US 20090211937A1

(19) **United States**

(12) **Patent Application Publication**

Sharma et al.

(10) **Pub. No.: US 2009/0211937 A1**

(43) **Pub. Date: Aug. 27, 2009**

(54) **CARRIERS FOR CUPS**

(76) Inventors: **Mangat Rai Sharma**, Jevnakar (NL); **Donald V. Breton**, North Vassalboro, ME (US); **Robert K. Hussey**, Waterville, ME (US)

Correspondence Address:
HUSCH BLACKWELL SANDERS LLP
4801 Main Street, Suite 1000
KANSAS CITY, MO 64112 (US)

(21) Appl. No.: **11/719,360**

(22) PCT Filed: **Nov. 24, 2005**

(86) PCT No.: **PCT/NL05/50053**

§ 371 (c)(1),
(2), (4) Date: **Dec. 24, 2008**

(30) **Foreign Application Priority Data**

Nov. 24, 2004 (NL) 1027584

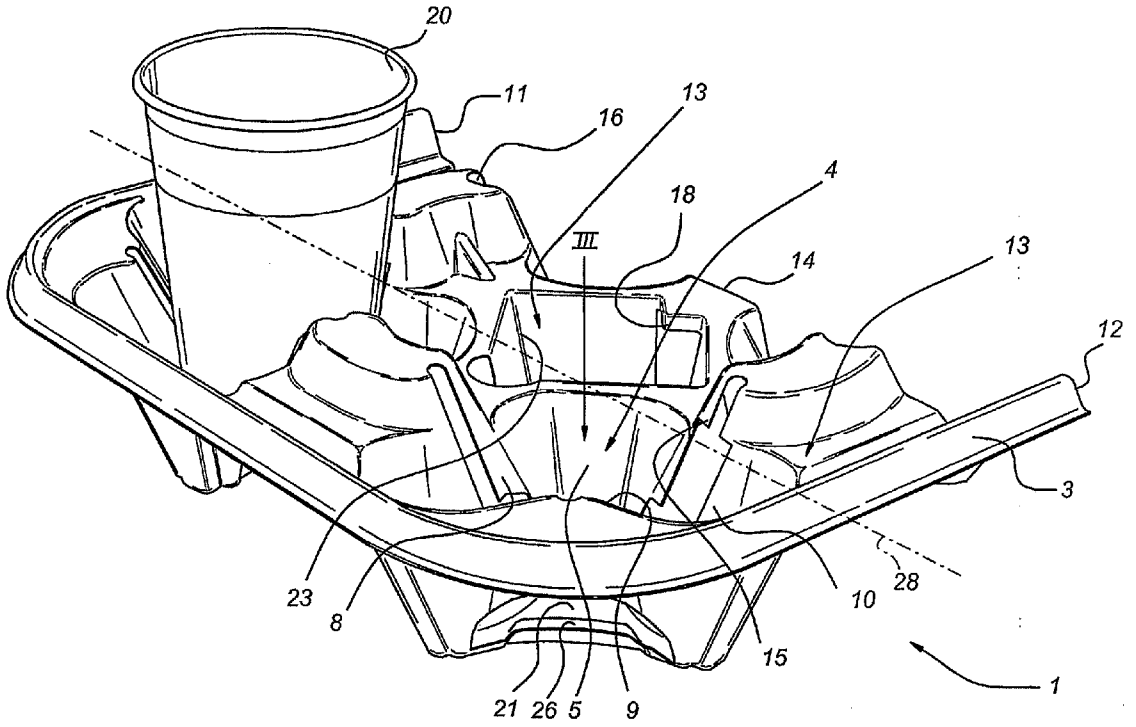
Publication Classification

(51) **Int. Cl.**
B65D 21/00 (2006.01)
B65D 1/34 (2006.01)

(52) **U.S. Cl.** **206/515**; 206/564

(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.



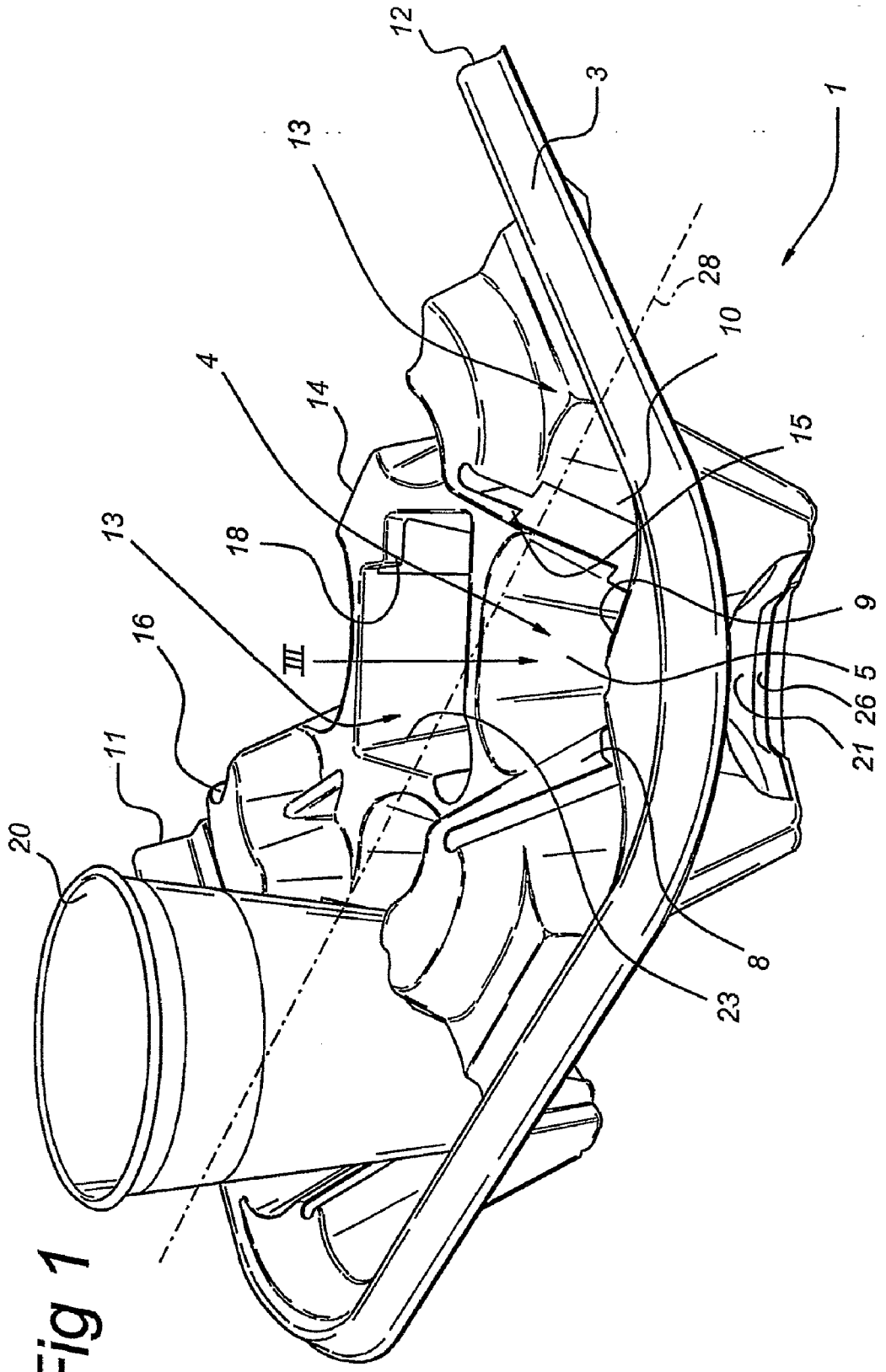


Fig 1

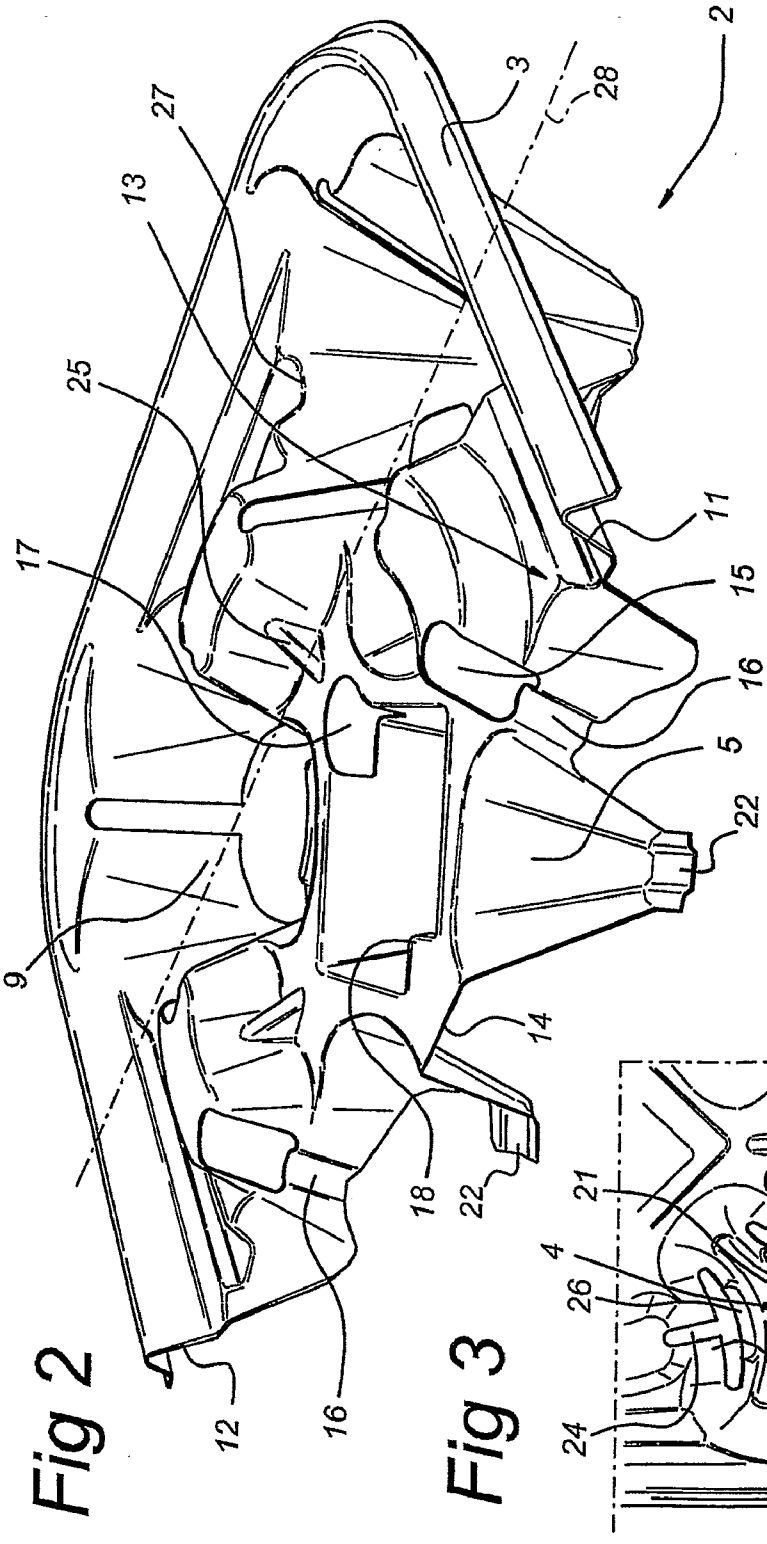


Fig 2

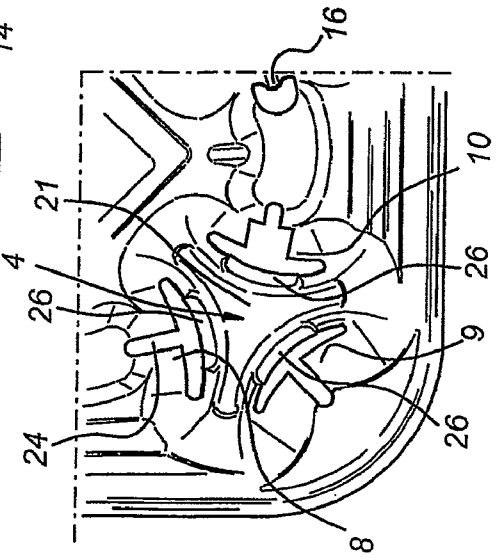


Fig 3

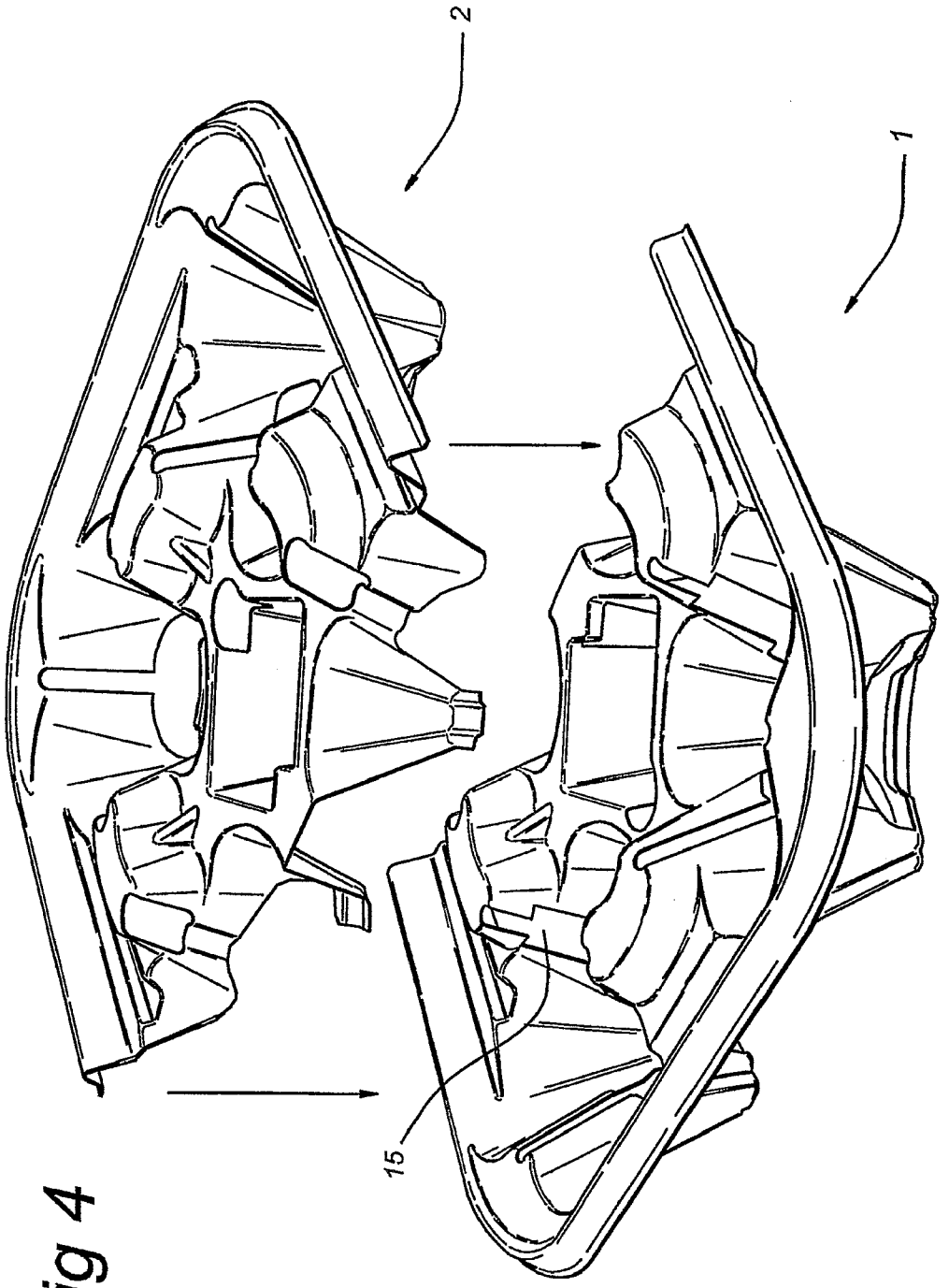


Fig 4

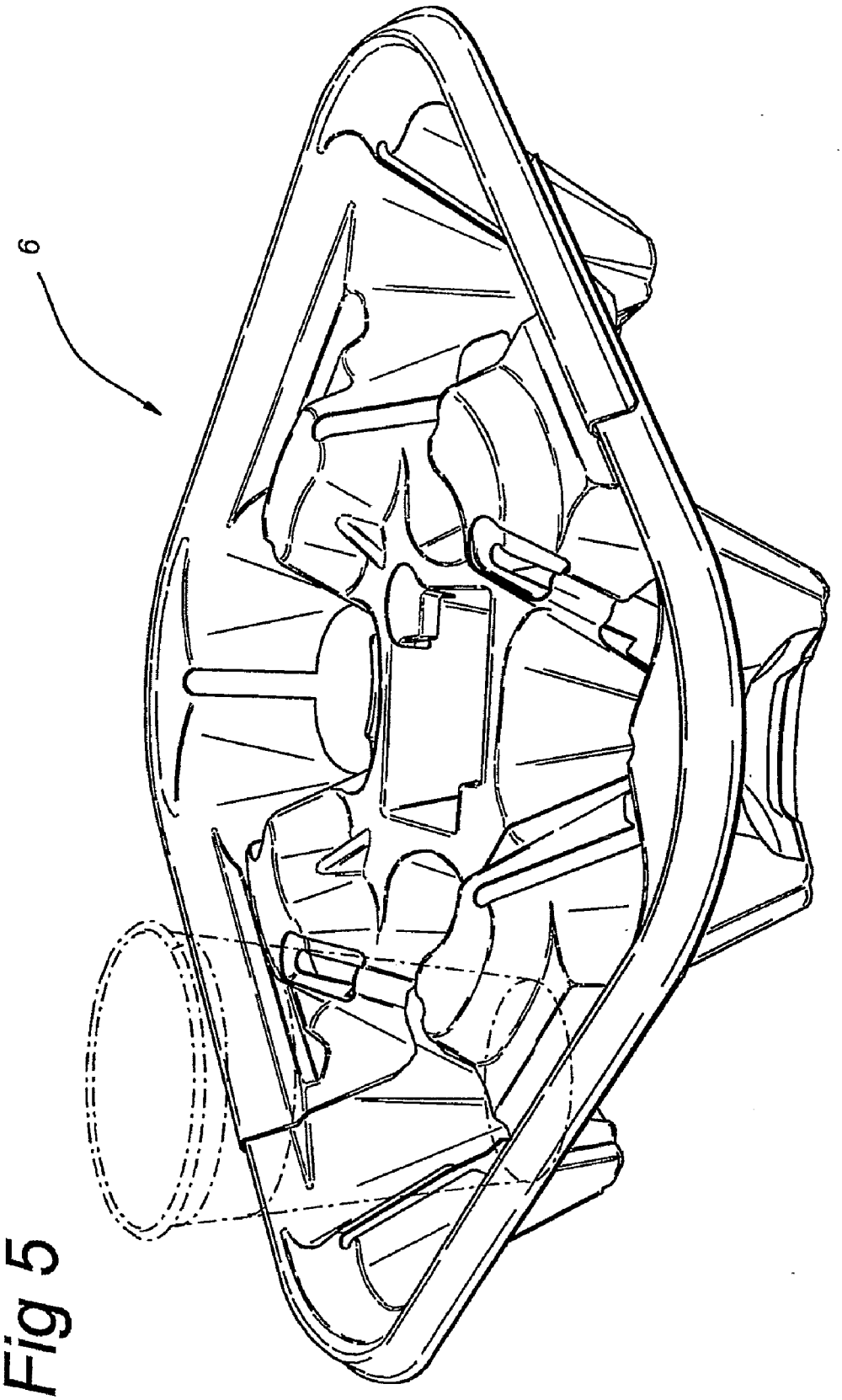


Fig 5

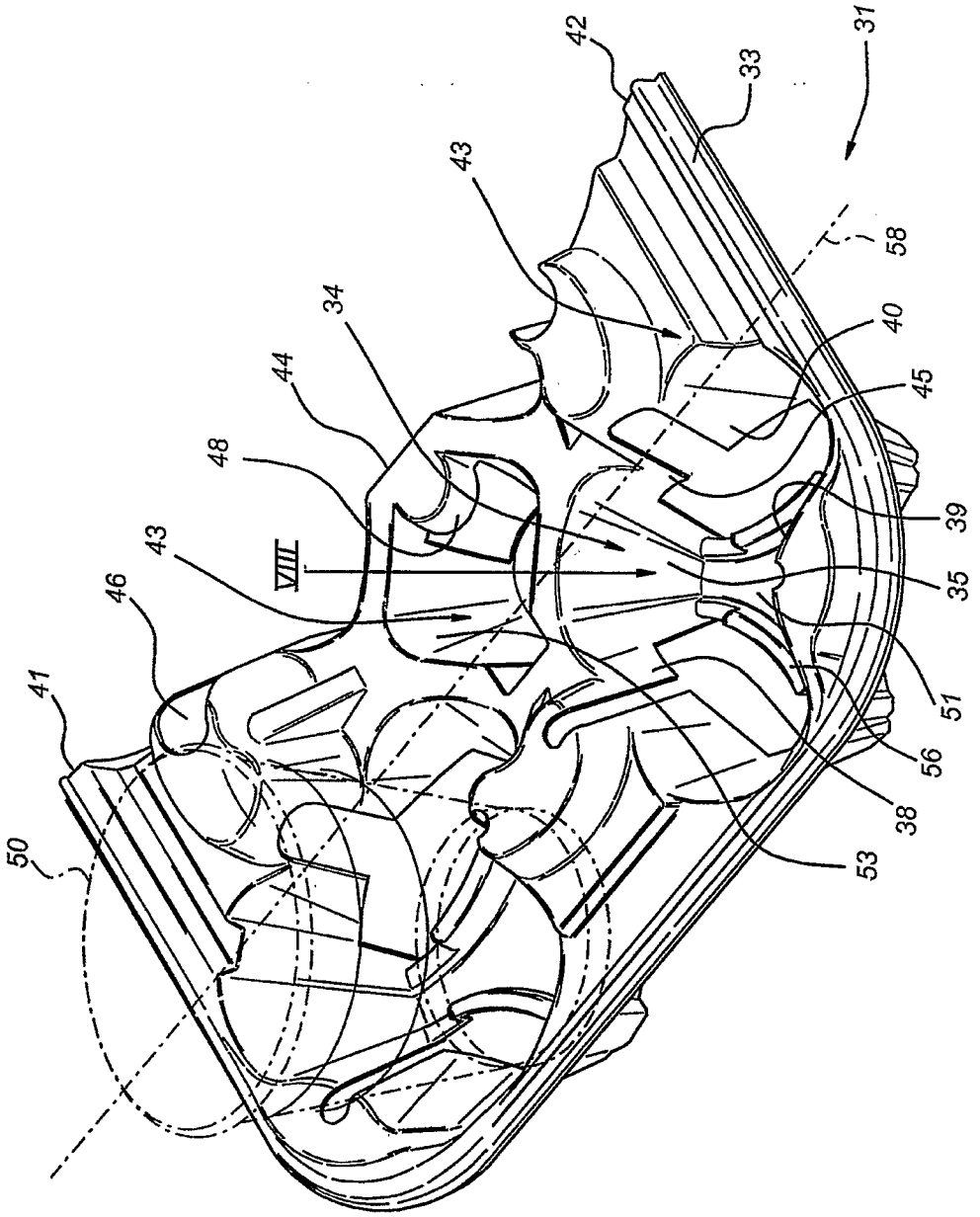


Fig 6

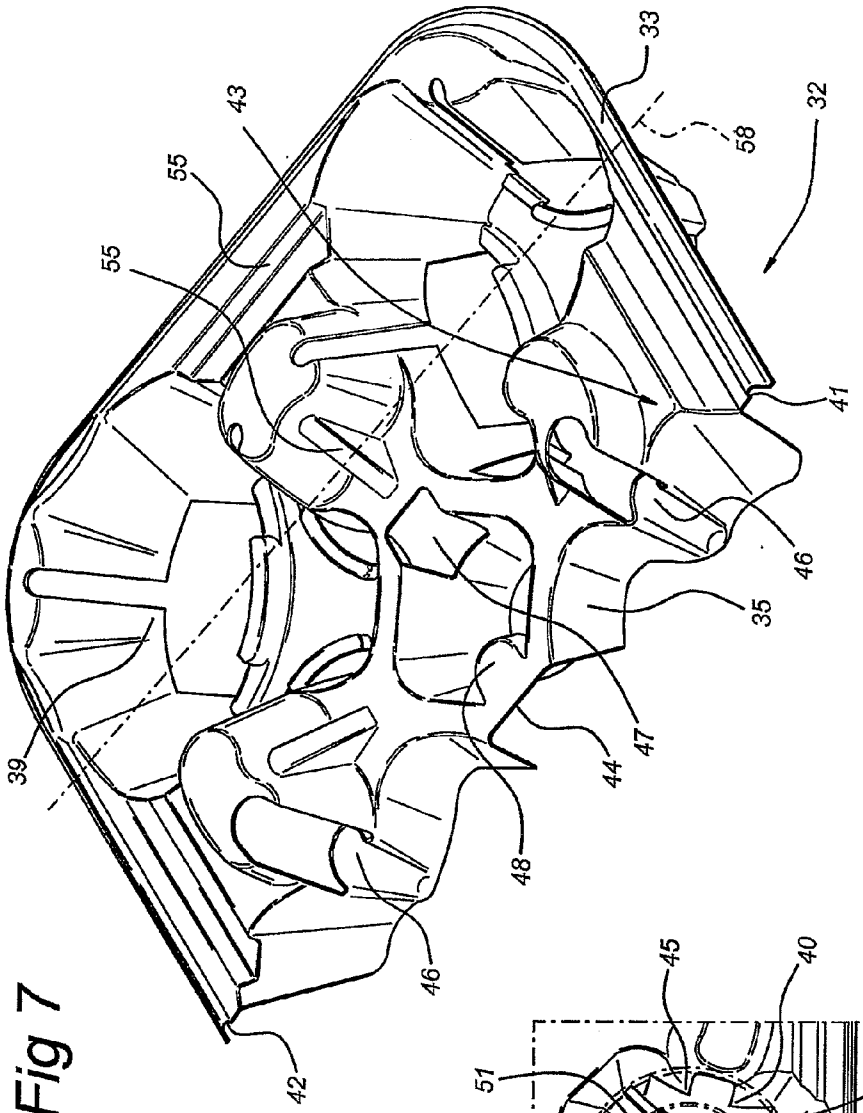

33
43
55
58
32
55
41
46
35
39
47
44
48
46
42

Fig 7

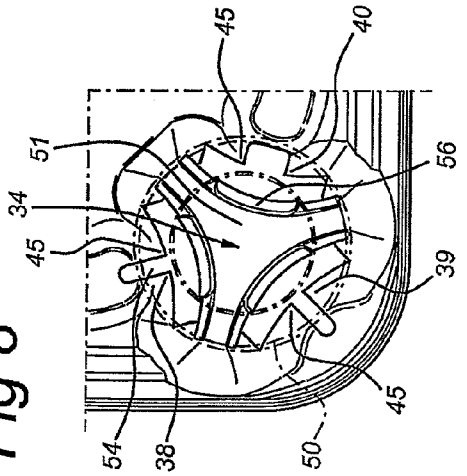

45
40
51
56
34
45
39
45
54
38
50

Fig 8

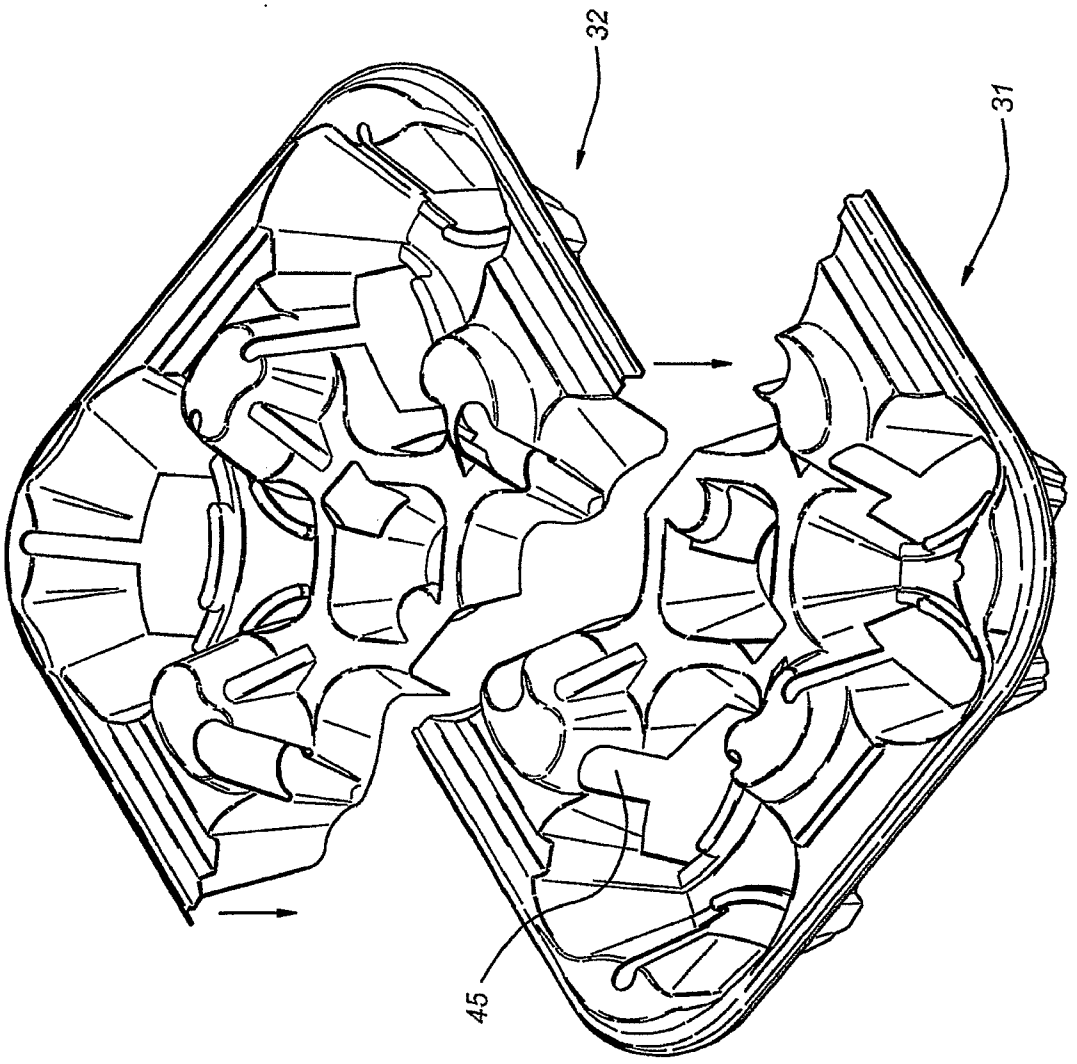


Fig 9

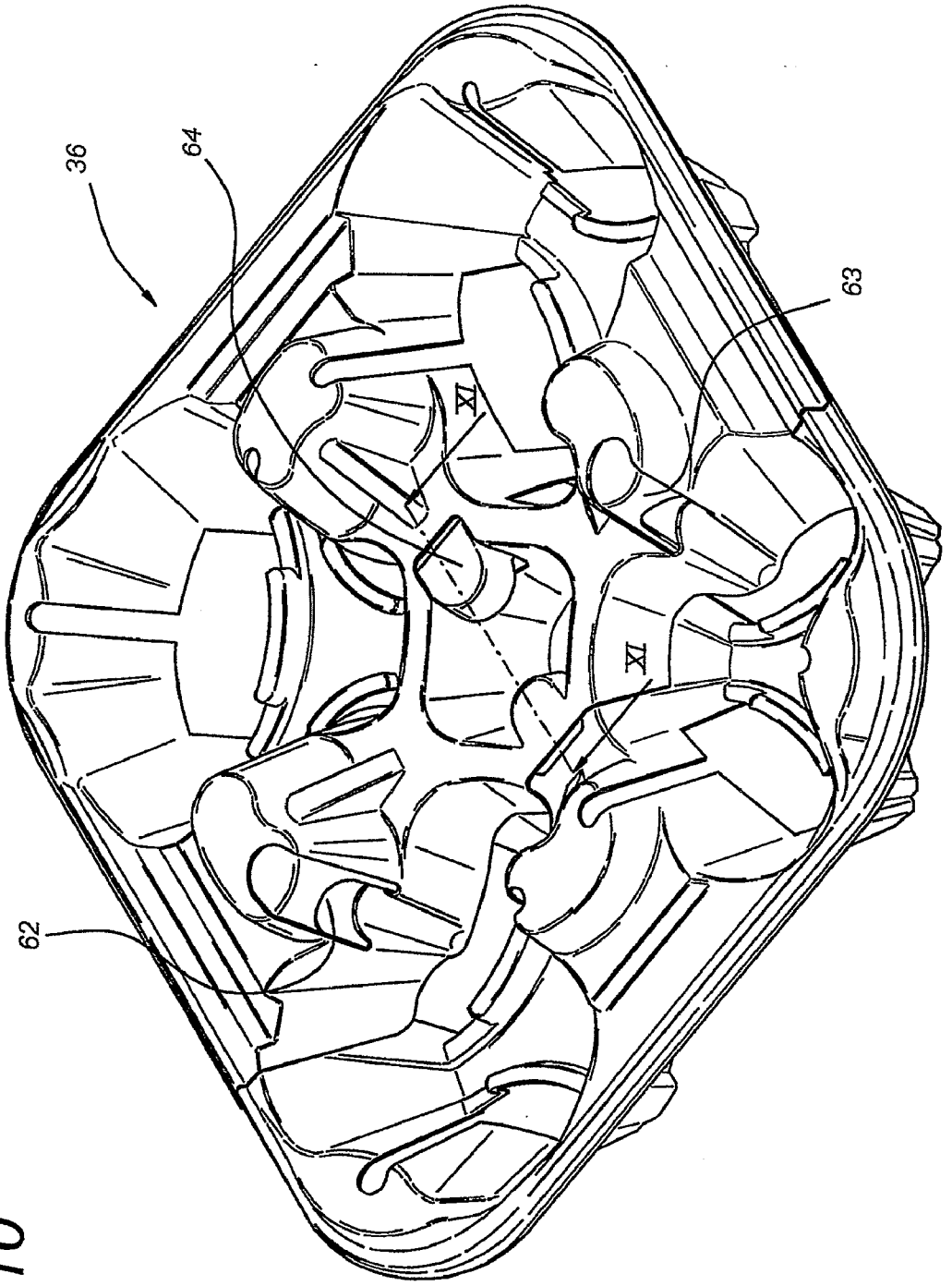
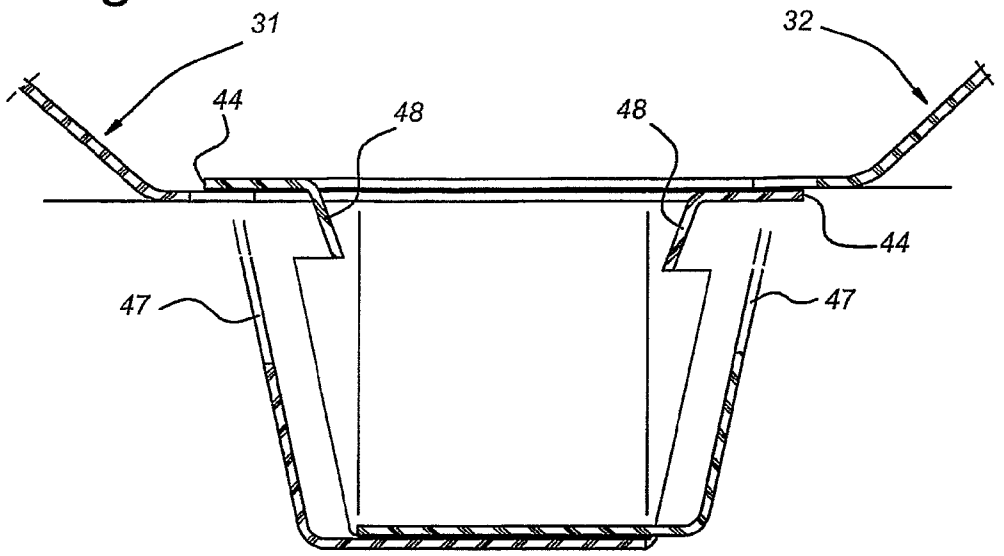


Fig 10

Fig 11



CARRIERS FOR CUPS

[0001] 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.

[0002] 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.

[0003] U.S. Pat. No. 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.

[0004] 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.

[0005] The invention aims to provide a carrier, being more stable without substantially increasing the size of the carrier.

[0006] 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.

[0007] 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 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.

[0008] According to a preferred embodiment of the invention three complementary locking means are provided.

[0009] 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.

[0010] 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 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.

[0011] 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.

[0012] 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.

[0013] 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 compementary 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 is the other one of the complementary locking means which engages the other carrier.

[0014] The same applies preferably to the further complementary locking means.

[0015] This means that the locking position is only one of the two possibilities depending on which of the two carriers is positioned on top of the other carriers.

[0016] 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 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.

[0017] The invention will be further described in detail, referring to preferred embodiments in the drawing showing:

[0018] FIG. **1** schematically in perspective a first carrier according to the invention shown from a first side;

[0019] FIG. **2** the carrier according to FIG. **1** shown from a second opposite side;

[0020] FIG. **3** in top view a detail of an accommodation;

[0021] FIG. **4** two carriers from which the assembly is made above each other before assembly;

[0022] FIG. **5** the carriers merged to an assembly and having a cup placed therein; and

[0023] FIG. **6** schematically in perspective a second carrier according to the invention from a first side;

[0024] FIG. **7** the carrier according to FIG. **6** shown from a second opposite side;

[0025] FIG. **8** in top view a detail of an accommodation;

[0026] FIG. **9** two carriers from which the assembly is made above each other before assembly;

[0027] FIG. **10** the carriers merged to an assembly having a cup placed therein; and

[0028] FIG. **11** the cross-section according to line XI-XI in FIG. **10** immediately before merging.

[0029] 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 art and comprise preferably T-shaped slots (FIG. **3**).

[0030] 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 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**.

[0031] **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.

[0032] 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 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**.

[0033] 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.

[0034] 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.

[0035] 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**.

[0036] The carrier shown in FIG. **1** and **2** can be used as such.

[0037] 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.

[0038] 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**).

[0039] 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** 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 diamant-like to decrease the size of the carrier.

[0040] **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 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 structies 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.

[0041] 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 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.

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.

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

* * * * *