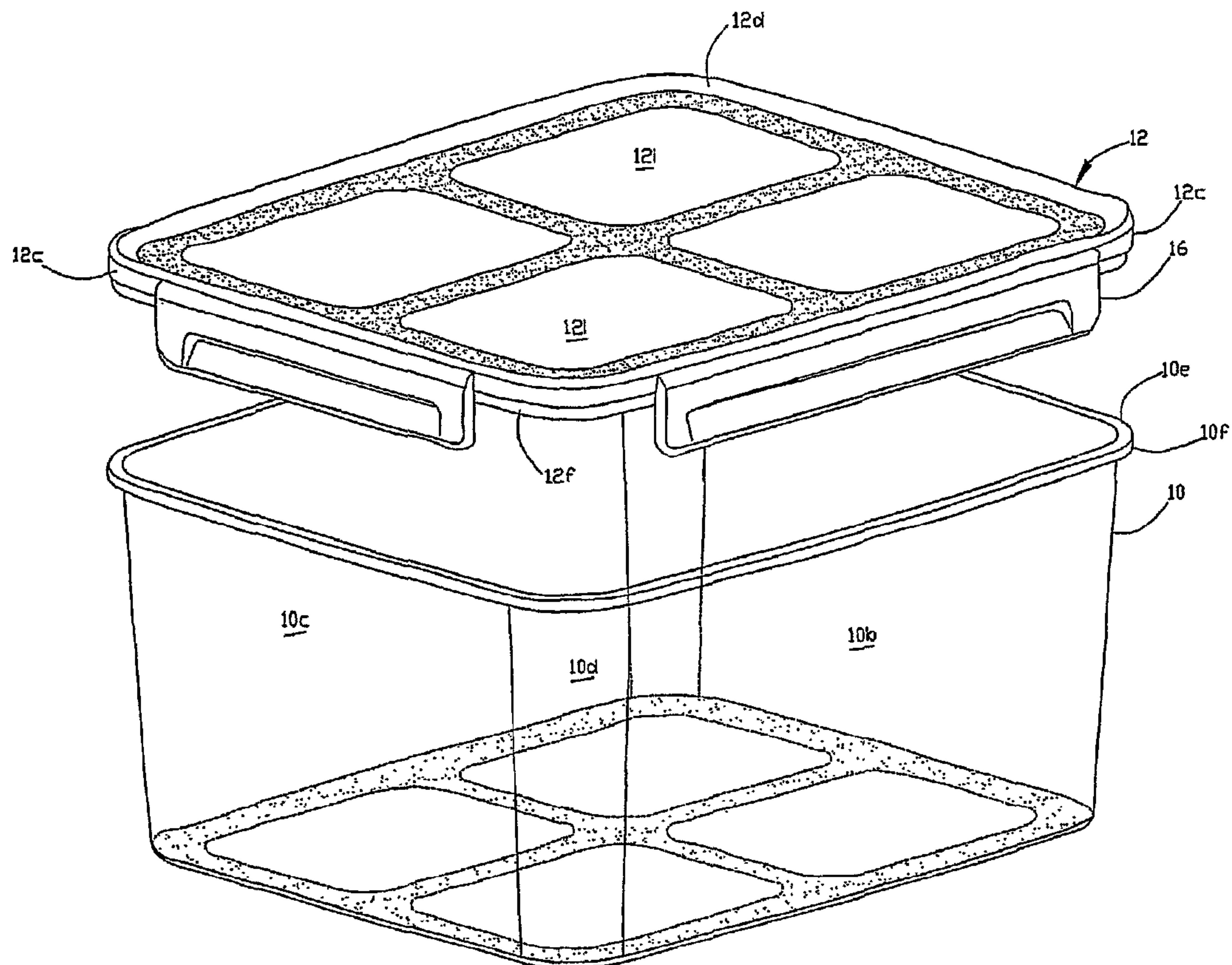




(86) Date de dépôt PCT/PCT Filing Date: 2007/02/15  
(87) Date publication PCT/PCT Publication Date: 2007/08/30  
(85) Entrée phase nationale/National Entry: 2008/07/11  
(86) N° demande PCT/PCT Application No.: US 2007/004094  
(87) N° publication PCT/PCT Publication No.: 2007/098031  
(30) Priorité/Priority: 2006/02/16 (US60/773,948)

(51) Cl.Int./Int.Cl. *B65D 43/03* (2006.01)  
(71) Demandeur/Applicant:  
SNAPWARE CORPORATION, US  
(72) Inventeurs/Inventors:  
LOWN, JOHN M., US;  
NIKKHAH, ALI, US;  
HICKMAN, RALPH R., US;  
PUCKETT, JOIE L., US;  
JUNG, RICHARD K., US  
(74) Agent: GOWLING LAFLEUR HENDERSON LLP

(54) Titre : ENSEMBLE CONTENANT/COUVERCLE DESTINE A STOCKER DES PRODUITS ALIMENTAIRES ET AUTRES ARTICLES  
(54) Title: CONTAINER/LID COMBINATION FOR STORING FOOD AND OTHER ARTICLES



(57) **Abrégé/Abstract:**

A system for aiding the visual matching of containers having diverse openings with matching lids includes affixing, such as by molding or embossing, geometric planar patterns on the bottom walls of a plurality of rectangular containers having different sized openings and affixing the same geometric patterns to the top wall of the matching lids.



(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
30 August 2007 (30.08.2007)

PCT

(10) International Publication Number  
**WO 2007/098031 A2**(51) International Patent Classification:  
**B65D 43/03** (2006.01)(21) International Application Number:  
PCT/US2007/004094(22) International Filing Date:  
15 February 2007 (15.02.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/773,948 16 February 2006 (16.02.2006) US(71) Applicant (for all designated States except US): **SNAP-WARE CORPORATION** [US/US]; 3900 Hamner Ave., Mira Loma, CA 91752 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LOWN, John, M.** [US/US]; 419 9th St., Huntington Beach, CA 92648 (US). **NIKKHAH, Ali** [US/US]; 2 Woodbridge, Mission Viejo, CA 92692 (US). **HICKMAN, Ralph, R.** [US/US]; 6337 Rockledge Dr., Brecksville, OH 44141 (US). **PUCKETT, Joie, L.** [US/US]; 4101 East Theresa Street, Long Beach, CA 90814 (US). **JUNG, Richard, K.** [US/US]; 25 Glas-tonbury Place, Laguna Niguel, CA 92677 (US).(74) Agent: **JACKSON, Harold, L.**; Jackson Law Corpora-tion, 14751 Plaza Dr., Ste. N, Tustin, CA 92780 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

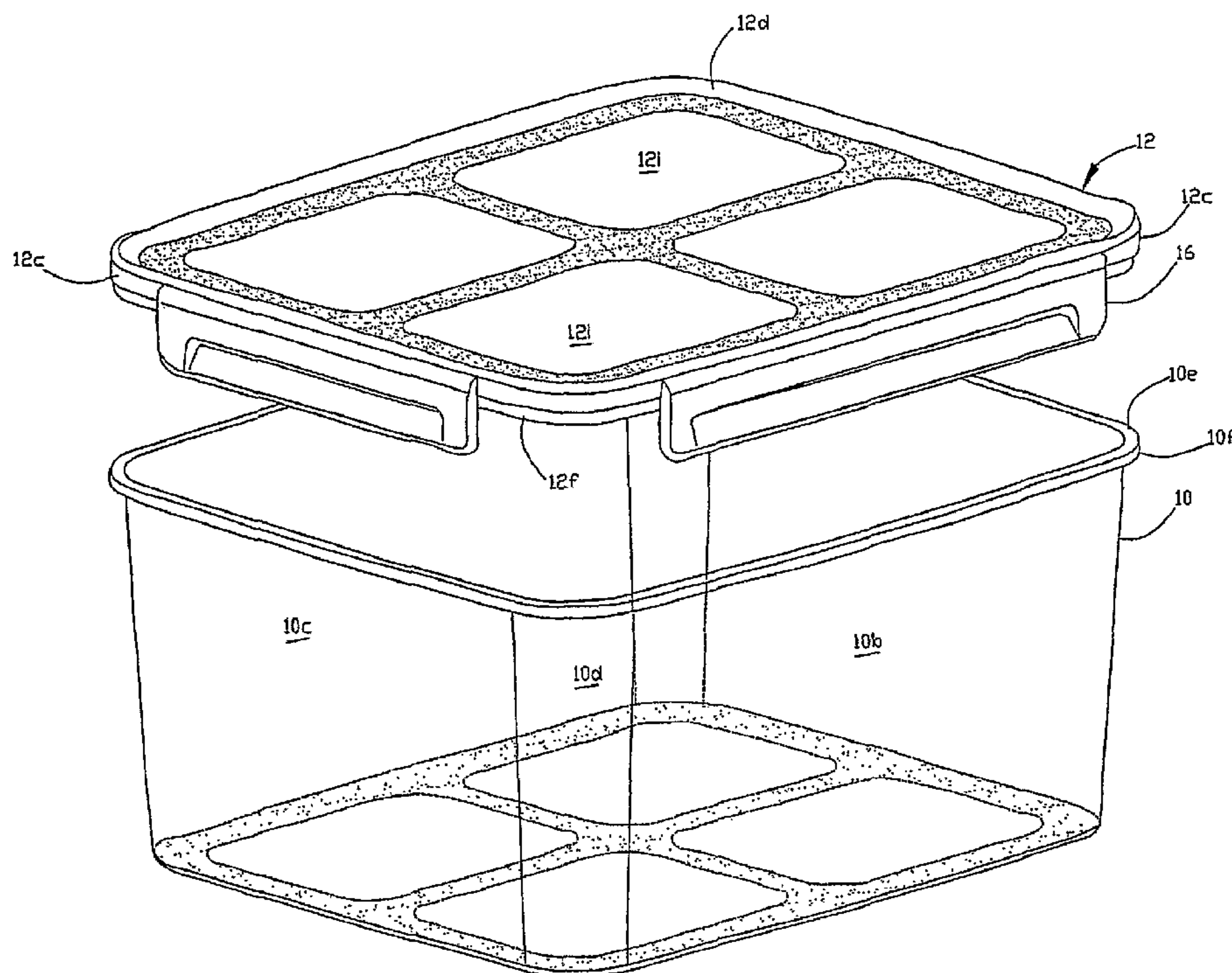
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

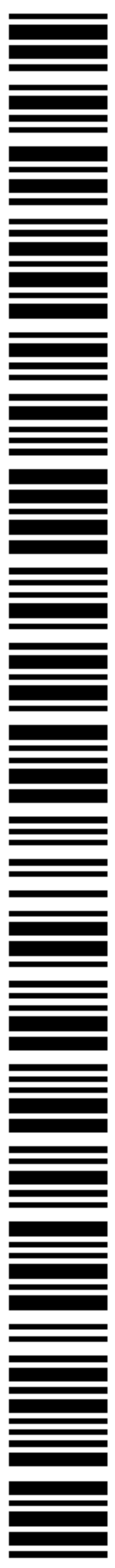
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- of inventorship (Rule 4.17(iv))

[Continued on next page]

(54) Title: CONTAINER/LID COMBINATION FOR STORING FOOD AND OTHER ARTICLES



(57) Abstract: A system for aiding the visual matching of containers having diverse openings with matching lids includes affixing, such as by molding or embossing, geometric planar patterns on the bottom walls of a plurality of rectangular containers having different sized openings and affixing the same geometric patterns to the top wall of the matching lids.



WO 2007/098031 A2

**WO 2007/098031 A2**



**Published:**

— *without international search report and to be republished  
upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

Description

## CONTAINER/LID COMBINATION FOR STORING FOOD AND OTHER ARTICLES

Related Application

This application claims priority based on U.S. Provisional Application Serial No. 60/773,948 filed February 16, 2006 entitled Container/Lid Combination for Storing Food and Other Articles for all common subject matter. The contents of said provisional application are incorporated herein by reference.

Technical Field

This invention relates generally to open mouth containers for storing food and other items and replaceable lids or covers capable of providing a tight seal.

Background Art

## SYSTEM FOR AIDING THE VISUAL MATCHING OF CONTAINERS HAVING DIVERSE SIZED OPENINGS WITH CORRESPONDING LIDS

Containers having different sized openings are generally separated at a storage site from lids which match the openings. As a result finding a matching lid for a particular container can often be a somewhat time consuming and frustrating experience. While it is believed that the same numbers have been used on the containers and matching lids such numbers can be difficult to read and in addition the numbers may detract from or in any event not add to the decorative appeal of the product.

In accordance with this aspect of the present invention a system is provided for aiding the visual matching of one of a plurality of different sized lids with one of a plurality of containers having different sized openings by including a planar geometric pattern, uniquely representative, a particular sized opening on the bottom and top walls of the containers and lids, respectively.

## LATCHING SYSTEM FOR OPEN TOP CONTAINERS AND SEALING LIDS

Various types of prior art latching mechanisms have been designed with some of the mechanisms being incorporated into containers/lids available on the market. For example, see U.S. Patent Nos. 3,688,942 (“942 patent”); 3,817,429 (“419 patent”); 6,793,096 (“096 patent”) and publication number US2004/0084464 (“464 publication”). All of these patents and the publication disclose open top containers with lids which carry a sealing gasket with

1 the gasket being compressed between the upper wall of the container and the lid to provide a  
seal in the closed condition. A plurality of latches are molded integrally with the lid with  
each latch having a downwardly extending latch handle with an inwardly and upwardly  
projecting tab for snapping under an outer skirt or flange extending downwardly from the  
5 upper end of the container wall.

The '942 and '419 latching systems, which describe the container as being round or  
rectangular, use a single locking tab or latching hook formed with each latch handle. The  
'464 publication and the '096 patent disclose straight sided rectangular containers with a  
single locking tab ('464 publication) or two elongated protuberances ('096 patent) for  
10 engaging a groove formed between the skirt and the upper container wall. A container/lid,  
marketed under the name Lock & Lock, in the form of a generally rectangular container with  
appreciably curved side walls has latches formed integrally with the lid, the latches having a  
single curved locking tab for engaging the lower end of a skirt formed around the upper wall  
of the container. The curved side walls with the matching lids are wasteful of storage space  
15 when stacked side by side.

It has been found that thermoplastic containers (formed of polypropylene or  
polypropylene/ polyethylene co-polymers) that have slight convex walls provide certain  
advantages over straight wall containers, e.g., the walls of a straight wall container have a  
tendency to bend inwardly following manufacture degrading the appearance of the container.  
20 In addition, it has been found that spaced locking tabs on each latch handle having a  
curvature matching the container wall curvature provides a latch which is easier to close and  
open while providing a tight seal.

#### Summary of the Invention

To enable a user to readily identify the proper lid, among lids of different sizes, for  
25 one of a plurality of rectangular open top containers having different sized openings, the  
bottom walls of the containers include a geometric pattern, unique to each size of opening,  
e.g., squares, rectangles or circles. Matching lids are provided with the same geometric  
patterns on the top wall thereof. For example, one, two, six and three and four squares may  
be used to represent openings of 4.25" x 4.25"; 6.25" x 4.25"; .8.5" x 6.25"; 9" x 4.25"; and  
30 8.5" x 8.5", respectively.

1           The depths of the containers of any given size of opening may vary so that one lid  
may fit all of such containers. For example, the depths of the containers bearing two squares  
may be 2.25", 4.5", 6.75" and 9".

5           A container/lid combination in accordance with the second aspect of our invention  
may comprises an open top container having a bottom wall, longitudinal and transverse  
peripheral walls with the peripheral walls terminating in a generally flat upper sealing  
surface surrounding the opening. The flat upper sealing surface merges with a down turned  
peripheral skirt spaced outwardly from the peripheral walls. The peripheral walls are  
slightly convex with radius of curvature of any one of the walls being with the range of  
10   about 40" to 120" and preferably between about 60" to 100".

          A generally rectangular lid or cover, for closing the container open top, has a top wall  
merged with a downwardly extending peripheral skirt with longitudinal and transverse sides  
and an inner downwardly extending flange with the peripheral skirt and the inner flange  
bracketing the container upper sealing surface and forming a downwardly facing cavity  
15   aligned with the container of the upper sealing surface when the lid is in a closed position.

          A removable gasket is disposed within the cavity. At least two latches are molded  
integrally with the lid with the latches formed on opposing longitudinal or transverse sides,  
the latches are pivotal about an axis parallel to a tangent to the respective side of the lid.  
Preferably a latch is formed on each side of the lid. Each latch has a downwardly extending  
20   latch handle and at least two spaced inwardly extending locking tabs, in the shape of a  
reverse J, arranged to snap under the free edge of the container flange to secure and seal the  
lid to the container. Each locking tab (and particularly its inner surface which engages the  
skirt) has a curvature matching the curvature of the adjacent peripheral wall and the  
container skirt.

#### 25   Brief Description of the Drawings

          Fig. 1 is a perspective view of a container and lid with the lid in a closed position;

          Figs. 2, 3, and 4 are top, bottom and side views, respectively, of the container or  
vessel of Fig. 1;

          Figs. 5, 6, and 7 are top, bottom and side views, respectively, of the lid of Fig. 1.

30           Fig. 8 is a side view of the container/lid of Fig. 1 showing a latch handle in the  
unlocked (left hand side) and locked position (right hand side);

Fig. 9 is a view looking at the bottom of the lid illustrating the slight concave curve formed by the locking tabs;

Figs. 10 and 11 are unassembled perspective views of the container/lid of Fig. 1 with the lid removed and with the gasket separated from the lid, respectfully;

Fig. 12 is a cross-sectional view of a portion of the container wall, skirt, lid, latch and locking tab taken along lines 12 in Fig. 8;

Fig. 13 is a side elevational view of three of the containers in a nested arrangement;

Fig. 14 is a side elevational view of three of the containers with lids in a stacked arrangement.

Figs. 15, 16, 17, 18 and 19 are top plan views of the assembled matching container/lids in which the containers have different sized openings with the lids having unique geometric patterns, e.g., squares correlated to the sizes of the container openings;

Fig. 20 is a side view of the container/lids of Figs. 15, 16 and 18; and

Fig. 21 is a side view of the container/lids of Figs. 17, 18 and 19.

#### Description of the Preferred Embodiments

Referring now to the drawings and particularly to Figs. 1-7, an open top container or vessel 10, molded of a suitable plastic such as polypropylene, polyethylene or other suitable polymers, includes a bottom wall 10a, longitudinal and transverse walls 10b and 10c, respectfully, which intersect at rounded corners 10d and extend upwardly to a generally flat peripheral sealing surface 10e (Fig. 2). It is to be noted that since the container has a square configuration the length  $l$  of the longitudinal walls and the width  $w$  of the transverse walls have the same dimension. This is not the case with other rectangular containers as is illustrated in Figs. 16, 17 and 18 and such illustration is not intended to be limiting. The sealing surface merges with a down turned flange 10f (Fig. 12) spaced outwardly from the outer surface 10g of the peripheral walls 10b and 10c as is illustrated in Fig. 12. The flange 10f terminates in a free edge 10h, which in cooperation with the lid latches and locking tabs serve to lock the lid 12 in place on the container as will be explained.

Referring now, particularly to Figs. 2, 3, and 4 the bottom wall of the container is provided with a geometric pattern in the form of a four squares 10i. The stippled borders 10j surrounding the squares is textured (or frosted in appearance) while the squares, as well as the remainder of the container, is clear or translucent. Clear squares inset in the textured

boarders adds to the decorative nature of the containers while enabling a user to readily match the container, having a particular sized opening, with a corresponding sized lid having a like number of squares as has been previously discussed. It is to be noted that the geometric patterns illustrated are not limited to squares, but may include circles, etc.

The depth  $d$  of the container may vary for each size of opening as was also previously discussed. It is to be noted that the peripheral walls are canted outwardly at a small angle  $\theta$ , e.g.,  $1^\circ$ - $7^\circ$ , depending upon the depth  $d$  so that the bottom walls of all containers for each size of opening are the same for stacking purposes. See Fig. 4. This angle  $\theta$  also allows the container to be readily removed from the mold and permits the empty containers of the same size opening to be nested, thereby decreasing the volume of air required for shipping purposes. See Fig. 13.

In addition, the peripheral walls of the container are provided with a slight outward or convex curve, for example, having a radius of curvature  $r$  within the range of about 40" to 120" and preferably within the range of about 60" to 100". This strengthens the peripheral walls and inhibits any inward collapse of the walls. We have found that a radius of about 80" functions quite well.

The generally rectangular lid or cover 12, shown in Figs. 1 and 5-7, includes a top (depressed) planar wall section 12a (formed by the squares 12i and borders 12j) which merges with short upwardly inclined peripheral section 12b (Fig. 1) joined to a downwardly extending peripheral skirt 12c having longitudinal and transverse sides 12d and 12e. The lid further includes an inner flange 12f (Fig. 7), which with the peripheral skirt 12c, brackets the container sealing surface 10d and forms a downwardly facing cavity 12g for removably retaining a gasket 14 (Fig. 11). The lid inner flange 12f extends below the container sealing surface in the closed position to guide the lid onto the container open top. See Fig. 12.

A latch 16 is molded integrally with the lid on each side thereof with a living hinge 16a allowing each latch limited pivotal movement about a hinge line tangent to the center of a respective side, as is illustrated in Figs. 5 and 8.

The lid top wall is provided with the same geometric pattern of squares 12i as the container 10 with a textured border 12j extending around the geometrically patterned squares to enable a user to visually (and quickly) select a lid which matches a container of a particular sized opening. The number of squares are correlated to a particular size of

1 opening. For example, four squares may represent a container opening of 8.5" x 8.5".

Each latch 16 includes a latch handle in the form of an elongated plate 16b with a recessed central section 16c and three inwardly and upwardly extending horizontal locking tabs (or fingers) 16d terminating in a free end 16e (Fig. 8) which snaps under the free edge 10h of the container flange 12c in the locked position as is illustrated more clearly in Fig. 12. The locking tabs are generally in the form of a reverse letter J.

Referring to Fig. 9, the locking tabs, and particularly the surfaces thereof, which contact and slide under the container flange free edge, are formed along a slight curve having the same radius as the curve of the adjacent flange 10d and the container side wall. This curved arrangement and the use of plural locking tabs on each latch allows the locking tabs to be easily snapped under the removed from the container flange free end.

Figs. 10 and 11 illustrate the lid removed from the container with Fig. 11 also depicting the gasket 14 removed from the lid cavity 12g.

As discussed previously, Fig. 12 shows the details of the locking tab 16d being secured under the free end of the container skirt 16.

Fig. 13 illustrates several containers in a nested arrangement to minimize storage or shipping space. Fig. 14 illustrates three container/lids in a stacked arrangement with the bottom of one container sitting on the planar top wall of an underlying lid.

Figs. 15 (reproduction of Fig. 1) and 16 are top plan views of two container/lid combinations of different sized openings with unique geometric patterns, i.e., 12i correlated to the size of the openings. Fig. 20 is a side elevational view of either container/lid illustrating identical wall dimensions along two parallel walls and different dimensions along the opposite walls; and

Figs. 17, 18 and 19 are similar to the previous figures again showing container/lid combinations with different sized container openings. Fig. 21 is a front elevational view of the container/lid of Figs. 17, 18, and 19.

It is to be noted that, while not shown, the containers of Figs. 15-19 have geometric patterns on the bottom walls which match the patterns on the respective lids.

As discussed previously the sizes of the container openings, i.e.,  $\ell$  and  $w$ , may vary as well as the specific geometric pattern representative of a particular sized opening.

1           There has thus been described a novel container/lid system for storing household  
items enabling a user to readily match lids with a plurality of containers having diverse  
openings. Various modifications, and perhaps improvements, to the disclosed embodiments  
will undoubtedly occur to those skilled in the art without involving any departure from the  
5 spirit and scope of the invention as defined by the appended claims.

## WHAT IS CLAIMED IS:

1           1. A system for aiding the visual matching of containers having diverse openings  
with corresponding lids comprising:

          a plurality of rectangular open top containers having bottom walls and peripheral  
upstanding walls terminating in different sized openings, the bottom walls of the containers  
5       including a geometric planar pattern which is unique to the size of a particular opening; and

          a plurality of rectangular lids with at least one of the lids sized to match the opening  
in each container, the matching lid having a geometric pattern on the top wall thereof which  
corresponds to the pattern on the bottom wall of the corresponding container.

          2. The system of claim 1 wherein the geometric patterns are generally rectangular.

10           3. The system of claim 2 wherein the rectangular patterns comprise at least 2, 3, 4  
and 6 rectangles.

          4. The system of claim 3 wherein the containers bearing each rectangular pattern  
have a plurality of depths.

          5. A molded plastic container/lid combination comprising:

15           an open top, generally rectangular container, having a bottom wall, longitudinal  
peripheral walls and transverse peripheral walls, the peripheral walls terminating in a  
generally flat upper sealing surface merging with a down turned flange spaced from the  
peripheral walls, the peripheral walls being a slightly convex with the curvature along any  
one of the walls having a radius within the range of about 40" to 120",

20           a generally rectangular lid for closing the container open top, the lid having a top  
wall merged with a downwardly extending peripheral skirt having longitudinal and  
transverse sides and inner downwardly extending flange with the peripheral skirt and the

1 inner flange bracketing the upper sealing surface of the container and forming a downwardly facing cavity following the contour of the sealing surface,

a removable gasket disposed within the cavity; and

at least two latches molded integrally with the lid on opposing longitudinal or  
5 transverse sides, the latches being pivotable about an axis parallel to a tangent to the respective sides of the lid, each latch having a downwardly extending latch handle and at least two spaced inwardly extending locking tabs arranged to snap under the free end of the container flange to secure and seal the lid on the container, each locking tab having a curvature matching the curvature of the adjacent peripheral wall of the container.

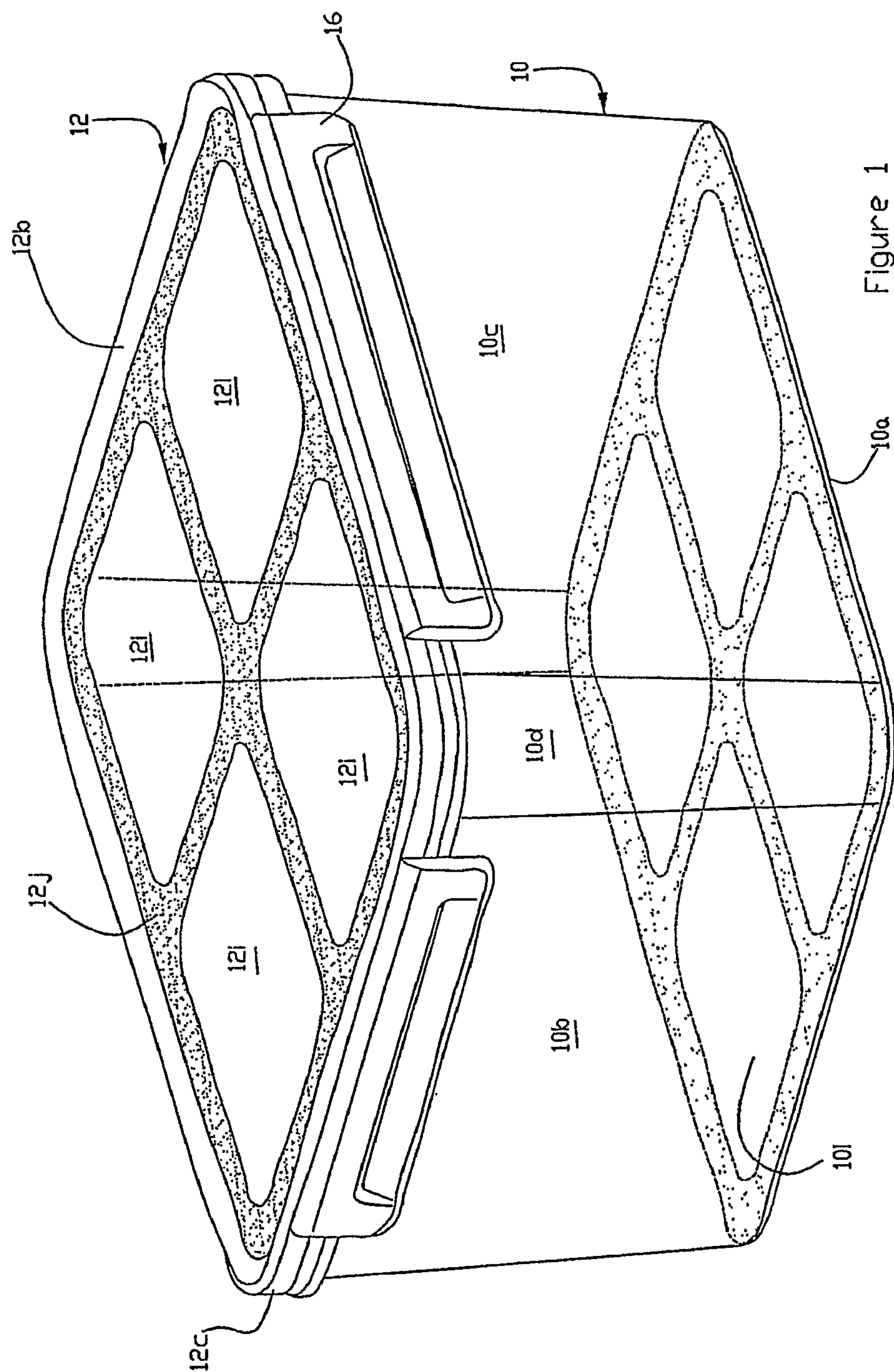
10 6. The system of claim 1 wherein the peripheral walls of each container are canted outwardly at a small angle  $\theta$  of about  $1^\circ$  to  $7^\circ$  so that bottom walls of all containers of the same size of opening are of the same dimensions to accommodate the stacking of the containers.

7. The system of claim 6 wherein the peripheral walls of each container are slightly  
15 convex following a radius of curvature  $r$  within the range of about 40" to 120".

8. The system of claim 7 wherein the peripheral walls of the containers terminate in a generally flat sealing surface and wherein the lids define a downwardly facing cavity following the contour of the sealing surface of the associated containers and further including a removable gasket disposed in the cavity.

20 9. The system of claim 8 wherein the different sized openings are about 4.25" x 4.25"; 6.25" x 4.25"; 8.5" x 6.25"; 9" x 4.25" and 8.5" x 8.5".

- 1           10. The system of claim 9 wherein the flat sealing surface of each container merges  
with a down-turned flange spaced from the peripheral walls and further including at least  
two latches molded integrally with each lid with the latches being pivotal about an axis  
parallel to tangent to the respective sides of the lid, each latch having a downwardly  
5   extending latch handle and at least two spaced inwardly extending locking tabs arranged to  
snap under a free end of the container flange, each locking tab having a curvature  
approximately matching the curvature of the adjacent peripheral wall of the associated  
container.



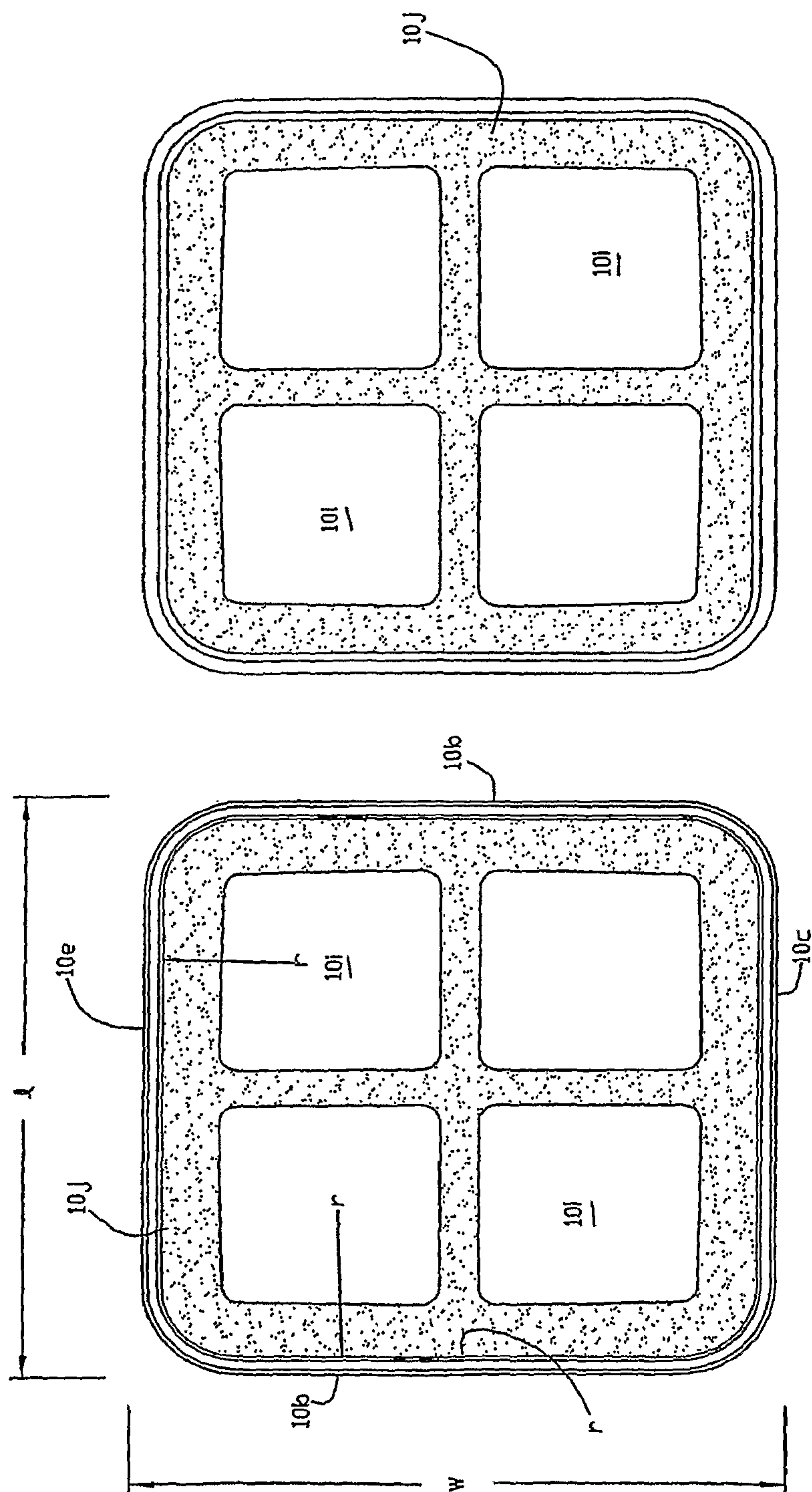


Figure 3

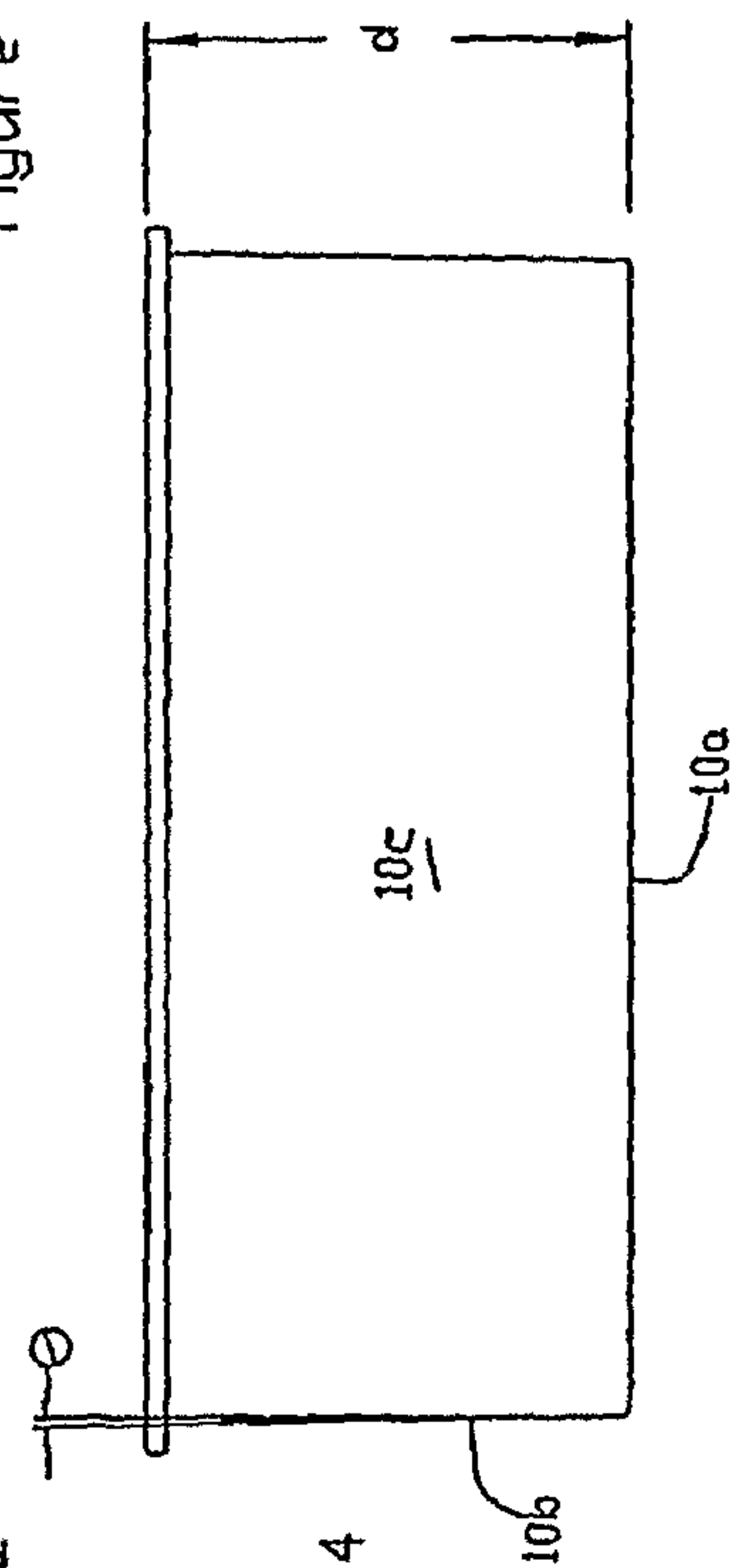


Figure 2

Figure 4

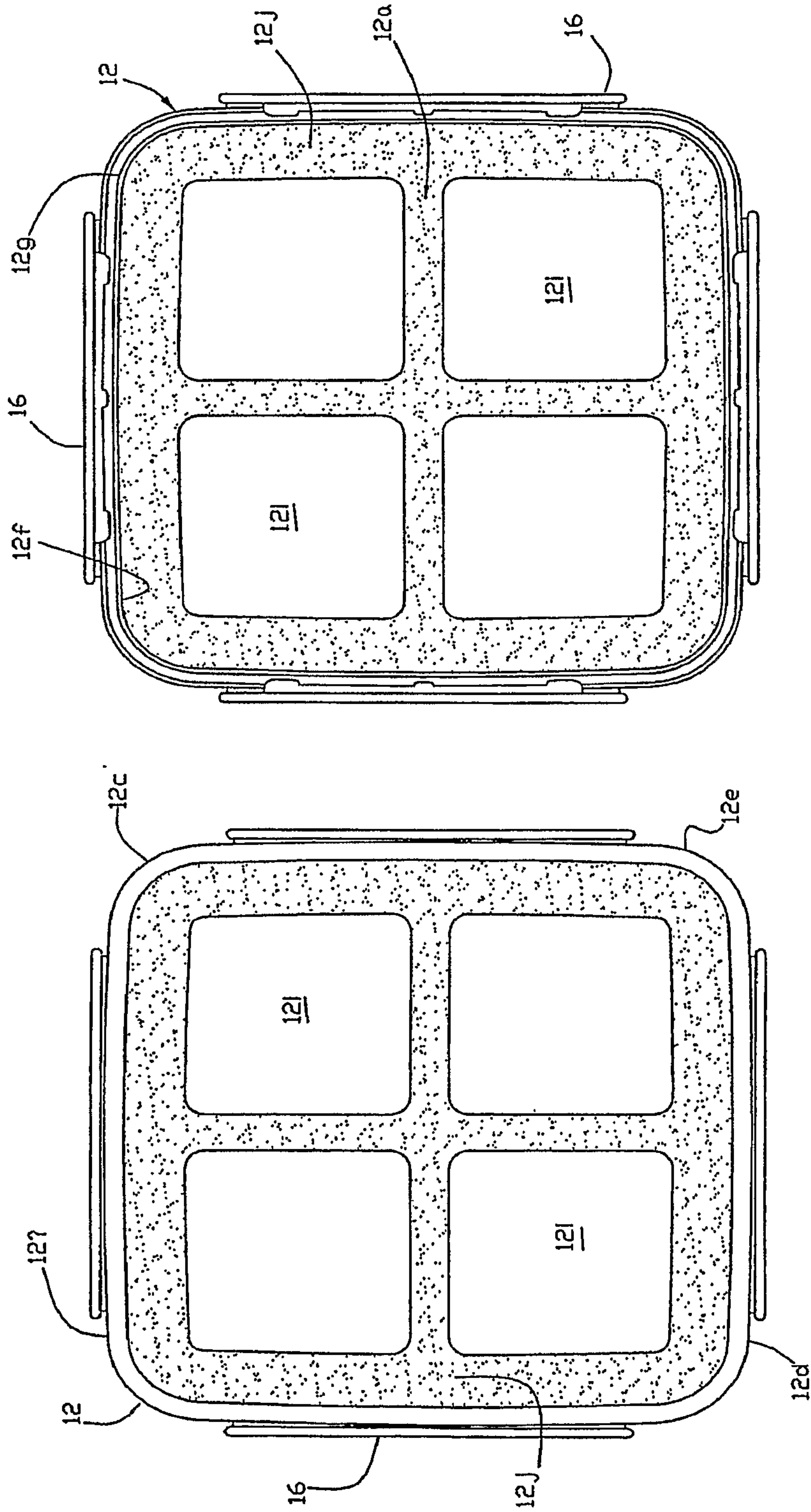


Figure 6

Figure 5

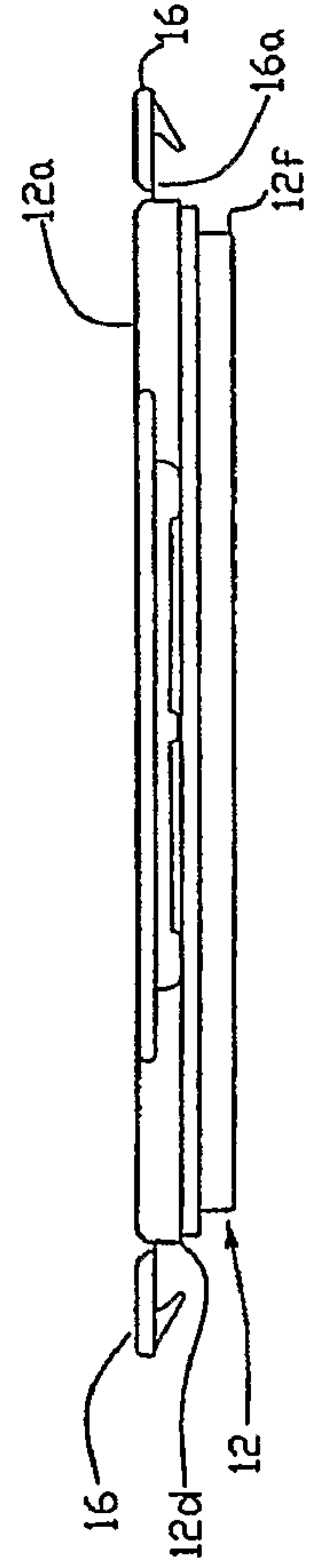


Figure 7

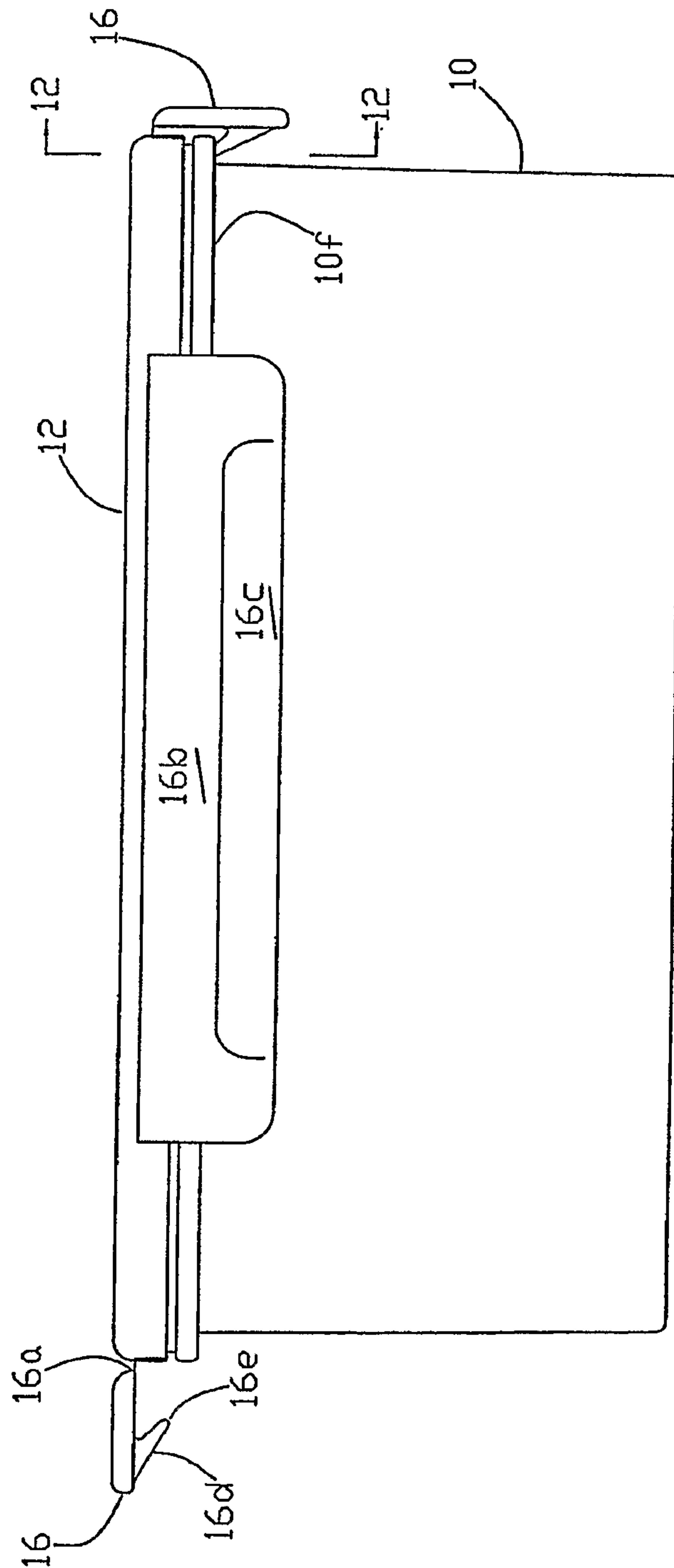


Figure 8

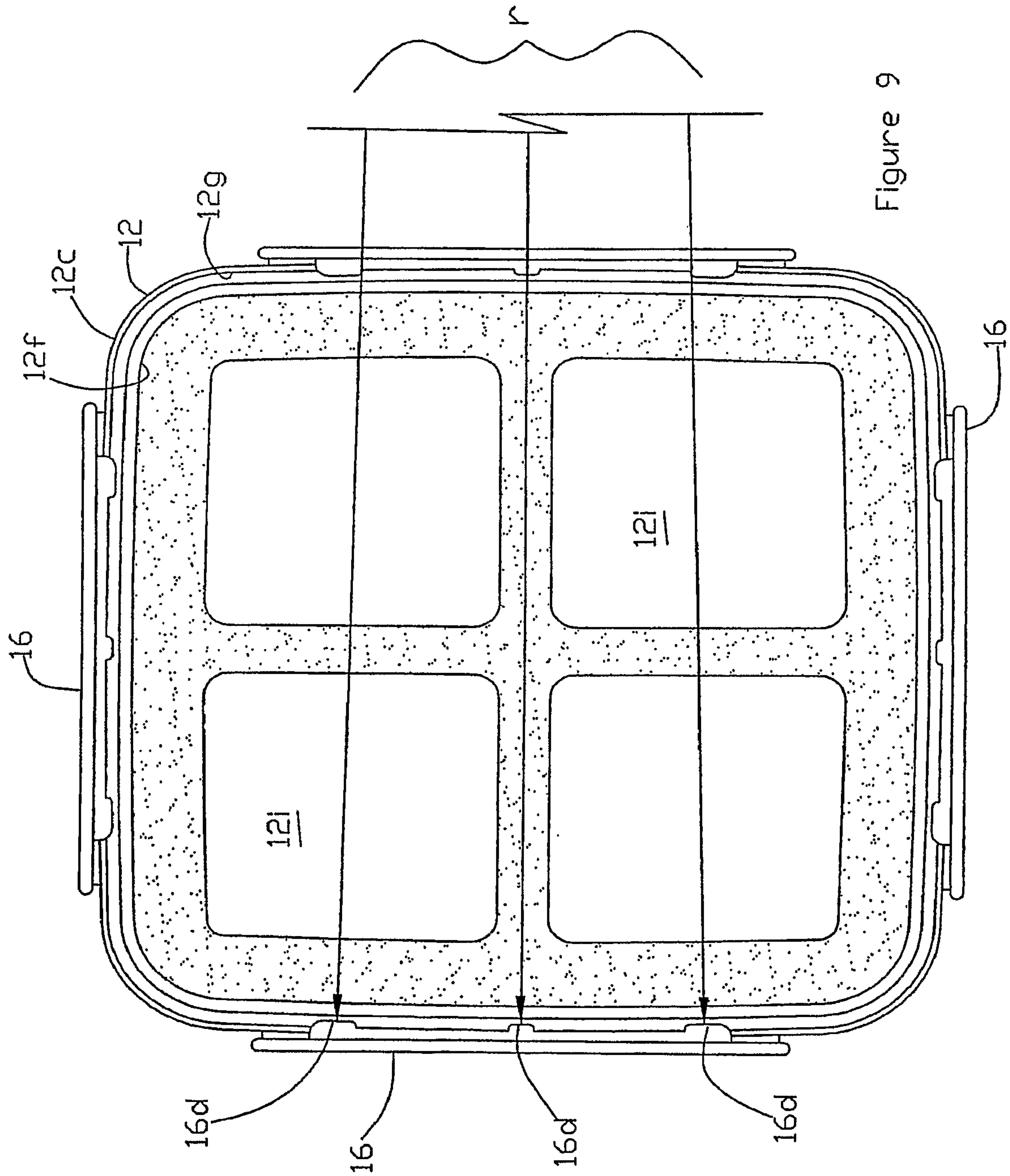


Figure 9

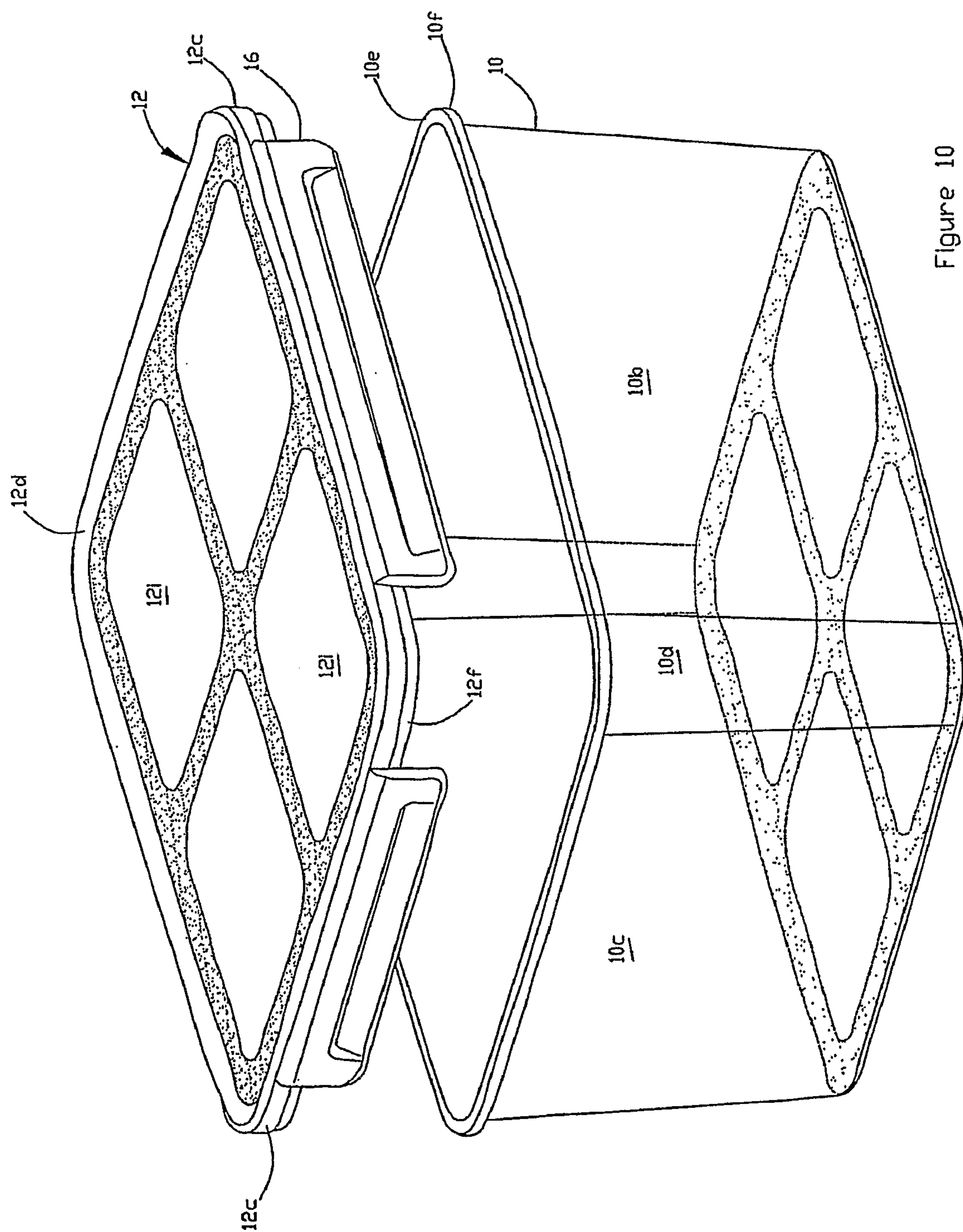


Figure 10

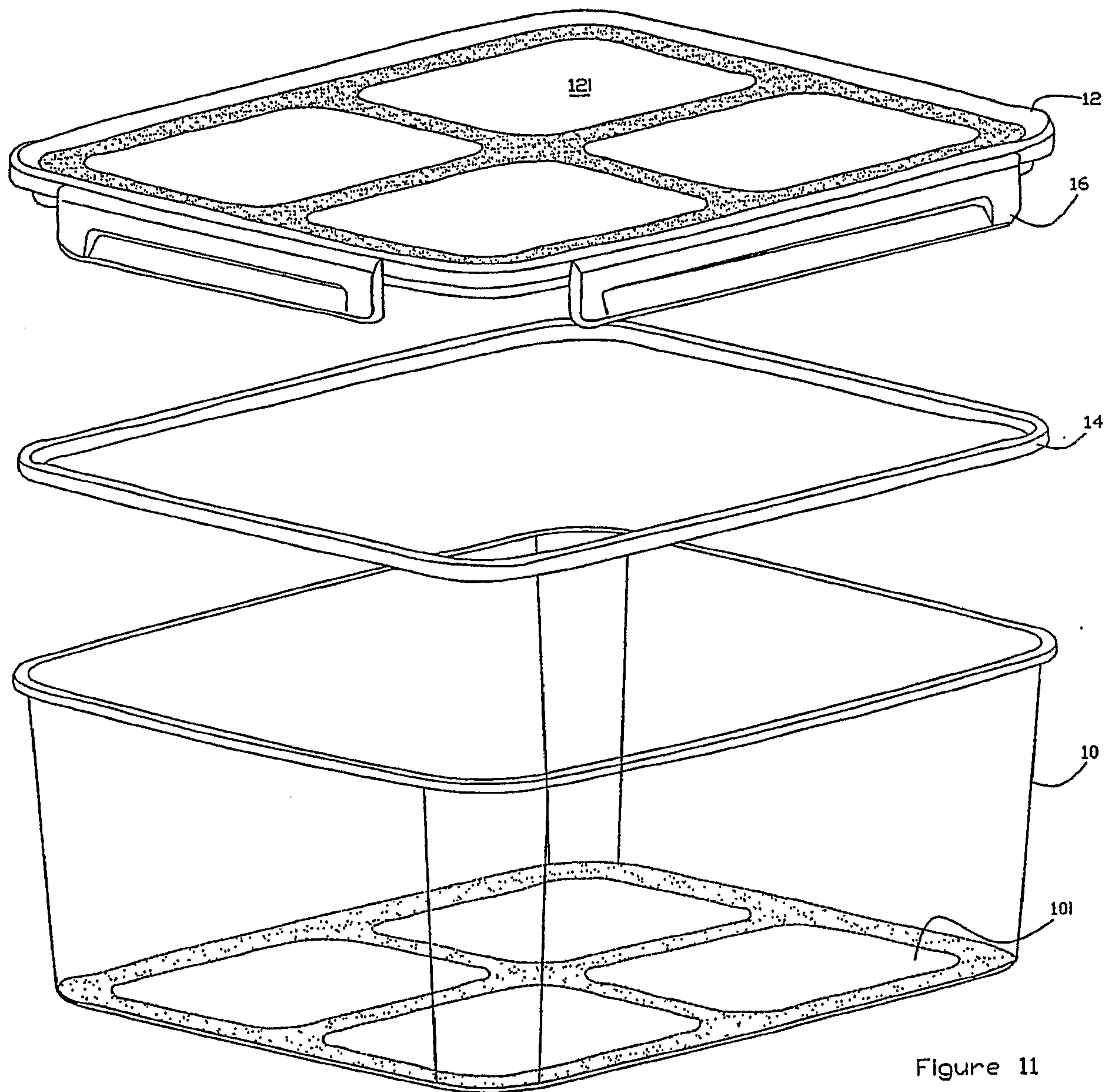


Figure 11

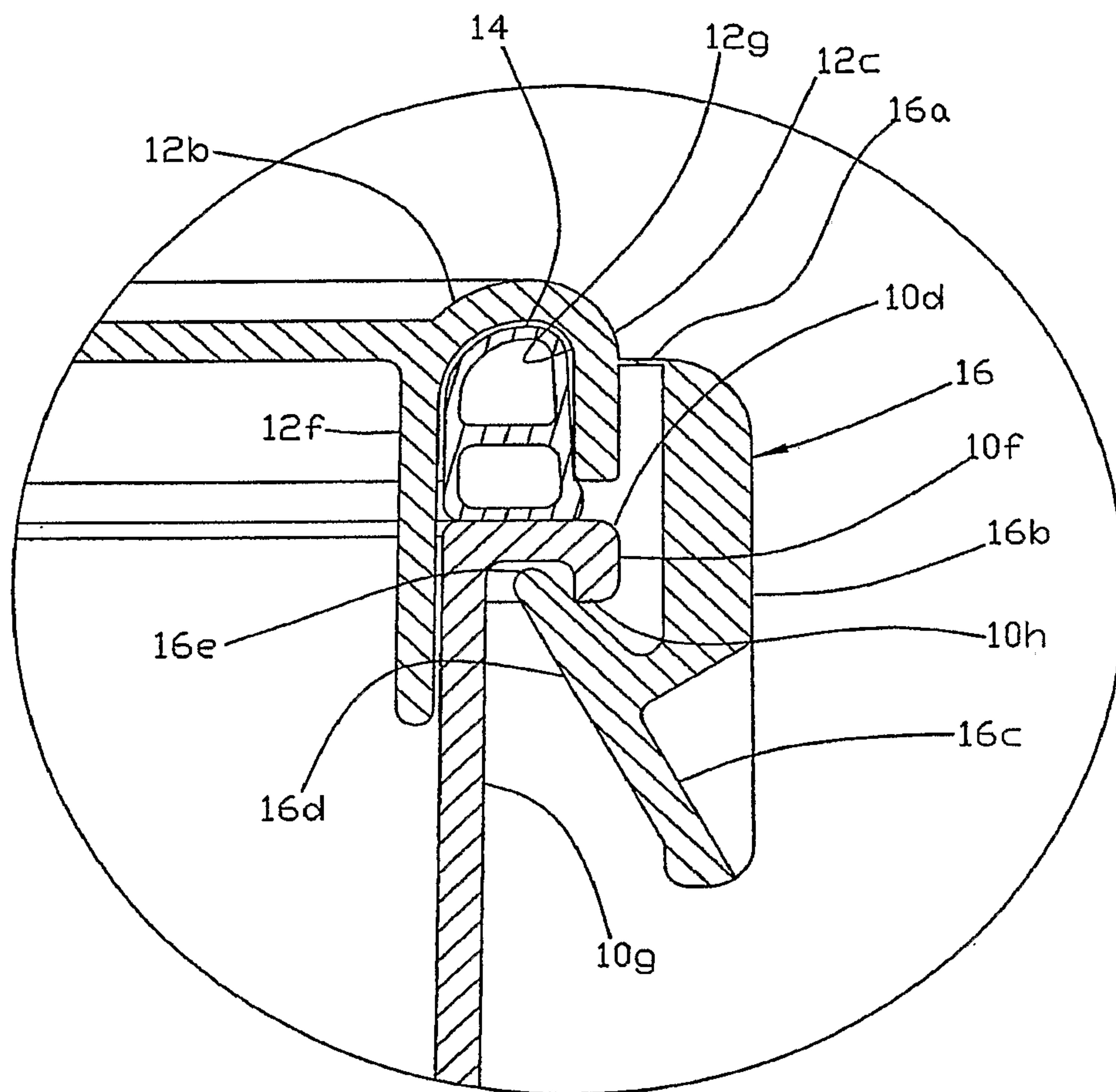


Figure 12

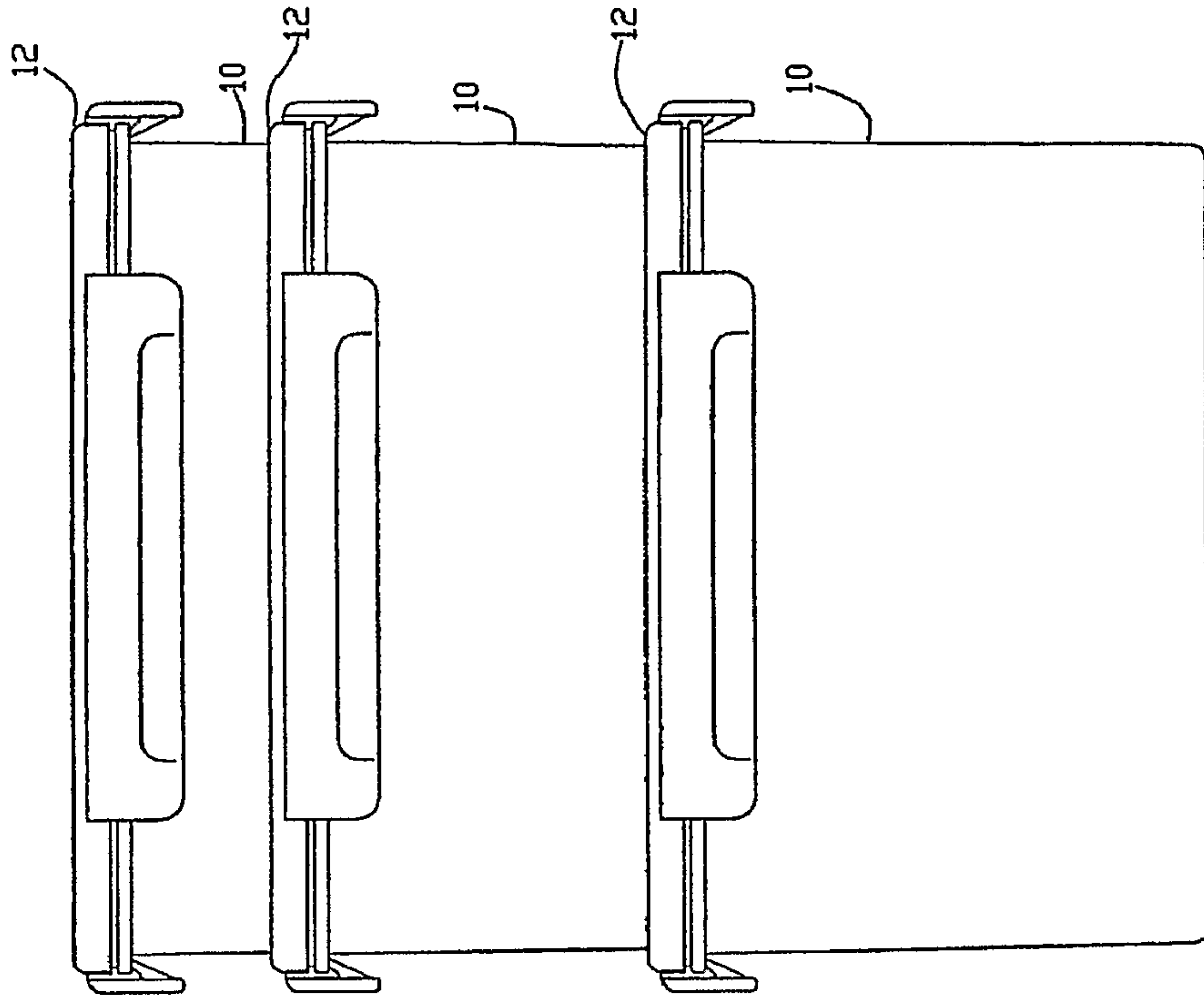


Figure 14

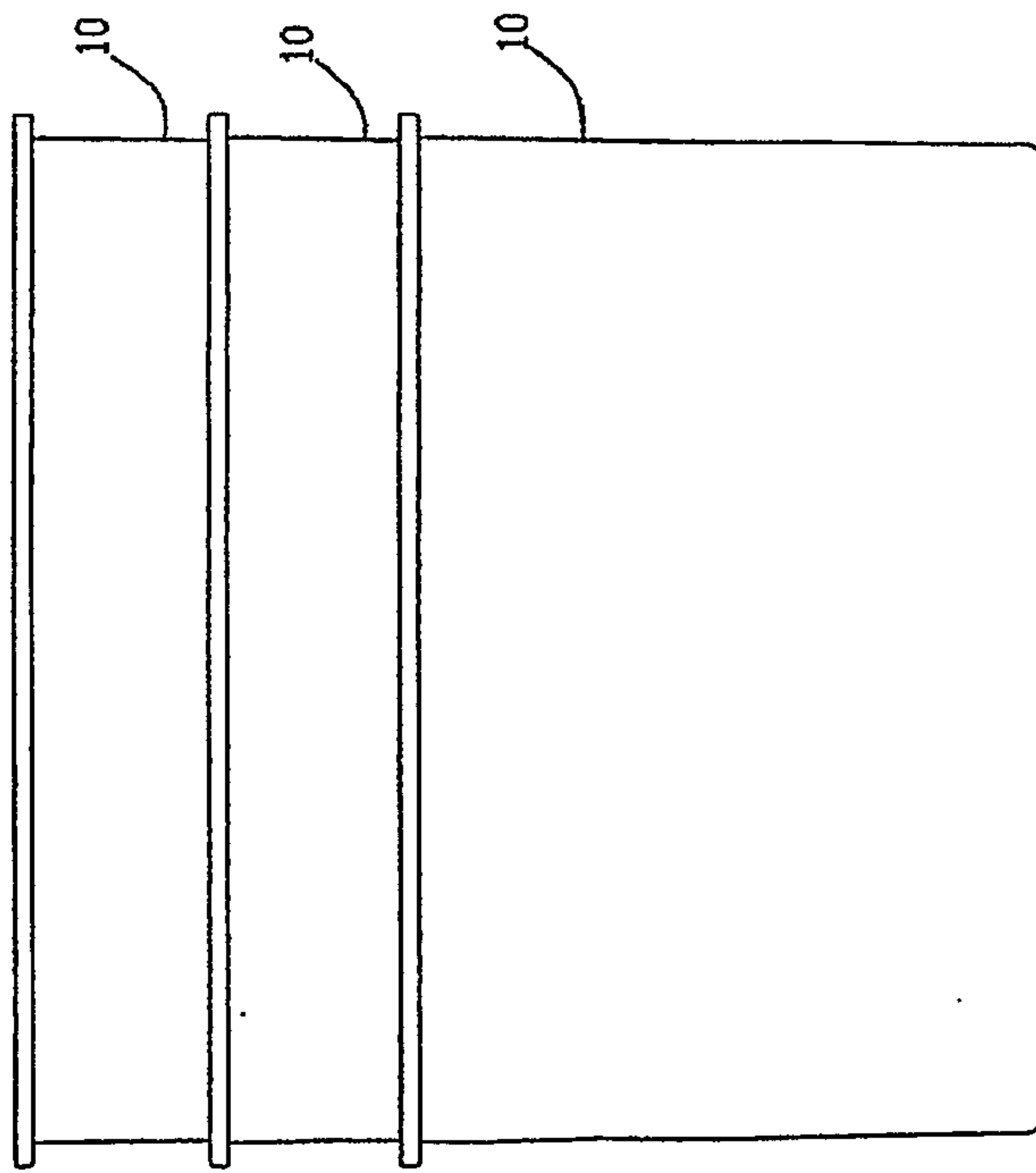


Figure 13

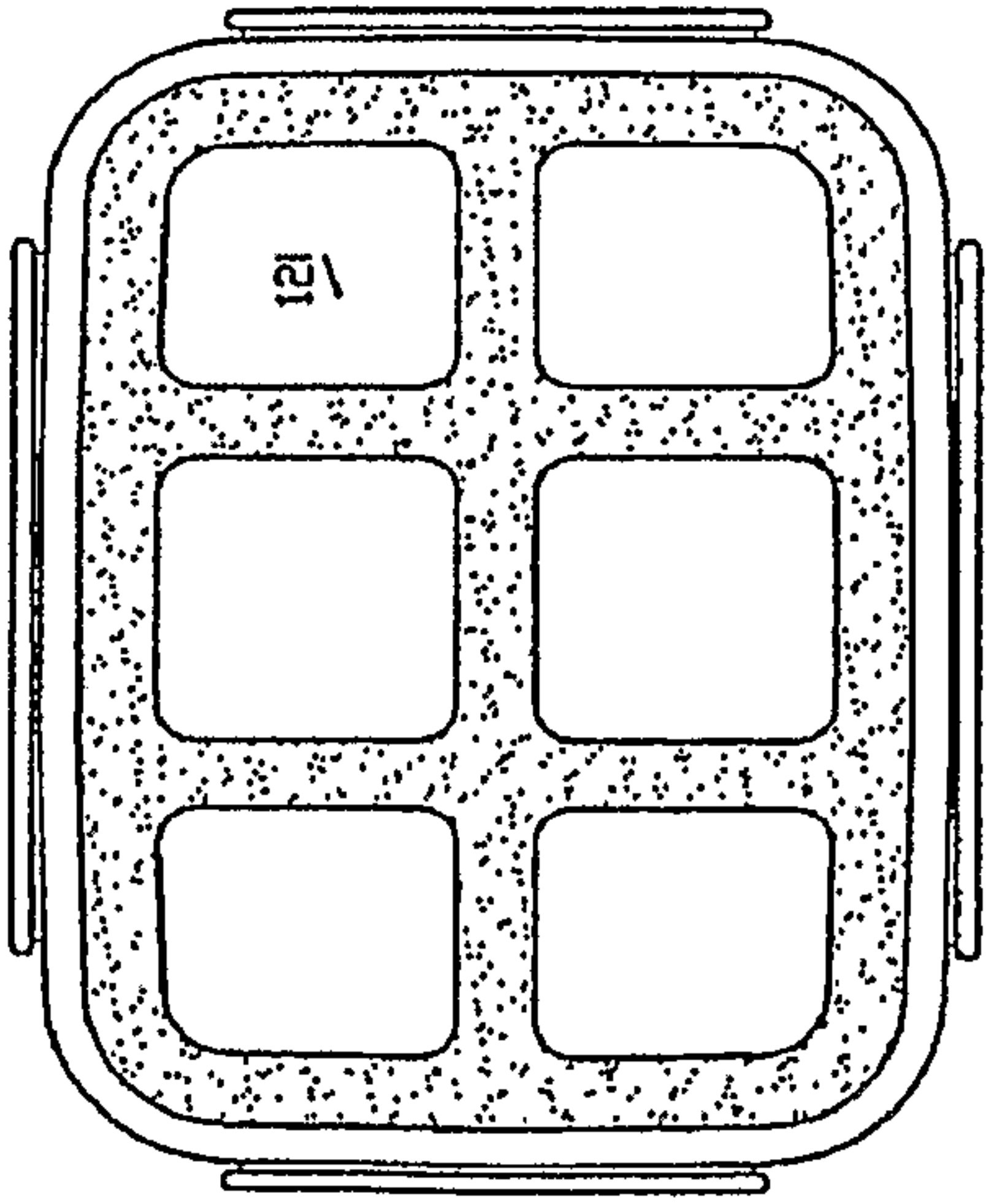


Figure 15

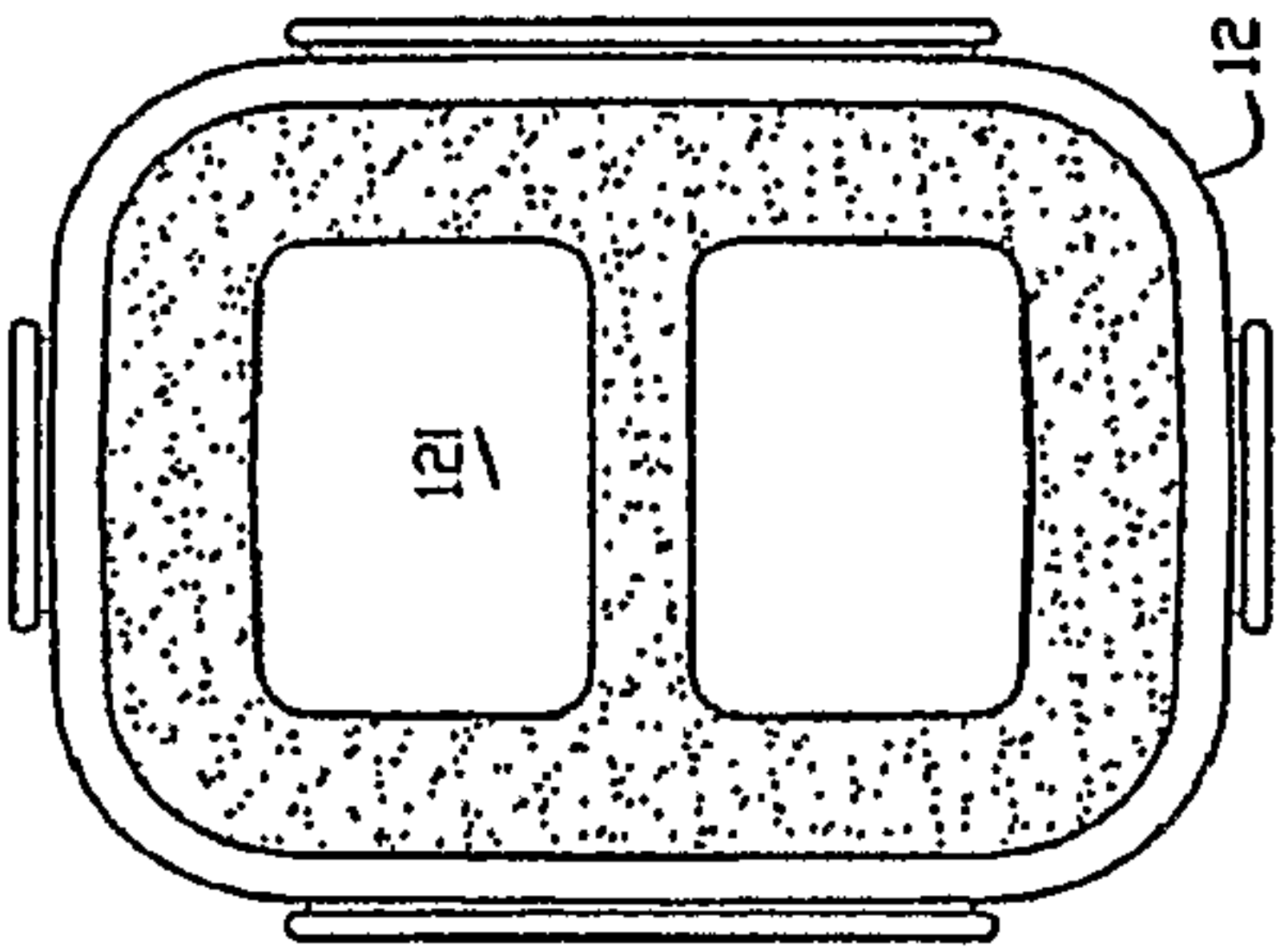


Figure 16

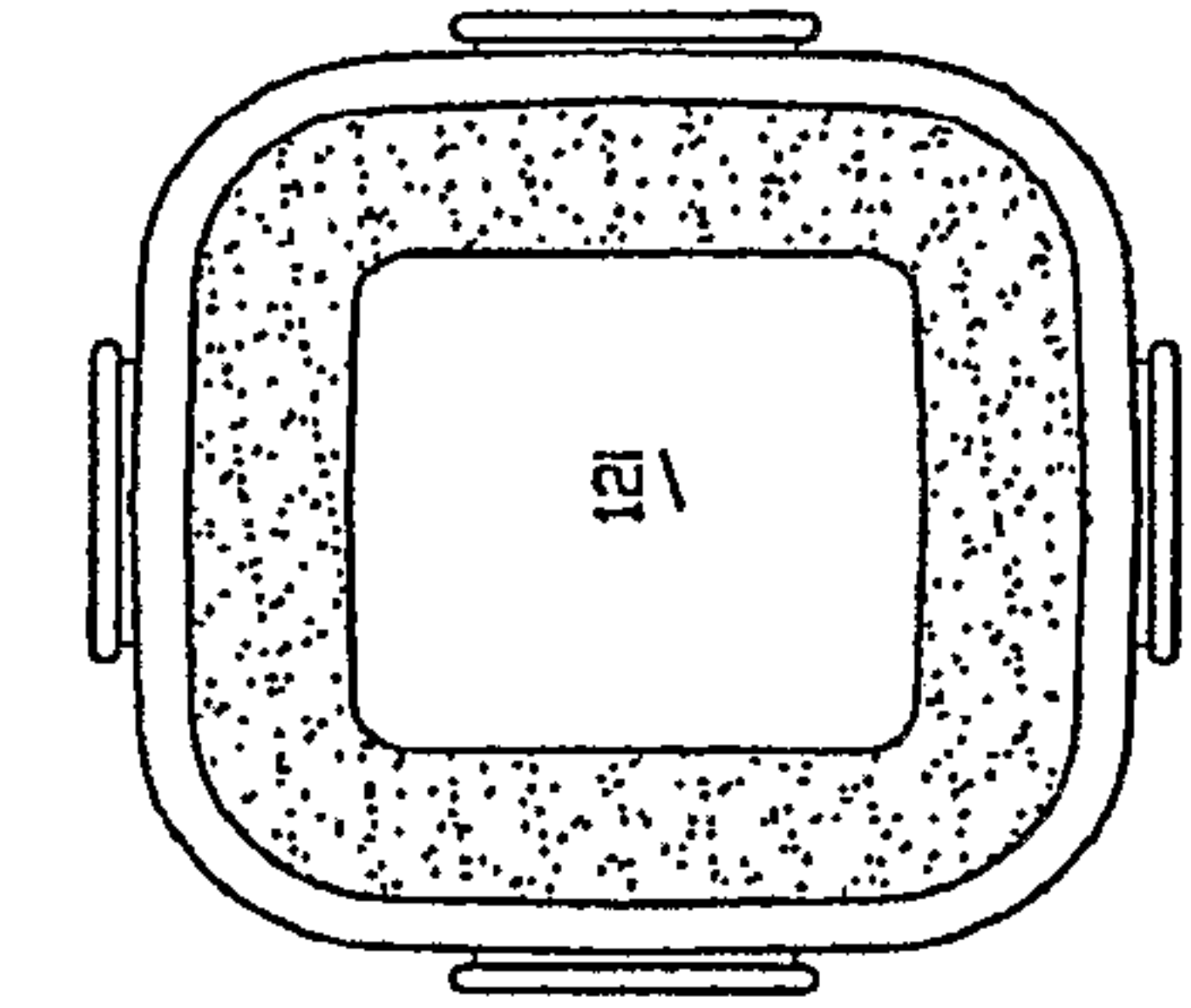


Figure 17

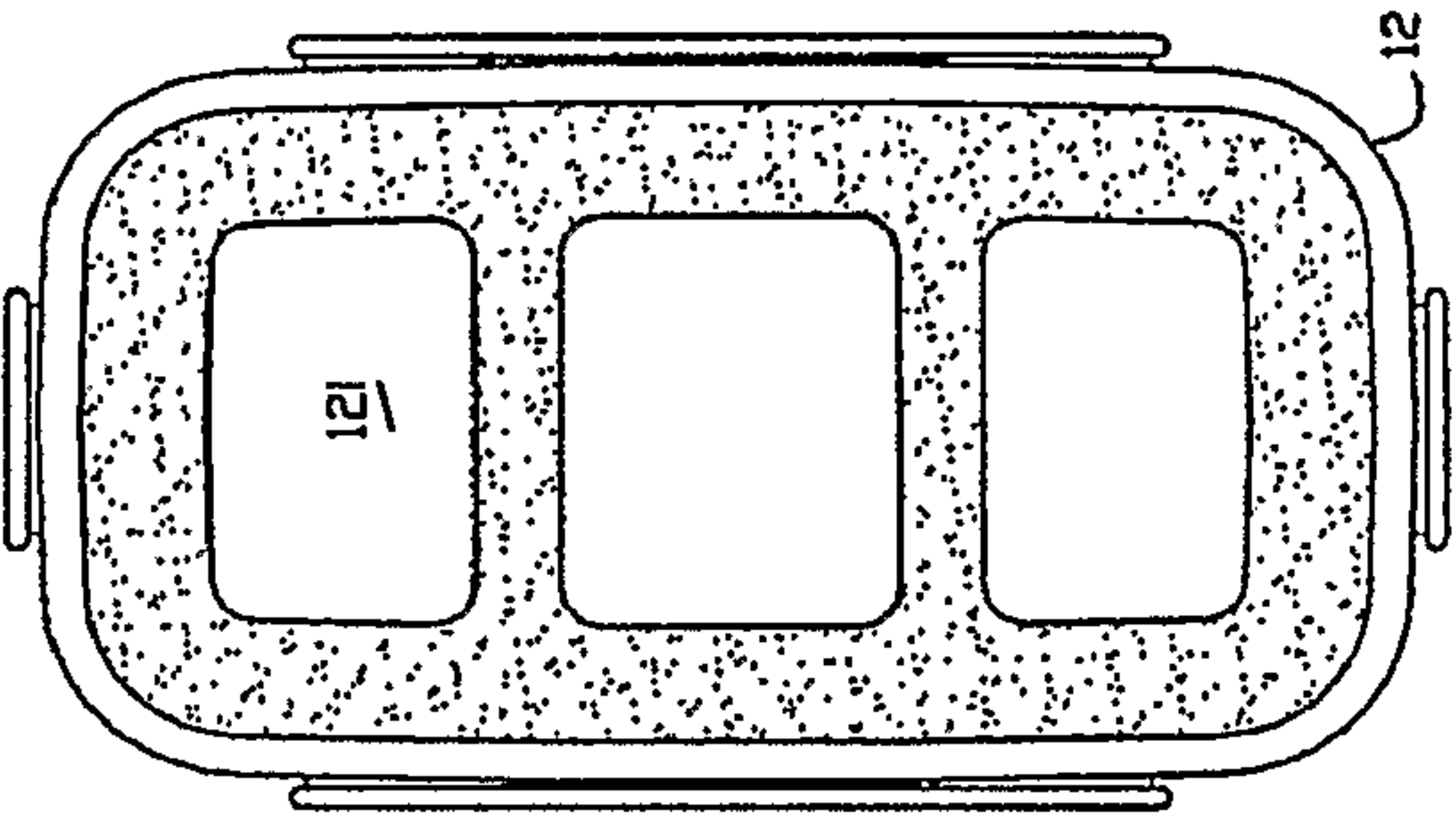


Figure 18

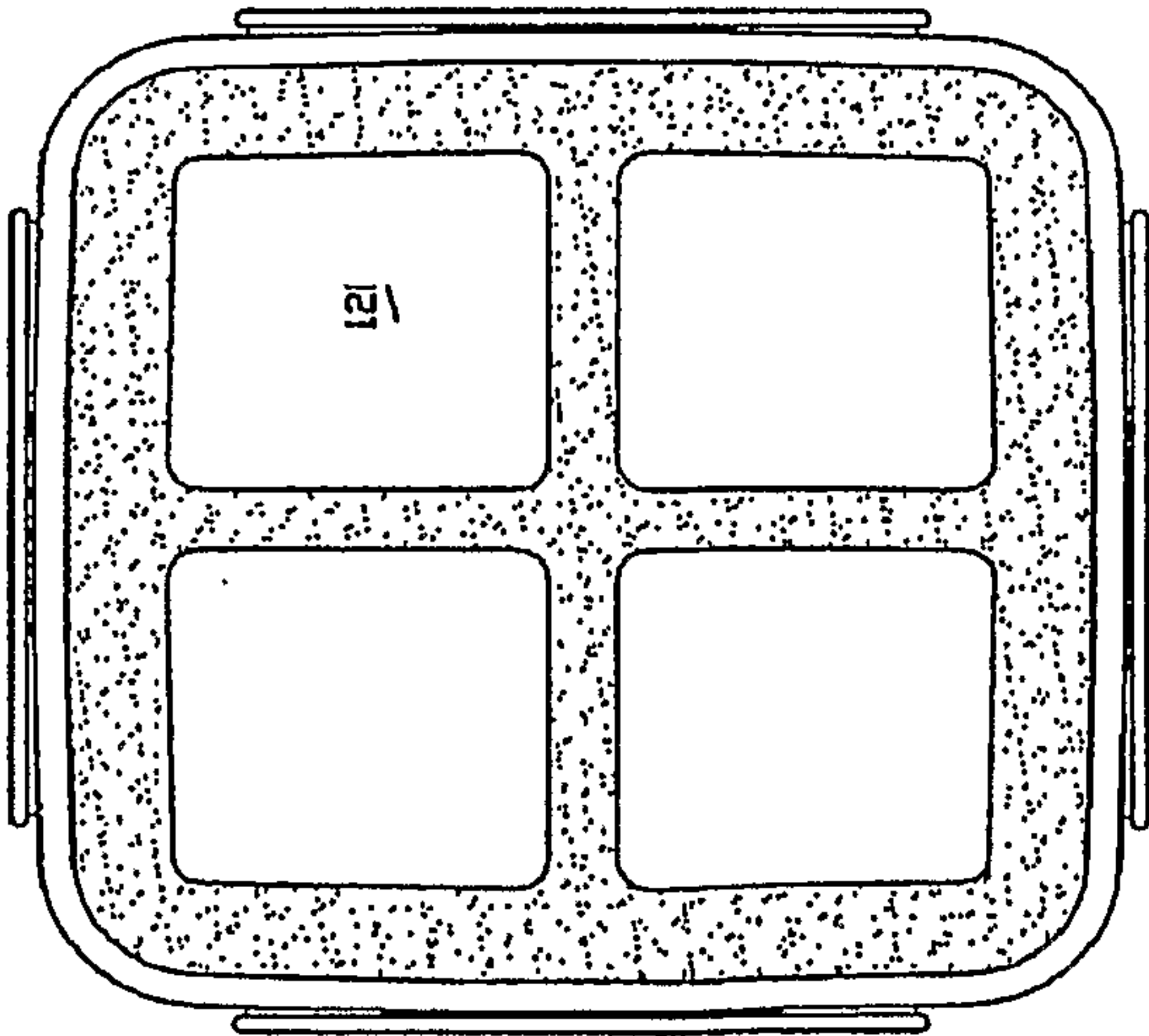


Figure 19

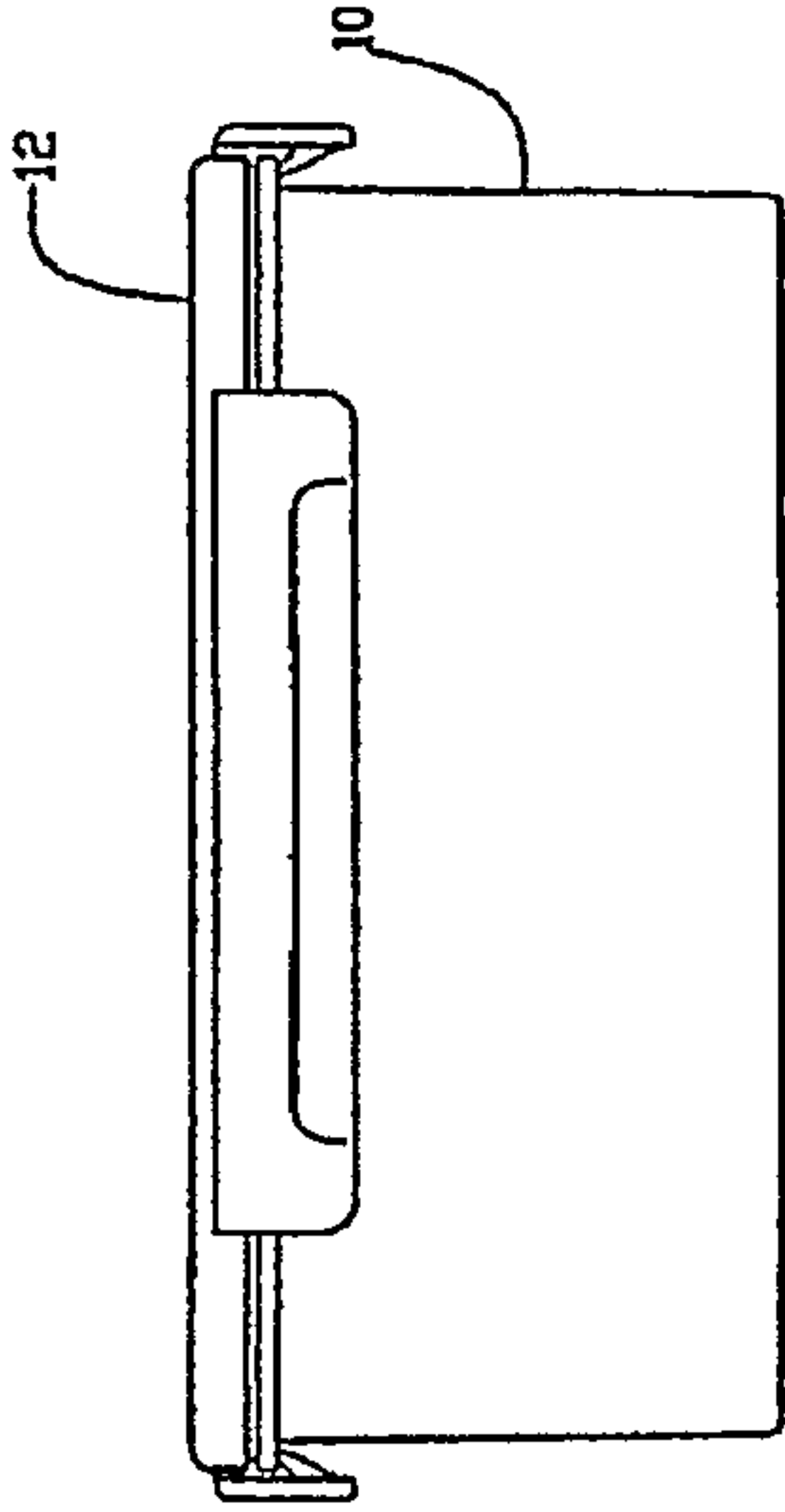


Figure 20

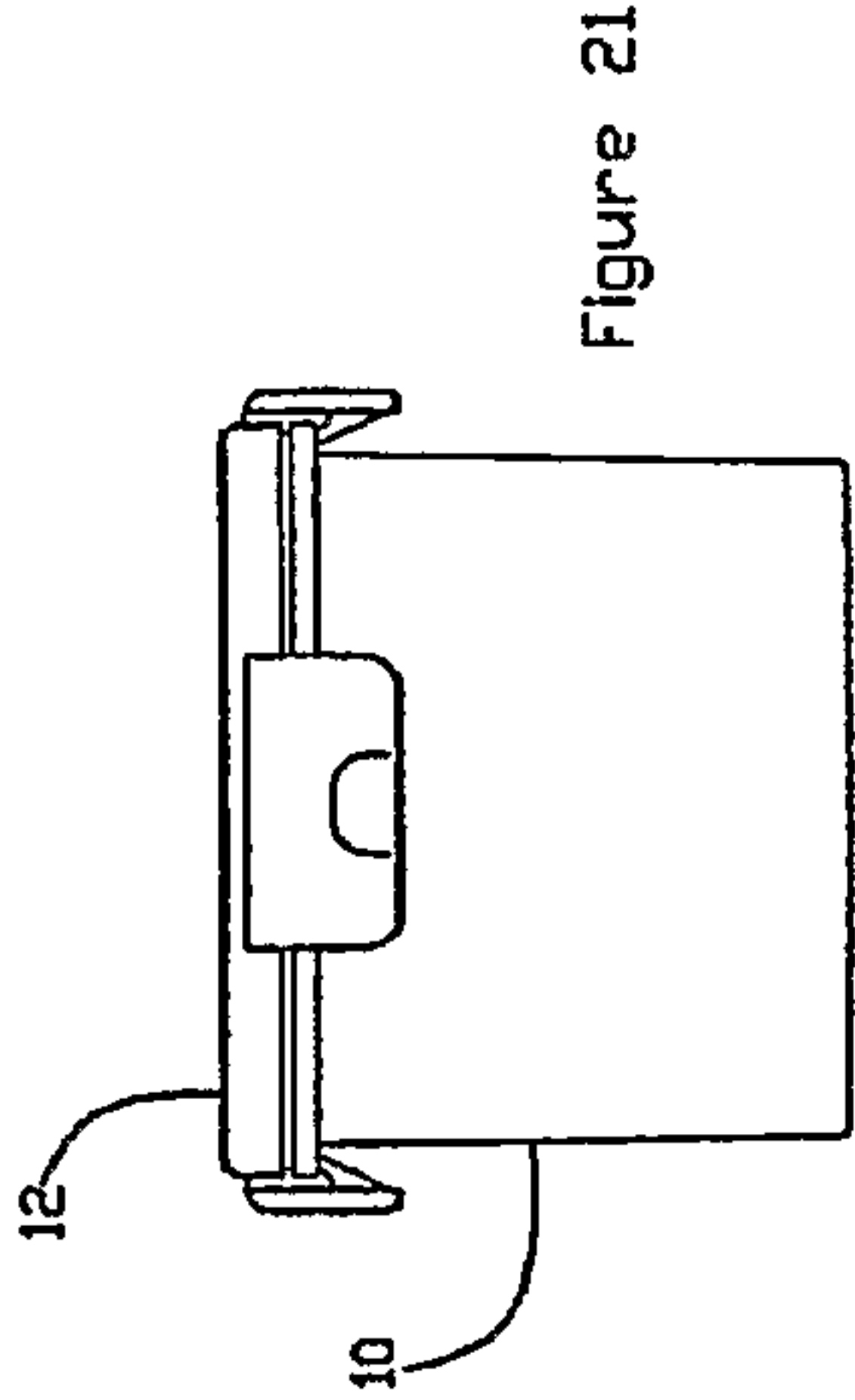


Figure 21

