



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 186 542 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
13.03.2002 Bulletin 2002/11

(51) Int Cl.7: **B65D 21/08**, B65D 21/06,
B65D 43/16

(21) Application number: **00307847.4**

(22) Date of filing: **11.09.2000**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(71) Applicant: **C G Paxton Limited**
Walsall, West Midlands WS9 8 DS (GB)

(72) Inventors:
• **Loftus, Stephen John,**
McKechnie Components Limited
Walsall, West Midlands WS2 7PB (GB)

• **Cope, Andrew Christopher,**
McKechnie Components Ltd
Walsall, West Midlands WS2 7PB (GB)
• **Carr, Nicholas, McKechnie Components Limited**
Walsall, West Midlands WS2 7PB (GB)
• **Stringer, John, McKechnie Components Limited**
Walsall, West Midlands WS2 7PB (GB)

(74) Representative: **Skinner, Michael Paul**
c/o Swindell & Pearson
48 Friar Gate
Derby DE1 1GY (GB)

(54) **Container with height adjustable lid**

(57) A container (10) comprises a body portion (12) having an upwardly facing opening (14) for access to the interior of the container. A lid (16) for opening and

closing the container allows another container to be stacked thereon, the lid and container body being co-operable so as to allow the lid to be closed at a choice of heights.

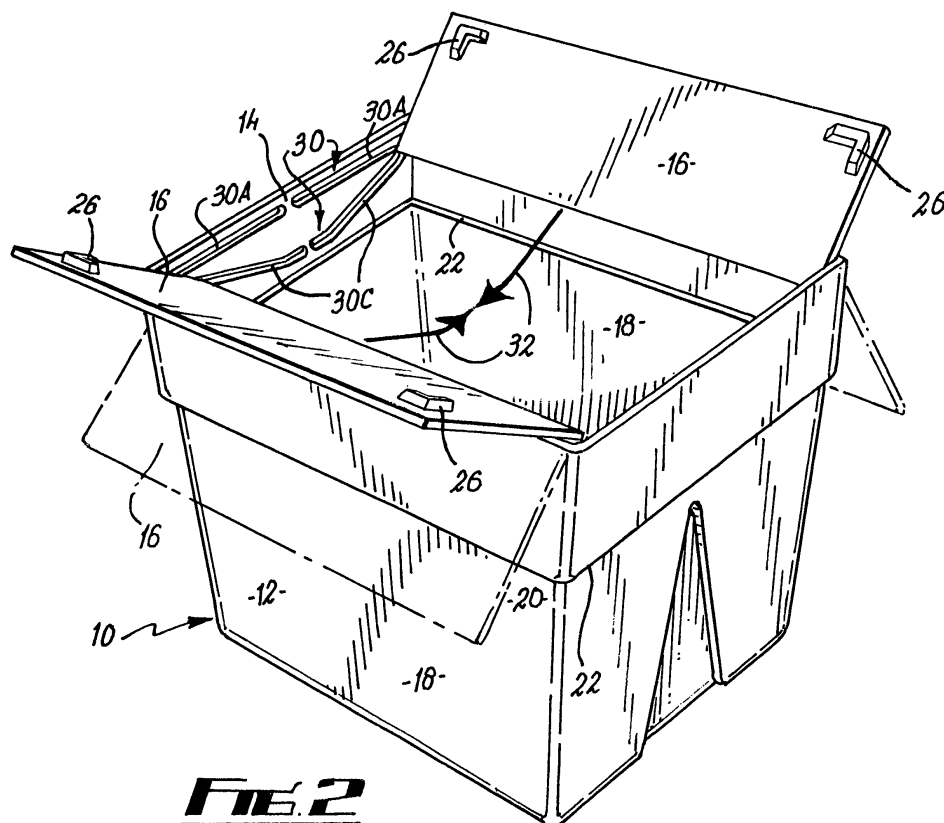


FIG. 2

EP 1 186 542 A1

Description

[0001] The present invention relates to containers and in particular, but not exclusively, to containers for delivery of goods to retail premises.

[0002] Retail goods are commonly delivered to retail premises in relatively large containers or crates, typically about 600mm by 400mm in plan. These containers stack when full, to allow easy handling, such as by means of a wheeled dolly. The containers can nest within each other when empty, for compactness during their return journey.

[0003] Some containers are open-topped. Others have lids attached. Empty containers can be nested with their lids open. When the containers are containing goods, the lids can be closed (and sealed in the case of particularly valuable contents), allowing further containers to be stacked one on top of another.

[0004] The present invention provides a container comprising a body having an upwardly facing opening for access to the interior of the container, and lid means associated with the opening for closing the opening, in use, to allow another container to be stacked thereon, and wherein the lid means and the container body are cooperable to allow the lid means to be closed at any of a plurality of heights relative to the body of the container.

[0005] The lid means are preferably attached to the body of the container. The lid means preferably remain so attached while the lid means are opened and/or while the lid means are moved between the plurality of closed heights.

[0006] The provision of a plurality of heights for the closed lids helps avoid wasted space at the top of a part-filled container and thus increases the packing density of goods in a stack of containers.

[0007] Preferably the lid means may be closed at either of two heights.

[0008] The lid means may comprise two lid sections, each attached as aforesaid. The container body is preferably formed to nest within the body of a like container when the lid of the like container is open. The container body may comprise a base and four upstanding walls which define the container mouth at the upper extremity thereof. The lid means may carry closure portions which close a gap formed between the lid means and the body means as the lid means moves to a higher height.

[0009] The lid means are preferably attached to the container body by hinge means. The hinge means may incorporate arrangements for providing the plurality of heights. The hinge means may comprise a projection captive to run in a slot. The slot may be so shaped that as the projection moves along the slot, the lid means moves between the closed positions and at least one open position. The lid means may move through an open position when moving between closed positions. The slot may comprise a first position part way along the slot and corresponding with the open position, and slot portions which extend away from the first position to po-

sitions corresponding with the closed positions. The slot portions may extend away to respective heights. The slot is preferably formed in the container body, the projection or projections being carried by the lid means.

[0010] The slot may have a first position at which the lid means may hinge between the open position and a first closed position. The projection may move along the slot from the first position to a second position at which the lid means may hinge to a second closed position. The projection may be movable as aforesaid only when the lid means is hinged to an orientation part way between the open position and the first closed position. The slot may be formed in the container body, the lid means being slidable up and down the slot to move between the first and second positions. There may be support means engaged by the lid means for support as the lid means is hinging to the first closed position. The lid means may be so formed as to avoid engagement with the support means as the lid means is hinging to the second closed position. The support means may comprise ledge formations on which the lid means rests in the first closed position. The lid means may comprise recesses which align with the support means as the lid means is hinging to the second closed position, thereby allowing the lid means to pass.

[0011] Ledge formations may be movable to a stowed position, the ledge formations allowing the lid means to move unhindered when the ledge formations are in their stowed position. The ledge formations may be hingedly mounted for movement to their stowed position. The ledge formations may serve as bail arms when the lid is open.

[0012] The hinge means may comprise a line of spaced pillars forming first knuckles of a hinge arrangement, there being a slot formed in each pillar, the lid means comprising second knuckles of the hinge arrangement, interleaved with the first knuckles and carrying projections which are captive in the slots. The hinge means may comprise a lock arrangement which prevents the projection moving along the slot at least while the lid means is occupying one closed position. The lock arrangement may comprise a locking projection which enters a locking recess as the lid means reaches the corresponding closed position.

[0013] The hinge means may comprise a hinge leaf member to which a lid portion is hingedly connected, the hinge leaf member being attached to the container body to allow the height of the hinge leaf member to be changed relative to the container body, thereby changing the height of the lid means when closed. The hinge leaf member may comprise a collar around the container mouth. Releasable lock means are preferably operable to lock the position of the hinge leaf member relative to the container body. The lock means may be manually operable detent means. The detent means may comprise apertures or recesses which cooperate with spring members to provide a locking action until the spring members are pushed out of the apertures or recesses.

[0014] Examples of the present invention will now be described in more detail, by way of example only, and with reference to the accompanying drawings, in which:

Figs. 1 to 3 are perspective views of a container according to the invention, in the upper closed, open and lower closed conditions, respectively;

Figs. 4 to 6 correspond to Figs. 1 to 3, showing a modified version of the container;

Fig. 7 is a perspective view of an alternative embodiment of container according to the invention, with the lid fully open;

Fig. 8 is a perspective view of a detail of the hinge arrangement of the container of Fig. 7;

Figs. 9, 10 and 11 show the container of Fig. 7 closing to the upper closed position;

Figs. 12, 13 and 14 show the container of Fig. 7 closing to the lower closed position;

Figs. 15 and 16 are perspective views showing details of the container of Fig. 7 as it closes;

Figs. 17 and 18 are perspective views of a modified version of the embodiment of Fig. 7;

Figs. 19 to 22 are perspective views of a third embodiment in various positions; and

Fig. 23 is a vertical section, on an enlarged scale, through the collar and locking arrangement of the container of Figs. 19 to 22.

[0015] Fig. 1 shows a container 10 which comprises a body 12 having an upwardly facing opening 14 (shown closed in Fig. 1) for access to the interior of the container 10. A lid in the form of two lid portions 16 is associated with the opening 14 for closing the opening 14. This allows another container to be stacked on the closed container lid. The lid portions 16 are attached to the body 12 of the container 10 in a manner to be described, to allow the lid portions 16 to remain attached while the lid is open, and also while the lid portions 16 are closed at either of a plurality of heights relative to the body 12 of the container 10.

[0016] In more detail, the container 10 has a base (not shown) from which four walls 18 are upstanding, to define the opening 14 at their uppermost periphery. The lower portions 20 of the walls 18 taper outward slightly, up to the height of an outward step 22. This allows a container to enter the opening 14 of a like container below, nesting with the other container to the height of the step 22.

[0017] In this embodiment, there are two lid portions

16 of generally equal size. In Fig. 1, the lids 16 are shown occupying an upper closed position at the top of the walls 18. In this position, the lids 16 meet along a central line 24 to fully close the opening 14. Raised areas 26, toward the corners of the lids 16 assist in locating the base of another container, when stacked.

[0018] Fig. 1 illustrates in broken lines the approximate position of short pegs 28 which attach the lids 16 to the container. This is achieved by entrapment in slots formed in the inner-facing surface of the container walls. Each lid 16 carries a peg 28 at each end, close to the edges which meet at the line 24. The pegs 28 are not fully visible in Fig. 1. The slot 30 can be seen in Fig. 2, which shows the lid portions 16 in their open position.

To reach this position from the upper closed position (Fig. 1), the lid portions have slid apart, with the pegs 28 running along the upper portion 30A of the slot 30 at which the slot 30 reaches an elbow 30B before turning down to define a lower section 30C. As the pegs 28 move along the upper portions 30A, the lids 16 slide over the walls 18. The lids 16 may remain inclined slightly upwardly in the open position, as shown in Fig. 2, or the walls may be formed to allow the lids 16 to hang down, as indicated in Fig. 2 by broken lines. The lid 16 can be closed again by sliding the nearer edges together (as indicated by the arrows 32) moving the pegs 28 along the slots 30 until the position of Fig. 1 is reached again.

[0019] Alternatively, the lids 16 can be manipulated to move the pegs 28 along the lower portion 30C of the slot 30. This results in the lids 16 sliding together to close the container at a lower height (Fig. 2). It can be seen that in this position, the closed lid is again fully exposed, to receive a second container stacked on top, but the effective height of the container in a stack is now reduced. Thus, if the container 10 is not filled to full capacity, the lid 16 can be closed at the lower height (Fig. 3), to avoid wasted, unfilled space at the top of the container.

[0020] Figs. 4 to 6 show a second embodiment which is similar in many respects to the embodiment of Figs. 1 to 3. In particular, the lid is formed of two lid portions 16A attached to the walls 18A by pegs (not visible in Figs. 4 to 6) running in slots 34. In this example, the upper and lower slot portions 34A, 34C run approximately horizontally, being connected by an elbow 34B in the form of a short vertical section of slot at the outermost ends of the portions 34A, 34C. Consequently, the lids 16A, when open, can be manually raised or lowered, up and down the vertical section 34B, to select the desired closing height, as between an upper height and a lower height. The lids 16A can then be slid closed at the chosen height by pushing them together to move the pegs along the upper or lower slot portions 34A, 34C.

[0021] A significant difference in the alternative of Figs. 4 to 6, from the version of Figs. 1 to 3, arises from the differences in the wall heights in the version of Fig. 4. Thus, the walls in which the slots 34 are formed extend higher than the other two walls. This allows the lids

16 to hang relatively unobstructed when in the open position (with the pegs at the bottom of the vertical section 34B). However, this would mean that if the lid portions 16A were simply planar, a gap would be left between the lids 16 and the tops of the adjoining walls, when the lids are closed in the upper position. Accordingly, closure portions 36 are carried by the lids 16A and depend down from the lids 16A, to close the gap formed between the lid 16A and the body 12 when the lid 16A moves to the higher height.

[0022] These examples, and particularly the example of Figs. 4 to 6, can readily be adapted to allow the lids to be detached from the container body, for instance when opened. The slots can be extended to an edge of the container body, to allow the pegs to leave. However, it is envisaged that in many situations, particularly retail delivery uses, it will be preferable for lids to remain attached to the container, to prevent the lids and container bodies becoming separated. For instance, if container bodies are nested for return transport when empty, there is a danger that lids carried separately, detached from the bodies, would go astray.

[0023] Figs. 7 to 15 show a second embodiment. A container 10B comprises a body 12B having an upwardly facing opening 14B for access to the interior of the container 10B. A lid in the form of two lid portions 16B is associated with the opening 14B for closing the opening 14B, to allow another container to be stacked on the closed container lid. The lid portions 16B are attached to the body 12B of the container 10B in a manner to be described, to allow the lid portions 16B to remain attached while the lid is open, and also while the lid portions 16B are closed at either of a plurality of heights relative to the body 12B of the container 10B.

[0024] In more detail, the container 10B has a base (not shown) from which four walls 18B are upstanding, to define the opening 14B at their uppermost periphery. The lower portions 20B of the walls 18B taper outward slightly, up to the height of an outward step 22B. This allows a container to enter the opening 14B of a like container below, nesting with the other container to the height of the step 22B.

[0025] The container 10B is shown in Fig. 7 in the open condition, with the lids 16B hanging down the outside of the walls 18B. The lids 16B are hingedly connected along their upper edges to the upper edges of the walls 18B, by means of knuckles 40 on the lids, interleaved with knuckles 42 along the upper edges of the walls 18B. The hinge is completed by a hinge pin or by interfitting projections and recesses, or other means (not shown). The knuckles 42 are provided by the upper extremities of a line of pillars 44 spaced along the container mouth to leave gaps therebetween, for receipt of the knuckles 40. The spaces between the pillars 44 are closed by webs 46. Two small recesses or slots 48 are formed in each pillar 44, one near the top of the pillar 44, and one near the base, for reasons which will be described below. The vertical surfaces of the pillars 44,

facing the adjacent pillar, are each provided with a vertical slot 50. The arrangement is shown in more detail in Fig. 8.

[0026] The hinge arrangement allows the lids 16B to swing up from the open position (Fig. 7) to an intermediate position (Fig. 9) in which the lids 16B are extending vertically up from the upper edges of the walls 18B. The lid portions 16B can continue to turn past the intermediate position to a nearly closed position (Fig. 10) and then to a closed position (Fig. 11) in which it can be seen that the lids 16B are closed at the top of the walls 18B. This condition represents the uppermost closed position of the lids 16B.

[0027] When in the upper closed position, the lids 16B are supported on support projections 52 formed in the container end walls. Edges of the lid portions 16B move to lie on the projections 52, for support, as they approach the upper closed position of Fig. 11.

[0028] A lower closed position of the lids 16B can be accessed from the intermediate position of Fig. 9, in the following manner. When the lid portions 16B are raised as seen in Fig. 9, the lids are free to move up and down relative to the pillars 44, by means of the pivot projections on the knuckles 40 sliding up and down the slots 48 in the pillars 44. In this manner, the lid portions 16B can slide down to the position shown in Fig. 12, in which the knuckles 40 are at the bottom end of the columns 42. However, the pivot pins of the knuckles 40 are still in the slots 48, so that the lid portions 16B can pivot to close from the position shown in Fig. 12, through a partly closed position (Fig. 13) to a lower fully closed position (Fig. 14).

[0029] Movement of the knuckles 40 up and down the pillars 44 may be hindered by resilient detent means past which the knuckles 40 must be forced, so that the lids 16B will naturally close to the upper closed position (Fig. 11) unless forced down the columns, as described. Alternatively, the pivot projections and/or slots may be shaped to hold the projections captive at the top of the slots except when the lids are upright as shown in Fig. 9.

[0030] In order to avoid fouling the projections 52, when moving to the lower closed position, the lids 16B are provided with cut-outs 54 (shown in Fig. 13 and in greater detail in Fig. 15) which pass around the projections 52, as the lids 16B close. It will be apparent that by appropriate location of the projections 52 and cut-outs 54, the cut-outs 54 will not miss the projections 52 when the lids 16B are closing to the upper closed position, but will not foul the projections 52 when moving the lower closed position.

[0031] In order to return the lids 16B to the open position from the lower closed position, it is necessary to raise them to the intermediate position (Fig. 12), pull them up to the upper intermediate position (Fig. 9) and then swing them out to the sides of the container (Fig. 7).

[0032] It will be apparent that it is possible to form more than two closed heights in this manner.

[0033] Additional security against upward or down-

ward movement of the lids 16B when closed is provided by the slots 48. It can be seen from Fig. 8 that between the knuckles 40, the lids 16B carry a small tab 56 which is aligned to enter the slot 48 as the lids 16B close. Fig. 16 shows the tabs 56 engaging the slots 48. This engagement prevents further vertical movement in the hinge. A similar engagement occurs at the lower closed position, with the lower slots 48.

[0034] Figs. 17 and 18 show a variation of the arrangement of Figs. 7 to 16. In this alternative, the projections 52 are replaced by bail arms 58, extending along the walls perpendicular to the walls to which the lid portions 16B are hinged. The bail arms 58 can hang down the outside of the container (as shown in Fig. 17), in which case the lids 16B are free to swing over and down to the lower closed position, as described. Alternatively, the bail arms 58 can swing over to project a short way across the opening 14 in a manner which is conventional for bail arms, to a position shown in Fig. 18. With the bail arms 58 both in this position, the lids 16B will close to rest on the bail arms 58 at the upper closed position, and will be prevented from passing down to the lower closed position.

[0035] This alternative has the additional advantage that the container can stack or nest when open, according to whether the bail arms 58 are in their inoperative position (Fig. 17) or in their extended position (Fig. 18), in which they will support the base of another container. In addition to open nesting and open stacking, the lids 16B provide closed stacking at two or more heights.

[0036] Fig. 19 shows a container 10C which comprises a body 12C having an upwardly facing opening 14C for access to the interior of the container 10C. A lid in the form of two lid portions 16C is associated with the opening 14C for closing the opening 14C, to allow another container to be stacked on the closed container lid. The lid portions 16C are attached to the body 12C of the container 10C in a manner to be described, to allow the lid portions 16C to remain attached while the lid is open, and also while the lid portions 16C are closed at either of a plurality of heights relative to the body 12C of the container 10C.

[0037] In more detail, the container 10C has a base (not shown) from which four walls 18C are upstanding, to define the opening 14C at their uppermost periphery. The lower portions 20C of the walls 18C taper outward slightly, up to the height of an outward step 22C. This allows a container to enter the opening 14C of a like container below, nesting with the other container to the height of the step 22C.

[0038] In this alternative, the lids 16C can swing from a lower closed position (Fig. 19) through an intermediate position (in which one lid portion is shown, at the top of Fig. 20) to an open position (in which one lid 16C is shown, at the bottom of Fig. 20).

[0039] This hinged movement is possible by virtue of the lids 16C being hinged to the top edge of a collar 60 which forms part of the walls 18 of the container 10C.

[0040] In accordance with the invention, the collar 60 can be moved on the walls 18C between a lower position (Figs. 19 and 20) and an upper position (Figs. 21 and 22). When the collar 60 is moved up or down relative to the walls 18C, the lids 16C are therefore moved to be closable in their upper or lower closed heights.

[0041] The height of the collar 60 on the walls 18C may be controlled in any convenient manner and is preferably manually settable. In one example (illustrated in Fig. 23), the walls 18C are provided with a series of pairs of upper and lower apertures 62, while the collar 60 carries resilient fingers 64 having heads which snap into apertures 62 when the collar 60 moves to the appropriate height. The height of the collar 60 can therefore be re-set by depressing the fingers 64 out from the apertures 62 (in this case the upper aperture), in the direction of the arrow 66 (Fig. 22). This allows the collar 60 to move down in the direction of the arrow 68, until the finger 64 reaches the lower aperture 62 and snaps into it in the direction of the arrow 70. The collar 60 can be moved up from the lower position to the upper position by reversing this operation. Thus, with the lids 16C open, it is a relatively simple operation to depress the fingers 64 as required, before changing the height of the collar 60.

[0042] It will be apparent that two or more than two closing heights could be formed in this way, according to the degree of telescoping provided between the collar 60 and the walls 18C.

[0043] The various alternatives described above are all expected to be readily manufactured by moulding techniques, especially from synthetic plastics materials, but many other materials and manufacturing techniques could alternatively be used. Many variations and modifications can be made to the alternatives described above, without departing from the scope of the present invention. In particular, many different dimensions and relative dimensions could be chosen, and the detailed forms of many components could be changed.

[0044] Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

Claims

1. A container comprising a body having an upwardly facing opening for access to the interior of the container, and lid means associated with the opening for closing the opening, in use, to allow another container to be stacked thereon, wherein the lid means and the container body are cooperable to allow the lid means to be closed at any of a plurality of heights

relative to the body of the container.

2. A container according to claim 1 wherein lid means are attached to the body of the container.
3. A container according to claim 2 wherein the lid means remain attached while the lid means are opened and while the lid means are moved between the plurality of closed heights.
4. A container according to any of the preceding claims wherein the lid means are able to close at either of two heights.
5. A container according to any one of the preceding claims wherein the lid means comprises two lid sections.
6. A container according to any one of the preceding claims wherein the container body is formed to nest within the body of a like container when the lid of the like container is open.
7. A container according to any of the preceding claims wherein the lid means carries closure portions which close a gap formed between the lid means and the body means as the lid means moves to a higher height.
8. A container according to any one of the preceding claims wherein the lid means is attached to the container body by hinge means, the hinge means incorporating arrangements for providing the plurality of heights.
9. A container according to claim 8 wherein the hinge means comprises a projection arranged to run in a slot, the slot being shaped so as to allow the projection to move along the slot such that the lid means moves between a closed position and at least one open position.
10. A container according to claim 9, wherein the lid means moves through an open position when moving between closed positions.
11. A container according to claim 9 or 10 wherein the slot comprises a first position part way along the slot and corresponding with the open position and slot portions which extend away from the first position to positions corresponding with the closed positions.
12. A container according to claim 9, 10 or 11, wherein the slot is formed within the container body, the projections being carried by the lid means.
13. A container according to any of claims 9 to 12,

wherein the slot is provided with a first position at which the lid means hinges between an open position and a first closed position.

14. A container according to claim 13, wherein the projection is arranged to be movable along the slot from a first position to a second position at which the lid means may hinge to a second closed position.
15. A container as claimed in claim 14, wherein the projection is movable as aforesaid only when the lid means is hinged to an orientation part way between the open position and the first closed position.
16. A container as claimed in any of claims 9 to 15 wherein the slot is formed in the container body, the lid means being slidably mounted within said slot so as to be slidable up and down the slot to move between the first and second positions.
17. A container as claimed in any of claims 12 to 14 wherein support means are provided such that said lid means is arranged to engage said support means for support as the lid means hinges to the first closed position.
18. A container as claimed in claim 17, wherein the lid means are so formed as to avoid engagement with the support means as the lid means is hinged to the second closed position.
19. A container as claimed in claim 17 or 18 wherein said support means comprises ledge formations on which the lid means rests in the first closed position.
20. A container as claimed in claim 17, 18 or 19, wherein the lid means comprises recesses which align with the support means such that the lid means hinges in the second closed position thereby allowing the lid means to pass.
21. A container as claimed in any preceding claim, comprising ledge formations movable to a stowed position, the ledge formations allowing the lid means to move unhindered when the ledge formations are in their stowed positions.
22. A container according to claim 21, wherein the ledge formations are hingedly mounted for movement to their stowed position.
23. A container as claimed in claim 21 or 22, wherein the ledge formations serve as bail arms when the lid is in the open position.
24. A container according to any of claims 8 to 18, wherein the hinge means comprises a line of spaced pillars forming knuckles of a hinge arrange-

ment, a slot being formed in each pillar, the lid means comprising second knuckles of the hinge arrangement, interleaved with the first knuckles and carrying projections which are captive in the slots.

5

25. A container according to claim 24, wherein the hinge means comprise a lock arrangement which prevents the projection moving along the slot at least while the lid is occupying one closed position.

10

26. A container according to claim 25, wherein the lock arrangement comprises a locking projection which enters a locking recess as the lid means reaches the corresponding closed position.

15

27. A container according to any of claims 8 to 26, wherein the hinge means comprise a hinge leaf member to which a lid portion is hingedly connected, the hinge leaf member being attached to the container body to allow the height of the hinge leaf member to be changed relative to the container body thereby discussing the height of the lid means when closed.

20

28. A container according to claim 27, wherein the hinge leaf comprises a cellar around the container mouth.

25

29. A container according to claim 27 or 28, wherein releasable lock means are operable to lock the portion of the hinge leaf member relative to the container body.

30

30. A container according to claim 27, 28 or 29, wherein the lock means are manually operable detent means.

35

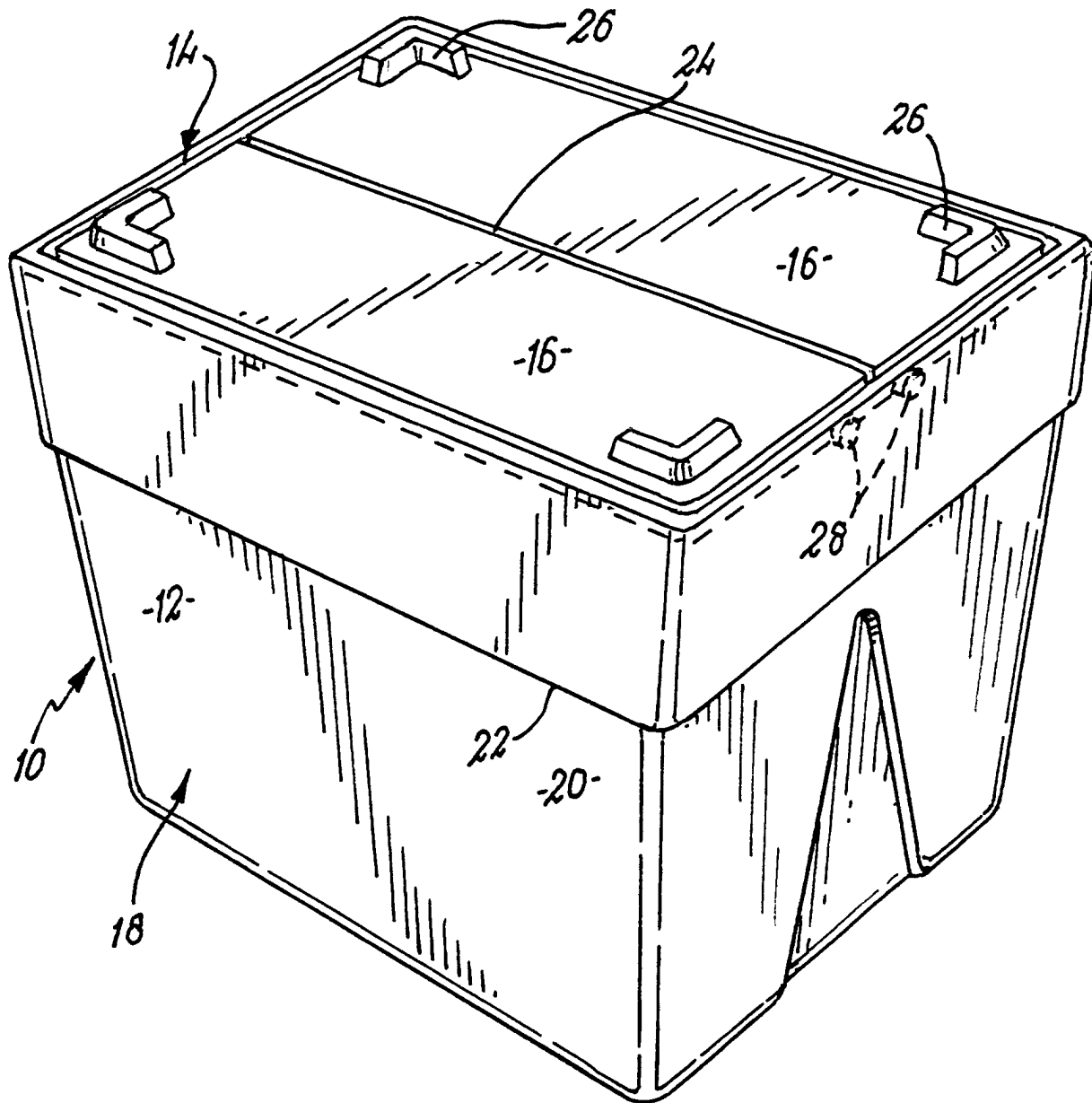
31. A container according to any of claims 27 to 30, wherein the detent means comprises apertures or recesses which cooperate with spring members to provide a locking action until the spring members are pushed out of the apertures or recesses.

40

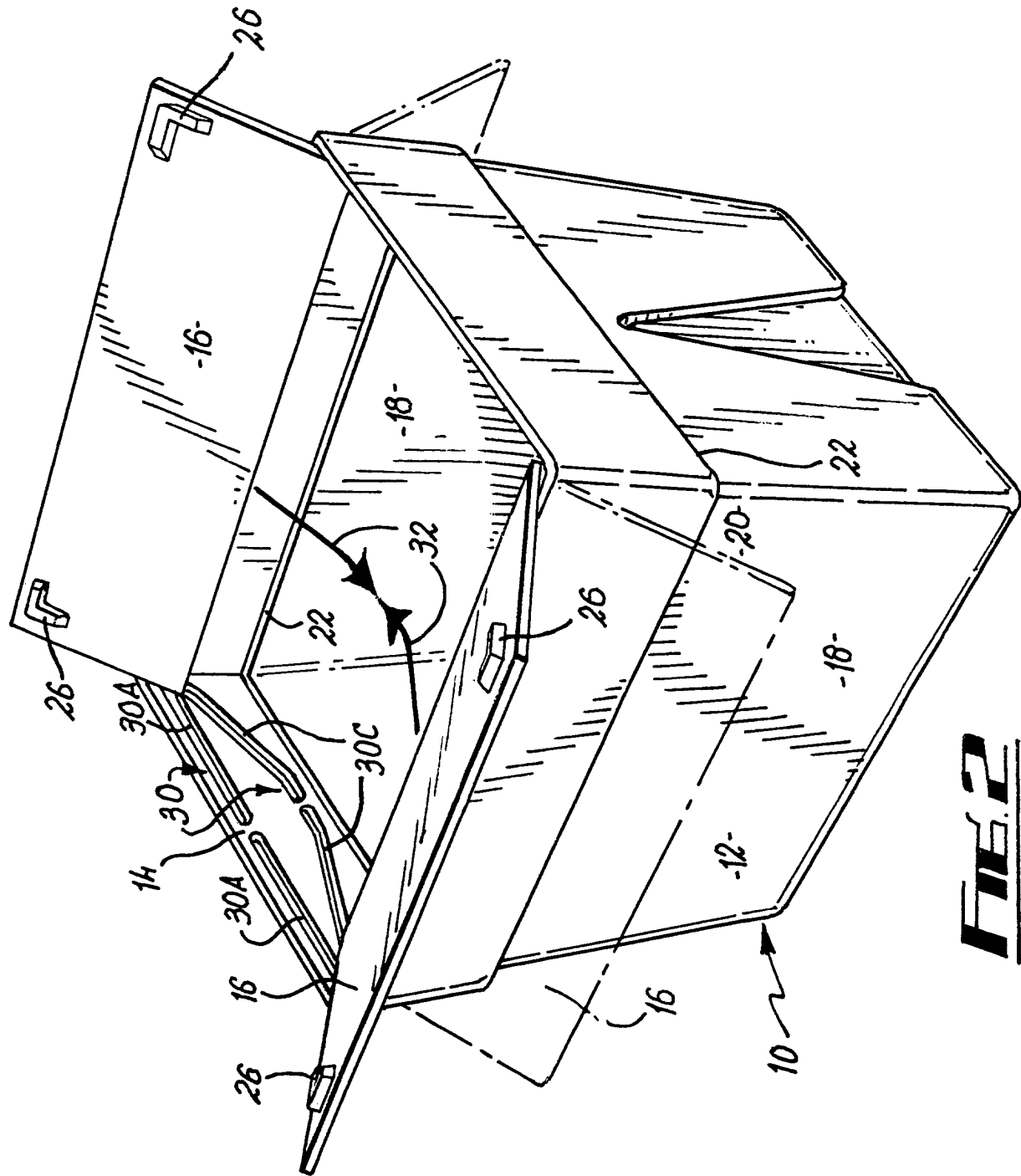
45

50

55



FTE.1



FIE2

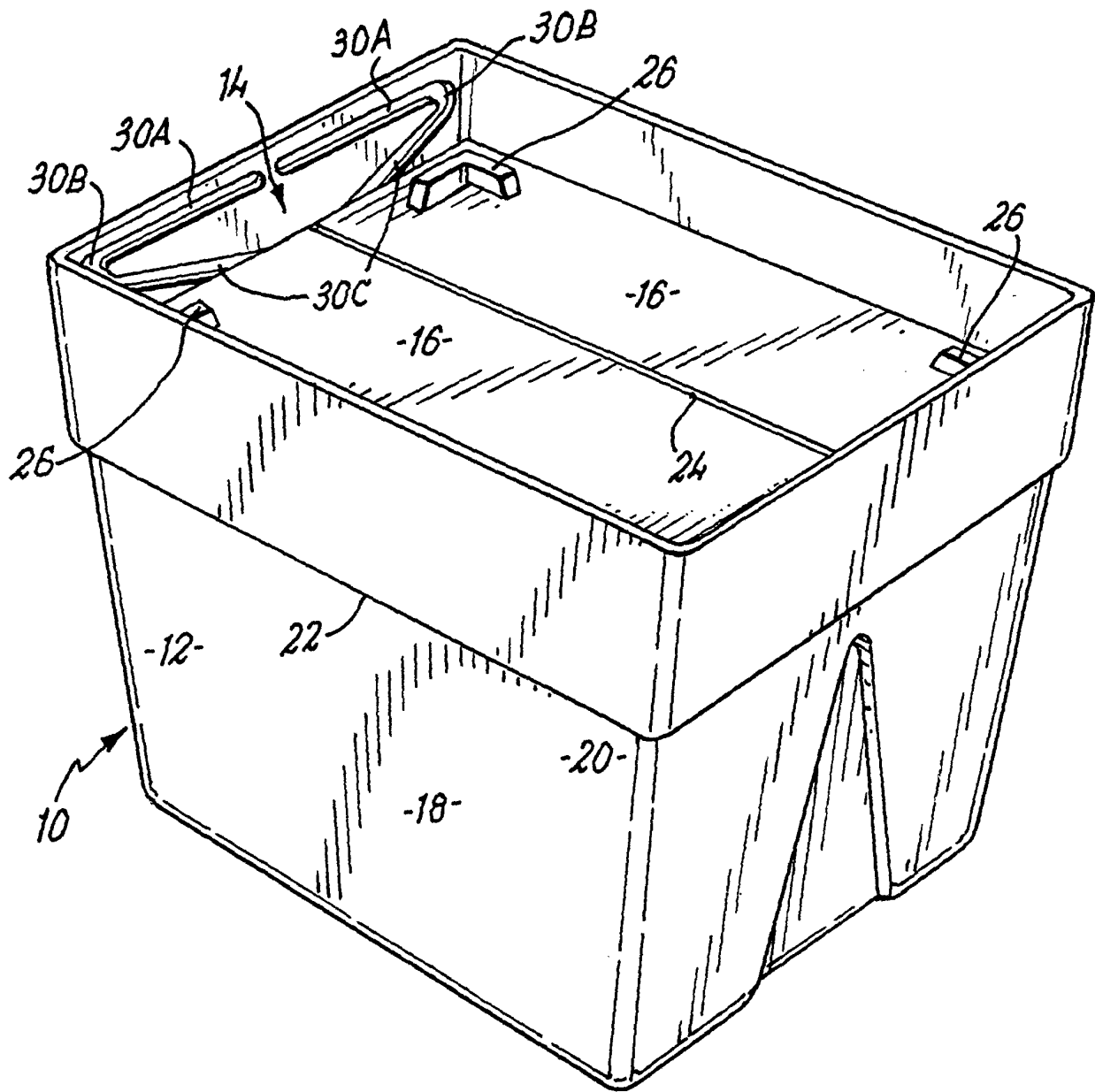


FIG. 3

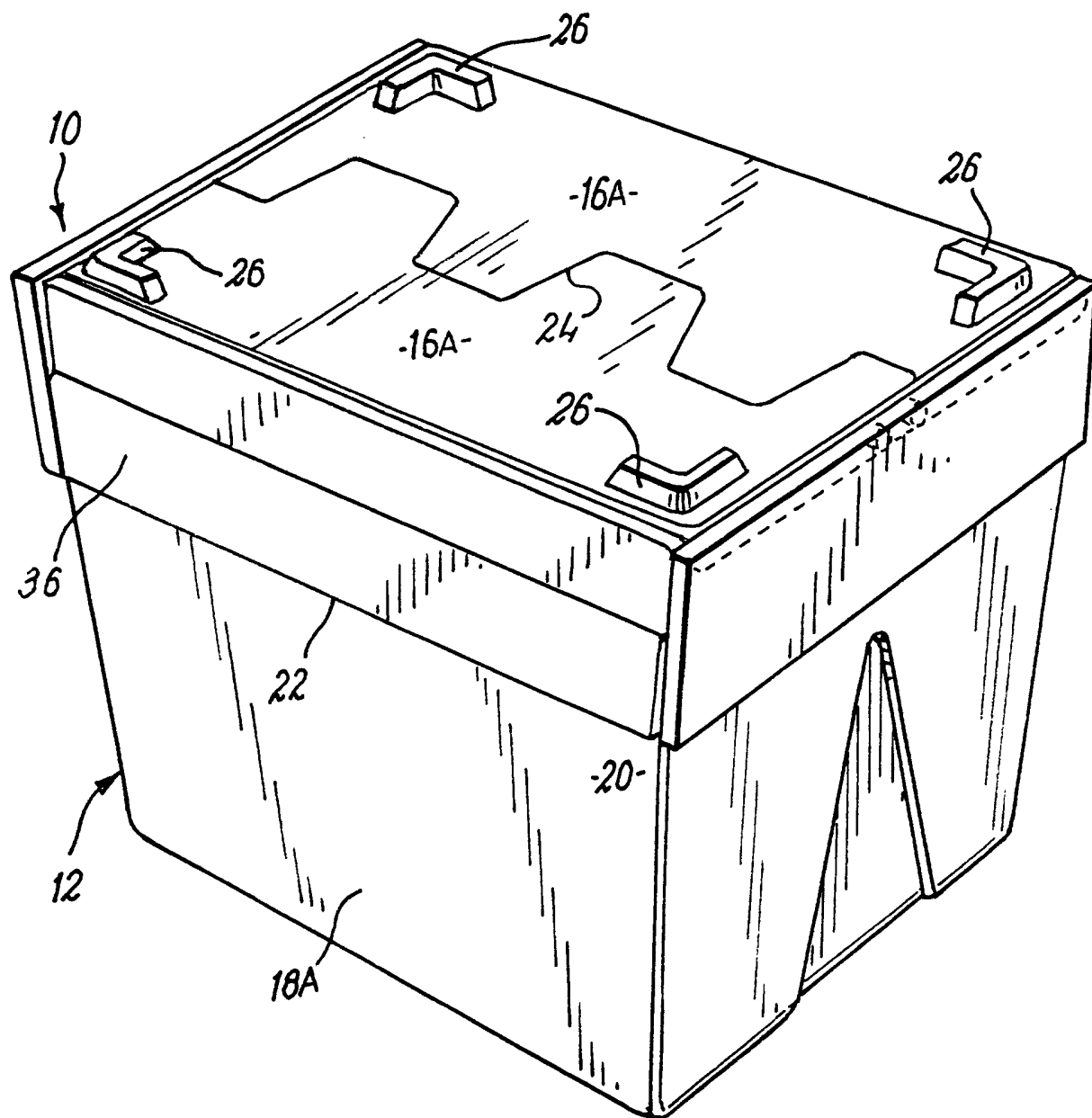
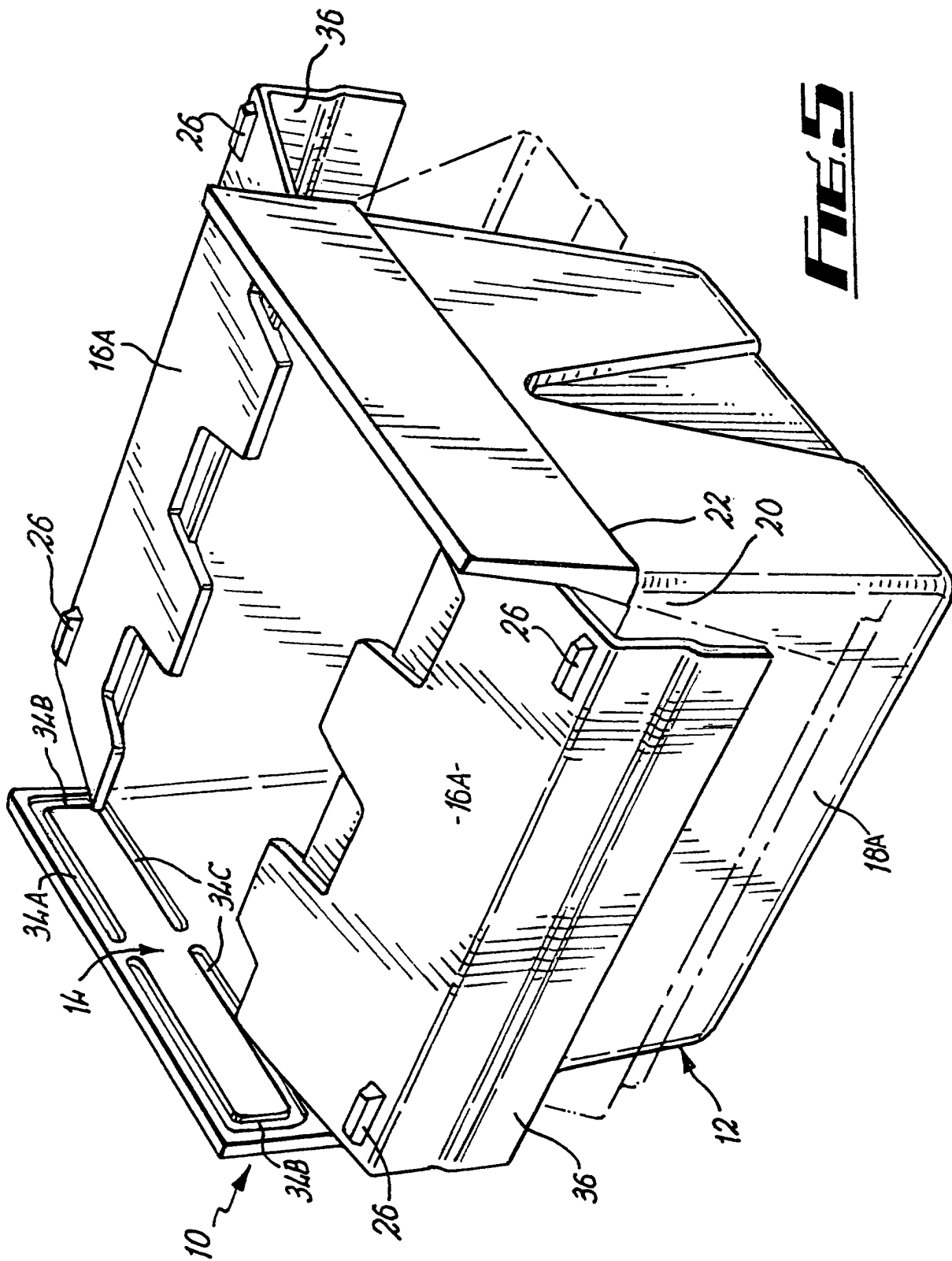
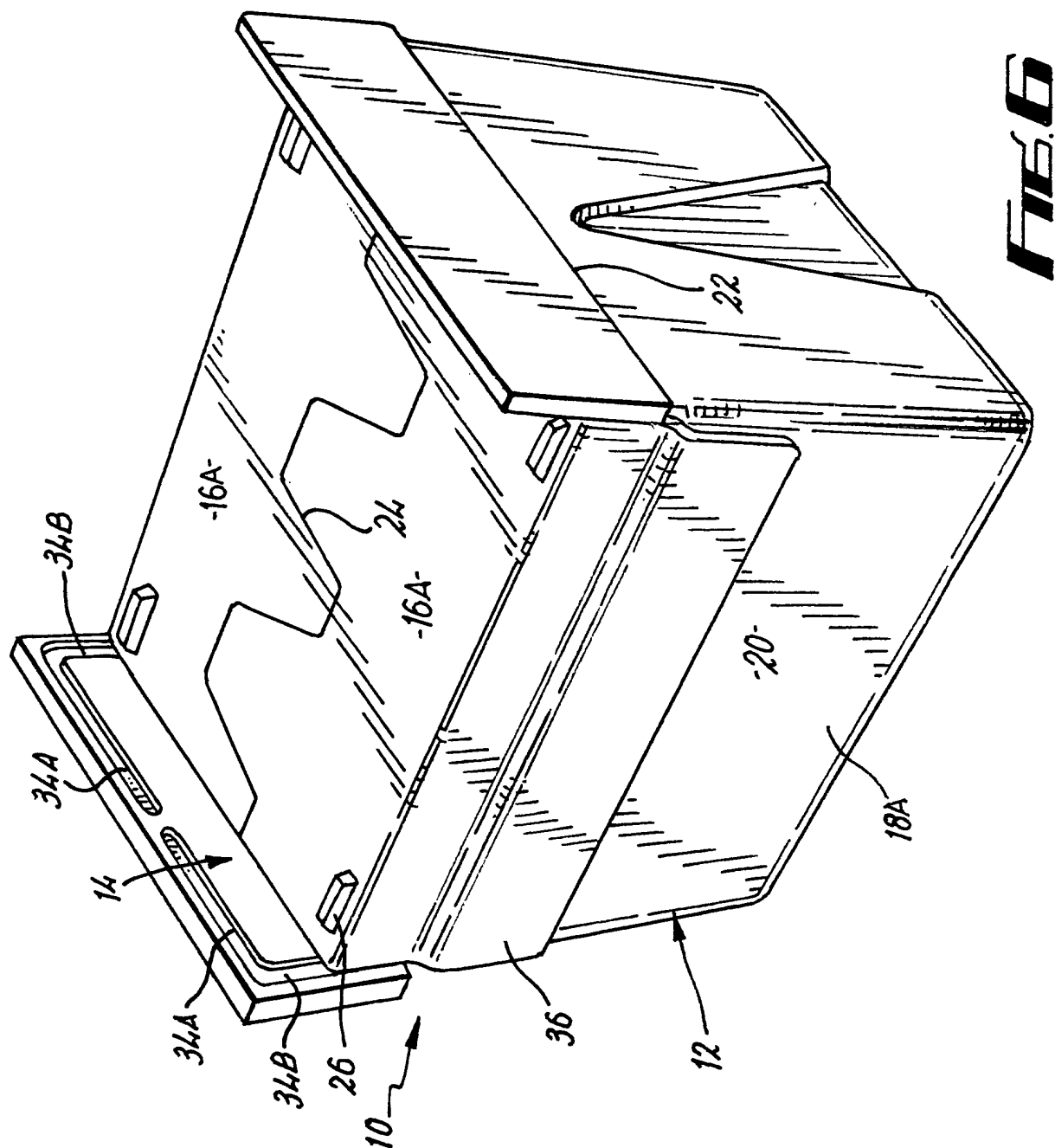
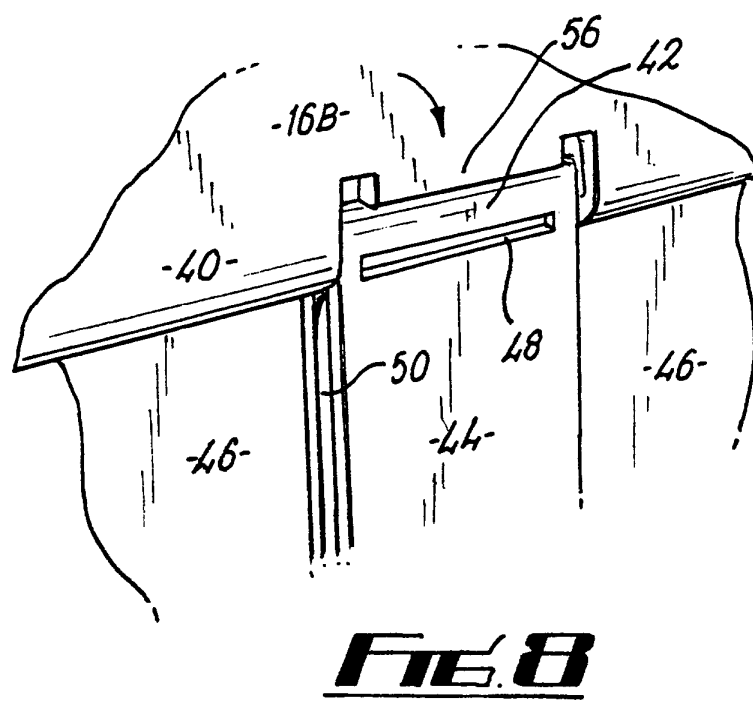
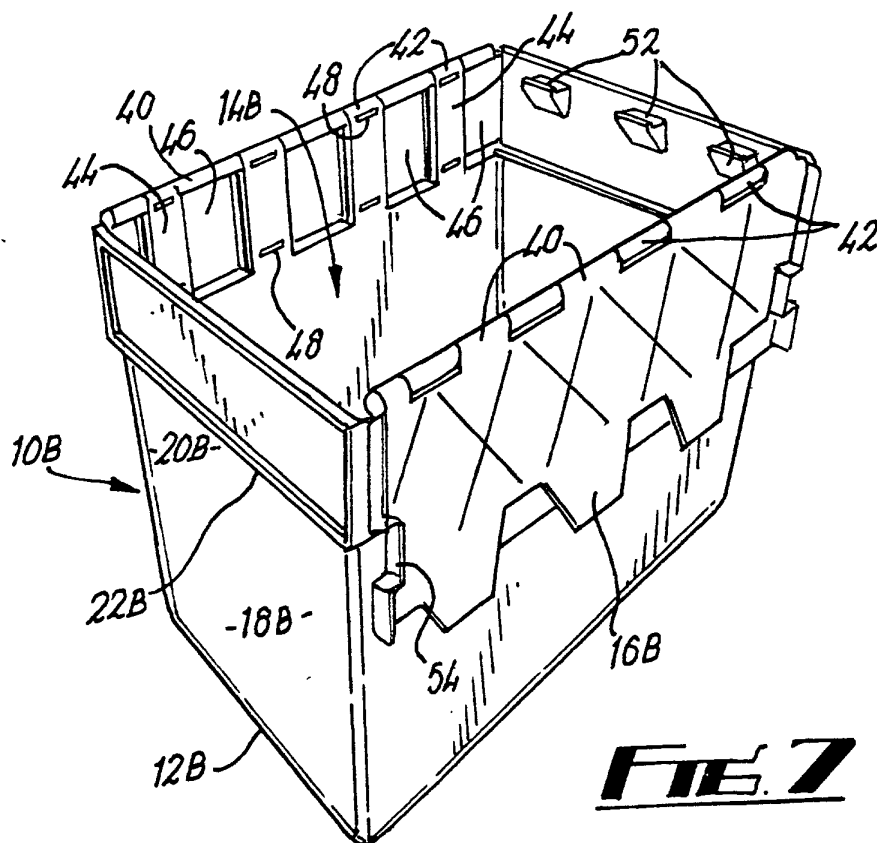


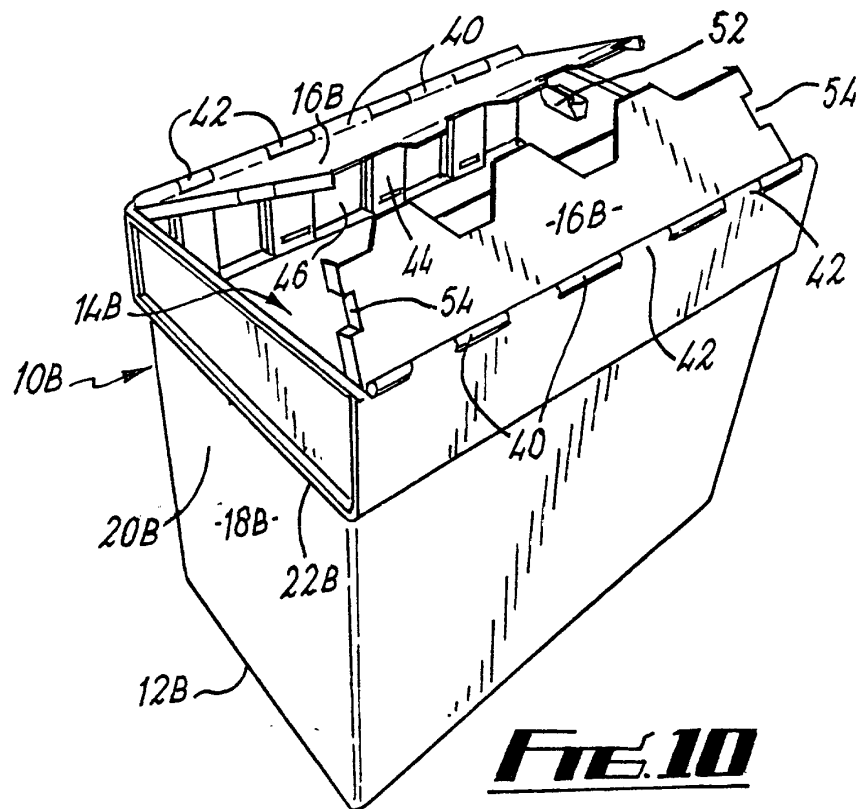
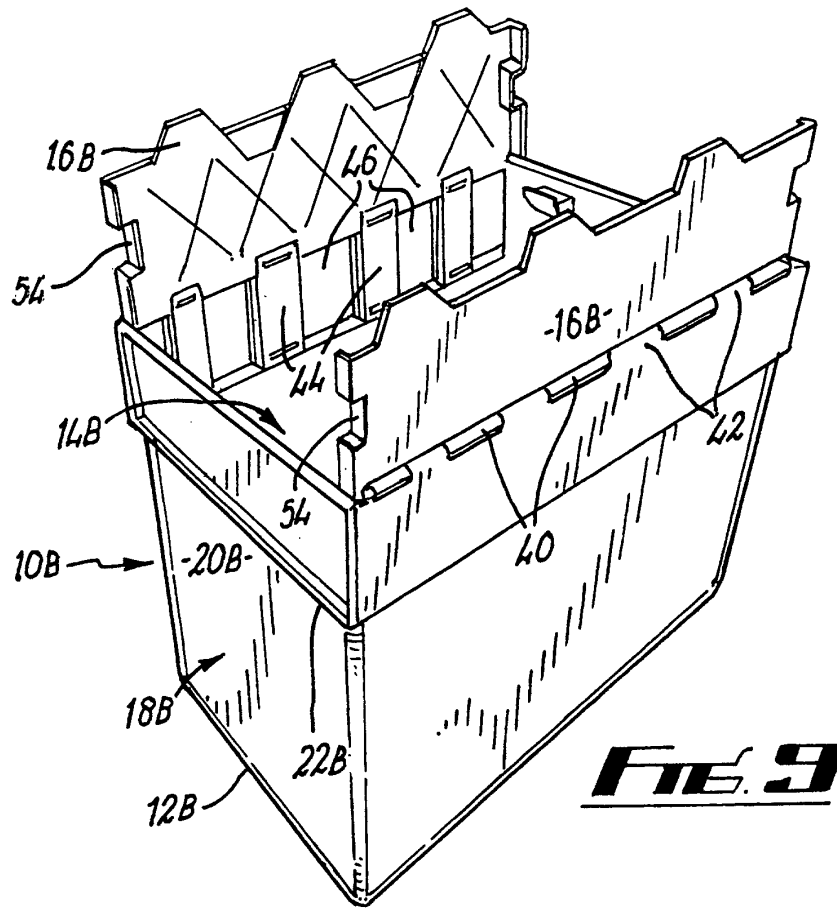
FIG. 4

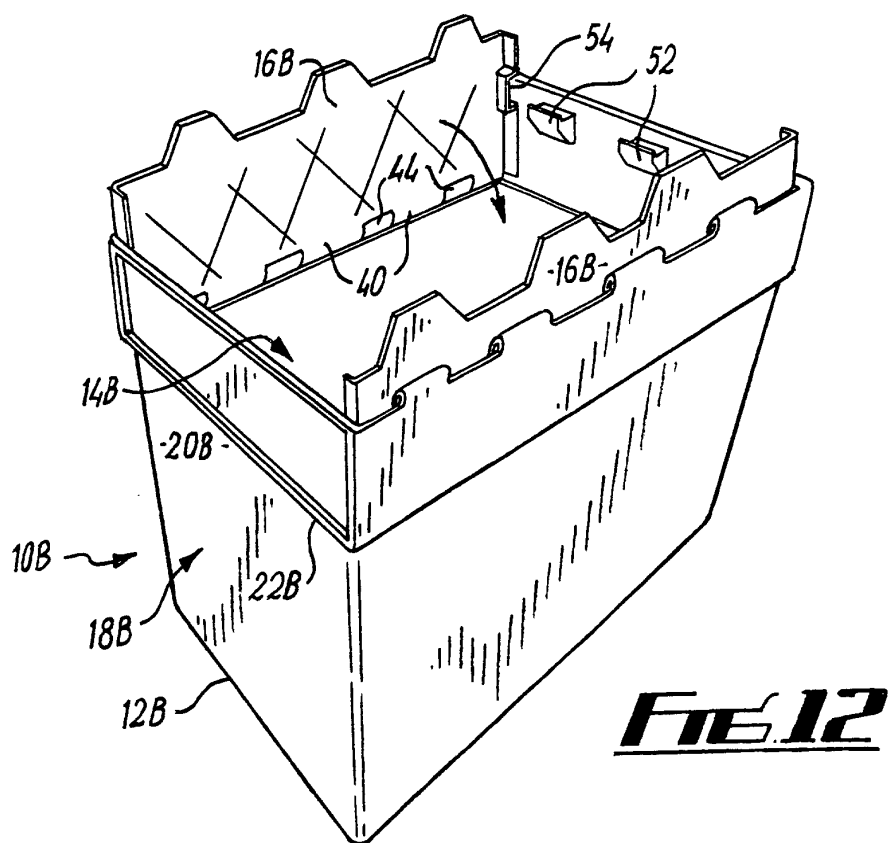
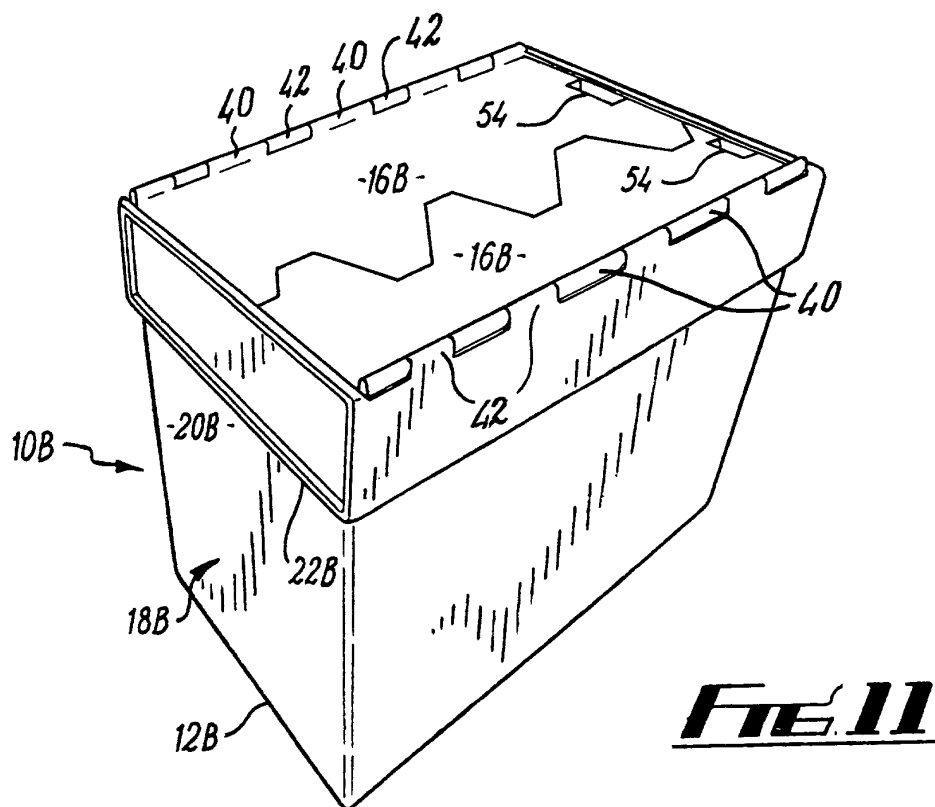


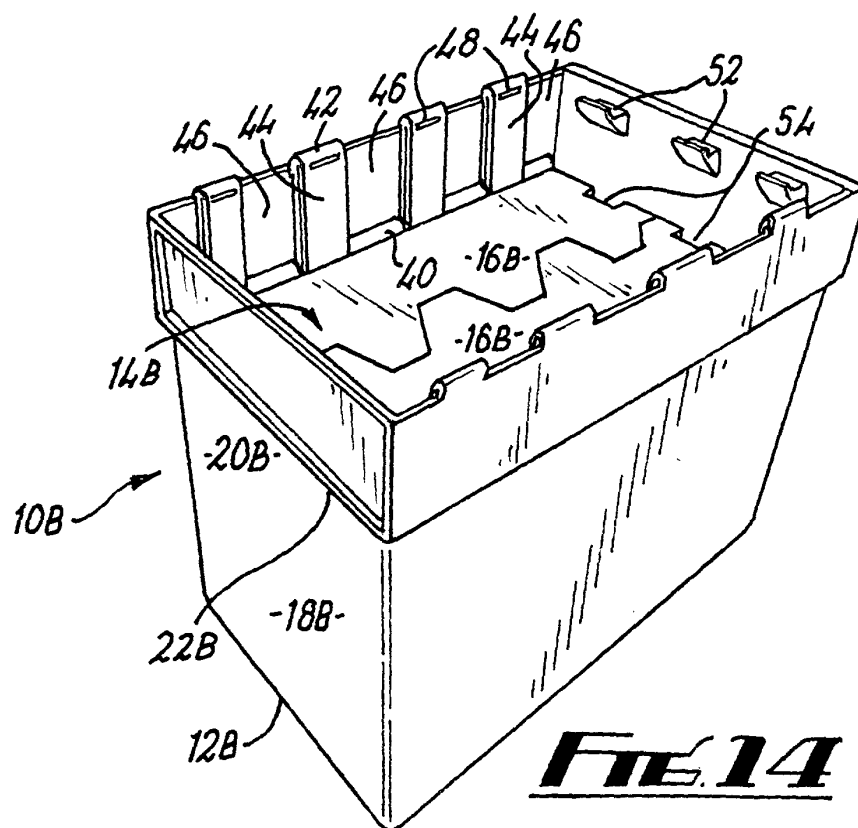
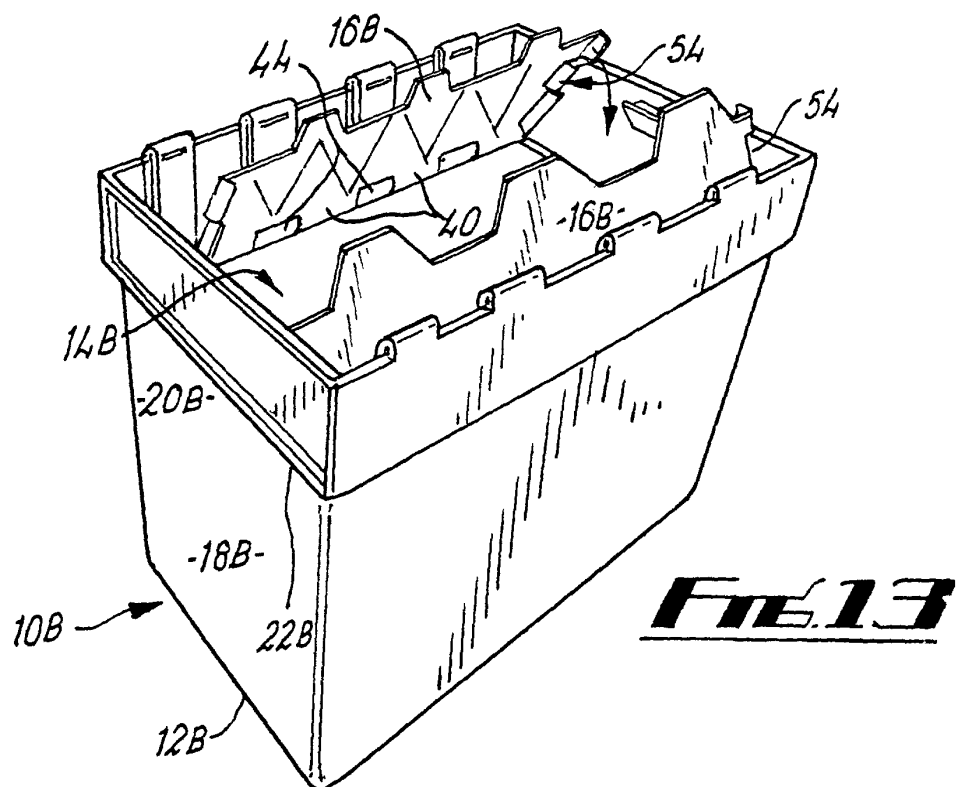
THE 5

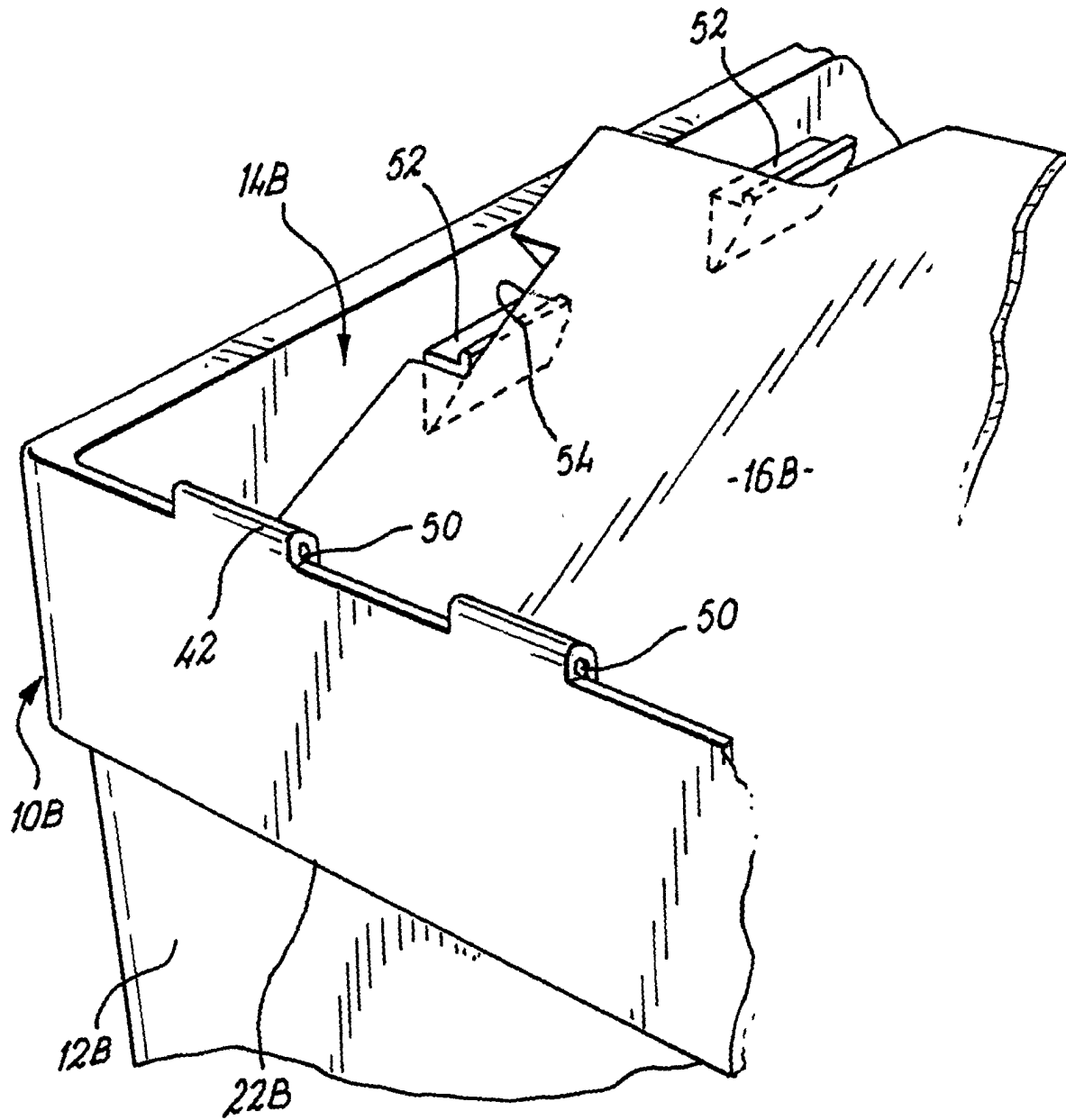












FrE.15

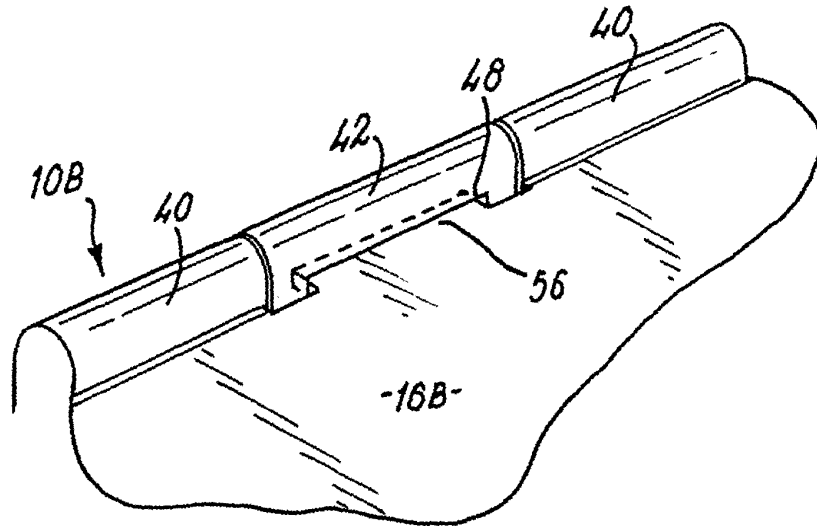


FIG. 16

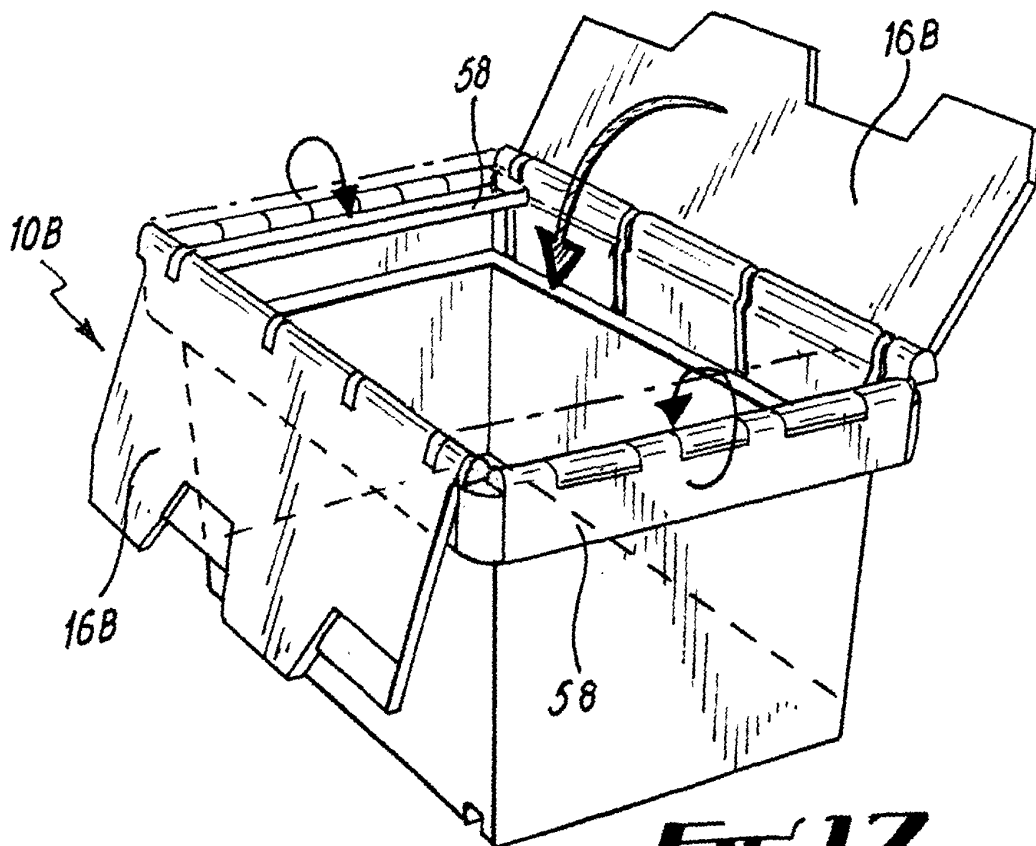


FIG. 17

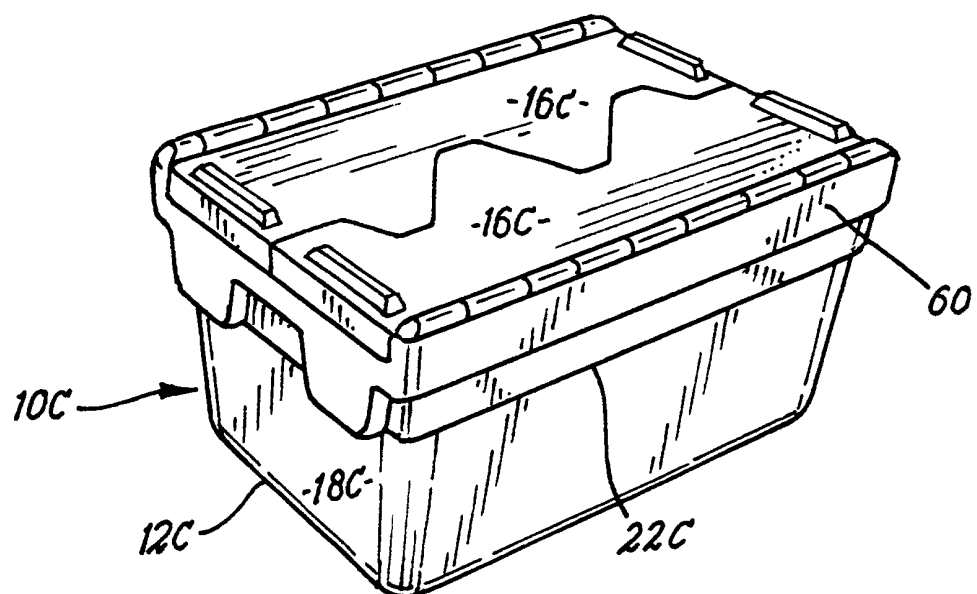
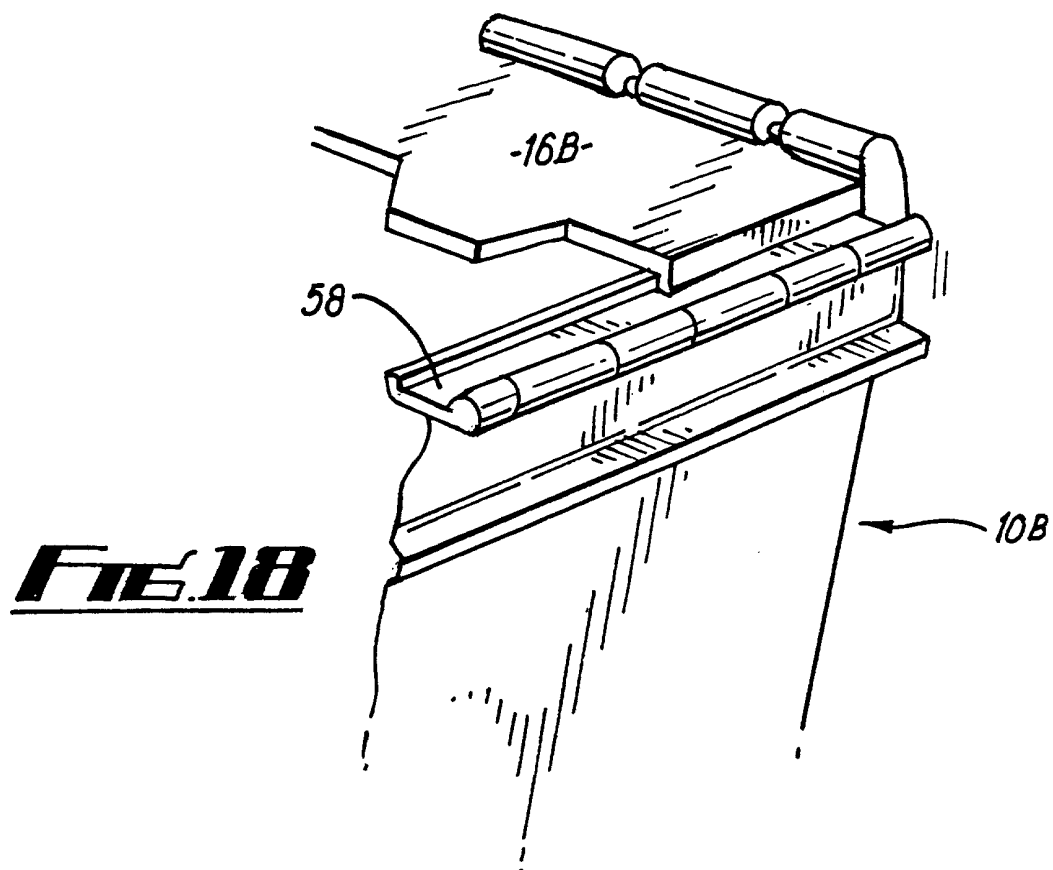
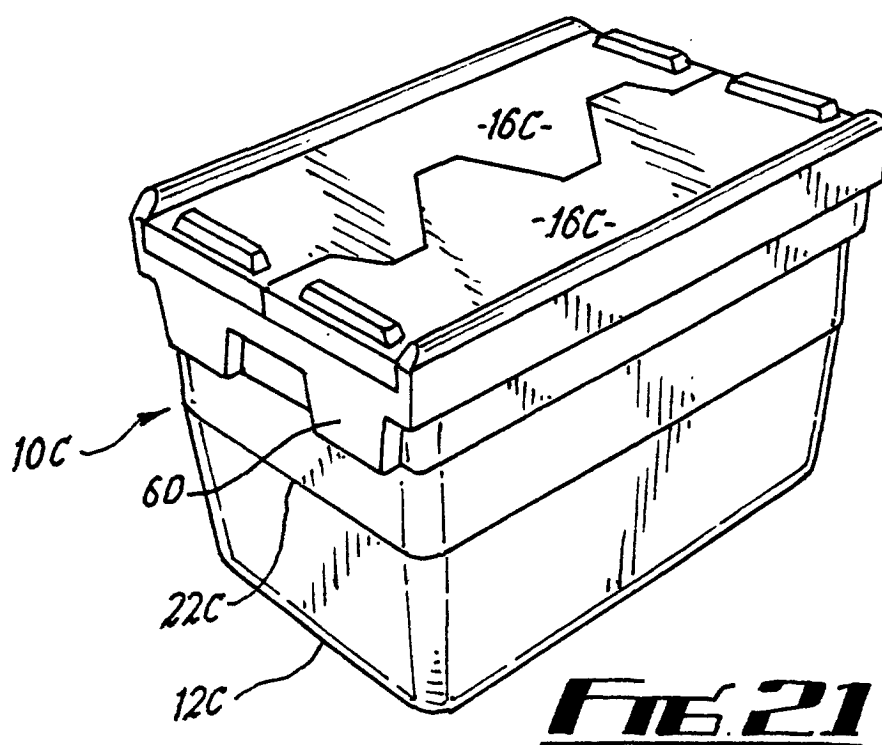
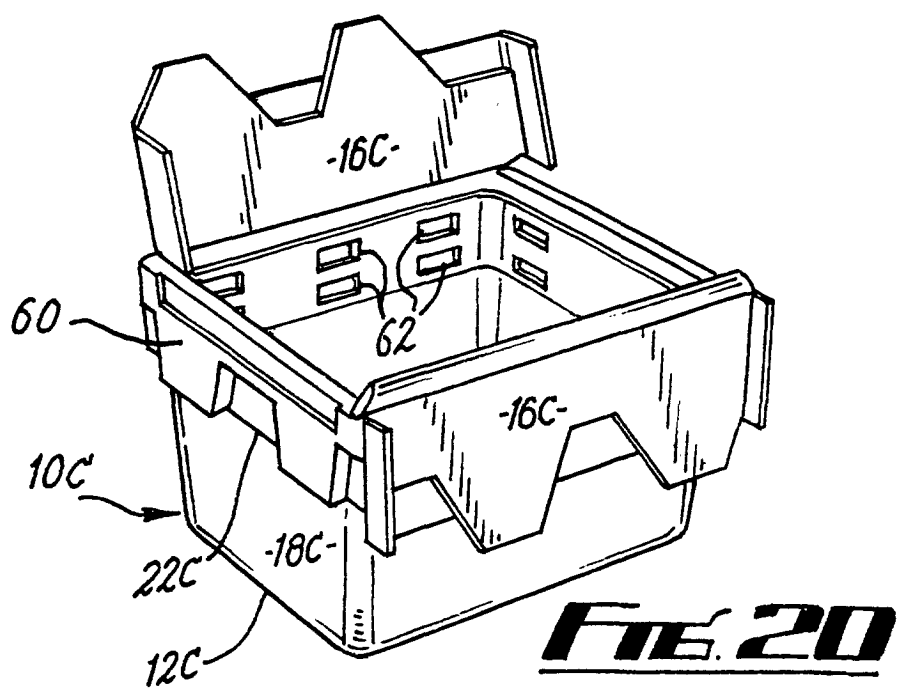


FIG. 19



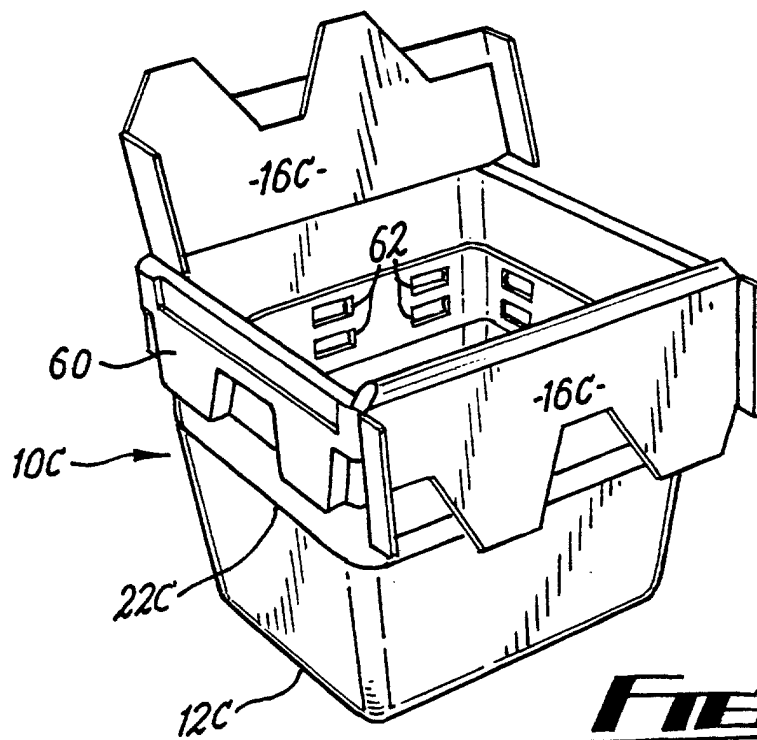


Fig. 22

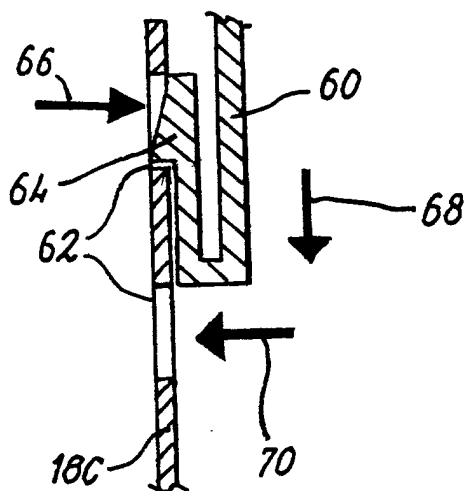


Fig. 23



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 30 7847

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 1 013 561 A (MCKECHNIE COMPONENTS) 28 June 2000 (2000-06-28) * abstract; figures 5,6 *	1,4,6	B65D21/08 B65D21/06 B65D43/16
X	GB 530 302 A (KENNEDY) * the whole document *	1,2,4, 8-10,12, 13	
X	GB 273 853 A (HILL) * the whole document *	1-4,7,8, 27,29,30	
X	GB 260 373 A (BLAIR) * the whole document *	1-5,7,8, 27,29,30	
X	US 1 508 548 A (GOTTHEIMER) 16 September 1924 (1924-09-16) * the whole document *	1,4	
A	WO 97 48613 A (BELLESIS) 24 December 1997 (1997-12-24) * abstract; figures *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B65D A45C
A	DE 88 11 596 U (ROTING-WERKE RIEPE) 15 February 1990 (1990-02-15) * the whole document *	1,8,9	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 25 January 2001	Examiner Gino, C
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	

EPO FORM 1503 (03/02) (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 30 7847

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

25-01-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1013561 A	28-06-2000	GB 2345053 A NO 996476 A	28-06-2000 26-06-2000
GB 530302 A		NONE	
GB 273853 A		NONE	
GB 260373 A		NONE	
US 1508548 A	16-09-1924	NONE	
WO 9748613 A	24-12-1997	AU 3083097 A	07-01-1998
DE 8811596 U	15-02-1990	DE 3917166 A	22-03-1990

EPO FORM P0453

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