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(54) Title: CARRIERS FOR CUPS

(57) Abstract: Carrier for cups, said carrier being, more in particular, produced from moulded fibre material. The carrier is arranged to displace as such two or more cups and for displacing a double number of cups through connection with a further carrier. To that end, each carrier is provided with a connection section, in which complementary locking means are provided. According to the invention the locking means are both effective at an outer limit as at an inner limit of the connection section. Because of that a very stable locking is obtained. Further stabilisation can be obtained in that at placing two carriers in each other a lip of the upper one of the two carriers extends in the bottom portion of the accommodation of an other carrier. By providing the cup to be displaced additional stability is provided.



WO 2006/065132 A2

Carriers for cups.

The present invention relates to a carrier for cups comprising at least two accommodations for cups, wherein each accommodation comprises three wall portions, wherein a circumferential wall portion is connected to said accommodations, said circumferential wall portion comprises two extremities, interconnected by a connecting section, said connecting section comprising an outer limit and an inner limit, wherein the outer limit and the inner limit are provided with complementary locking means, arranged to provide in locking with the inner or outer limit.

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Such a carrier is generally known from EP 1489014 A1 and is for example used for carrying beverage cups or other food stuff containers in a restaurant from delivery point to the point of use. Generally, carriers are known for containing two cups, four cups and so on. However, this has the disadvantage that several kinds of carriers should be kept in storage. To solve this problem, in the prior art, a carrier is proposed, being provided with two or more accommodations and complementary locking means. These locking means are provided in a connection section. A second carrier being identical thereto can be pressed with its connection section in the connection section of the first carrier, after which locking is realised by the complementary locking means. In this way an assembly can be provided comprising two carriers having four or more accommodations. In this way, it is possible to provide the user, depending on the use, with carrier having two accommodations or an assembly having four accommodations whilst only a single kind of carrier should be kept in storage.

25 US 5 069 335 shows a locking system for two cardboard carriers at the containment part thereof. Near the handles frictionally engaging lips are provided which do not result in a locking feature.

Although, such a carrier is particular attractive, it has been found that the structures known from the prior art are insufficient stable. The complementary locking means are provided near a limit of the connection section. After locking the assembly obtained has one carrier locked at the inner limit, whilst for the other carrier, locking is realised at the outer limit of the connection section thereof.

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The invention aims to provide a carrier, being more stable without substantially increasing the size of the carrier.

- 5 This aim is realised in a carrier as described above in that further complementary locking means are provided, arranged to provide a locking at the inner or outer limit.

According to the subject invention at placing in each other of two carriers, at one of the carriers there is both locking at the outer limit of the connection section and at the inner
10 limit. The same is true for the other carrier, wherein locking is realised at the inner limit and outer limit respectively. In this way spaced apart lockings results increasing the stability of the assembly comprising the carriers.

According to a preferred embodiment of the invention three complementary locking
15 means are provided.

According to a further embodiment the carrier comprises a moulded fibre material, i.e. a material that is 3-dimensionally shaped by providing a slurry on a 3-dimensional mould and removing the water in said slurry.

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According to a further preferred embodiment of the invention the outer limit of the connection section of each of the carriers, is provided with a carrier strip. This is positioned at the location of the bottom of the "imaginary" accommodation adjacent thereto. At subsequent introduction into each other of the carriers, the carrier strips will
25 be on the bottom of the accommodation of the other carrier. By placing a cup in said accommodation this strip is pressed onto the bottom of the other carrier. The larger the weight of the cup, the more considerable the pressure resulting therefrom. Both carriers are pressed into each other with this pressure, so that an assembly results being more stable at increasing of the weight to be carried.

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Further stability can be obtained, in that the connection section is provided with a nestable cavity. At introduction of the two carriers, further stability is obtained because the end walls of the related cavities engage into each other.

The invention also relates to an assembly comprising two identical carriers as described above connected to each other and locked with said complementary locking means.

- 5 Preferably depending on the position of one of said carriers relative to the other one of said carrier the complementary locking means at the outer limit of one carrier will engage the complementary locking means at the inner limit of the other carrier or the other way around. This means that preferably some of the complementary locking means provided on the carrier will not become effective during engagement, because it
10 is the other one of the complementary locking means which engages the other carrier.

The same applies preferably to the further complementary locking means.

- This means that the locking position is only one of the two possibilities depending on
15 which of the two carriers is positioned on top of the other carriers.

- According to a preferred embodiment the locking position of the further complementary locking means is spaced from the locking position of the complementary locking means. Preferably two complementary locking means are
20 provided resulting in two locking positions. The line through such locking positions is spaced from the locking positions or positions provided by said further complementary locking means. Through this spacing of the two locking systems further stability will be obtained.

- 25 The invention will be further described in detail, referring to preferred embodiments in the drawing showing:

- Fig. 1 schematically in perspective a first carrier according to the invention shown from a first side;
30 Fig. 2 the carrier according to fig.1 shown from a second opposite side;
Fig. 3 in top view a detail of an accommodation;
Fig. 4 two carriers from which the assembly is made above each other before assembly;
Fig. 5 the carriers merged to an assembly and having a cup placed therein; and

Fig. 6 schematically in perspective a second carrier according to the invention from a first side;

Fig. 7 the carrier according to Fig. 6 shown from a second opposite side;

Fig. 8 in top view a detail of an accommodation;

5 Fig. 9 two carriers from which the assembly is made above each other before assembly;

Fig. 10 the carriers merged to an assembly having a cup placed therein; and

Fig. 11 the cross-section according to line XI-XI in Fig. 10 immediately before merging.

10 The first embodiment of the carrier according to the subject invention is generally referred to in fig. 1 by 1. This is preferably made from a moulded fiber material. The carrier comprises two accommodations 4, 5 for carrying cups 20 such as a food stuff container. In each accommodation clamping means can be provided for clamping and receiving such a cup. Such clamping means, such as tabs, are generally known in the
15 art and comprise preferably T-shaped slots (fig. 3).

Each accommodation is delimited by wall portions (8, 9, 10). Furthermore, a bottom 21 is provided. The accommodations are delimited fixed by a circumferential wall portion 3. The end thereof is referred to by 11, 12 respectively. These extremities 11, 12 are
20 connected via an outer limit 14. A dotted line indicates an inner limit 28 and between outer limit 14 and inner limit 28 a connection section 13 is delimited. 15 indicates locking cavities. 16 (see fig. 2) are locking tabs. The locking tabs are embodied so that they can cooperate with locking cavities 15.

25 17 refers to a further locking cavity whilst 18 refers to a further locking tab. Also these further locking cavity and further locking tabs can cooperate.

As is also clear from fig. 2, the outer limit 14 comprises carrier strips 22, being part of the "imaginary" bottom of an accommodation. 23 is a central cavity in the connection
30 section 13. Several strengthening features are present to increase the strength of the carrier during support of cups. For example, strengthening ribs 25 are provided as well as strengthening depressions 27.

To support a cup there are support edges 26 which will receive the bottom parts of a cup within its protruding edge which is shown in the broken-away part of fig. 1. This provides stable positioning of the cup relatively to the accommodation. Through the presence of the T-shaped slots 24 any size of cup can be clampingly received in the accommodation.

Although the circumferential wall portion has been shown as being straight recessions can be provided to promote gripping of the carrier. It is clear from the figures that the wall portions comprises a depending part giving further strength.

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In fig. 2 a carrier 2 has been shown, identical to the carrier according to fig. 1 but shown from the other side. As already indicated from this fig. 2 details can be concluded being not clear from fig. 1.

15 The carrier shown in fig. 1 and 2 can be used as such.

It is also possible to connect two carriers 1 and 2 such that an assembly 6 results. This assembly 6 is shown in fig. 5. This assembly 6 is obtained in the way shown in fig. 4. In this figure it is indicated that the two carriers 1 and 2 are in positions having the connection sections above each other. After that, the carriers 1 and 2 are pressed to each other. The wall of the cavity 23 of the upper carrier 2 enters the accommodation of the cavity 23 of the lower carrier 1. In this way a centring effect is obtained. The centring effect is further enhanced by the presence of the grip portions 16 which also have a complementary effect, under which the fingers of the user are positioned at lifting of the carrier. At further pressing into each other of the carriers 1 and 2 the locking tabs 16 of the upper carrier 2 and the locking cam 18 of the lower carrier 1 will move along the material of the other carrier until the locking cavities 15, the locking cavity 17 respectively are reached. Subsequently the locking lips 16 and locking cam 18 snap or engage the locking cavity 15, 17 respectively and both carriers 1, 2 are locked to each other. In this way, four cups can be displaced with the assembly 6 obtained in this way. The stability of the assembly is further enhanced in that, in the position obtained, the strip 22 of carrier 2 is placed on the bottom 21 of carrier 1. At placing a cup 20 the strip 22 will be pressed downwardly, so that the wall portion of the

carrier adjacent thereto, is pressed against a corresponding wall portion of the carrier 1. At increasing weight of the cup this clamping force will increase.

In figs. 6-12 a second embodiment of the carrier(s) of the invention is shown. This carrier is generally referred to by 31 and comprises two accommodations 34 and 35 for carrying cups 50 such as a beverage container. Also in this embodiment three T-shaped slots 54 are provided. It is noted that one of the slots which functions to possibly cooperate with a tab of another carrier is of a size somewhat bigger than the other two slots (vide fig. 8).

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Each accommodation 34, 35 is delimited by wall portions 38, 39 and 40. A bottom 51 is provided. The accommodations are delimited by a circumferential wall portion 33 is turned down over a height of e.g. about 5 mm. Preferably there are no sharp edges to promote destacking of a nested stack. The end thereof is referred to by 41, 42

15

respectively. The extremities 41, 42 are connected via an outer limit 44. A dotted line indicates an inner limit 58 and between outer limit 44 and inner limit 58 the connection section 43 is delimited. 46 indicates blocking cavities. 16 (vide fig. 7) are locking tabs.

Locking tabs are embodied so that they can cooperate with locking cavities 45. 47 refers to a further locking cavity whilst 48 refers to a further locking tab. Also these further locking cavities and further locking tabs can cooperate. Comparison with the first embodiment reveals that this locking cavity 48 has more rounded corners to improve releasing from the mold and denesting from the stack of carriers whilst furthermore the shape is more diamond-like to decrease the size of the carrier.

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53 is a central cavity in the connection section 43. Supporting edges for cup 50 are indicated by 26. Each accommodation comprises three of said support edges.

Reinforcements are present comprising a depression 57 which can e.g. have a size of 5-8 mm. Strengthening ribs 55 are provided. Assembly of two carriers 31 and 32 resulting in assembly 36 is substantially the same as in the previous embodiment. In

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fig. 10 the locking positions are shown. It is clear that locking position 64 is spaced from the line between locking positions 62 and 63 increasing the stability of the assembly obtained. Further details can be obtained from fig. 11 and 12. More in particular fig. 11 shows clearly that in cavity 53 of one carrier the other cavity 53 of the

- second carrier is received with the bottoms of the cavities adjacent to each other. This is in contrast to prior art structures wherein elevations are stacked into each other, so that the top faces of two carriers are positioned adjacent to each other. Through the structure according to the invention it has surprisingly been found that the total height or depth of the cavity 53 can be decreased relatively to using such elevations resulting in a total decrease of the material to be used for the carrier and subsequent lowering of production costs through less use of material and less consumption of heat for drying the material after molding.
- 10 It should be understood that in the above way a particular stable structure is obtained. It will also be understood that the subject invention is not limited to two, four accommodations respectively. Each other number, one, three or more can be used for each carrier. Furthermore, the carriers can have further features being known as such from the prior art. These and further embodiments are within the range of the appended
- 15 claims.

Claims

1. Carrier (1, 2; 31, 32) for cups (20; 50) comprising at least two accommodations (4, 5; 34, 35) for cups (20; 50), wherein each accommodation comprises three wall portions (8, 9, 10; 38, 39, 40), wherein a circumferential wall portion (3; 33) is connected to said accommodations, said circumferential wall portion comprising two extremities (11, 12; 41, 42), interconnected by a connecting section (13; 43), said connecting section comprises an outer limit (14; 44) and an inner limit (35; 65), wherein the outer limit and the inner limit are provided with complementary locking means (15, 16; 45, 46), arranged to provide in locking with the inner or outer limit, characterized in that further complementary locking means (17, 18; 47, 48) are provided, arranged to provide a locking at the inner or outer limit.
2. Carrier according to claim 1 comprising three complementary locking means.
3. Carrier according to claim 2, wherein two spaced complementary locking means (15, 16; 45, 46) are provided and said further complementary locking means (17, 18; 47, 48) are spaced from the line between said complementary locking means.
4. Carrier one of the preceding claims, wherein said outer limit (14) is provided with a carrier strip (22).
5. Carrier according to one of the preceding claims, wherein said connection section (13) comprises a cavity (23) being nestable.
6. Carrier according to claim 5, wherein one of said complementary locking means (17, 18) is adjacent to said cavity (23).
7. Carrier according to one of the preceding claims, wherein said complementary locking means comprise tabs, locking cams and locking recesses cooperating therewith.

8. Carrier according to claim 5, wherein the locking tabs are provided at the outer limit or inner limit of the connection section and the locking cams are provided at the inner limit or outer limit of the connection section.

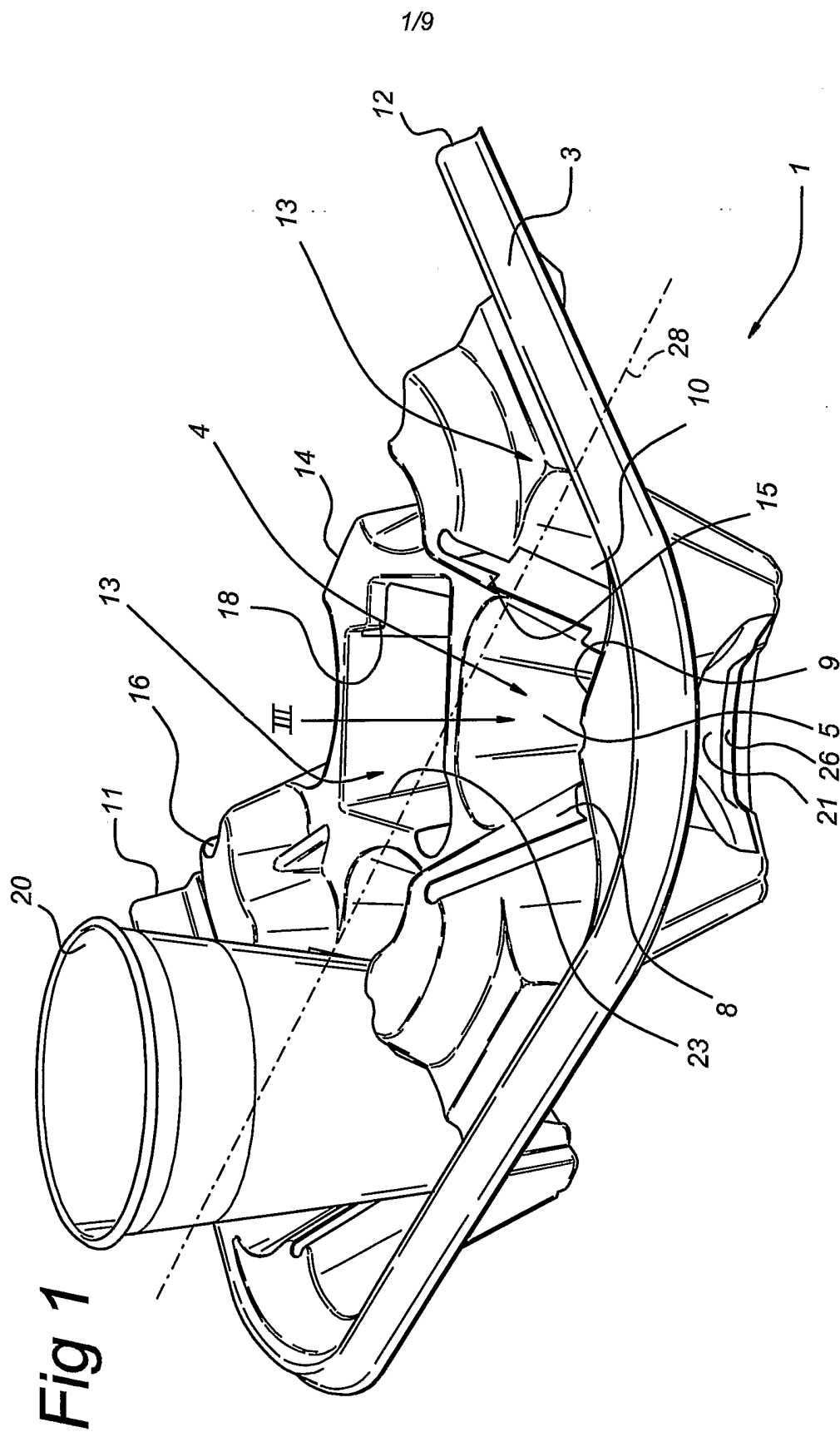
5 9. Carrier according to one of the preceding claims, wherein said accommodation is provided with supporting edges (26, 56).

10. Assembly comprising two identical carriers (1, 2) according to one of the preceding claims, connected to each other and locked with said complementary locking means.

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11. Assembly according to claim 10, wherein two spaced complementary locking positions (62, 63) are obtained by engagement of said complementary locking means of said two carriers, and a further complementary locking position (64) is obtained by engagement of said further complementary locking means, said further complementary

15 locking means being spaced from the line through said two spaced complementary locking positions.



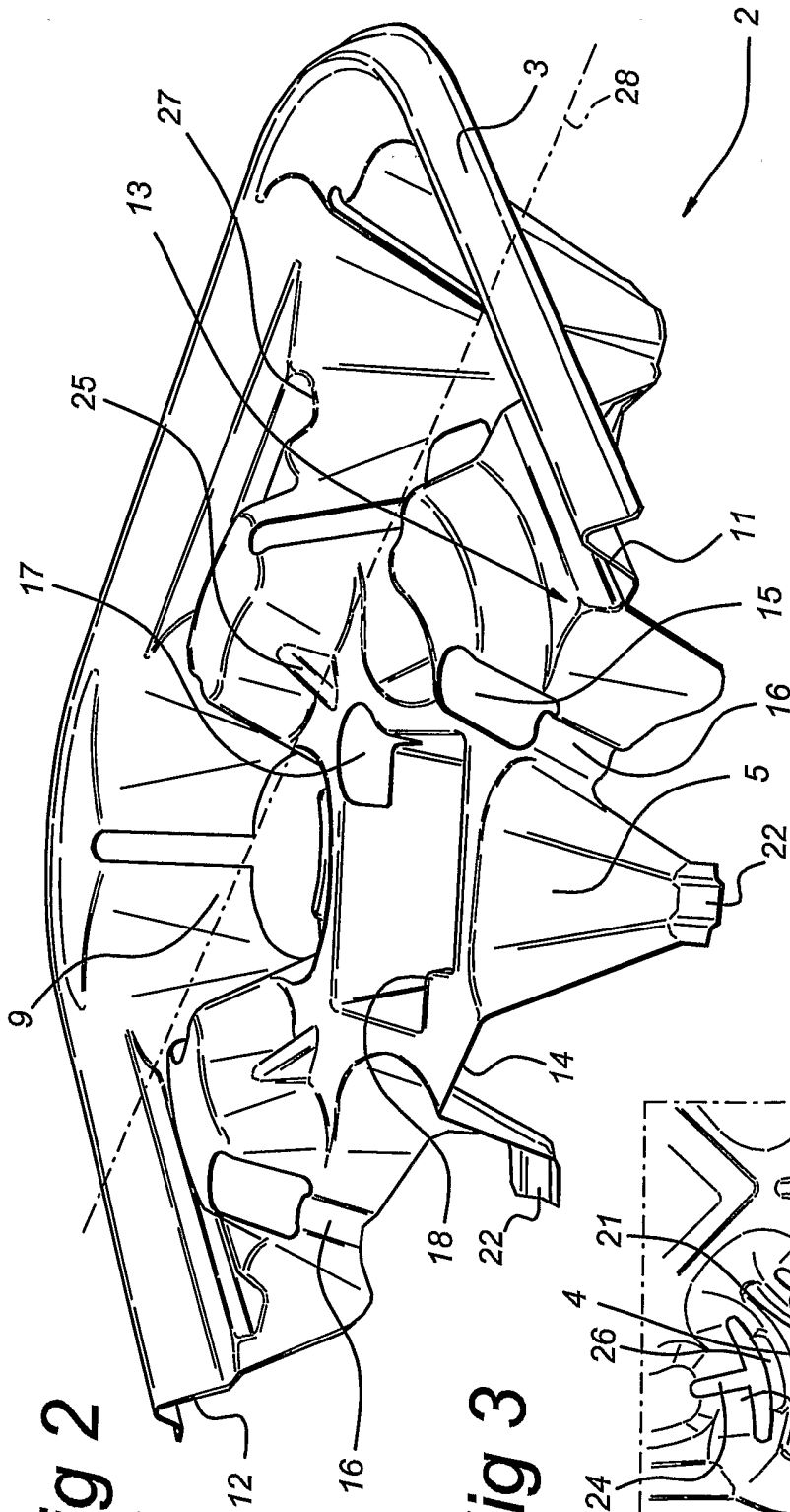
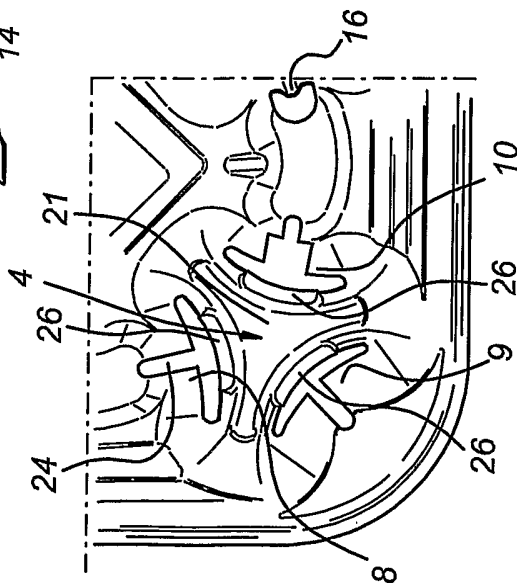


Fig 3



3/9

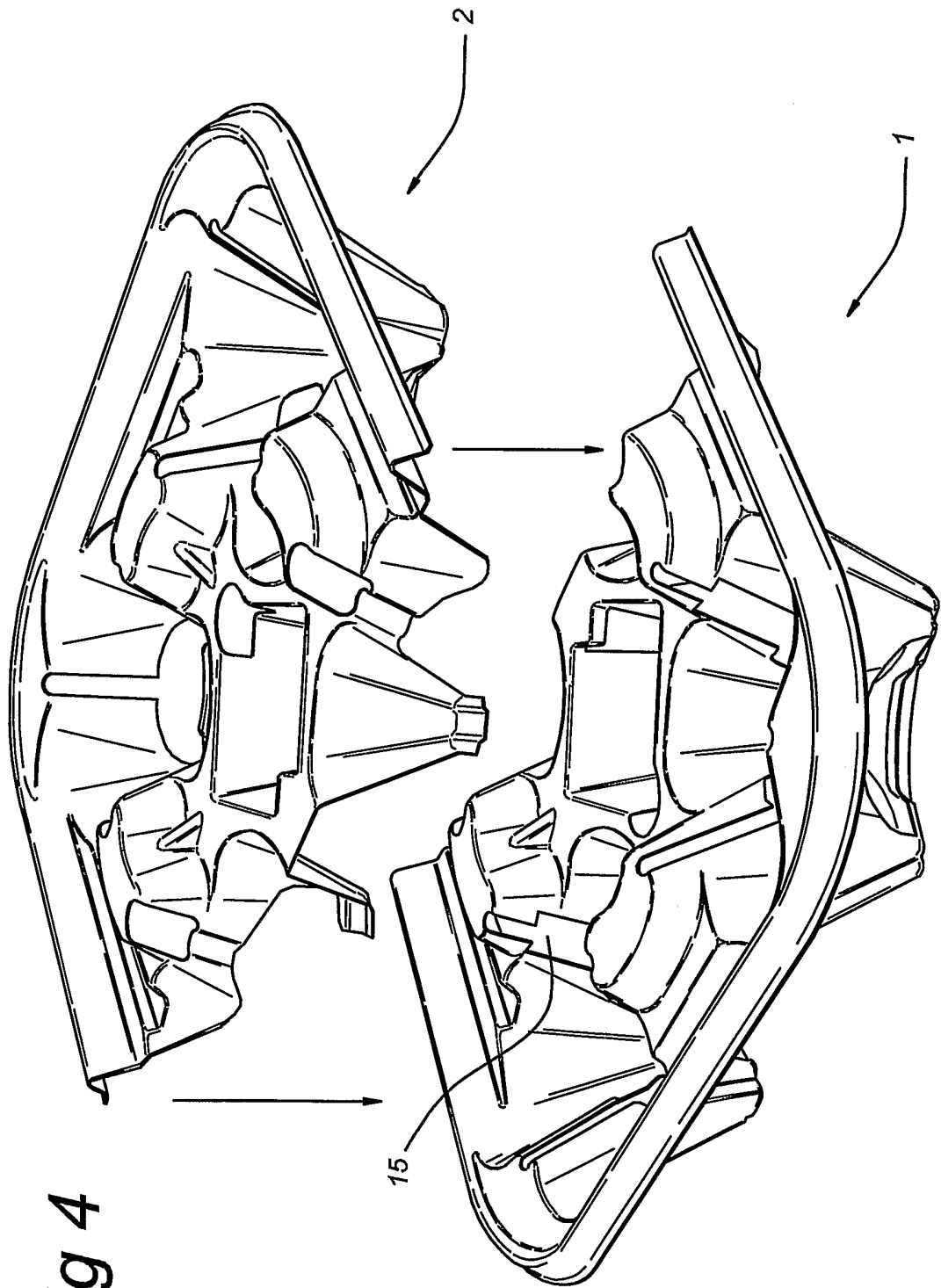


Fig 4

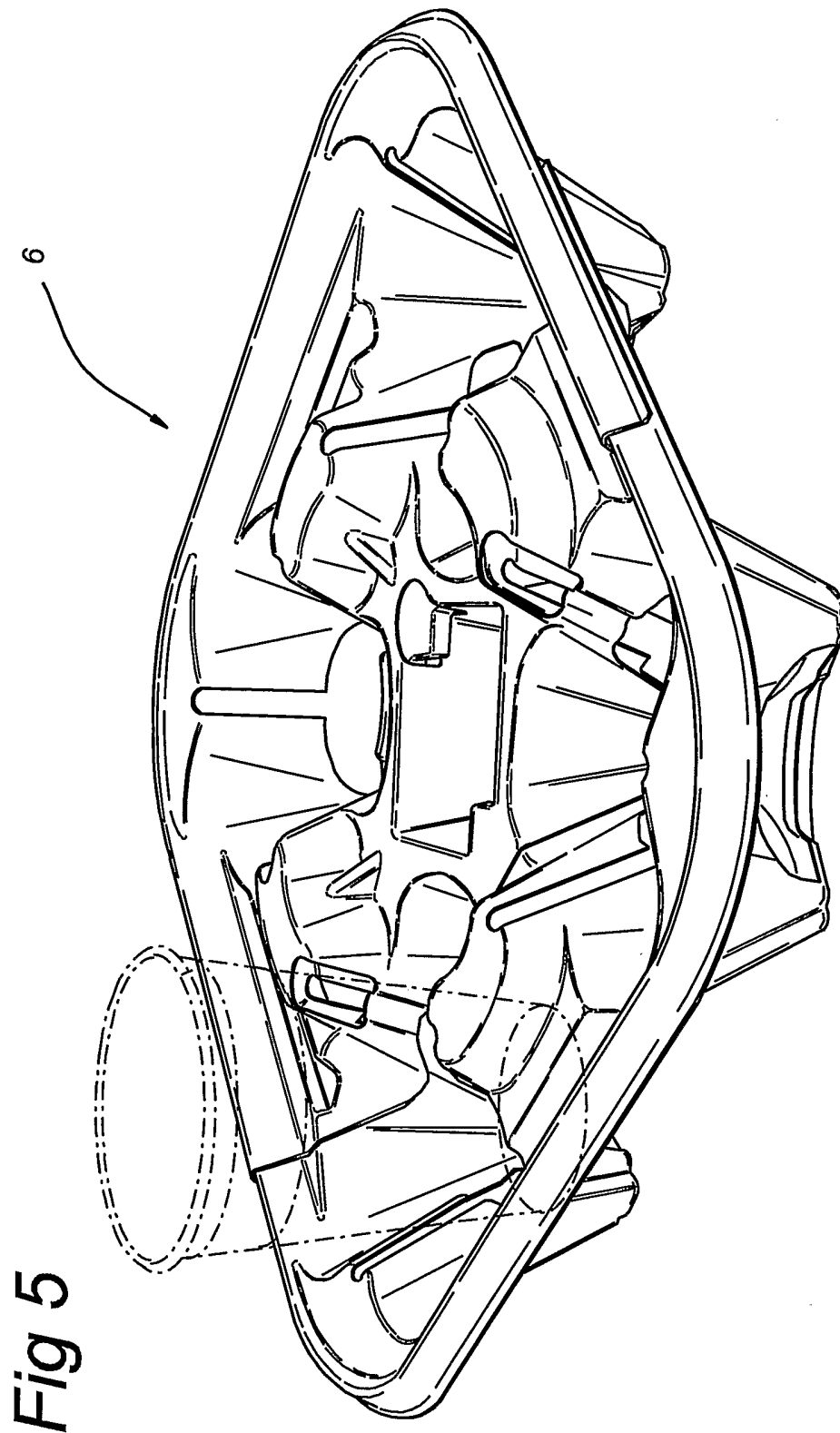
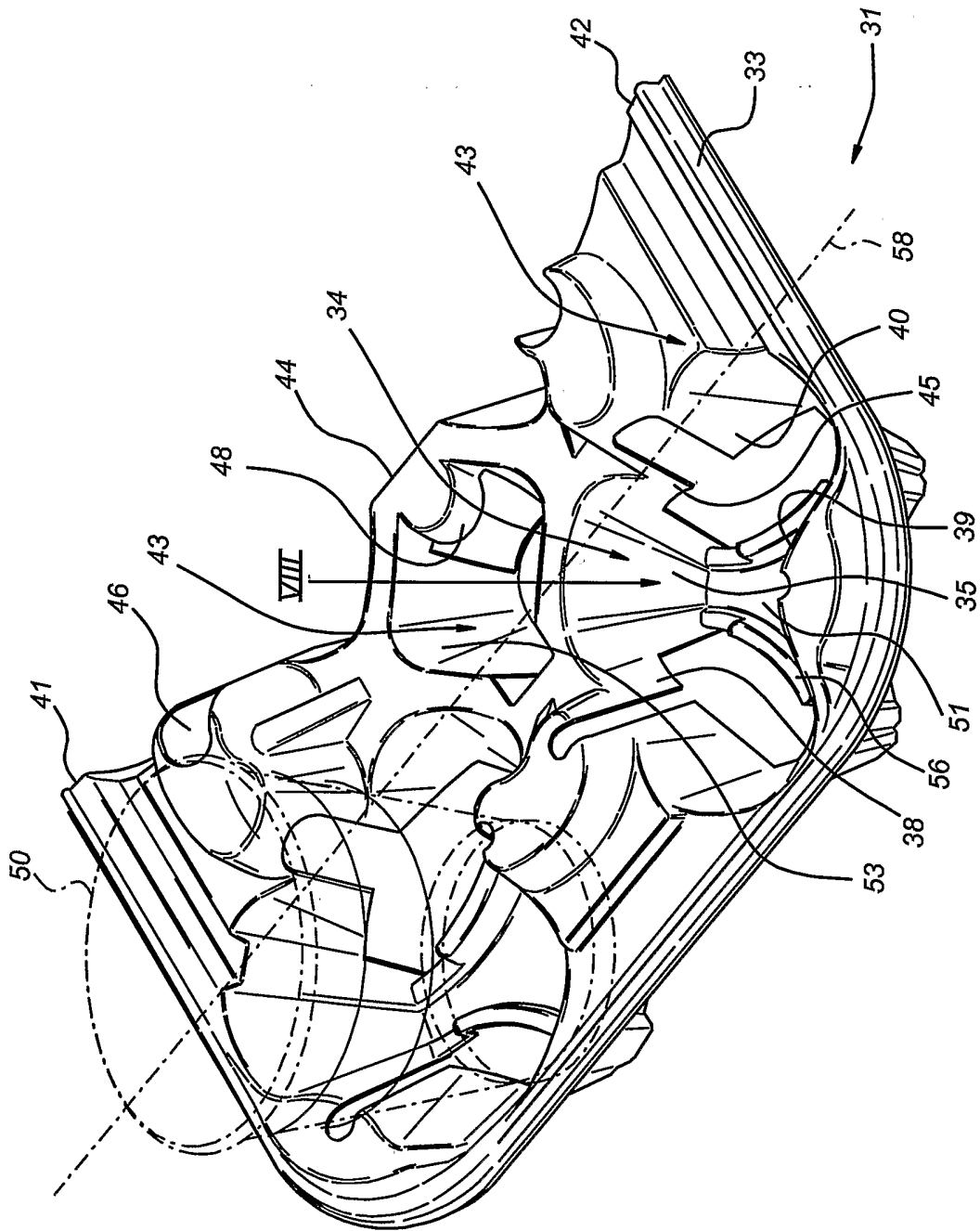
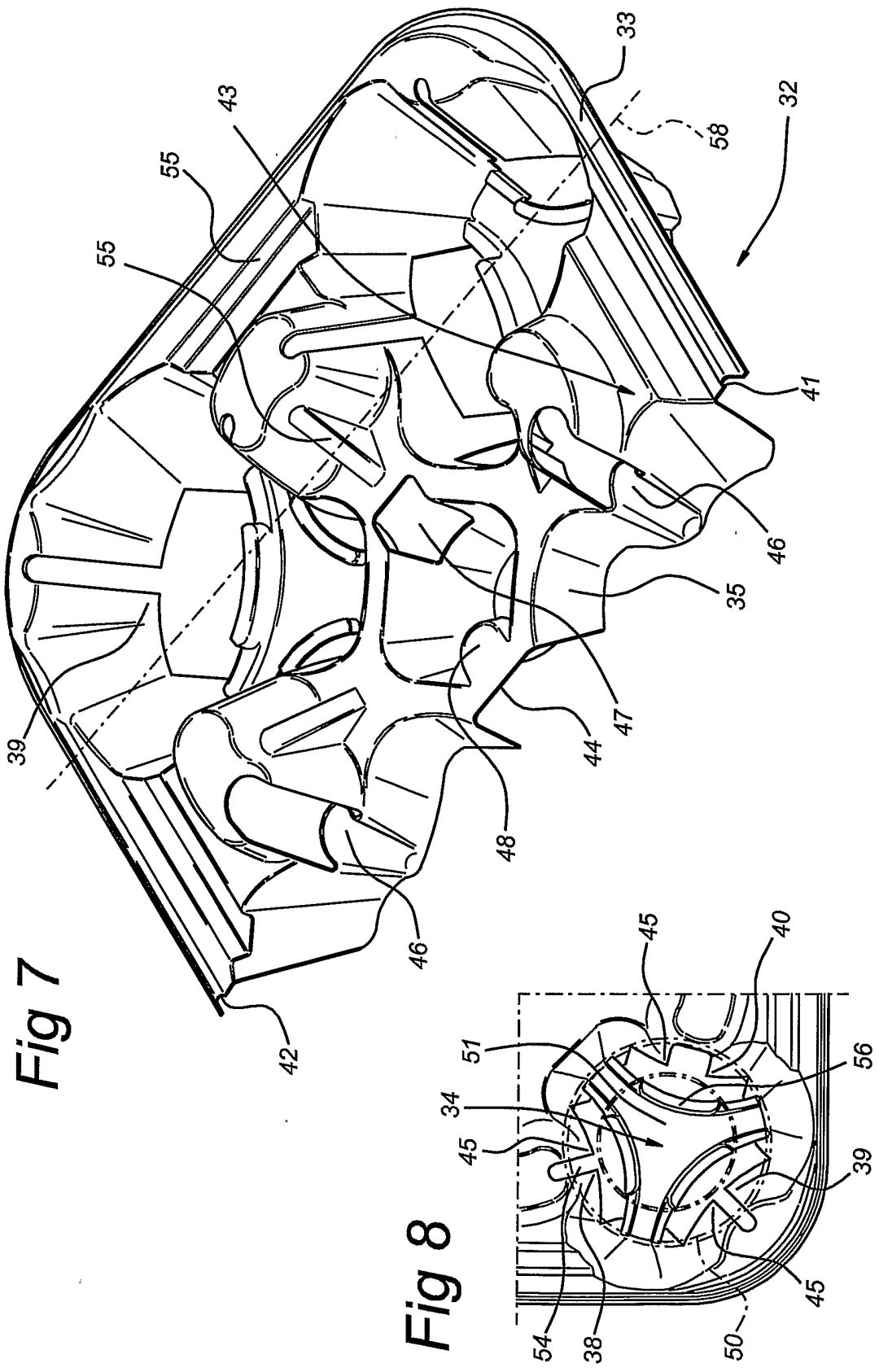


Fig 6





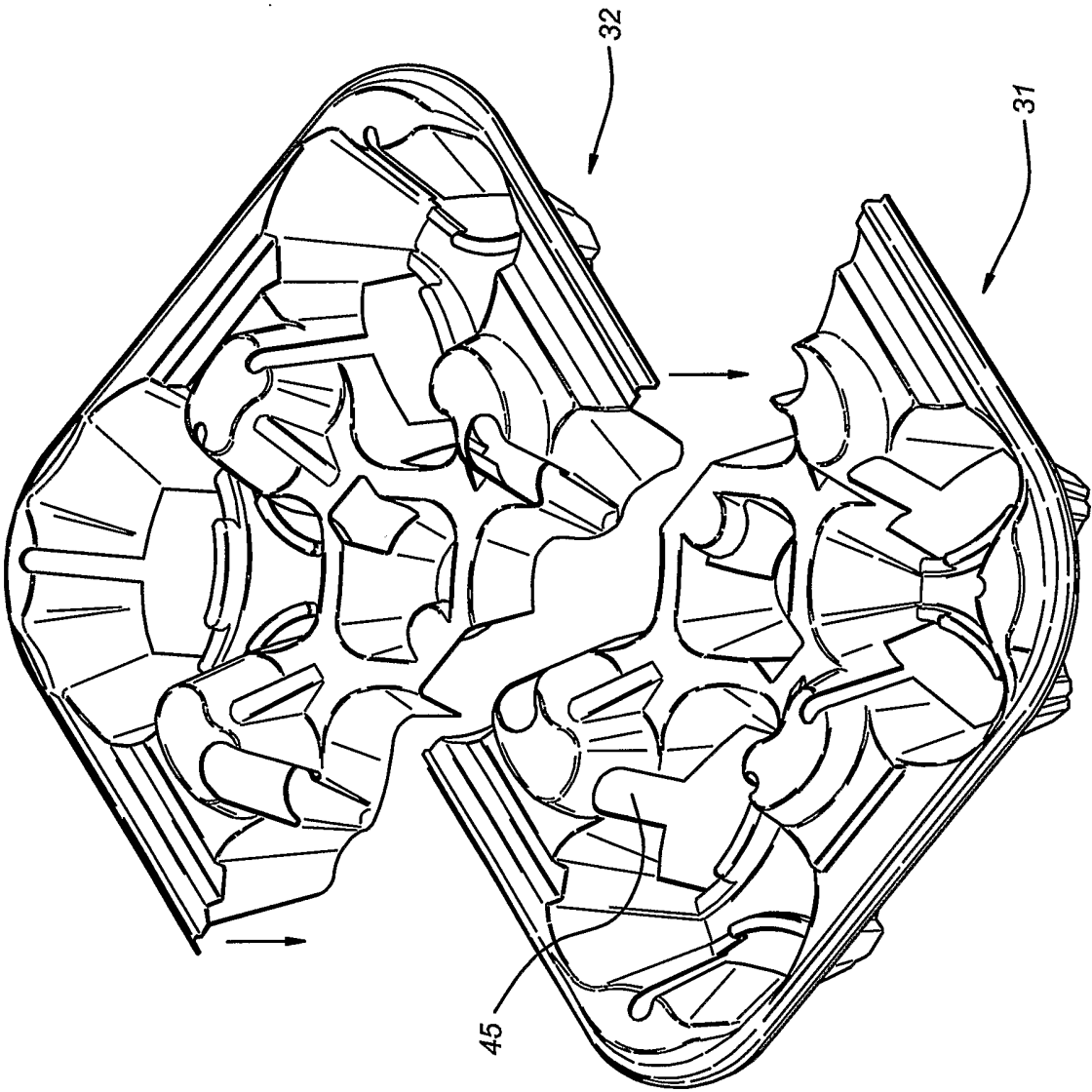


Fig 9

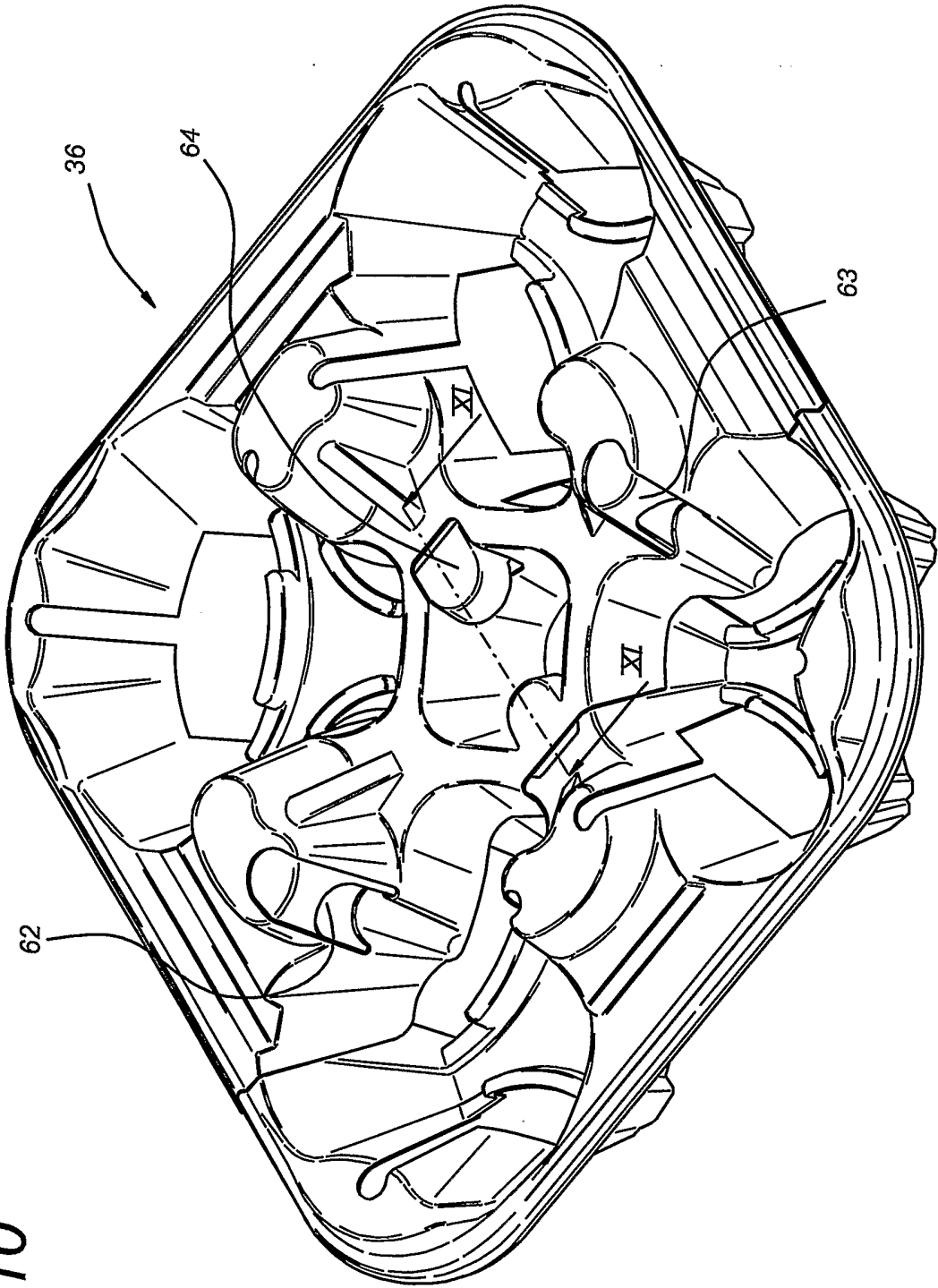


Fig 10

9/9

Fig 11