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(54) **Polygonal container for transporting warm food**

(57) A polygonal container (1) for transporting warm food, pizza in particular, having an internal octagonal basis (2) and an external decagonal or dodecagonal basis,

and comprising, at least, one couple of flaps of "swallow tail" type, is described.

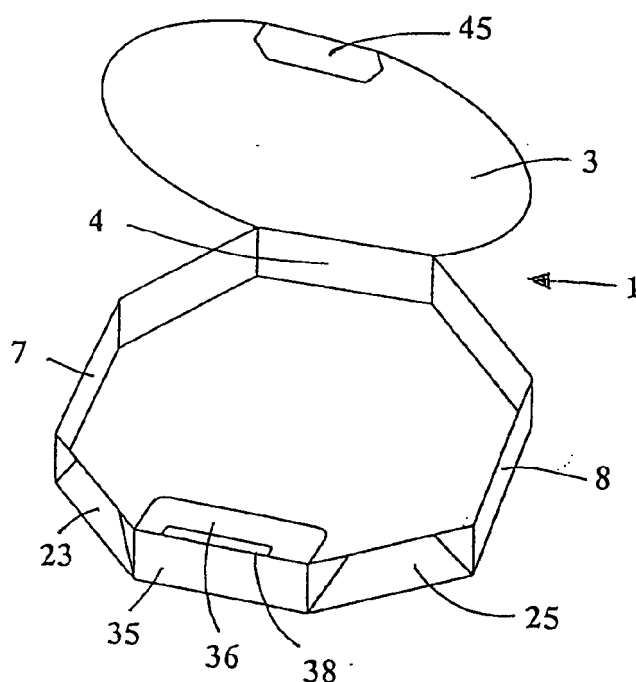


FIG. 1

Description

[0001] The present invention relates to a polygonal container for transporting warm food, particularly pizza and the like.

[0002] In the last years became remarkable the spreading to buy ready food that, taken away from the place of preparation, is then elsewhere eaten, in a house or in places equipped for picnic or the like. The spreading of this practice, being pizza the most preferred food, is probably due to its modest cost, moreover offered in a quantity of different preparations, and to the fact that pizza is delivered in a package that allows its transportation and therefore the possibility to eat it where desired without having to prepare it.

[0003] Considering pizza the most exemplifying product, its preparation requests baking in an oven at the temperature of 250-300°C; when baking is completed the takeaway pizza is placed in a suitable container and handed over to the purchaser or to the delivery man and, in any case, transferred to the place where it will be eaten. In order that the taste of the product be fully appreciated it is necessary that it can be eaten in conditions possibly the most similar to those at oven exit: pizza must therefore appear, when eaten, warm and its dough soft and elastic. During transportation it may happen, also depending on the time, that should not exceed 20/30 minutes and on the used container type, that pizza, particularly during the cold months, gets cold with a consequent stoppage of its rising and deterioration of its taste and appearance. The heat emitted from the pizza may cause, inside the container, some steam and, because of the progressive cooling of the inside air, some condensate can be formed, that, set down on the pizza, tends to soften its dough with consequent further deterioration of its appearance and taste.

[0004] The containers for the transportation of takeaway warm food should take into due account the need that the food therein contained be maintained in the best conditions for being eaten rendering therefore minimum its cooling and opposing, inside it, the condensate formation.

Said containers are generally formed by boxes made of cardboard which have a square section and are provided with a lid; they carry some holes on the front wall through which the warm air flows from the inside to the outside and, vice versa, the external air, colder, flows to the inside of the container and fills up the space not occupied by the pizza, sensibly contributing to cool the internal ambient and to the formation of the condensate with consequent deterioration of the product quality.

[0005] On the subject, some patent publications are known, but none appears very satisfactory in overcoming the above mentioned problems: WO2012/ 011064 A1 discloses a container having two chambers, in the shape of square boxes, one on top of the other, the lower one wherein the pizza is placed and the upper one, empty, wherein the majority of the steam, produced from the

warm pizza placed inside the lower chamber, accumulates. A series of holes are present which put into communication the lower and the upper chamber and another series of holes are present in the upper chamber toward the outer ambient. While the upper chamber appears helpful to keep the heat inside the lower chamber and, partially, to protect the pizza from condensate falling down, if any, the presence of so many holes toward the outside favours the emission of warm air toward the ambient and the entry of cold air with a strong effect of pizza cooling and condensate formation.

[0006] The object of the present invention consists in a container for the transportation of ready and warm food, which is able to maintain, internally, such conditions to transport the food for a time even longer than half an hour so that, when the food arrives to destination, it still keeps all the fragrance of the just made food. More precisely, the particular structure of the container object of the invention, which has a polygonal base, preferably, an internal octagonal base, and an outer base which is decagonal or dodecagonal, and a lid with an essential circular form, makes it possible that the temperature inside it be maintained good enough and that the condensate formation be practically avoided. In fact, the limited space left free by the pizza, inside the container of the invention, enables to longer maintain, during the transportation time, favourable conditions for a good preservation of the same, so keeping unaltered its fragrance and taste. When supplied said container looks like a flat cardboard sheet suitable for alimentary use, appropriately shaped and with all the suitable notches and folding lines to easily and rapidly, just in a few seconds, allow its making ready. Shaped as container for warm takeaway food, preferably pizza, as clearly suggested by the folding lines and notches on the cardboard, the so formed container has a pleasant appearance and is characterized by a good whole solidity; it can be, already made up with the food inside, easily piled up to 10 containers, without that its structure, even the one of the pieces at the pile basis, suffers deformations. In the case of empty containers, piles even with 50 containers can be formed, without that any structure deformation may happen.

[0007] The container object of the invention is now described in more detail with reference to the attached Figures that, in any case, can not be considered as limiting the scope of the invention.

Figure 1 shows an axonometric view of an embodiment of the container of the invention partially opened, ready to be used;

Figure 2 shows the flat cardboard sheet of the container of Figure 1 suitably shaped and carrying the necessary notches and folding lines as supplied to the buyers;

Figure 3 shows a top view of the container of Figure 1, with part of the flaps, present on the container basis, vertically folded so as to form the container walls, being the two back flaps of "swallow tail" type;

Figure 4 shows the flat cardboard sheet, appropriately shaped and having the necessary notches and folding lines, relevant to an alternative embodiment of the container of the invention, wherein the flaps on the container basis, both the back and the front ones, are of "swallow tail" type;

Figure 5 shows the flat cardboard sheet, appropriately shaped and having the suitable notches and folding lines, relevant to a further embodiment of the container of the invention, wherein the flaps on the container basis, both the back and the front ones, are of "swallow tail" type and on the front end of each of the second ones is present a hole which is suitable for receiving the corresponding tang integral with the closing flap of the container;

Figure 6 shows a top view of the container of Figures 4 and 5 with part of the flaps present on the container basis, vertically folded so as to form the container walls, being both the two front flaps and the two back flaps of "swallow tail" type;

Figure 7 shows an axonometric view, represented in a bigger scale in respect to that of the previous Figures, concerning the composite flap 12, which is represented with its rectangular part in a vertical position and its triangular part is in a horizontal position; Figure 8 shows an axonometric view of the container concerning the embodiment of Figures 1, 2 and 3 in the closed position.

[0008] In the above mentioned Figures 1-3 are represented: the container 1, with the inside basis 2 in the shape of a regular octagon and outwardly in the shape of a decagon or a dodecagon and the lid 3 in an essentially circular shape, the connection flap 4, between the basis 2 and the lid 3, joined and partially rotating both as to the basis 2, around the folding line 5, and to the lid 3, around the folding line 6; the simple flaps 7 and 8 joined to the basis 2 by the folding lines, 9 and 10, respectively; the back flaps 11 and 12 of "swallow tail" type, each partially rotating around the respective folding lines 13, 14 and 15, 16; the sides 14 and 63 of the flap 12 of the formed container, which coincide with two sides of the decagon forming the external basis 2; the flaps 17, 18 in the shape of a rectangular trapezium, the flaps 11, 7, 17 forming an only flap with the two folding lines 19, 20 and similarly the flaps 12, 8, 18 forming an only flap with the two folding lines 21, 22; the composed flaps 23, 24 and 25, 26 which can partially rotate among them around the respective folding lines 27, 28, the flaps 23, 25, having centrally, along the folding lines 29, 30 the respective notches 31, 32, the flaps 24, 26 having the respective tangs 33, 34; the front flaps 35, 36, forming an only composed flap, each other joined by the folding line 37, which has, centrally, the notch 38 and, optionally, the semicircular hole 62 being placed under the notch 38 in the centre of the flap 35, the flaps 35 and 36 being also joined to the basis 2 by means of the folding line 39, the flap 35 being also joined to the rectangular trapezium shaped

flaps 40, 41 which are able to partially rotate around the folding lines 42, 43; the flat lid 3, essentially circular shaped, which has two opposed flat zones, one of which, 44, carrying a tang 45 joined to the lid 3 by the folding line 46, around which the tang 45 can partially rotate, the line 46 being, optionally, interrupted at the centre by the opening tang 61 integral to the lid 3.

[0009] In an alternative embodiment of the container of the invention, precisely as schematically shown, in flat form, in Figure 4, in addition to the same elements already mentioned in the previous embodiment represented in Figures 1-3, and so herein identified by the same reference numbers, is present a second couple of the front flaps "swallow tail" type, precisely the front flaps 47, 48, each one being able to partially rotate around the respective folding lines 49, 50 and 51, 52, forming the flaps 11, 7, 17 an only composite flap with the two folding lines 19, 20 and, similarly, forming the flaps 12, 8, 48 an only composite flap with the two folding lines 21, 22.

[0010] In a further alternative embodiment of the container of the invention, precisely as schematically shown, in a flat form, in Figure 5, in addition to the same elements already mentioned in the previous embodiments, and so herein identified by the same reference numbers, are present the "swallow tail" flaps 53, 54, equal to the already mentioned flaps 47, 48 of Figure 4 a part from the presence of the eyelets 55, 56 having an essentially circular shape with the lower part being flat; the flap 35 joined to the two tangs 57, 58, partially rotating, as to the flap 35, around the folding lines 59, 60; said tangs 57, 58 being divided in two parts, a rectangular part and an essentially circular part, with the diameter slightly smaller than the diameter of the eyelets 55, 56 of the flaps of "swallow tail" type 53, 54.

[0011] The cardboard suitable to alimentary use, of pure cellulose, forming the container of the invention, supplied in the form of a flat sheet, with the folding lines and the notches already imprinted therein, is, in the use, suitably conformed following the indications suggested by the folding lines present on it: the present flaps are folded so that they result in a vertical position as to the basis 2; specifically, with reference to the embodiment shown in Figure 3, by inserting the tangs 33, 34 in the notches 40, 41 and, with reference to the embodiment shown in Figure 5, by inserting the terminal circular part of the tangs 57, 58 into the eyelets 55, 56 of the flaps of "swallow tail" type 53, 54.

[0012] The pizza as soon as ready is placed on the basis 2 of the container 1; immediately after the lid 3 is lowered and the container is closed by inserting the tang 45 in the notch 38 at the centre of the folding line 37 between the two flaps 35, 36. The lid 3, having an essentially circular shape, has a diameter of a suitable size to completely circumscribe and close the space delimited by the flap formed octagonal wall of the container and so rendering the container interior practically airtight. The minimum quantity of humidity that might form inside the container is easily absorbed by the cellulosic cardboard

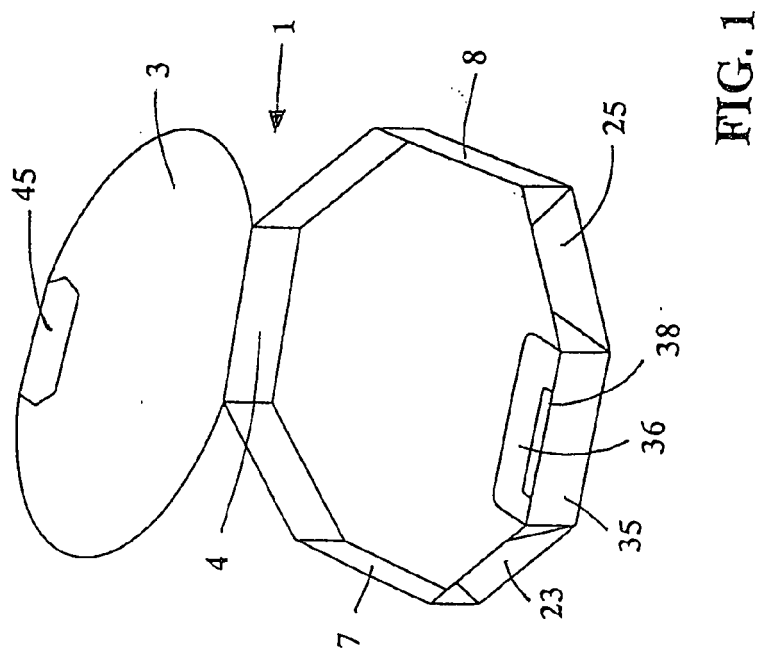
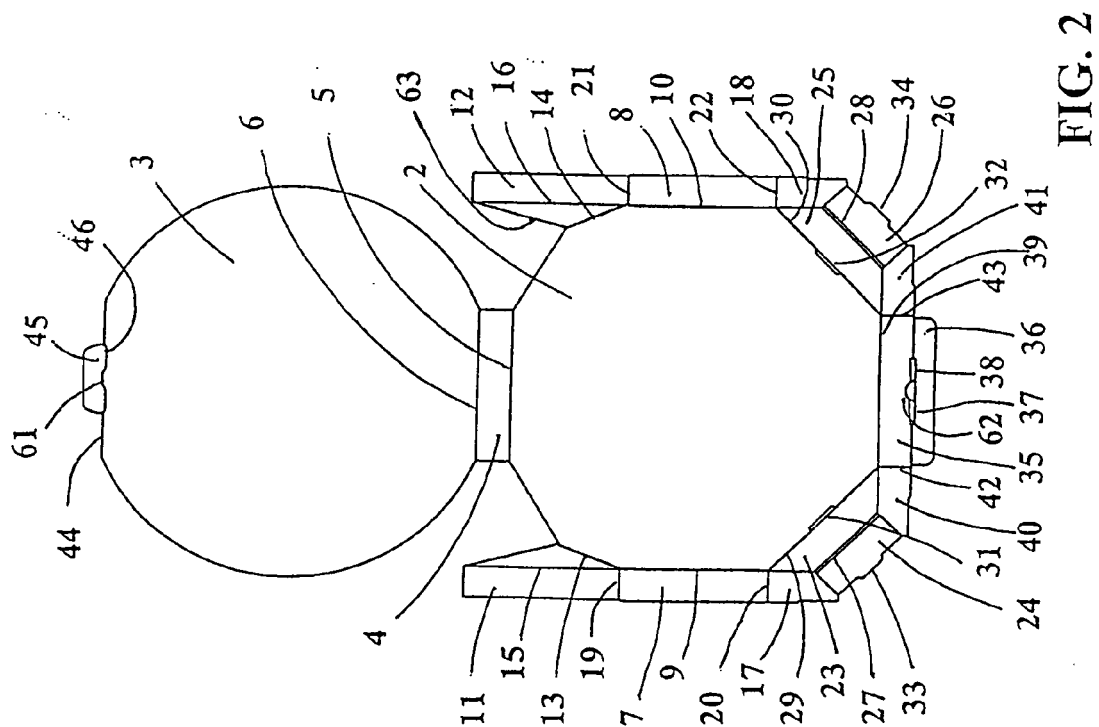
and the quality of the baked food does not suffer any deterioration. The opening of the container 1 may be rendered easier by the presence of an optional tang 61, integral with the lid 3. The circular lid 3 can also be separated from the remaining part of the container 1 simply pulling away the two parts delimited by the folding line 6 and using the lid 3 as dish for the pizza.

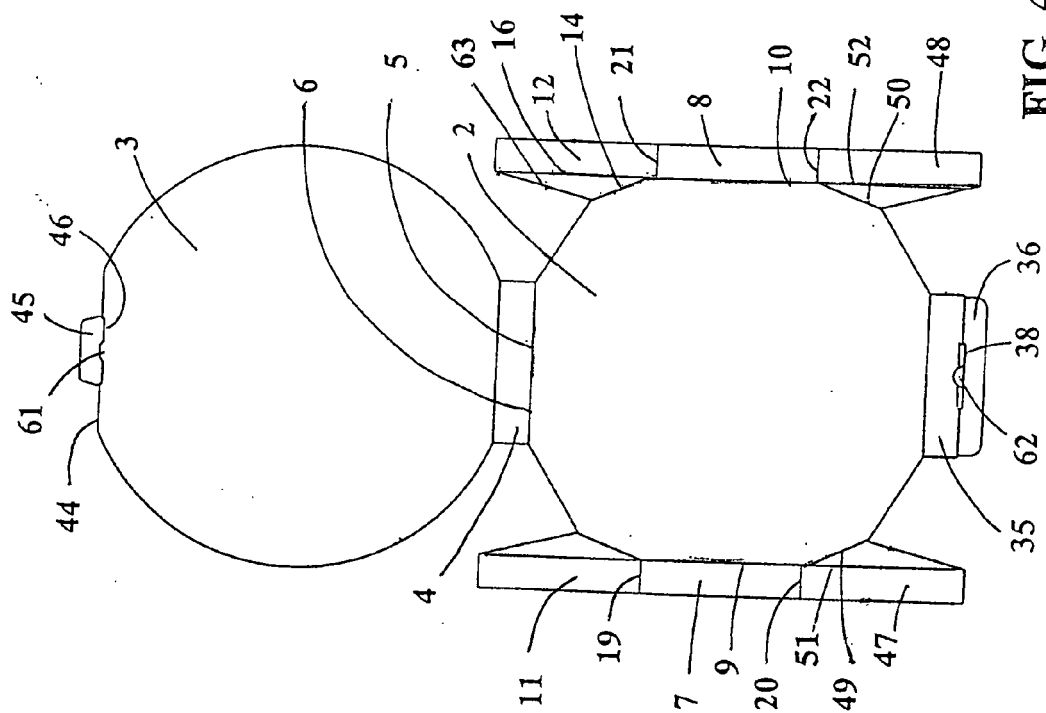
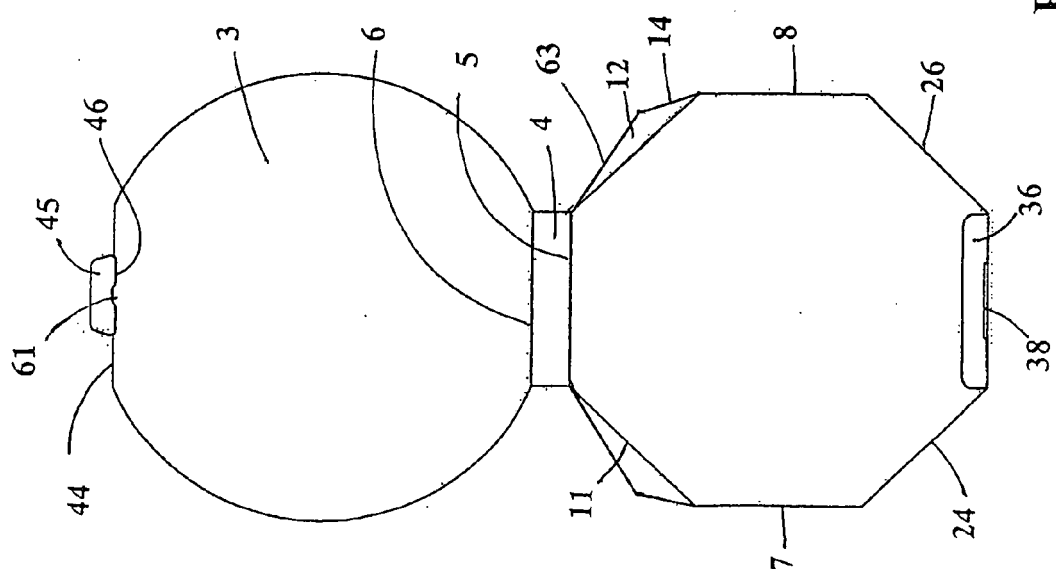
Claims

1. A container (1) for transporting warm food, **characterized by** the fact that it is formed by a basis structure (2), internally octagonal shaped and externally polygonal shaped, to which is joined, by means of the flap (4), the lid (3), being essentially circular shaped with two opposite flat sides, one of which at the connection with the flap (4) and the other (44) at the connection with the closing flap (45); said flap (4) being joined, and partially rotatable both in respect to the basis (2) around the folding line (5) and to the lid (3) around the folding line (6) and connected with the ends of the composed, posterior, 'swallow tail' flaps (11),(12) each one of them being partially rotatable around the respective folding lines (13),(14) and (15),(16) and joined, by means of the folding lines (19),(21) with the simple flaps (7),(8) the latter being joined to the basis (2) with the respective folding lines (9),(10) and with the suitable flaps which centrally comprehend the flap (35), joined and rotatable in respect to the flap (36), together with which it forms a sole composite flap, around the folding line (37) which, centrally, carries the closing notch (38) of the container (1).
2. The container (1) for transporting warm food according to claim 1, **characterized by** the fact that the external form of the basis (2) is represented by a decagon and that the suitable flaps which centrally comprehend the flap (35) consist of the simple flaps (17),(18) rectangular trapezium shaped which are connected with the composite flaps (23),(24) and (25),(26) which may, partially, rotate each other around the respective folding lines (27),(28), the flaps (23),(25) carrying, centrally, along the folding lines (29),(30), the respective notches (31),(32) and the flaps (24),(26) carrying the respective tangs (33),(34); the front flat (35) being joined with the basis (2) through the folding line (39) and with the rectangular trapezium shaped flaps (40),(41) which can partially rotate around the folding lines (42),(43).
3. The container (1) for transporting warm food according to claim 1, **characterized by** the fact that the external form of the basis (2) is represented by a

dodecagon and that the suitable flaps which centrally comprehend the flap (35) consist of the composite front 'swallow tail' flaps (53),(54) joined through the folding lines (20),(22) and joined with the basis (2) through the folding lines (49),(50) each one of them being partially rotatable in respect to the folding lines (49),(51) and (50),(52) and each one of the front 'swallow tail' flaps (53),(54) carrying at their ends the eyelets (55),(56) and that the flap (35) is joined with the two flaps (57),(58), which can partially rotate in respect to it around the folding lines (59),(60), said flaps (57),(58) being formed by one rectangular part and an essentially circular end part.

4. The container (1) for transporting warm food according to claim 1, **characterized by** the fact that the external form of the basis (2) is represented by a dodecagon and that the suitable flaps which centrally comprehend the flap (35) consist of the composite front 'swallow tail' flaps (53),(54) joined through the folding lines (20),(22) and joined with the basis (2) through the folding lines (49),(50) each one of them being partially rotatable in respect to the folding lines (49),(51) and (50),(52) and each one of the front 'swallow tail' flaps (53),(54) carrying at their ends the eyelets (55),(56) and that the flap (35) is joined with the two flaps (57),(58), which can partially rotate in respect to it around the folding lines (59),(60), said flaps (57),(58) being formed by one rectangular part and an essentially circular end part.





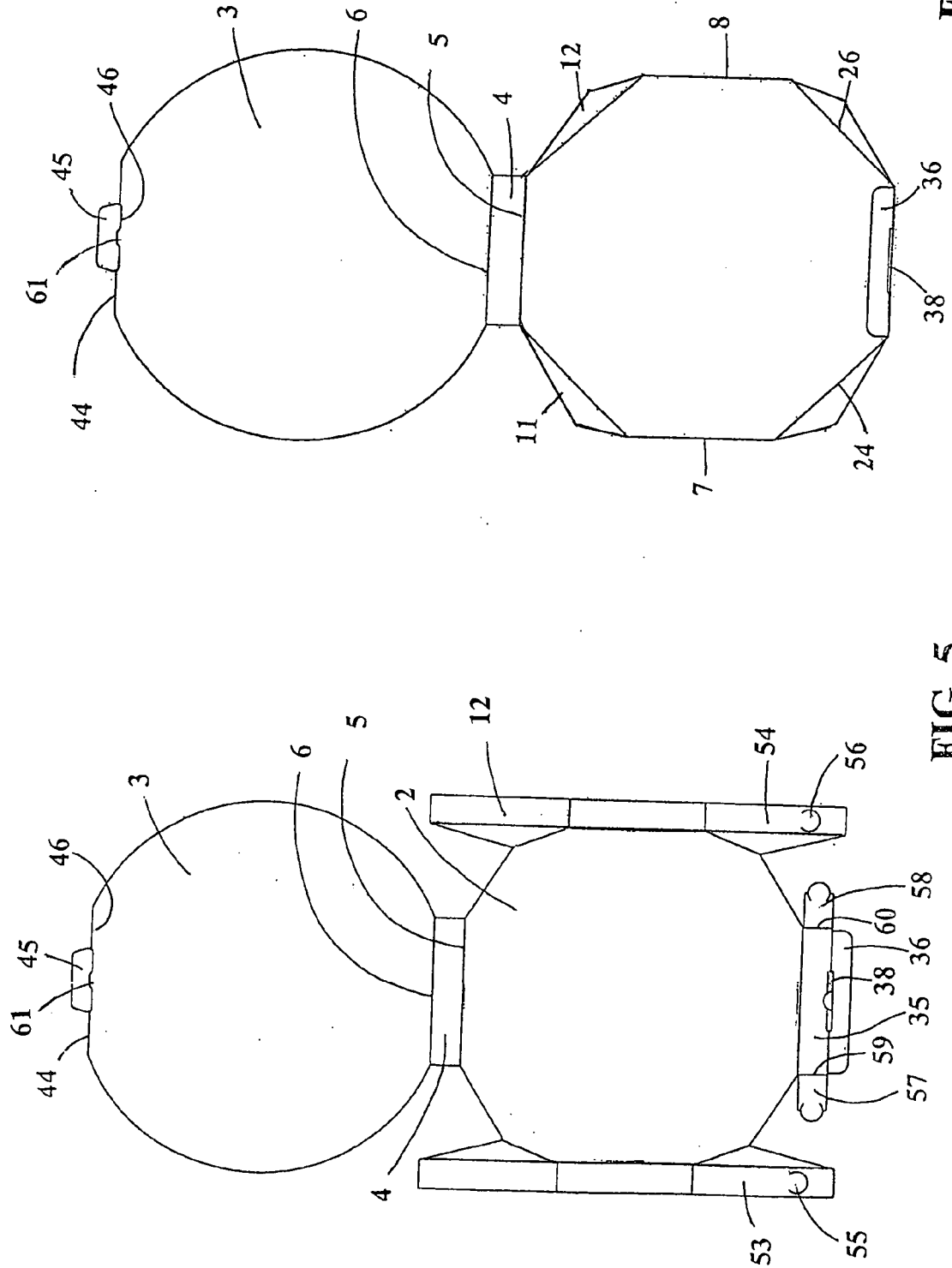


FIG. 6

FIG. 5

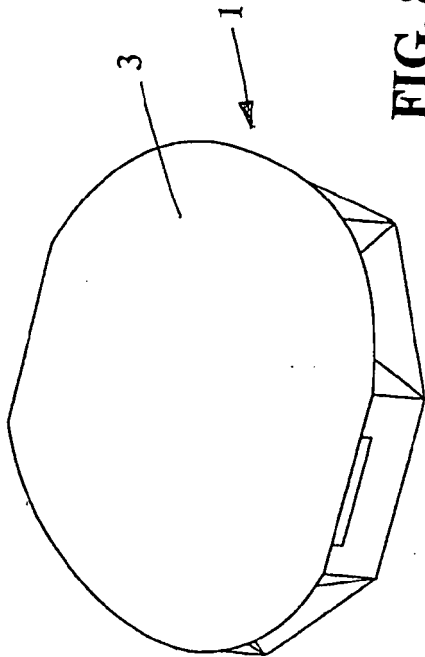


FIG. 8

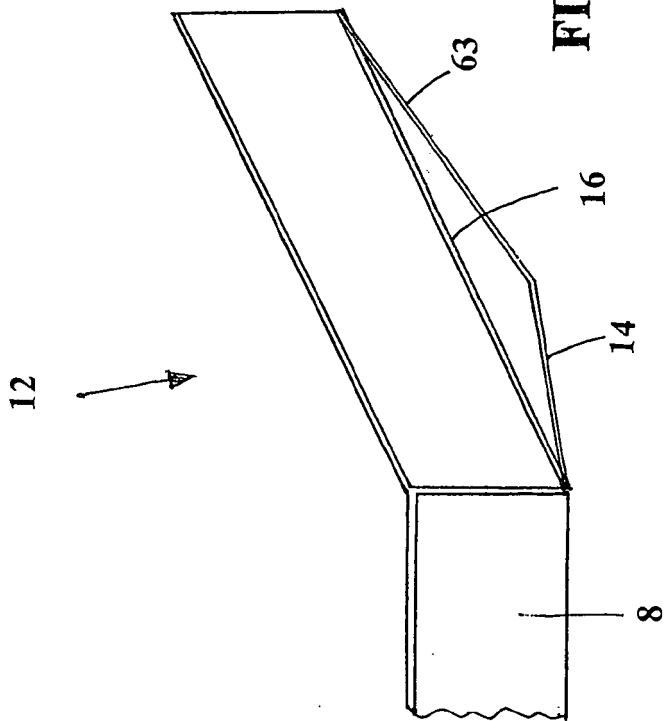


FIG. 7



EUROPEAN SEARCH REPORT

Application Number
EP 12 42 5165

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2006/208046 A1 (DENNEN ROBERT P [US] ET AL) 21 September 2006 (2006-09-21) * the whole document * -----	1	INV. B65D5/20 B65D5/66 B65D85/36
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 15 February 2013	Examiner Derrien, Yannick
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006208046 A1	21-09-2006	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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