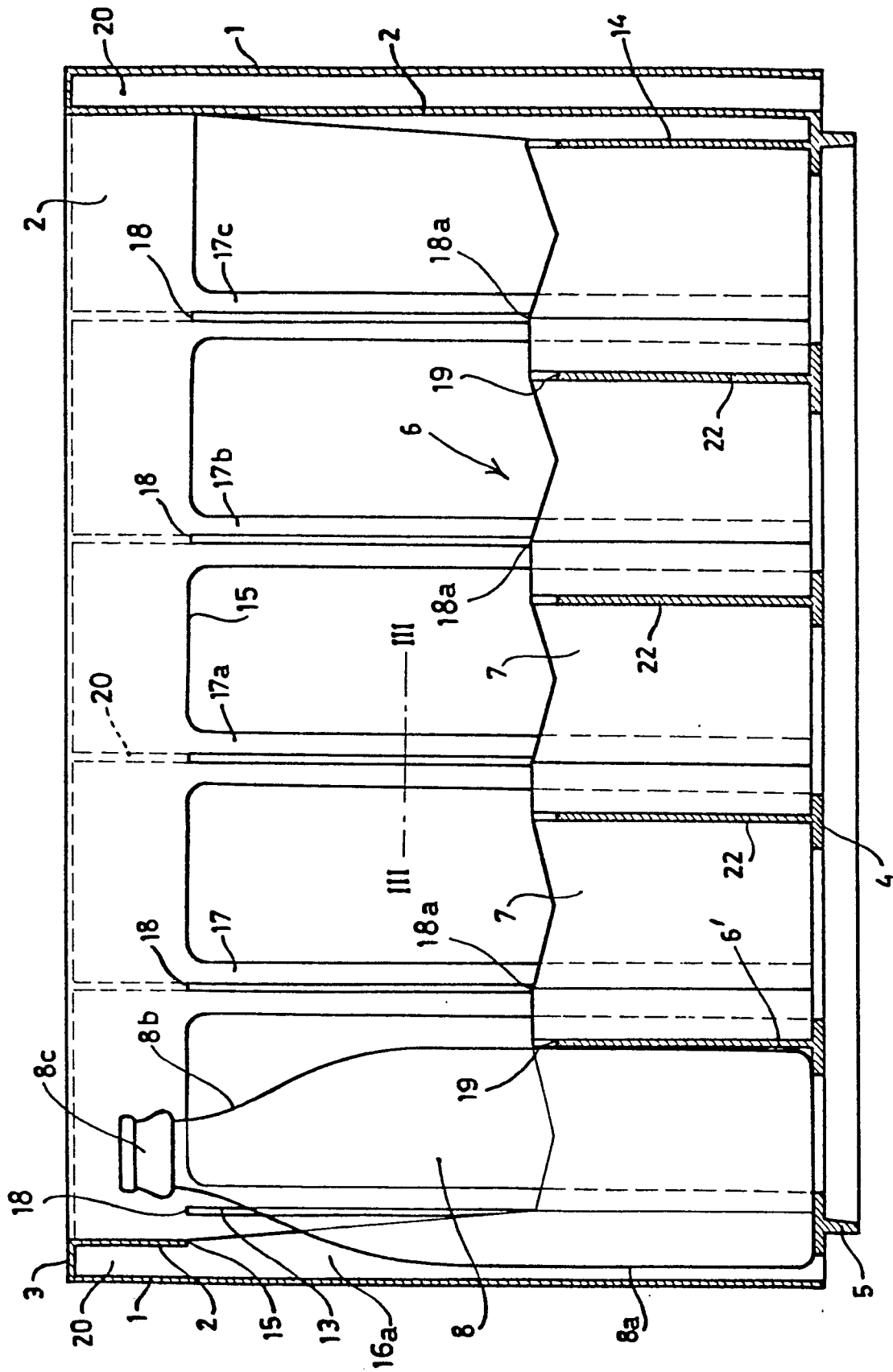
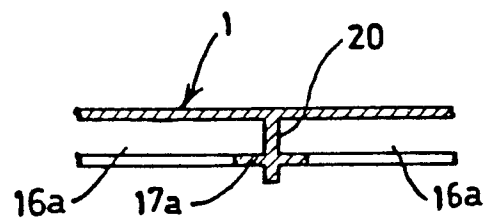
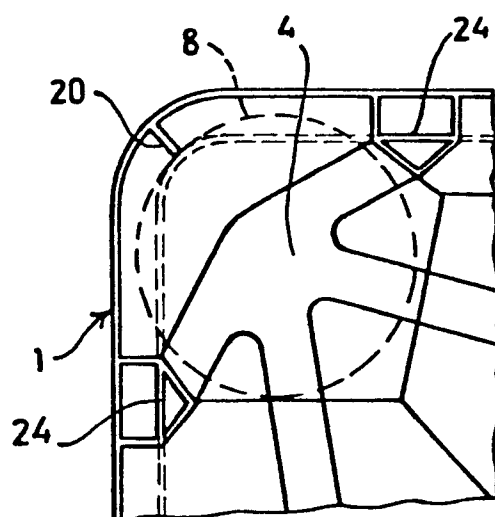


Fig. 2.

- 3/4 -

**FIG. 3.****FIG. 5.**

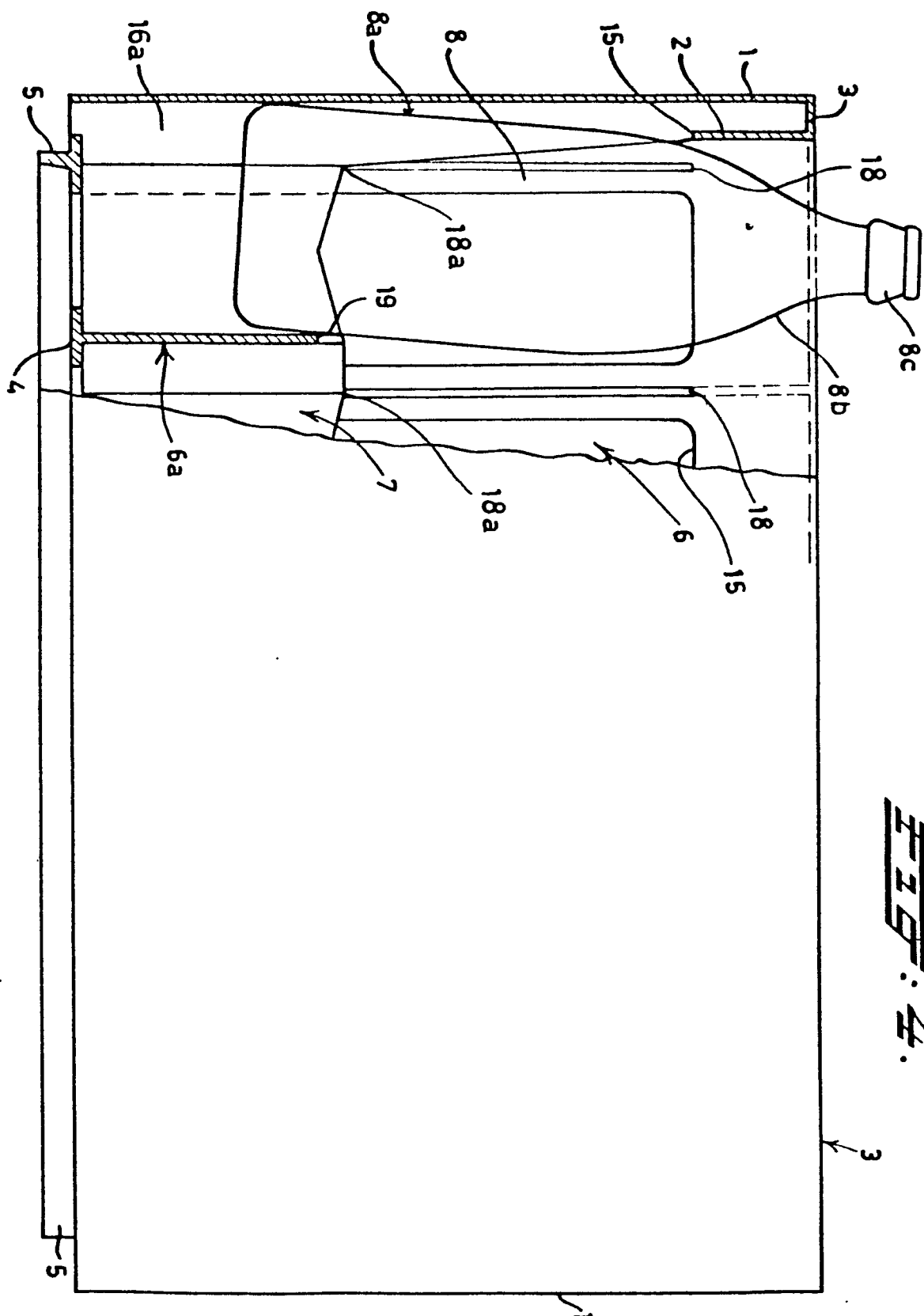


Fig. 4.



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
P	<u>EP - A - 0 015 097 (WAVIN B.V.)</u> * Page 3, lines 4-10; page 4, lines 1-5; page 5, lines 13-30; figures 1-3 * --	1,6,7,9	B 65 D 1/24
A	<u>DE - A - 2 903 163 (WAVIN B.V.)</u> & NL - A - 78 01122 ----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			B 65 D
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
☒ The present search report has been drawn up for all claims			&: member of the same patent family, corresponding document
Place of search		Date of completion of the search	Examiner
The Hague		22-12-1980	BAERT