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(54) **A container**

(57) A container comprising a container part (1) and a lid part (5), two opposite edge flanges (7,9) of the lid part being provided with at least one flap (11) each which, when making an angle with its edge flange, is arranged to be insertable in one of the walls (2,3) of the container part between two plate type portions arranged in overlapping relation when applying the lid part (5) on the container part (5). According to another aspect, at least one of the edge flanges (7,9) has at least one weakening, defining a portion of the edge flange (7,9),

which is arranged to be attachable to the container part (1) by means of attachment means when applying the lid part (5) on the container part (1) and which is arranged to be separable from the rest of the edge flange (7,9) via said weakening. According to a further aspect the lid part (5) has a part being openable via weakenings, the weakenings being arranged such that a tongue is formed in at least one edge flange (7,9) when opening, which tongue is arranged to be insertable at least in part in one of the walls between two plate type portions arranged in overlapping relation.

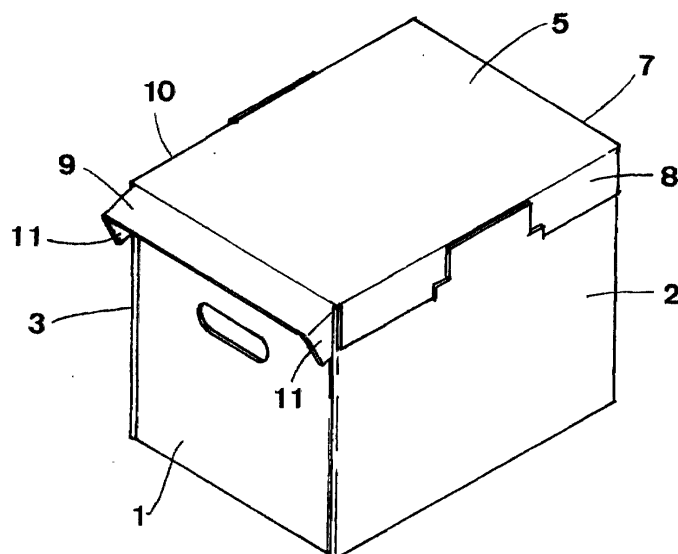


Fig 3

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Description

FIELD OF THE INVENTION

[0001] The present invention is related to a container according to the preamble of the appended claim 1 and methods for applying a lid part on a container part, both parts belonging to a container of the initially mentioned kind.

PRIOR ART

[0002] Container constructions comprising a container part and a lid part belonging thereto exist in a variety of different designs. Container parts having vertical sidewalls including plate type portions overlapping each other are known. For such container parts, there are many different lid parts known per se. The requirements on such lid parts are usually that, on one hand, it shall be possible for them to be in a flat condition during storage and transport, but on the other hand, they shall be able to easily be formed with a flange on all sides for surrounding the container part. For this purpose it is known for edge flanges present at the sides of the lid part to have flaps for interconnecting the edge flanges in the corner areas of the lid part. For the lid to give desired tightness and protection for goods in the container it is desirable that the lid fits relatively snugly to the container. However, such a snug fitting complicates application of the lid part on the container part. The term "container part" used herein relates to a part of a container, which part has a bottom and a number of side walls and is used for containing goods of different kinds, for instance at storage and transport. Examples of such container parts are conventional boxes, trays, etc. Furthermore, the term "lid part" used herein encompasses a part of a container, which part is intended to work as a lid to said container part and comprises a lid portion and edge flanges connected thereto.

SUMMARY OF THE INVENTION

[0003] The object of the present invention is therefore to develop the lid and container parts of prior art containers so that interlocking and snug fitting between lid part and container part are improved and that opening and reclosure of the container once the lid part has been applied to the container part are facilitated at least in some respect. Furthermore, the invention is related to providing methods for applying lid part on container part, the methods being such that the container is closed in a simple way and that snug fitting and simple interlocking between the parts are achieved.

[0004] This object is obtained according to a first aspect of the invention by providing a container of the initially defined kind, two opposite edge flanges of the lid part being provided with at least one flap each which is connected to the respective edge flange and foldable

between a first position, in which it is in substantially the same plane as the edge flange to which it is connected, and a second position, in which it makes an angle with said edge flange and is arranged to be insertable in one of said walls between two of the plate type portions arranged in overlapping relation when applying the lid part on the container part.

[0005] This arrangement of edge flanges and flaps, respectively, enables the lid part to be brought to its final shape after first having been applied partly to the container part and thereby a simple closing of the container is achieved at the same time as a very snug fitting between the parts is obtained. This is for instance very advantageous when the sidewalls of the container part have been caused to bulge by goods inside the container part. Should the edge flanges then already be brought to their second positions and connected to each other in the final shape of the lid part, the application of such a lid part on the container part is more complicated, since the lid part is adapted to fit snugly to the container part in a condition where the walls do not bulge.

[0006] According to a preferred embodiment of the invention at least one of the edge flanges is arranged to be insertable at least in part in one of said walls between two of the plate type portions arranged in overlapping relation in its second position when applying the lid part on the container part. In this way the multi-layered construction of the container part is utilized advantageously both for securing the lid part in its final shape with the edge flanges in their second positions and for securing the lid part to the container part.

[0007] According to another preferred embodiment of the invention the walls in which an edge flange is insertable at least in part are arranged with at least one opening in at least one of their plate type portions enabling the lid part to be positioned with a first part of said edge flange between two of the plate type portions arranged in overlapping relation and with at least one second part of said edge flange positioned outside the space between said two of the plate type portions arranged in overlapping relation in which the first part is positioned when applying the lid part on the container part. Since the edge flanges are positioned on each side of at least one of the plate type portions of the walls the interlocking as well as the snug fitting between the parts are improved.

[0008] The object is achieved according to a second aspect of the invention by providing a container of the initially defined kind, at least one of the edge flanges having at least one weakening, which alone or together with one or more of the boundary edges of the edge flange defines a portion of the edge flange, which is arranged to be attachable to the container part by means of attachment means when applying the lid part on the container part and which is arranged to be completely or partly separable from the rest of the edge flange via said weakening for enabling the container to be opened subsequent to attaching the lid part to the container part.

The arrangement of attachable portions also facilitates an automatized application of the lid part on and attachment of the same to the container part by means of attachment means. These attachment means comprise, according to different embodiments of the invention, staples and/or glue. To allow reclosure of the container, at least one of the edge flanges is arranged to be insertable at least in part in one of the walls between two of the plate type portions arranged in overlapping relation after opening of the container, according to a preferred embodiment of the invention.

[0009] According to a third aspect of the present invention said object is achieved by providing a container of the initially defined kind, the lid part having a part which is arranged to be openable via weakenings provided in the lid part when the lid part is applied on the container part with its edge flanges positioned outside the container part and attached thereto, the weakenings being arranged such that a tongue is formed in at least one edge flange when opening, which tongue is arranged to be insertable at least in part in one of the walls between two of the plate type portions arranged in overlapping relation, for allowing reclosure of the container.

[0010] Further advantages and advantageous features of the invention is apparent from the following description and the other dependent claims.

[0011] Methods for applying a lid part on a container part, both parts belonging to a container according to the invention are described in the following claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Below follows a more detailed description of exemplary embodiments of the invention, reference being made to appended drawings, in which

Fig 1 is a perspective view of a container part of a container according to the present invention,

Fig 2 shows a lid part of a container according to the present invention with all parts of the lid part being substantially in one common plane,

Fig 3 is a perspective view illustrating the lid part applied to the container part,

Fig 4 is a view similar to Fig 3, but in which all edge flanges of the lid part are positioned in their second positions and the container consequently is closed,

Fig 5 is a plan view of a lid part according to a second aspect of the present invention,

Fig 6 is a perspective view showing the lid part of Fig 5 applied to the container part,

Fig 7 is a view similar to Fig 6 showing the lid part in an open condition,

Fig 8 similarly to Fig 5 illustrates a lid part according to a third aspect of the present invention,

Fig 9 illustrates the lid part in Fig 8 applied to the container part,

Fig 10 shows the container part in an opened condition,

Fig 11 shows how the lid part from the position in Fig 10 has been brought to reclose the container, and

Fig 12 shows a variant of the lid part in Figs 8-11 applied to the container part.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

[0013] In Fig 1 a container part 1, which is fully described in the applicant's Swedish patent application No. 0000452-3, of a container according to the present invention is shown. It can clearly be seen how two opposite walls 2, 3 of the container part have a multi-layered construction with a plurality of plate type portions arranged in overlapping relation. Furthermore, in the illustrated embodiment there is provided openings 4 in said two walls 2, 3.

[0014] Fig 2 illustrates a lid part 5, which advantageously is used together with the container part described above. Said lid part 5 has a lid portion 6 and edge flanges 7, 8, 9, 10 connected thereto. Two of these flanges 7, 9 are provided with flaps 11, which are foldable between a first position in which they, as illustrated, are in substantially the same plane as the edge flange to which they are connected, and a second position, in which they make an angle with said edge flange. The edge flanges are here seen to be in a first position, where they are in substantially the same plane as the lid portion 6. This condition is advantageous for space saving reasons at storage and transport. From this first position, the edge flanges are foldable to a second position, in which they make an angle with the lid portion. In this embodiment two edge flanges 8, 10 are arranged to be insertable in their second positions between two of the plate type portions arranged in overlapping relation in the walls 2 and 3, respectively.

[0015] In Fig 3 it is shown how the lid part 5 is applied to the container part 1 and the flanges 8, 10 in their second positions are inserted in the walls 2 and 3, respectively. Thanks to the arrangement of the openings 4 in these walls 2, 3 it is possible to, as shown, position a first part of the edge flange 8 between two of the plate type portions arranged in overlapping relation in the wall 2 and the other parts of said edge flange outside the space between said two of the plate type portions arranged in overlapping relation in which the first part is positioned. Thus, the edge flange 8 is positioned alter-

nately inside and outside of the outermost plate type portion in the wall 2, which provides interlocking between the lid part 5 and the container part 1 at the same time as the edge flange 8 is kept in its second position. The position of the flange 10 in wall 3 is analogous to that of flange 8 in wall 2 and will therefore not be described more in detail.

[0016] Furthermore, the edge flange 9 is illustrated between its first and second position with the flaps 11 folded to their second positions. To bring the lid part to its final shape and simultaneously close the container the edge flanges 7, 9 are folded to their second positions. In this connection the flaps 11 are arranged to be insertable in their second positions between two of the plate type portions arranged in overlapping relation in the walls 2 and 3. In Fig 3 the flaps 11 are seen partly inserted in the walls 2, 3. After finishing said folding the flaps 11 are substantially completely inserted in the walls 2, 3, as shown in Fig 4, and the container is closed with a snug fitting between the lid part and the container part protecting goods in the container in a satisfactory way. At the same time the interlocking between the parts 1, 5 is very good and prevents the lid part 5 from being removed from the container part 1 too easily.

[0017] According to another embodiment of the present invention a container of the initially described kind has a lid part 12 as shown in Fig 5. Said lid part 12 has a lid portion 42 and edge flanges 13, 14, 15, 16 connected thereto, which are foldable between two positions like the lid part 5 in Fig 2. In the edge flange 14 there is arranged a weakening 17, which in the present case consists of a conventional perforation. The weakening 17 together with one of the boundary edges 14' of the edge flange defines a portion 18 of the edge flange 14, which upon application of the lid part 12 on the container part 1 is arranged to be attachable to the container part by means of attachment means, for instance staples and/or glue. Also the edge flanges 13 and 15 have weakenings 19, 20 defining attachable portions 21, 22, which are attachable in the same way. Shown is also a folding indication 41, which facilitates the opening of the container after the lid part 12 has been attached to the container part 1. In Fig 6 the lid part 12 is shown applied on the container part 1 with all edge flanges 13, 14, 15, 16 positioned outside and attached to the walls of the container part 1.

[0018] To enable opening of the container after the lid part has been attached to the container part said portions 18, 21, 22 are arranged to be separable from the rest of their respective edge flanges 14, 13, 15 via the weakenings 17, 19, 20. In Fig 7 the container is shown after opening by means of folding along the folding indication 41, a recess having been formed in the flange 14 at the weakening 17 when the portion 18 was separated from the flange 14 and remained attached to the wall 2. Also the portions 21 and 22 are still attached to the walls and separated from the rest of their respective flanges 13, 15. However, the major part of the edge

flange 14 is still intact and to allow a simple and efficient reclosure of the container the edge flange 14 is arranged to be insertable between plate type portions in the wall 2. When reclosing, the flange 14 is then inserted in the wall 2 to a position corresponding to that of flange 8 in Fig 4.

[0019] This embodiment of the invention enables a very automatized method for applying lid part on container part, which is desirable for obtaining as fast a packaging method as possible. Means provided for this purpose then put the lid part on the container part, fold the edge flanges 13, 14, 15, 16 to their second positions outside the container part 1 and then attach the same to the container part by means of gluing and/or stapling. In another embodiment the edge flange 14 and/or edge flange 16 are positioned in wall 2 and 3, respectively, when applying the lid part 12 on the container part 1, for instance as shown for edge flanges 8 and 10 in Fig 4, with the edge flanges 14, 16 alternately inside and outside a plate type portion in the walls 2, 3 by utilizing the openings 4, whereas edge flanges 13 and 15 are attached to the container part 1 by means of attachment means as previously described above.

[0020] A solution is of course possible, according to another preferred embodiment of the invention, where one combines the features of the embodiments described with reference to Figs 1-4 and Figs 5-7, respectively. A container of the initially described kind is then provided with a lid part similar to the one in Fig 2. Here, however, the lid part is also provided with a weakening in the edge flange, which corresponds to the edge flange 8, similar to the weakening 17 in the lid part 12 shown in Fig 5. Consequently, it is possible, when applying this lid part on the container part, to position the edge flanges corresponding to flanges 8 and 10 outside the walls 2, 3 of the container part and attach these flanges to the walls by means of attachment means such as for instance staples and/or glue and secure the edge flanges corresponding to flanges 7 and 9 as described with reference to Figs 1-4. Similarly to what has been described above, said weakening defines an attachable portion which is separable from the rest of the flange via its weakening to allow the container to be opened after attachment. When reclosing, the edge flange corresponding to flange 8 is then arranged to be insertable in the wall 2 in the way described above with reference to Figs 5-7.

[0021] According to another embodiment of the invention, illustrated in Fig 8, a container of the initially defined kind has a lid part 23, which similarly to the lid part 12 has a lid portion 43 and edge flanges 24, 25, 26, 27 connected thereto. The lid part 23 has a part 28 which is arranged to be openable via weakenings 29, 30 arranged in the lid part, when the lid part 23 as in Fig 9 is applied on the container part 1 with its edge flanges 24, 25, 26, 27 positioned outside and attached to the container part 1.

[0022] These weakenings 29, 30 are arranged such

that tongues 31, 32, 33 are formed in the edge flanges 25, 26 and 27, respectively, upon opening. In Fig 10 the container is illustrated subsequent to such an opening with the openable part 28 in a position folded upwards. To allow the container to be reclosed the tongues 31, 33 are arranged to be insertable in the walls 2 and 3, respectively, between two of the plate type portions arranged in overlapping relation to the position illustrated in Fig 11. At this reclosing the tongue 32 may be positioned outside, as illustrated, or inside the container part 1. Also here a very automatized application of the lid part 23 on the container part is enabled.

[0023] Fig 12 is a view similar to Fig 9 and shows a variant of the embodiment of the invention described in Figs 8-11. In this embodiment the lid part 34 is arranged with a part 35 which is openable via weakenings 36. The weakening is arranged such that a tongue 38 is formed in the edge flange 37 when opening the openable part 35. Opening said part 35 is done by folding along the edge 39 of the closed container and in the direction of the arrow 40. Reclosing is, accordingly, done in the opposite direction, the tongue 38 being arranged to be insertable between two plate type portions in the wall 2 in a similar way as the tongue 31 above. The size and shape of the openable part is of course optional and is selected according to the field of use for the container in question. Important in this connection is the forming of at least one tongue connected to the openable part when opening the container, which tongue for reclosing is arranged to be insertable between two plate type portions arranged in overlapping relation in a wall.

[0024] The invention is of course not at all restricted to the above-described embodiments, but many possibilities to modifications thereof will be apparent for a person skilled in the art without departing from the scope of the invention.

[0025] It is for instance possible to design the lid part with such dimensions that one lid part is arranged to close a plurality of container parts. In that connection for instance the above described interlocking between container part and lid part by means of flaps arranged on the edge flanges of the lid may be utilized by said flaps being insertable in the outermost of a plurality of smaller container parts located side by side. This is advantageous when putting a plurality of smaller containers into a larger container, at which the lid part will work as a delimitation between several layers of smaller containers in the larger one. Nothing prevents the smaller containers from also being provided with smaller lid parts, the larger lid part only having a delimiting function for the container layers, which for instance may be desirable when transporting goods smelling strongly.

[0026] The lid part 2 described with reference to Figs 2-4 may for instance also be provided with weakenings in the same way as the lid part 12, which has been described with reference to Figs 5-7. It is then possible to use the lid part provided with weakenings according to the use of the lid part 12, the flaps on two opposite edge

flanges not being utilized.

[0027] Furthermore, it is pointed out that the container part does not necessarily have to be designed as in the embodiments described above. The multi-layered construction of the walls may of course be arranged in any other optional way, provided that the same functionality is obtained. The number of openings may also be varied according to desire.

[0028] It is also to be understood that the container part may be expandable in height by applying further plate type portions on the container part, which extend the already present walls. The container part may for instance be expanded by applying further plate type portions being connected with each other, two opposite of said portions being insertable in corresponding walls between two plate type portions arranged in overlapping relation. The position of said two of the further plate type portions is then, similarly to the position of the edge flanges 8, 10 in the walls 2, 3 as explained above, alternately inside and outside of the outermost plate type portion of the walls.

Claims

1. A container comprising a container part (1) of substantially polyhedral shape having at least two opposite walls (2, 3) formed by a plurality of plate type portions arranged in overlapping relation, and comprising a lid part (5) having a plate type lid portion (6) and plate type edge flanges (7, 8, 9, 10) connected thereto, which are foldable between a first position, in which they are in substantially the same plane as the lid portion (6), and a second position, in which they make an angle with the lid portion, **characterized in that** two opposite edge flanges (7, 9) of the lid part are provided with at least one flap (11) each which is connected to the respective edge flange and foldable between a first position, in which it is in substantially the same plane as the edge flange to which it is connected, and a second position, in which it makes an angle with said edge flange and is arranged to be insertable in one of said walls between two of the plate type portions arranged in overlapping relation when applying the lid part on the container part.
2. A container according to claim 1, **characterized in that** at least one of the edge flanges (8, 10) is arranged to be insertable at least in part in one of said walls (2, 3) between two of the plate type portions arranged in overlapping relation in its second position when applying the lid part (5) on the container part (1).
3. A container according to claim 2, **characterized in that** the walls (2, 3) in which an edge flange (8, 10) is insertable at least in part are arranged with at

least one opening (4) in at least one of their plate type portions enabling the lid part (5) to be positioned with a first part of said edge flange (8, 10) between two of the plate type portions arranged in overlapping relation and with at least one second part of said edge flange positioned outside the space between said two of the plate type portions arranged in overlapping relation in which the first part is positioned when applying the lid part (5) on the container part (1).

4. A container according to any of the claims 1-3, **characterized in that** at least one of the edge flanges has at least one weakening, which alone or together with one or more of the boundary edges of the edge flange defines a portion of the edge flange, which is arranged to be attachable to the container part by means of attachment means when applying the lid part (5) on the container part (1) and which is arranged to be completely or partly separable from the rest of the edge flange via said weakening for enabling the container to be opened subsequent to attaching the lid part to the container part.

5. A container according to claim 4, **characterized in that** the attachment means comprises staples.

6. A container according to claim 4 or 5, **characterized in that** the attachment means comprises glue.

7. A container according to any of the claims 4-6, **characterized in that** at least one of the edge flanges is arranged to be insertable at least in part in one of the walls (2, 3) between two of the plate type portions arranged in overlapping relation subsequent to opening the container, for allowing reclosure of the container.

8. A container according to any of the claims 1-7, **characterized in that** the lid portion has a folding indication, which is substantially in parallel with at least one of the edge flanges, for facilitating opening of the container.

9. A method for applying a lid part (5) on a container part (1), both parts belonging to a container according to any of the claims 1-8, **characterized in that** the edge flanges (8, 10) which are not provided with flaps are brought to their second positions and are inserted at least in part in a wall (2, 3) between two of the plate type portions arranged in overlapping relation in a first step, and that the flaps (11) are brought to their second positions after which the edge flanges (7, 9) provided with flaps are brought to their second positions and the respective flap (11) is inserted in a wall (2, 3) between two of the plate type portions arranged in overlapping relation in a second step.

10. A method for applying a lid part (5) on a container part (1), both parts belonging to a container according to any of claims 1-8, **characterized in that** the edge flanges (8, 10) which are not provided with flaps are brought to their second positions outside said container walls and are attached to the same by means of attachment means, and that the flaps (11) are brought to their second positions after which the edge flanges (7, 9) provided with flaps are brought to their second positions and the respective flap (11) is inserted in a wall (2, 3) between two of the plate type portions arranged in overlapping relation.

11. A method for applying a lid part (5) on a container part (1), both parts belonging to a container according to any of claims 1-8, **characterized in that** all of the edge flanges (7, 8, 9, 10) of the lid part are brought to their second positions outside said container walls and are attached to the same by means of attachment means thereafter.

12. A container comprising a container part (1) of substantially polyhedral shape having at least two opposite walls (2, 3) formed by a plurality of plate type portions arranged in overlapping relation, and comprising a lid part (12) having a plate type lid portion (42) and plate type edge flanges (13, 14, 15, 16) connected thereto, which are foldable between a first position, in which they are in substantially the same plane as the lid portion (42), and a second position, in which they make an angle with the lid portion, **characterized in that** at least one of the edge flanges (14, 13, 15) has at least one weakening, (17, 19, 20) which alone or together with one or more of the boundary edges of the edge flange defines a portion (18, 21, 22) of the edge flange, which is arranged to be attachable to the container part by means of attachment means when applying the lid part (12) on the container part (1) and which is arranged to be completely or partly separable from the rest of the edge flange (14, 13, 15) via said weakening (17, 19, 20) for enabling the container to be opened subsequent to attaching the lid part to the container part.

13. A container according to claim 12, **characterized in that** the attachment means comprises staples.

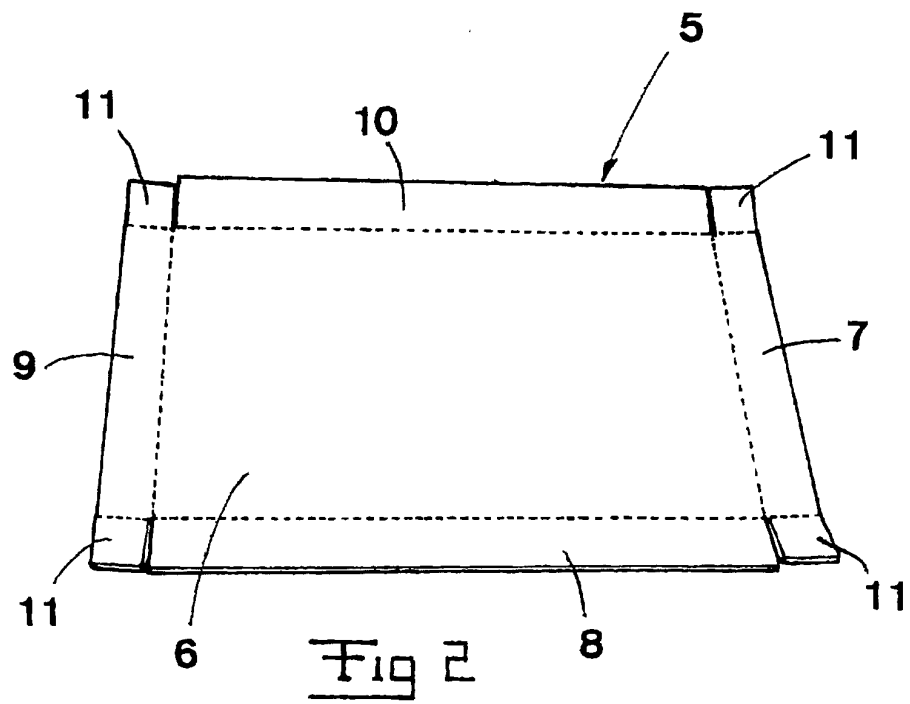
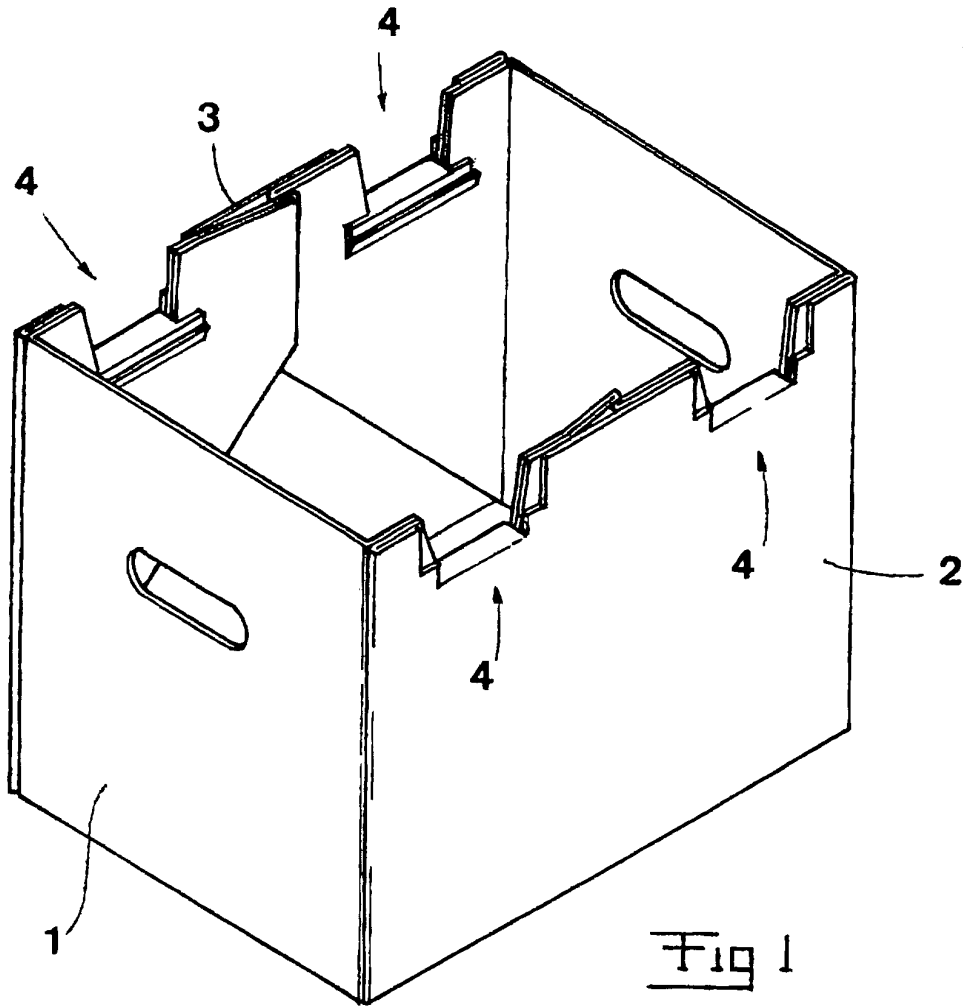
14. A container according to claim 12 or 13, **characterized in that** the attachment means comprises glue.

15. A container according to any of claims 12-14, **characterized in that** at least one of the edge flanges (14, 16) is arranged to be insertable at least in part in one of said walls (2, 3) between two of the plate type portions arranged in overlapping relation in its second position when applying the lid part (12) on

the container part (1).

least in part in one of the walls (2, 3) between two of the plate type portions arranged in overlapping relation, for allowing reclosure of the container.

16. A container according to claim 15, **characterized in that** the walls (2, 3) in which an edge flange (14, 16) is insertable at least in part are arranged with at least one opening (4) in at least one of their plate type portions enabling the lid part (12) to be positioned with a first part of said edge flange (14, 16) between two of the plate type portions arranged in overlapping relation and with at least one second part of said edge flange positioned outside the space between said two of the plate type portions arranged in overlapping relation in which the first part is positioned when applying the lid part (12) on the container part (1).
17. A container according to any of the claims 12-16, **characterized in that** at least one of the edge flanges (14) is arranged to be insertable at least in part in one of the walls (2) between two of the plate type portions arranged in overlapping relation subsequent to opening the container, for allowing reclosure of the container.
18. A container according to any of the claims 12-17, **characterized in that** the lid portion (42) has a folding indication (41), which is substantially in parallel with at least one of the edge flanges, for facilitating opening of the container.
19. A method for applying a lid part (12) on a container part (1), both parts belonging to a container according to any of claims 12-18, **characterized in that** all of the edge flanges (13, 14, 15, 16) of the lid part are brought to their second positions outside said container walls and are attached to the same by means of attachment means thereafter.
20. A container comprising a container part (1) of substantially polyhedral shape having at least two opposite walls (2, 3) formed by a plurality of plate type portions arranged in overlapping relation, and comprising a lid part (23; 34) having a plate type lid portion (43) and plate type edge flanges (24, 25, 26, 27; 37) connected thereto, which are foldable between a first position, in which they are in substantially the same plane as the lid portion (43), and a second position, in which they make an angle with the lid portion, **characterized in that** the lid part (23, 34) has a part (28, 35), which is arranged to be openable via weakenings (29, 30; 36) provided in the lid part when the lid part is applied on the container part with its edge flanges positioned outside the container part and attached thereto, the weakenings (29, 30; 36) being arranged such that a tongue (31, 32, 33; 38) is formed in at least one edge flange (25, 26, 27; 37) when opening, which tongue (31, 33; 38) is arranged to be insertable at



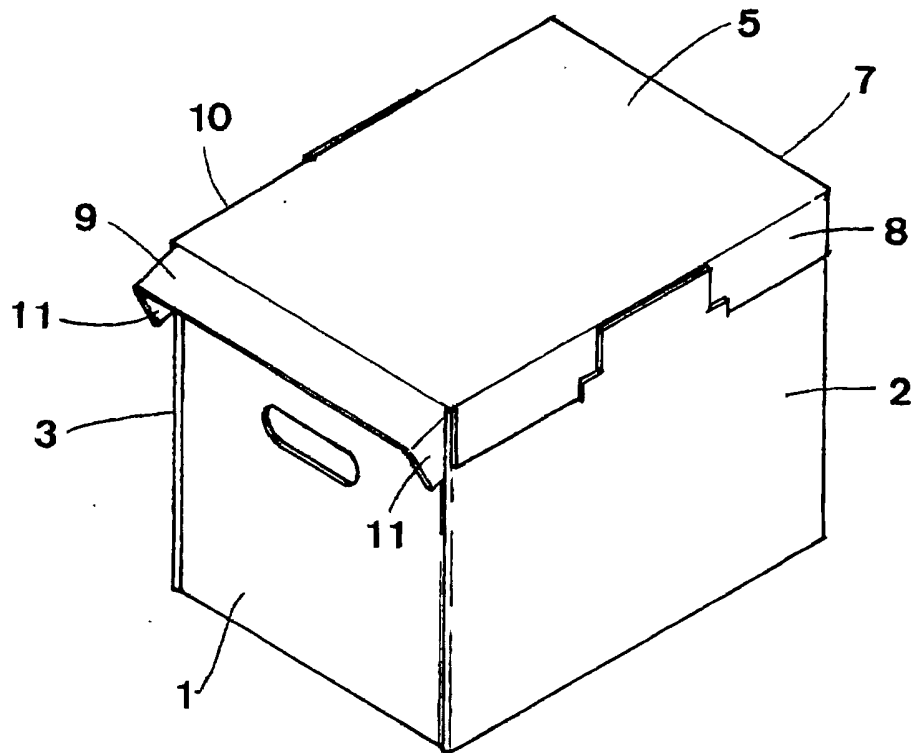


Fig 3

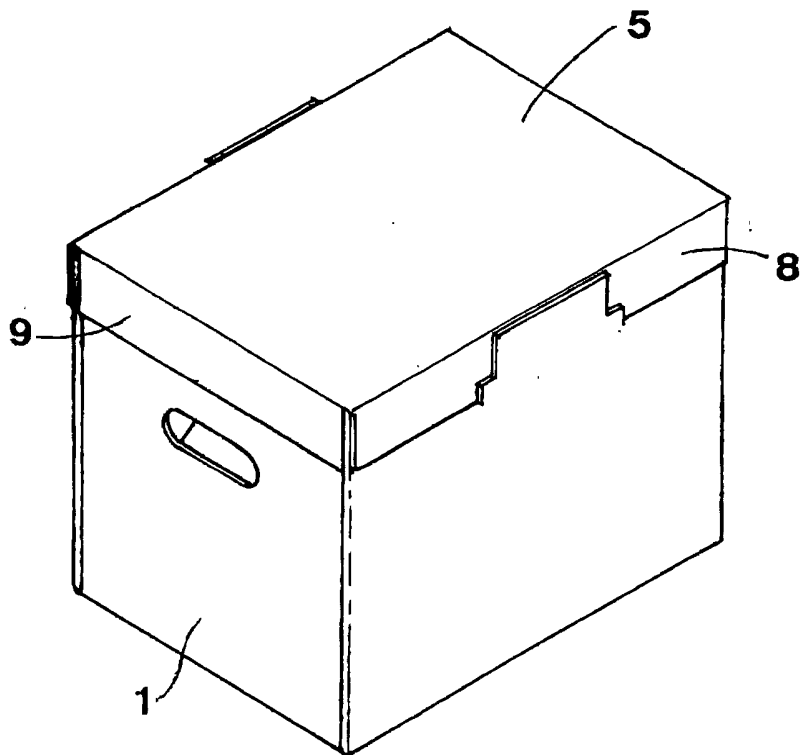
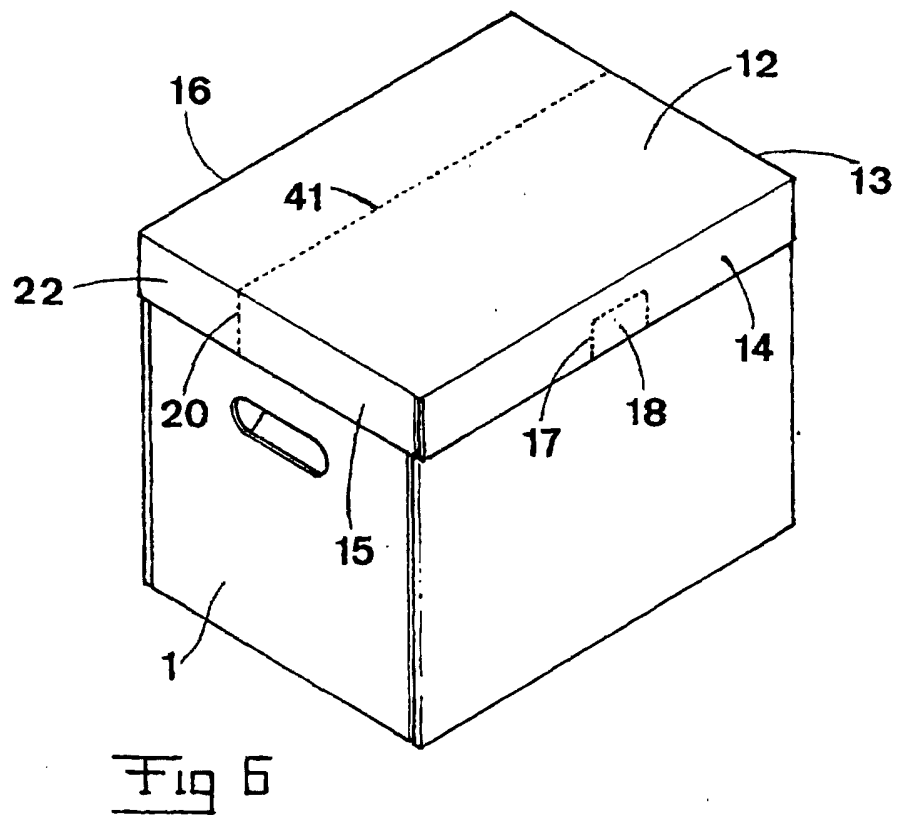
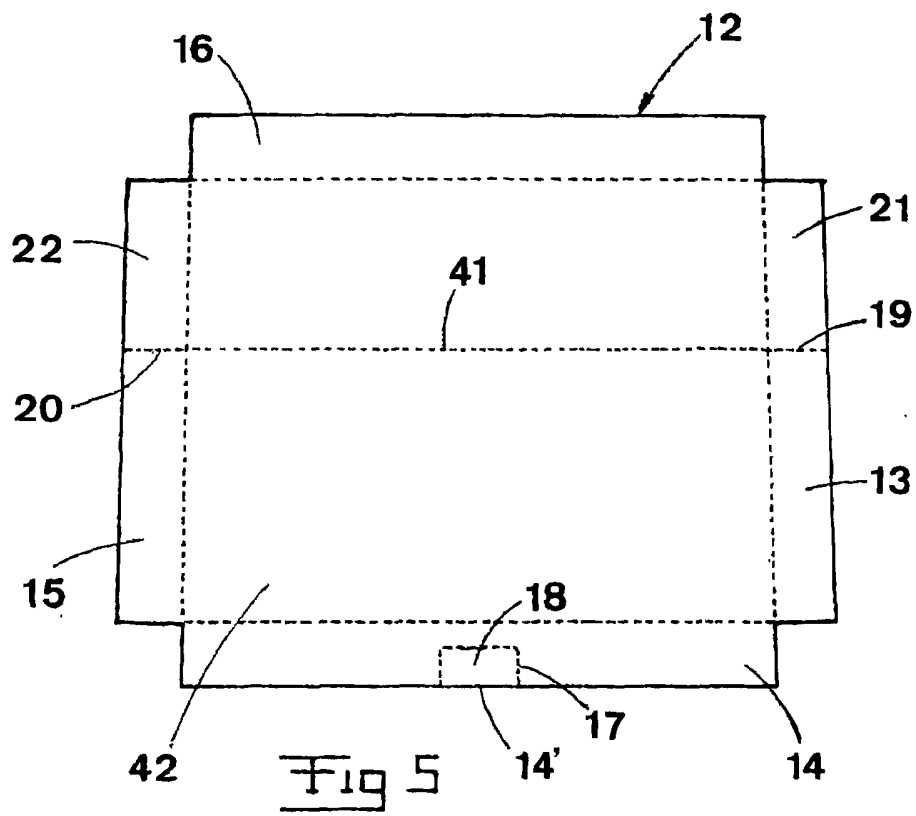
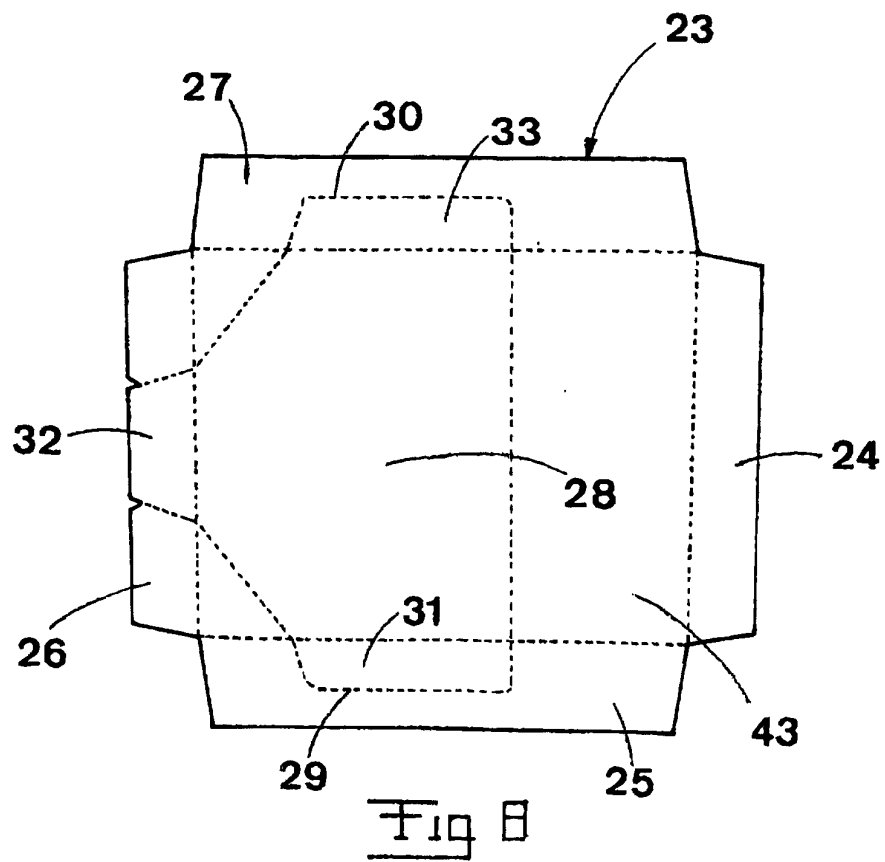
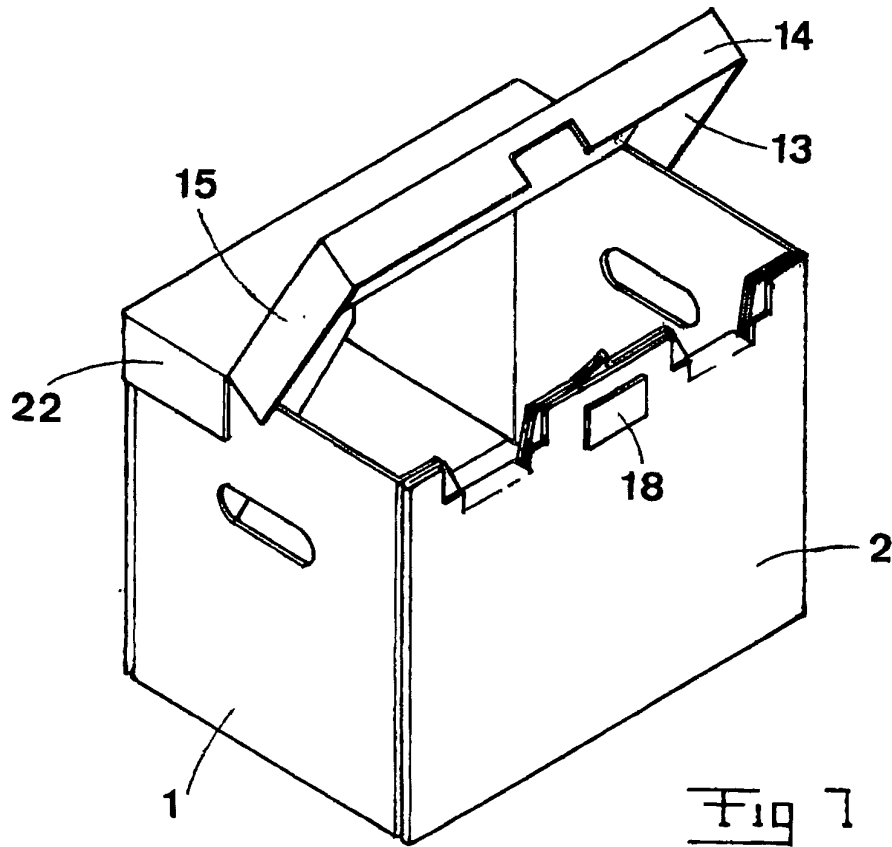


Fig 4





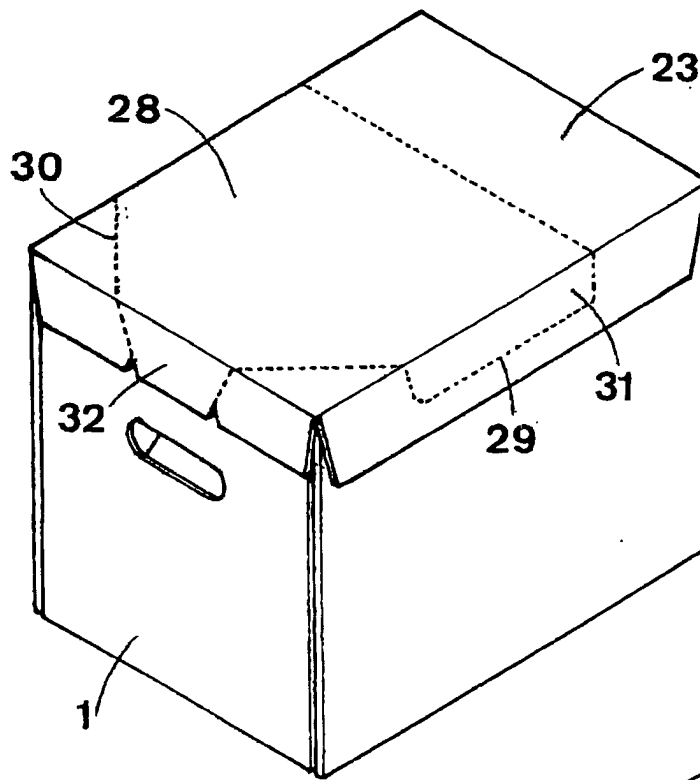


Fig 9

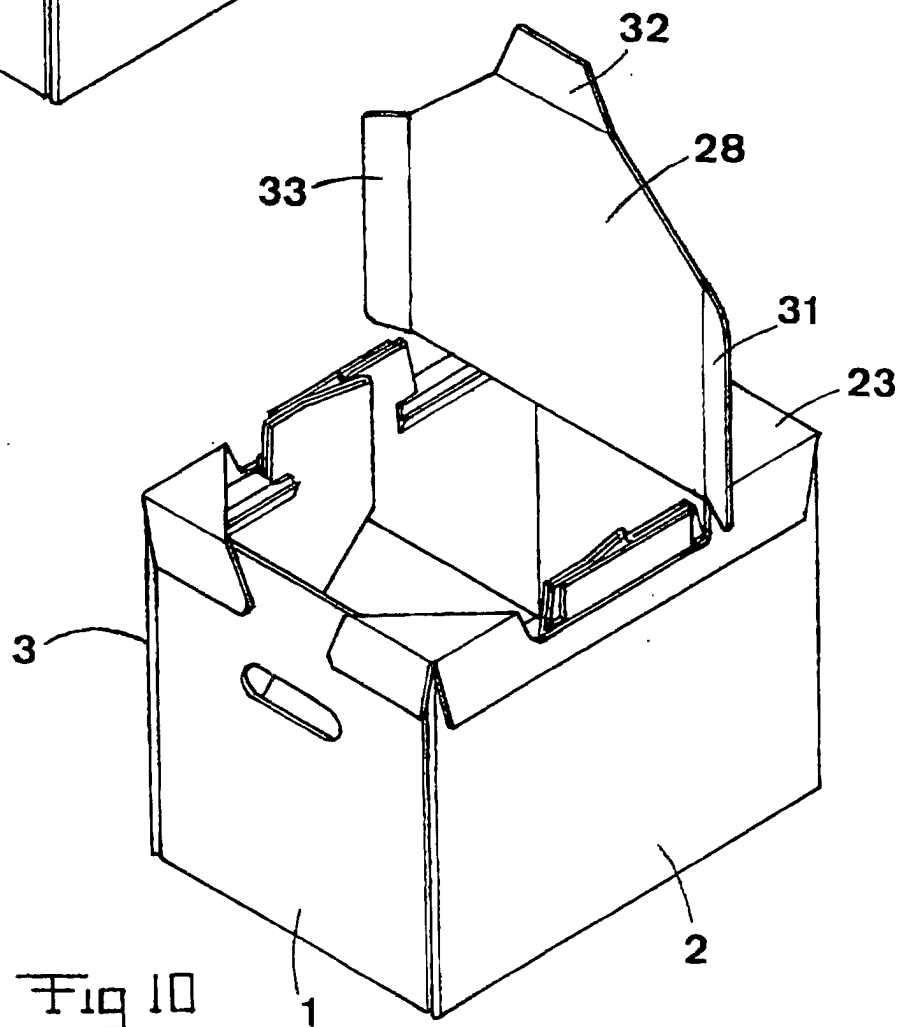


Fig 10

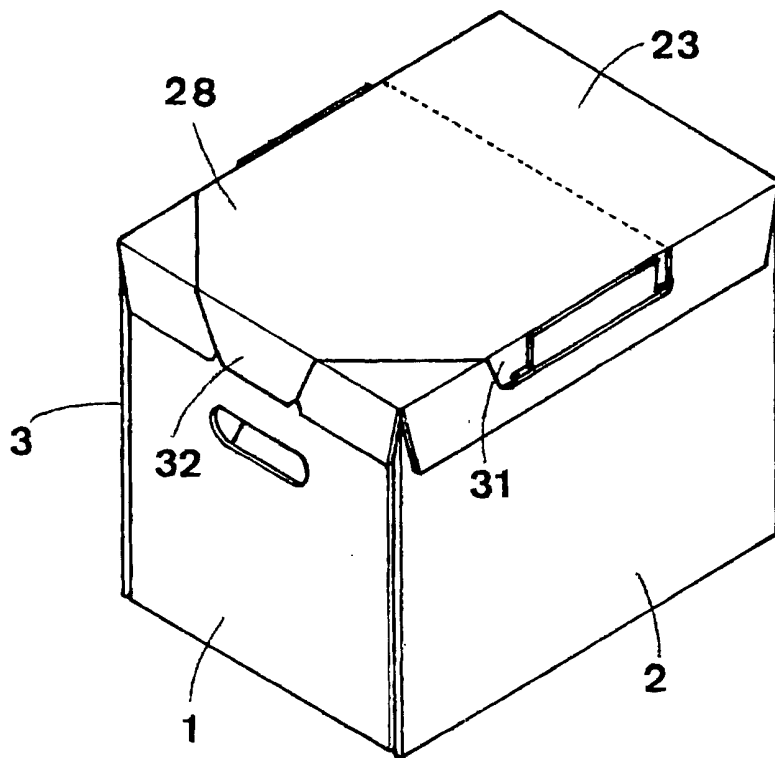


Fig 11

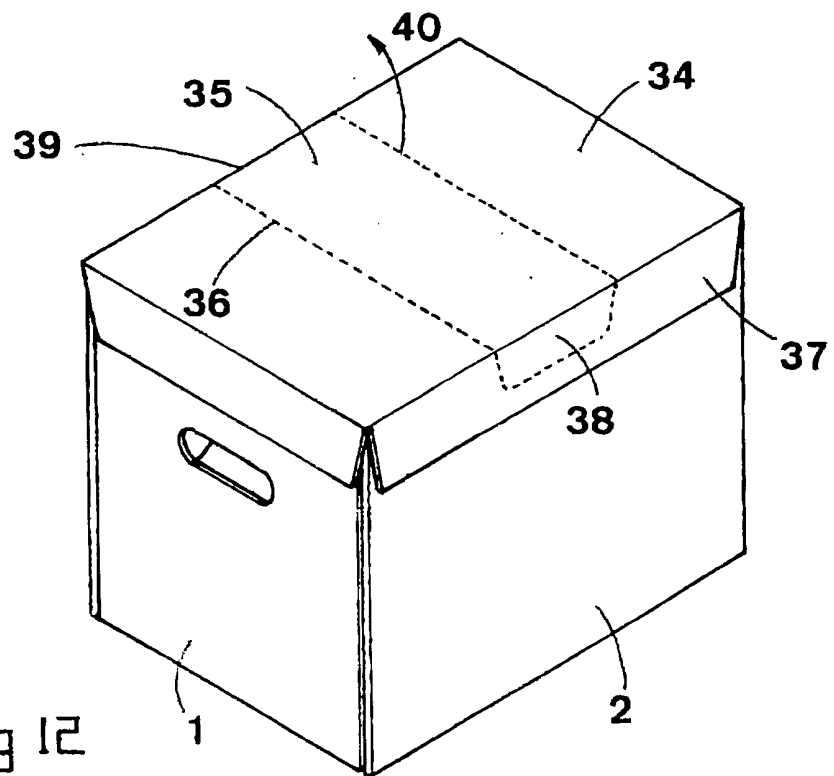


Fig 12