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(54) **MULTI-TOPPING TRAY CONTAINER SYSTEM**

(52) **U.S. Cl. 426/129**

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(57) **ABSTRACT**

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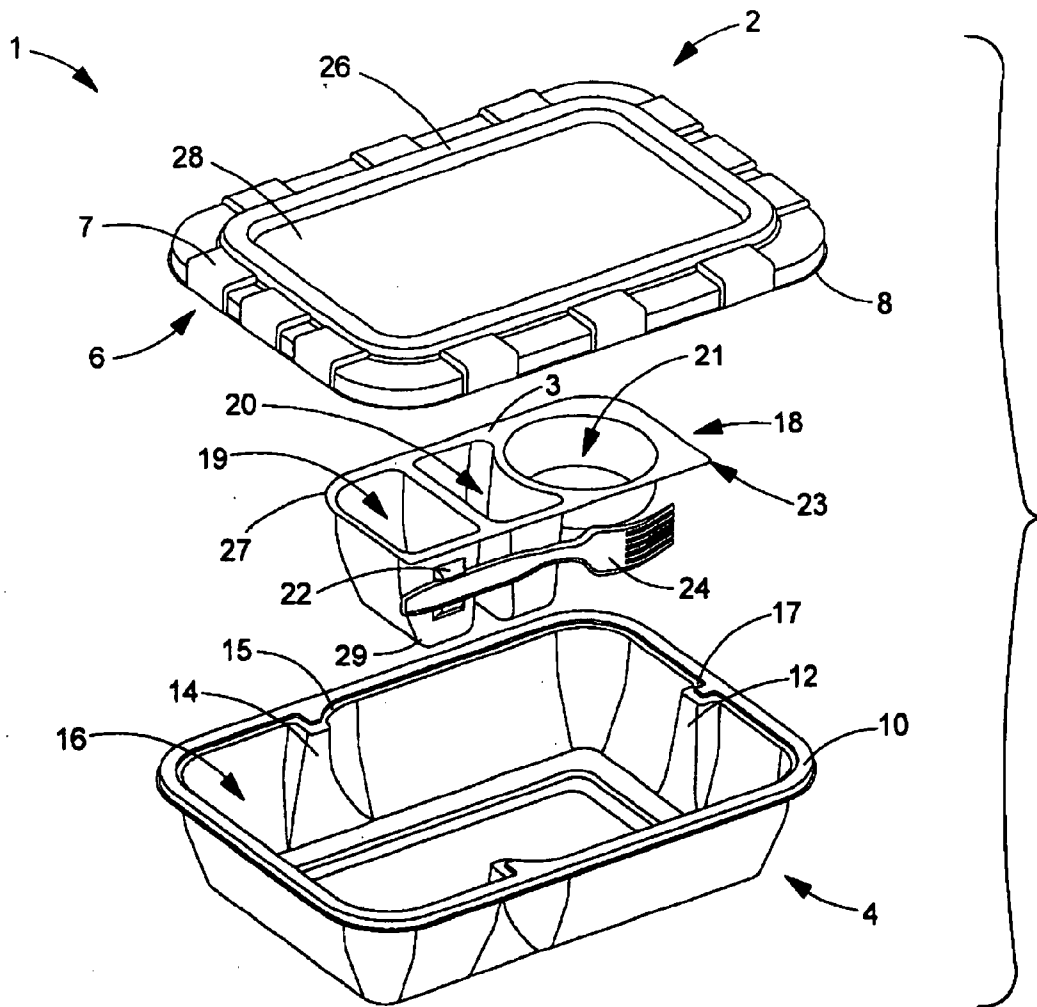
Related U.S. Application Data

(60) **Provisional application No. 60/718,781, filed on Sep. 20, 2005.**

Publication Classification

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A food container system that comprises a main tray member that is the primary foodstuff storage tray, a lid member and an intermediate tray member that is molded to include a plurality of recesses to house various foodstuffs (e.g. condiment, toppings). The intermediate tray member is configured so that it is removeably connected to and held fast in the main tray member. The intermediate tray member is further formed with a smaller footprint so that it does not obstruct the view of the contents of the primary foodstuff storage tray when on display at a market. The consumer is easily able to view all the contents of the food container system without handling the food container. In order to service the needs of the fast food or 'on-the-go' consumer, the container system includes quick-release fasteners to which utensils may be attached. Further, the consumer may use the main tray member as a bowl or tray into which all the foodstuffs may be mixed in any quantity or combination desired.



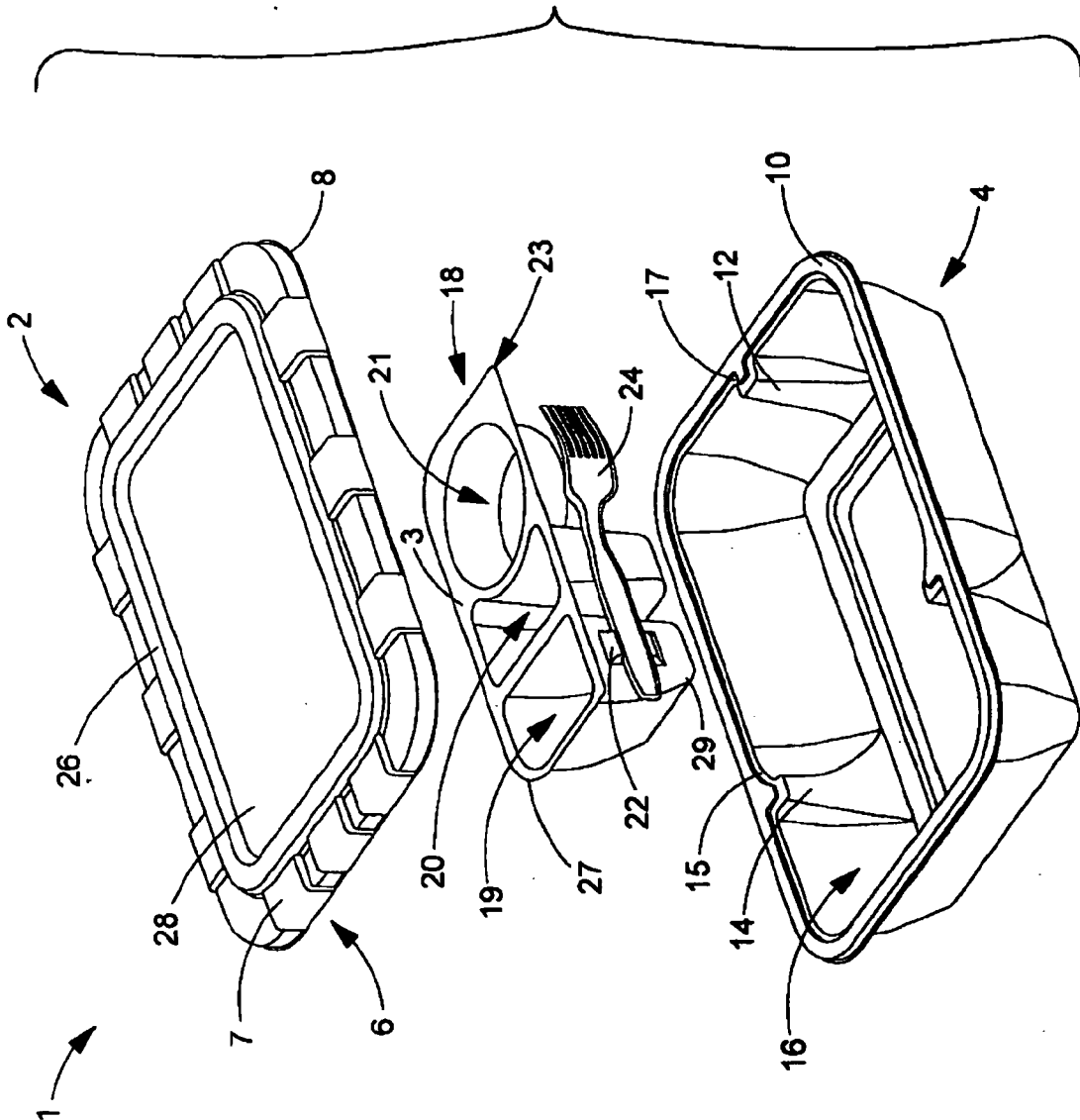


FIG 1

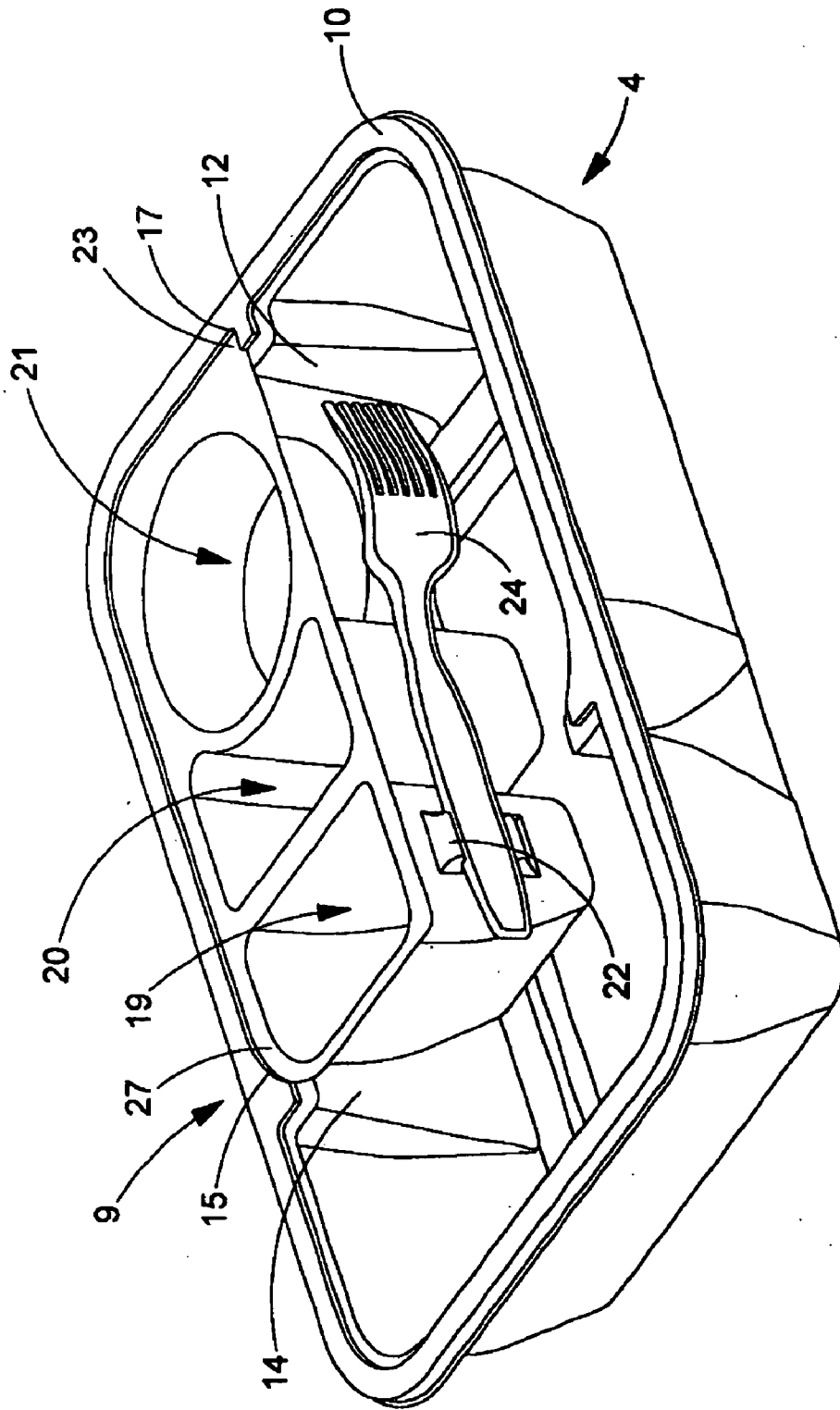


FIG 2

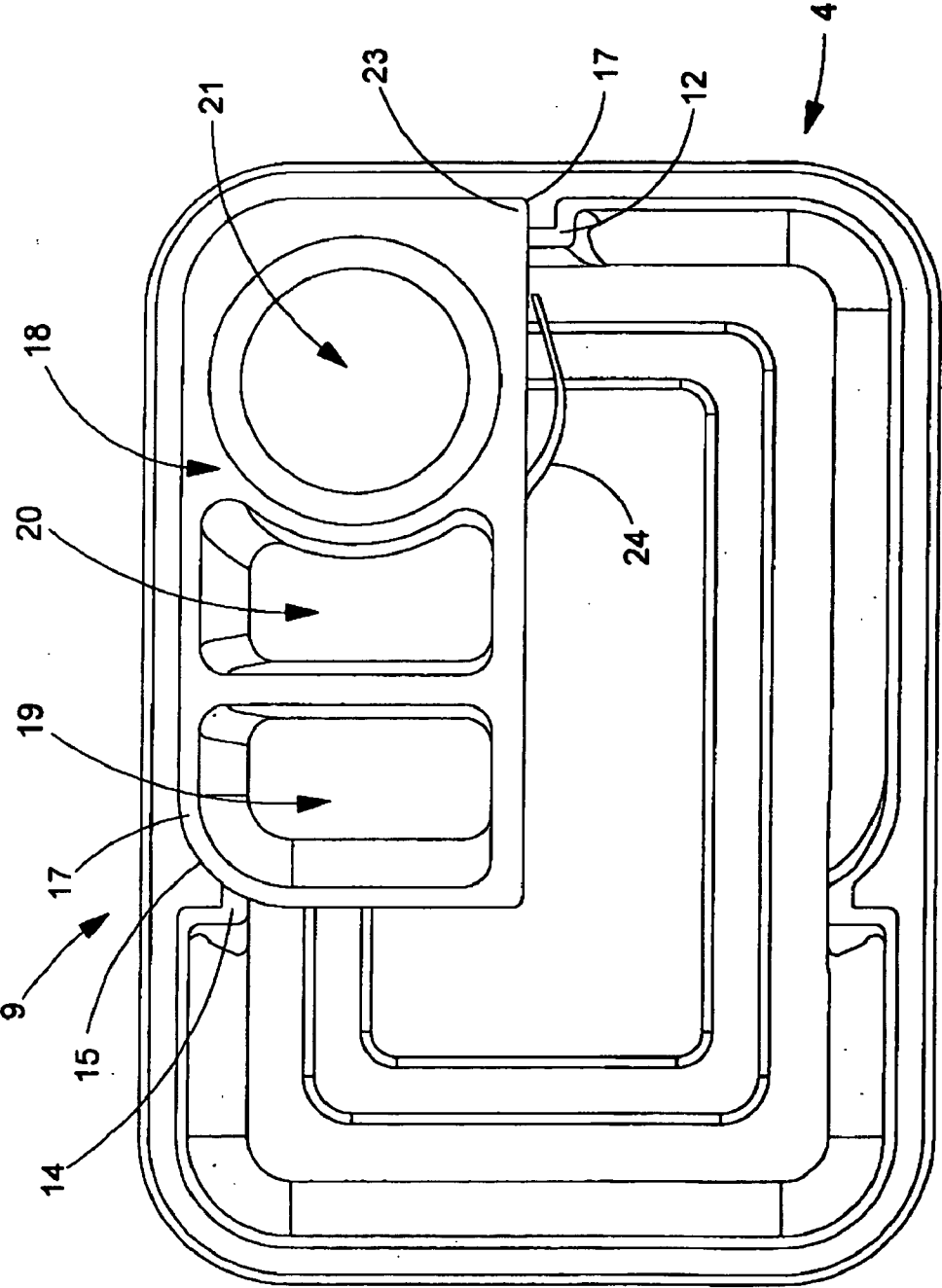


FIG 3

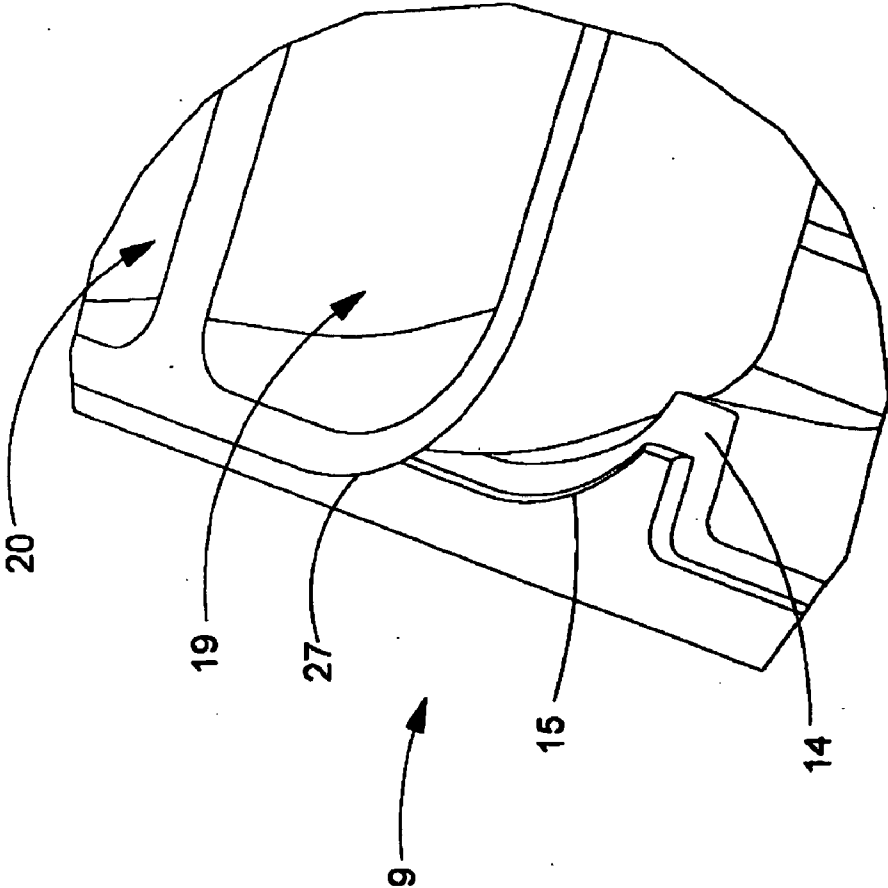


FIG 4

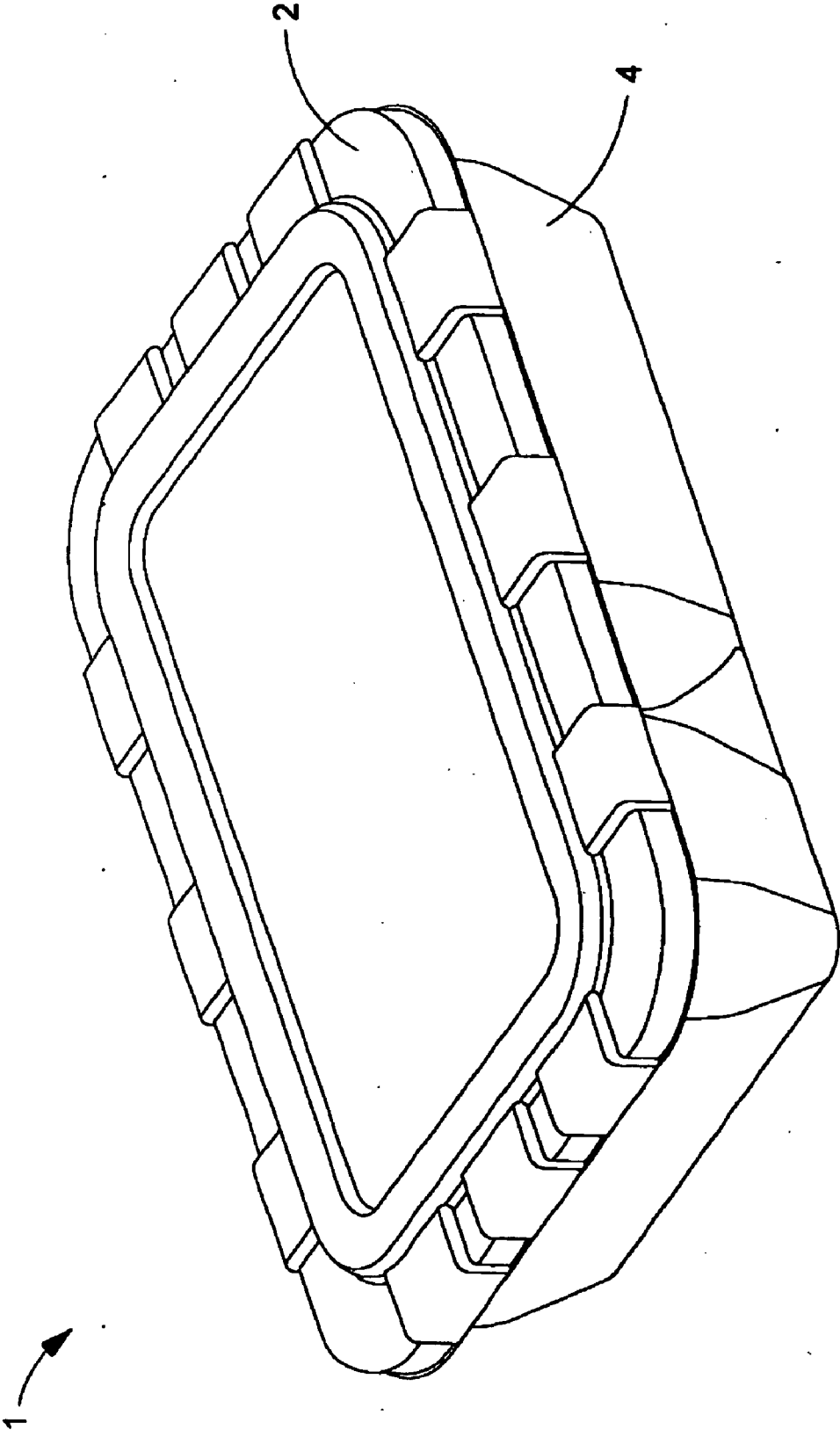


FIG 5

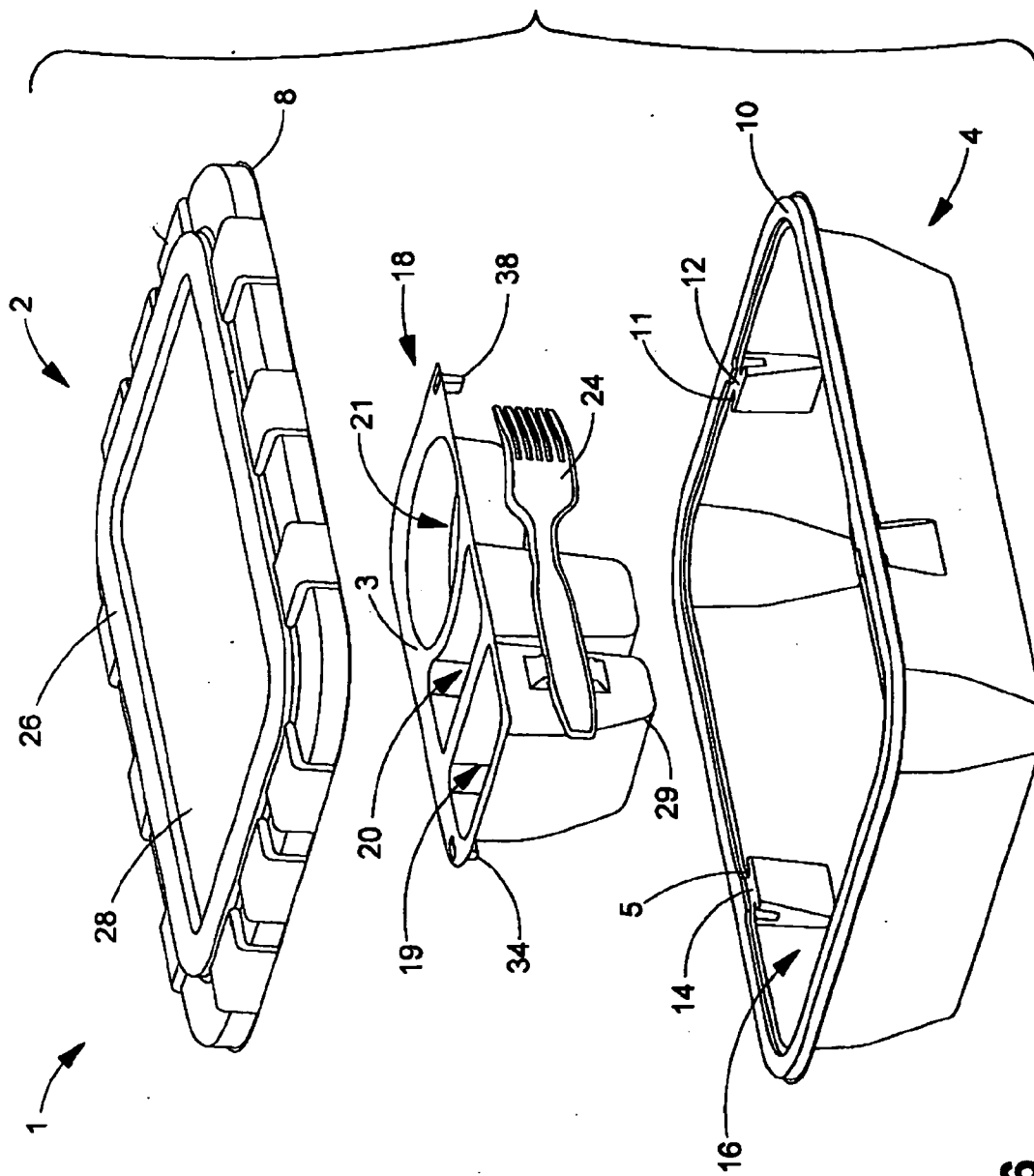


FIG 6

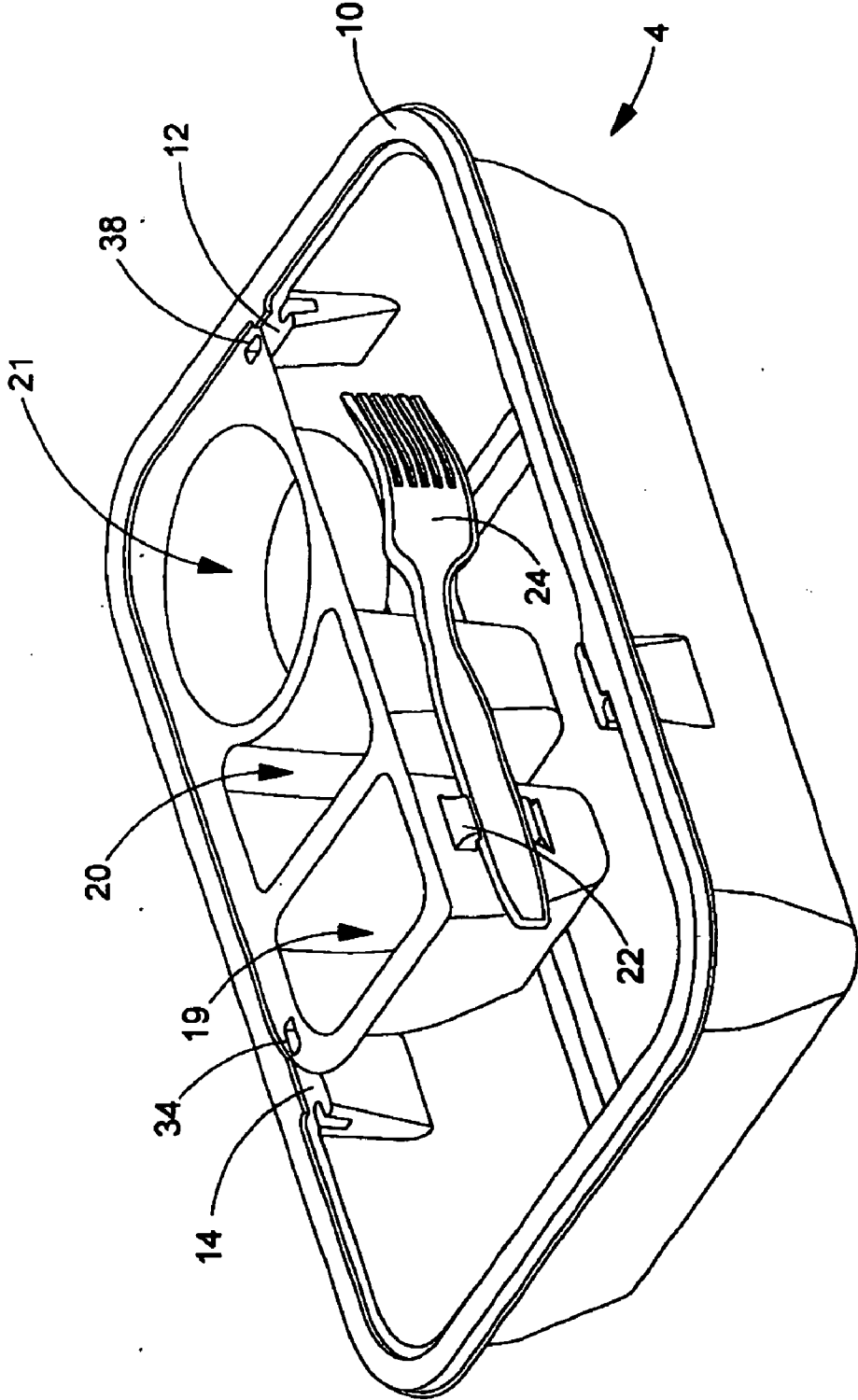


FIG 7

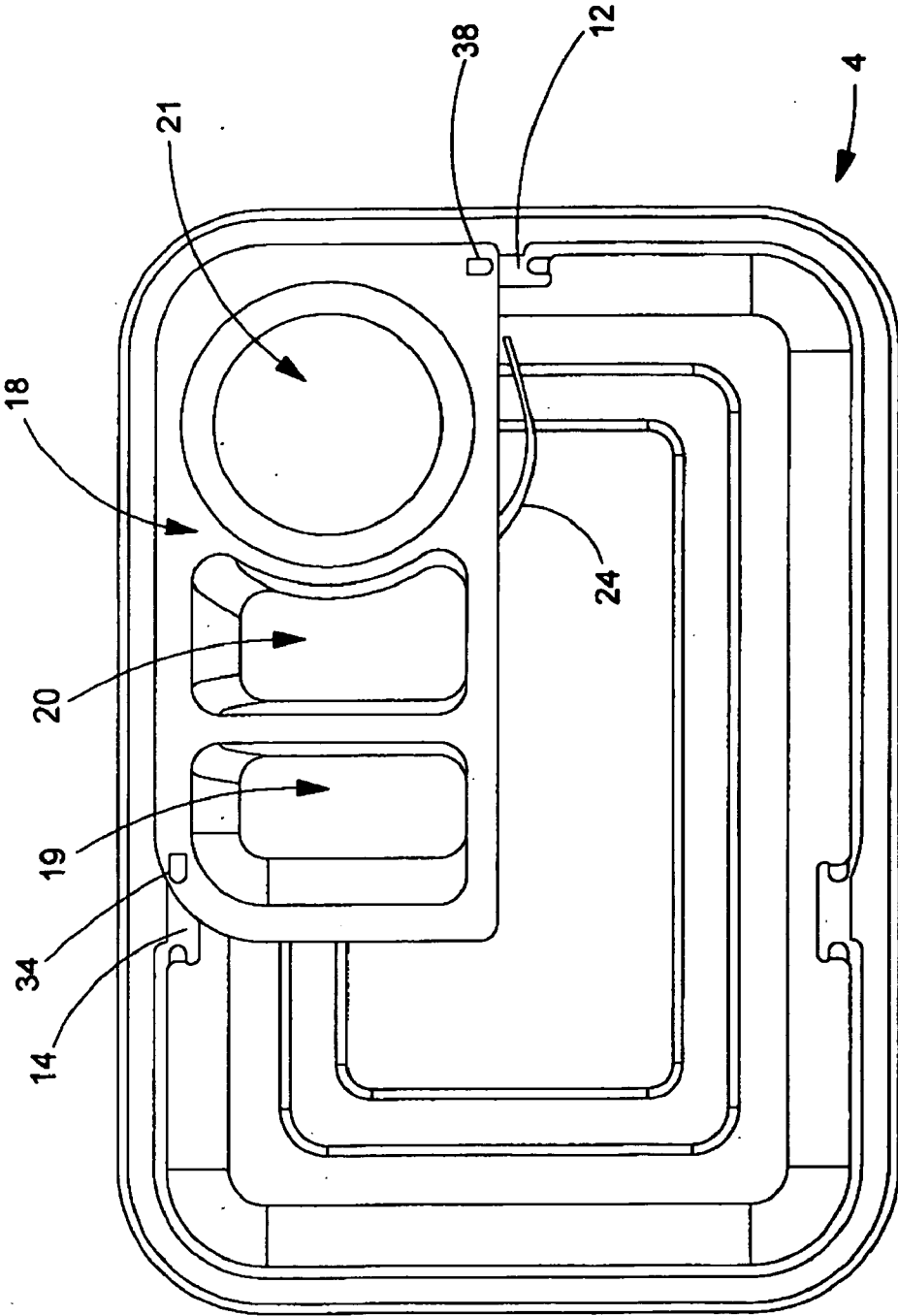


FIG 8

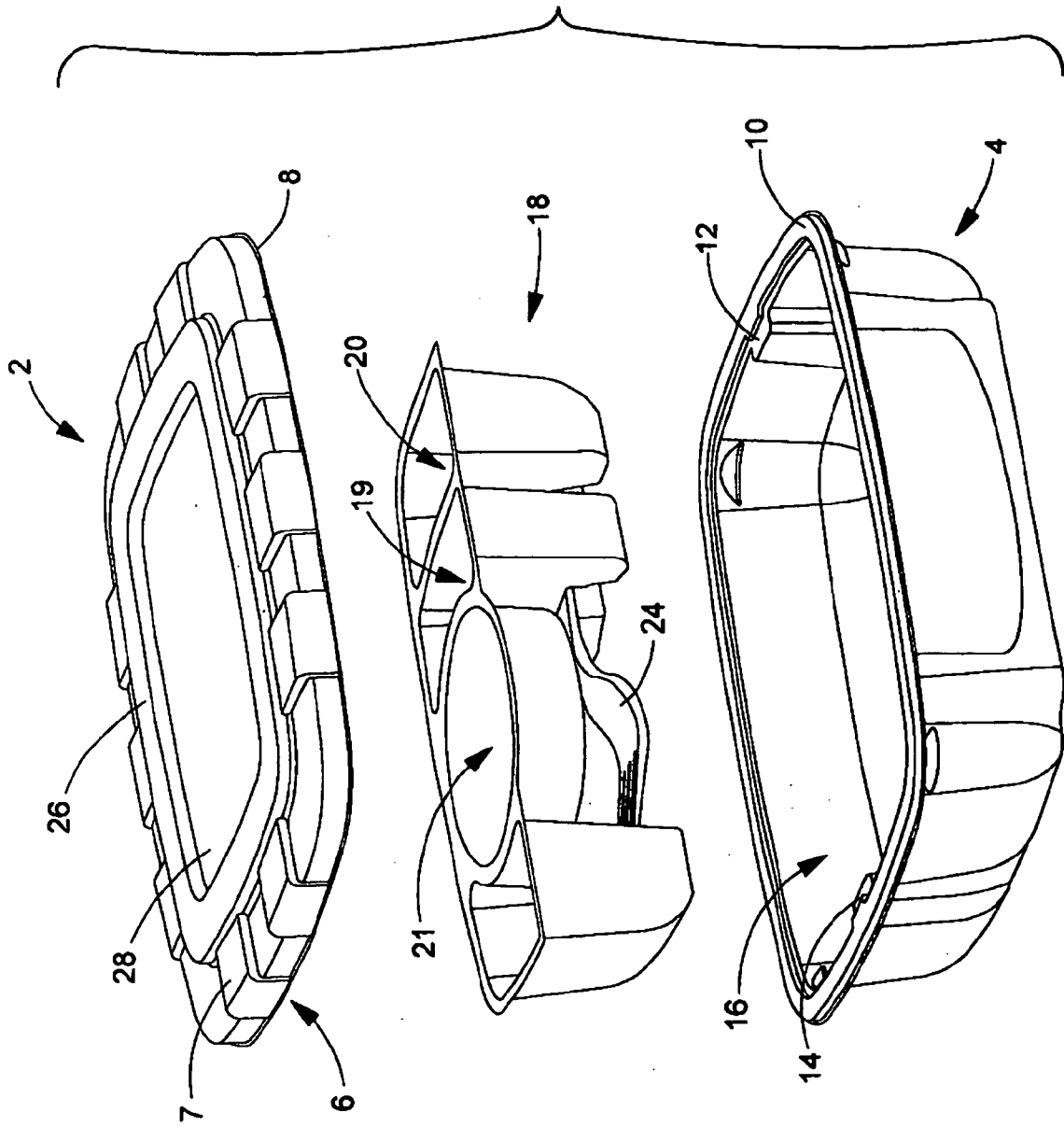


FIG 9

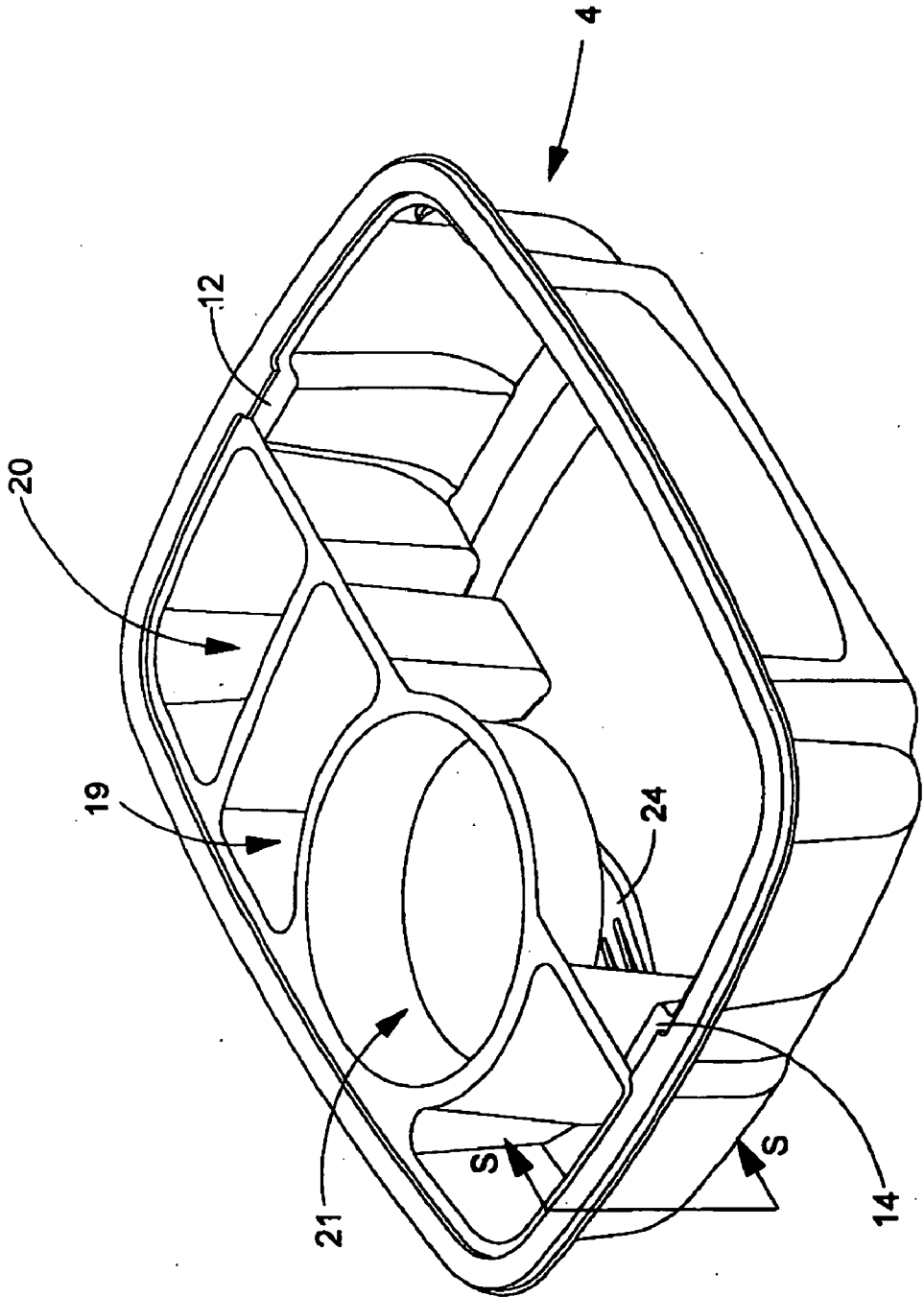


FIG 10

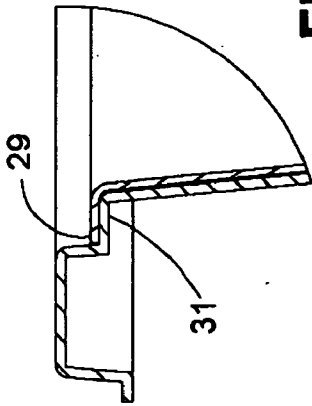


FIG 12

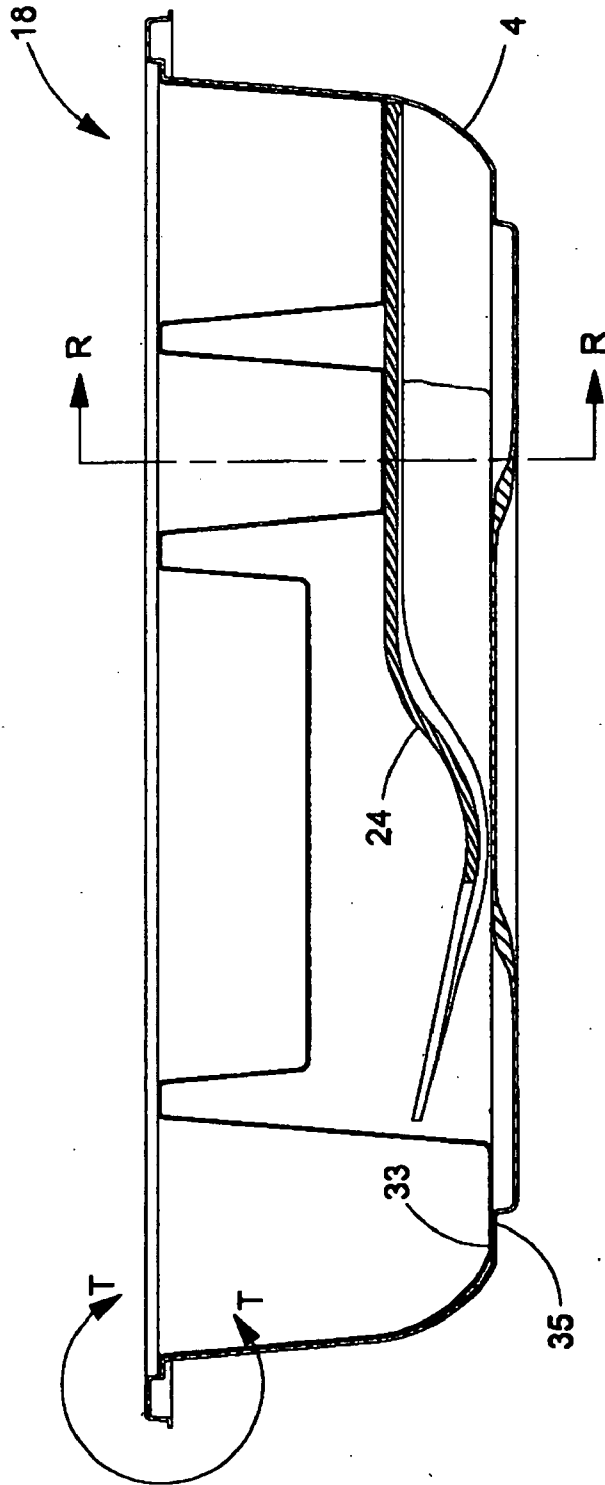


FIG 11

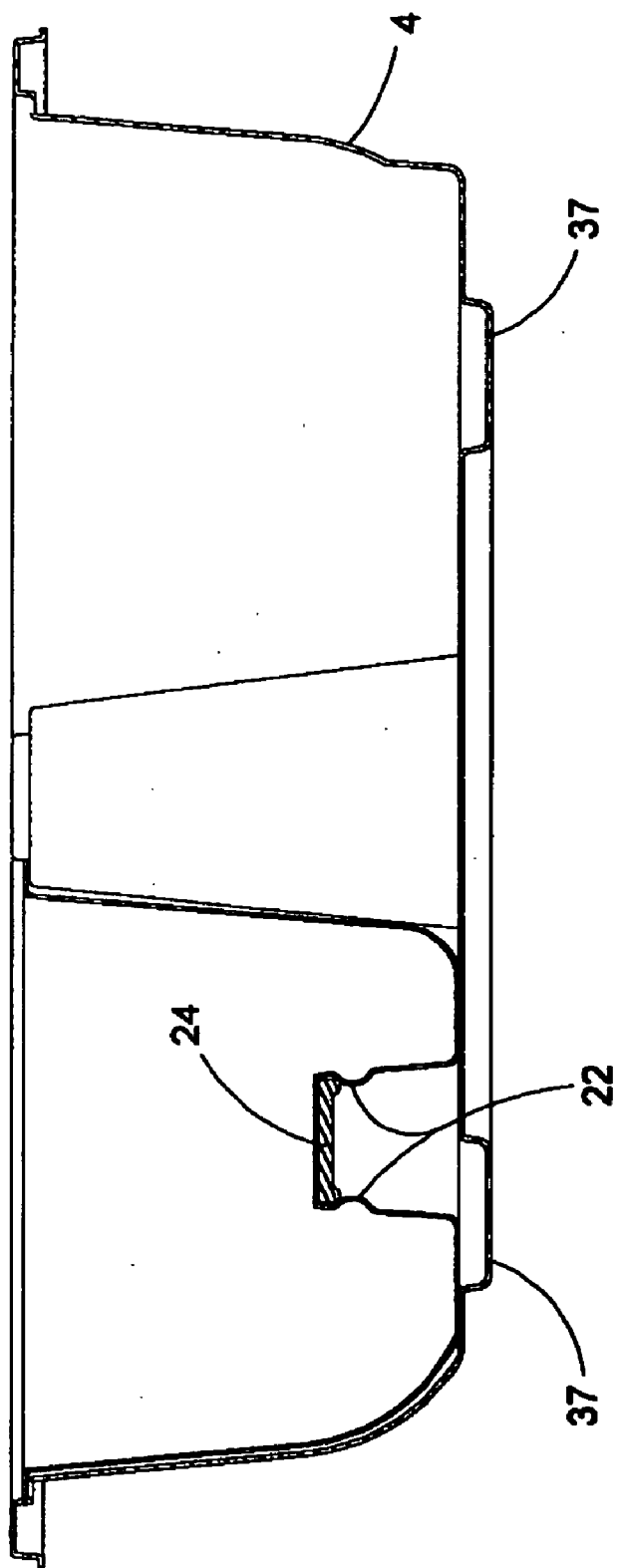


FIG 13

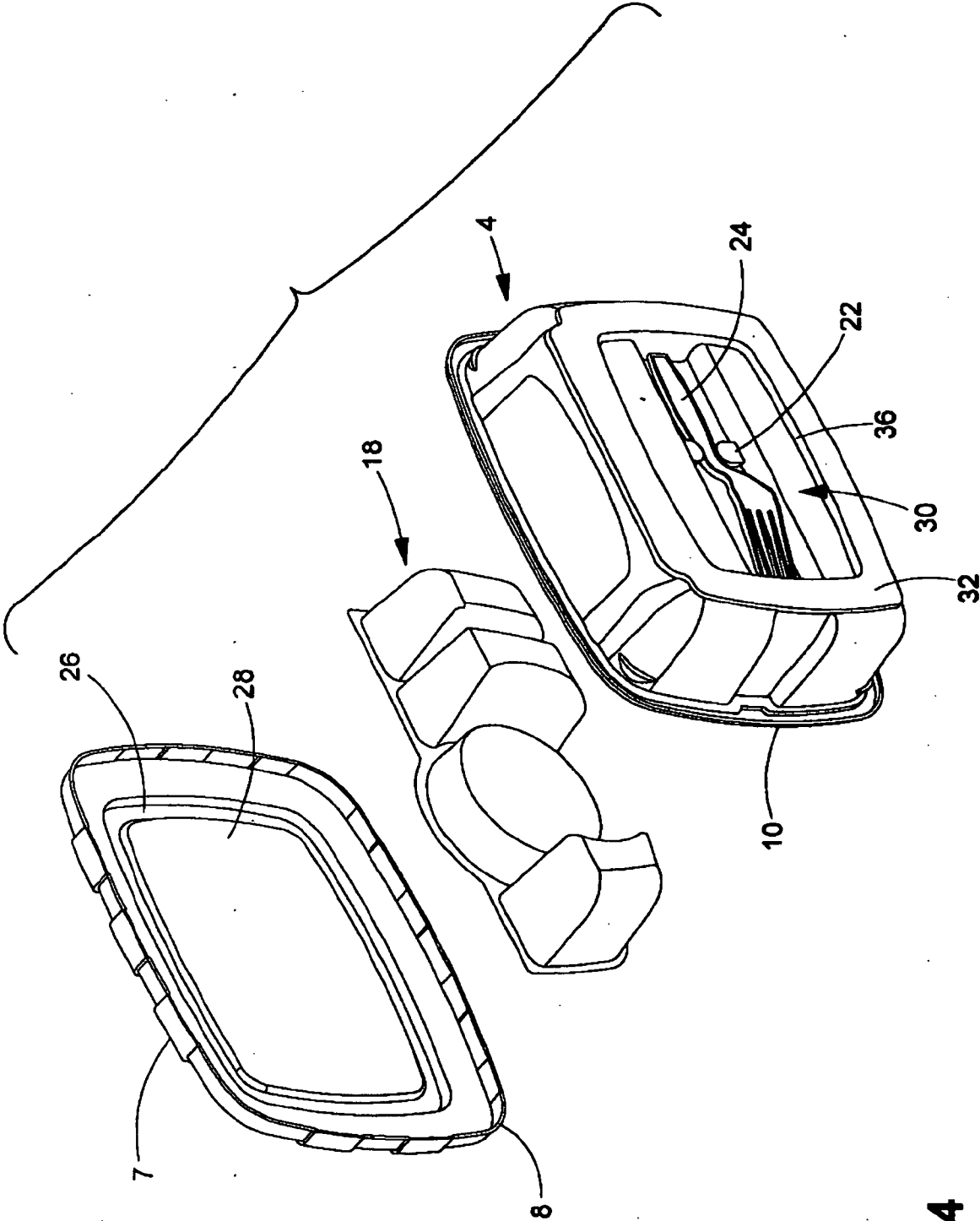


FIG 14

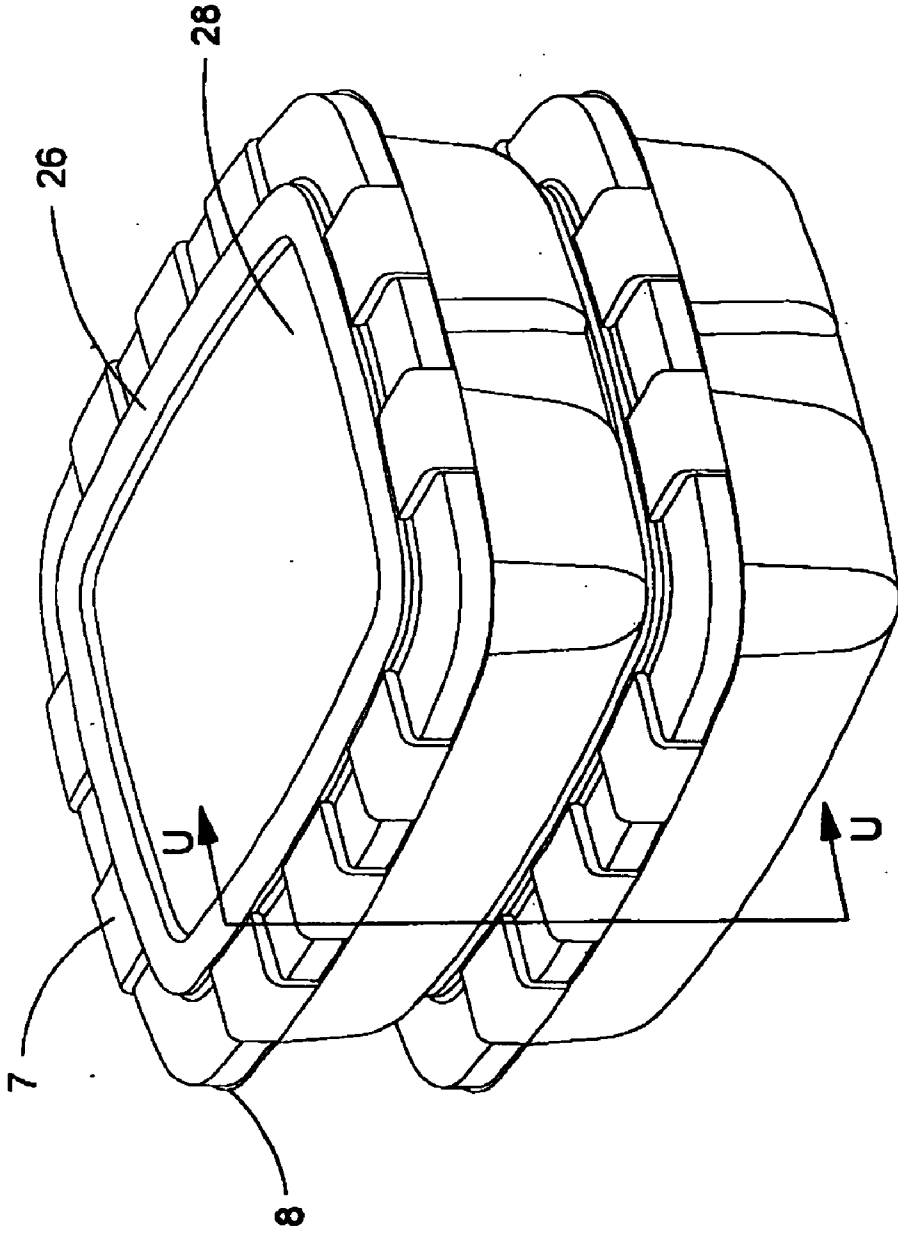


FIG 15

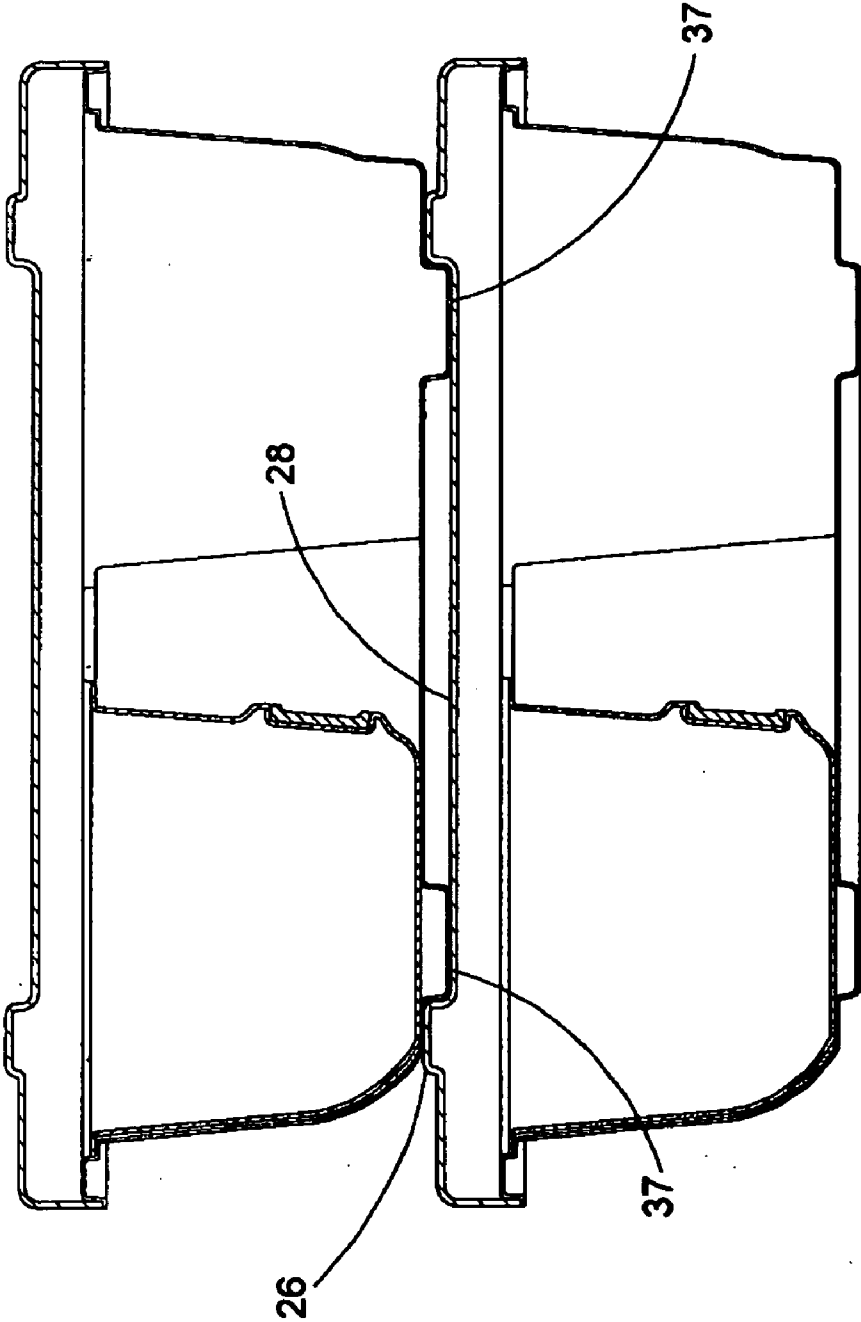


FIG 16

MULTI-TOPPING TRAY CONTAINER SYSTEM

PRIORITY

[0001] Pursuant to 35 U.S.C. Section 119(e) and 37 C.F.R. Section 1.78, the present application claims priority to the provisional application entitled "Multi-Compartment Container System" by Terry Vovan (Application Ser. No. 60/718, 781; attorney docket number 2005-6008) filed on Sep. 20, 2005.

FIELD OF THE INVENTION

[0002] The present invention relates to fast-food container system. More particularly, the invention relates to plastic food packaging that includes multi-topping tray compartments to facilitate the creation of a complete salad meal offering that is geared to the specific taste of the "fast food" consumer.

BACKGROUND OF THE INVENTION

[0003] Consumers throughout the world are largely familiar with rigid plastic packaging that is used to protect and display food items such as sandwiches, salads and bakery items. These traditional roles of plastic packaging are now the minimum expected standards, and the requirements placed on plastic food packaging continue to expand as increasing demands are placed upon it. The multi-faceted properties include the ability to form the material, using a variety of methods, into numerous configurations. Such characteristics have increasingly allowed retailers to participate in the design and development of plastic packaging and provide detailed requirements relating to aspects such as product presentation and utility in response to consumer desires, and thereby add to the retailers brand presence and competitive differentiation. Strong influences such as the demand for convenience and versatility are shaping the future of packaging, with consumers gravitating toward packaged convenience items that minimize the impact on their behavior.

[0004] Salads typically comprise a green vegetable such as lettuce or spinach and a condiment or dressing. It is typical for consumers to add one or more toppings such as bacon bits, croutons, sesame seeds, fruits and/or nuts for added nutrition and enjoyment all according to the desire and taste of the specific consumer. In order to make their desired salad, consumers often purchase the salad items separately and then mix them in the desired proportions in a separate tray. Alternatively, consumers may purchase combination packages that include a large primary flexible plastic bag into which is placed the green vegetable, as well as a condiment and toppings that are separately pre-packaged into smaller secondary flexible plastic bags. The use of flexible plastic packaging material for such combination package lacks in a number of areas. Firstly, unless the primary flexible bag is fully sealed and remains unperforated, the bag will collapse and the contents included the salad toppings will be crushed and damaged when packaged for transportation; secondly, fully sealing the bags mean that they need to be loosely arranged during bulk transportation to the markets thus requiring care in packaging and further reducing the density value of the shipment of; thirdly, the separate contents contained in the primary package are not easily visible since it is buried among the green vegetables

and needs to be dug out in order to be used; and finally, the consumer will still need a separate tray or bowl in order to mix the contents in the desired proportions. It is further not typical that utensils are placed within the primary flexible package for fear of perforation during handling.

[0005] The currently available solution to such flexible plastic packaging has been the use of rigid plastic packaging combination packages. Rigid plastic food containers are typically manufactured from Polystyrene, Polypropylene, Polyethylene Terephthalate (PET), Polylactide, Polyvinyl Chloride (PVC), or other rigid polymers. They generally comprise either of two-parts—a tray and lid—or they may be a one-piece construction with a hinge that modifies one portion of the container to act as the tray and the other connected portion to act as a lid. Furthermore, they are available in a variety of shapes and cross-sections—circular, rectangular, square, and elliptical, etc. Current rigid plastic food packaging alternatives include a main tray that is used to hold the green vegetable, a multi-compartmentalized intermediate tray that is placed over the green vegetable with the intermediate tray being supported at the rim of the main tray, and a lid that covers and seals in the entire product contents. However, this current available rigid plastic food container has an intermediate multi-compartmentalized tray that is configured so that it is support by the rim of the main tray and covers most, if not all of the mouth of the main tray and thereby obstructs the view of the product contents. Therefore, as with the flexible plastic packaging alternative, the consumer is unable to determine the quality of the green vegetables without either going up close to the product to examine the contents or often by picking up the package from the shelf and turning it around examining the product. This defeats the purpose of providing convenience to the consumer who is 'on-the-go' and further diminishes the level of sanitation because of handling the product packaging. Overall, current salad food packaging alternatives fail in their ability to effectively display the contents of the salad offering while protecting the packaging contents.

[0006] There is a need and a significant market for a food packaging container system that overcomes the limitations of currently available multi-package and multi-compartment food packages, and the present invention provides for a unique approach that achieves this objective.

SUMMARY OF THE INVENTION

[0007] In all embodiments of the invention, the rim or perimeter of the tray and lid members of the container system are designed to mate with and be releaseably lockable to each other. The releaseably lockable retaining mechanism may include one or more of a variety of snap-fit grip mechanisms. Such releaseably lockable mechanisms are used in virtually all rigid plastic food package offerings and this is not the subject of the present invention other than that this is the normal accept practice and requirement of the market that plastic food package manufacturers demand.

[0008] In a preferred embodiment of the present invention, the container system comprises a rectangular main tray member, a complementary lid member with a vented rim that is formed to mate with and be releaseably lockable to the rim of the main tray member, and an intermediate tray with multiple recesses so that a variety of foodstuff, e.g. toppings and condiment, can be placed in them. In order

retain the foodstuff in the said recesses, ensure a higher level of sanitation and permit the consumer to view the foodstuff in the recesses, a clear polymer film is disposed over the mouths of the recesses. The use of such membranes is commonplace and can be found in such food items as frozen microwaveable packaged foods and yogurt cup containers. A unique novel feature of the food container system of the present invention is that the multi-compartment intermediate tray does not cover the entire mouth of the tray member and is retention of the intermediate tray in the main tray is achieved by retaining formations in the main tray periphery that engage with the intermediate tray at two or more points. This configuration provides the consumer with an unobstructed view of main tray contents, as well as contents of the intermediate tray with ease and without having to handle the package prior to purchase. The lid member further includes vents positioned at the lid member edge that permit air to flow into the closed food container in order to oxygenate the green vegetables. Unlike meats and many other grocery items, fruits and vegetables benefit from exposure to oxygen. While carrying out respiration, plants convert their stored glucose into carbon dioxide and water. As opposed to photosynthesis, respiration allows for the natural ripening of fruits even after they are picked. Such oxygenation hinders the growth of spores of bacteria and mold to thereby help extend the freshness of vegetable or fruit. Because respiration rates vary, the lid member vents are sized to meet the characteristics of food content.

[0009] In one preferred embodiment, tongue-in-groove sliding lock mechanisms are used wherein slots or grooves are formed into and located at either orthogonal sides or opposing sides of the main tray with complementary mating ridges or tongues formed into orthogonal sides or opposite sides of the intermediate tray. When the tongue-in-groove mechanism is engaged, the intermediate tray is held fast within the main tray. The entire contents within the food container system of the present invention is clearly displayed for easy viewing by the consumer and the entire integrated package is presented as a single product item for sale.

[0010] In another embodiment of the invention, the mouth of the main tray member and the corresponding lid member is circular. Though there are no orthogonal lines along the rim of the tray member, the principle related to the use of tongue-in-groove retaining mechanism is unchanged.

[0011] This invention is a novel plastic packaging solution that improves significantly on the convenience and therefore marketability of food product. Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description and specific examples are intended for purposes of illustration only and are not intended to limit the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The present invention will become more fully understood from the detailed description and the accompanying drawings, wherein:

[0013] FIG. 1 is an exploded isometric view showing the elements comprising an embodiment according to the present invention.

[0014] FIG. 2 is an isometric view of the container system in FIG. 1 showing the intermediate tray assembled into the main tray.

[0015] FIG. 3 is a plan view of the container system in FIG. 2.

[0016] FIG. 4 is an exploded fragmentary isometric view of one of the retaining mechanisms in FIG. 1.

[0017] FIG. 5 is the fully assembled food container system of FIG. 1 ready for sale.

[0018] FIG. 6 is an exploded isometric view showing the elements comprising another embodiment according to the present invention.

[0019] FIG. 7 is an isometric view of the container system in FIG. 6 showing the intermediate tray assembled into the main tray.

[0020] FIG. 8 is a plan view of the container system in FIG. 7.

[0021] FIG. 9 is an exploded isometric view showing the elements comprising another embodiment according to the present invention.

[0022] FIG. 10 is an isometric view of the container system in FIG. 9 showing the main tray and intermediate tray assembled.

[0023] FIG. 11 is a cross-sectional view taken along the line S-S of the container system in FIG. 10.

[0024] FIG. 12 is a fragmentary cross-sectional view taken along the line T-T of the container system in FIG. 11.

[0025] FIG. 13 is a cross-sectional view taken along the line R-R of the container system in FIG. 11.

[0026] FIG. 14 is an exploded isometric view showing the elements comprising another embodiment according to the present invention.

[0027] FIG. 15 is an isometric view of the two container systems in FIG. 9 stacked for transportation or display.

[0028] FIG. 16 is a cross-sectional view taken along the line U-U of the stacked container systems in FIG. 14.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0029] The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which preferred embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, the embodiments are provided so that this disclosure will be thorough and complete and will fully convey the scope of the invention to those skilled in the art.

[0030] Referring to the drawings and in particular to FIG. 1, therein is shown an exploded isometric rendition of a rigid polymer plastic construct food container system 1 according to the present invention. The food container system includes a main tray member 4 that is rectangular when viewed from above, with a recess 16 into which a first food item such as a green vegetable is place; the main tray member 4 is also of sufficient size and configured to accept a multi-compartment

ment intermediate tray member **18**. Also shown are recesses **19, 20, 21** that are formed into the planar surface of the intermediate tray **18** for placing additional foodstuff such as toppings and condiment. A polymer film (not shown) is optionally disposed over the recesses in order to retain the foodstuffs contained in it. Retention of the film over the mouths of the recesses **19, 20, 21** of the intermediate tray member **18** is generally achieved through an adhesive that bonds the film to the periphery of the mouths of said recesses, and access into said recesses is made by peeling off the film. The entire intermediate tray may be removed from the main tray member **4** and its separate contents then placed into said main tray member **4** in the proportions desired by the consumer. Assembly is achieved by inserting the intermediate tray member **18** into the main tray member **4** so that said main tray member retaining elements **14, 12** that are formed into the main tray member **4** create corners **15, 17** that engage mechanically with intermediate tray member corners **27, 23**. The lid member **2** is formed so that it has a geometry that is complementary with and is releaseably lockable to the main tray member **4** at their peripheral edge. In the embodiments shown, the releaseably lockable mechanism is an annular-type snap-fit grip mechanism that is interrupted by a series of raised ribs **7** that create vents **6** spaced along the perimeter of the lid member **2**. Turning now to FIG. **2**, therein is shown said intermediate tray member **18** assembled into and held fast by the retaining elements **12, 14** of the main tray member **4**. In response to the trend toward fast food consumption and an increasing demand for convenience by this category of consumers, the molded embodiment of the present invention will have selected locations at which quick-releasing fasteners **22** are configured and formed into the side of the intermediate tray member **18** for the attachment of utensil **24**. In this current embodiment, the quick-releasing fasteners **22** are located at the side of the intermediate tray member. Turning to FIG. **3**, therein is a plan view of the intermediate tray member **18** assembled into the main tray member **4** showing the layout of the food contents. As shown, the footprint of the mouth of the intermediate tray member **18** covers only a relatively small portion of the mouth of the main tray member **4**, however, as will be shown in a variation of this embodiment, the intermediate tray member **18** may be formed to occupy a larger footprint of the mouth of the main tray member **4**. Turning now to FIG. **4**, therein is shown an exploded fragmentary isometric view of retaining mechanism **9** in FIG. **2**, in which the main tray retaining element **14** and intermediate tray member corner **27** engage when the intermediate tray member **18** is assembled into the main tray member **4**. When assembled, retention of the intermediate tray member **18** into the main tray member **4** is achieved primarily via mechanical contact with the main tray member at the following locations: (i) main tray member retaining element **14** at corner **15** with intermediate tray member corner **27**; and (ii) main tray member retaining element **12** at corner **17** with intermediate tray member corner **23**. FIG. **5** depicts a rendition of the current embodiment of the present invention fully assembled ready for display.

[0031] The lid member **2**, intermediate tray member **18** and main tray member **4** of the food container system **1** can be molded, through known thermoforming manufacturing means, from a single sheetline of polymer material work piece into a predetermined shape and thickness as required by the specific specifications. Further, the food container

system **1** may also be formed, through known thermoforming manufacturing means, into a curvilinear geometry to thereby provide the end user with a variety of polygonal shapes. In certain circumstances, the main tray member **4** may be made from material that is dissimilar from the material used to make the lid member **2**.

[0032] Turning now to FIGS. **6, 7** and **8**, therein is shown a variation of the prior embodiment. One variation is the manner of retaining the intermediate tray member **18** into the main tray member **4**. In this variation of the present invention, assembly of the intermediate tray member **18** into the main tray member is achieved by means of a “tongue-in-groove” mechanism **25**, wherein tongue elements **34, 36** formed in the intermediate tray member **18** is inserted into complementary grooves **5, 11** that are formed into the periphery of the main tray member **4**. A second variation is that the quick-release fasteners **22** for attaching utensil **24** are formed in the underside of the intermediate tray member **18** as opposed to its side.

[0033] Turning now to FIGS. **9** and **10**, therein is shown another embodiment of the present invention. In this variation of the present invention, the footprint of the mouth of the intermediate tray member **18** is formed to cover a larger footprint of the mouth of the main tray member **4** as compared with prior embodiments described herein. Shown here is the manner in which the retaining elements **12, 14** are formed at opposite sides of the main tray member **4** to achieve the same purpose of holding the intermediate tray member **18** in place. It will be obvious to those skilled in the art that a “tongue-in-groove” mechanism as earlier described and depicted in FIGS. **6, 7** and **8** may alternatively be used to secure the intermediate tray member **18** into the main tray member **4**. As shown in FIGS. **11** and **12**, the intermediate tray member **18** is preferably supported by lip **29** on main tray member edge **31**, as well as supported at its base **33** by main tray member bottom edge **35**. Utensil **24** is tucked beneath the intermediate tray member as shown. This is exemplified in FIG. **13**, which is a cross-sectional view taken along the line R-R of FIG. **11**, which further shows how the quick-releasing fasteners **22** to which utensil **24** is attached is located on the underside of the intermediate tray **18**.

[0034] Turning to the embodiment of the present invention illustrated in FIG. **14**, therein is shown recess **30** that is formed into the underside **32** of the main tray member **4** for storing utensil **24**. Quick-release fasteners **22** for attaching utensil **24** are formed into the recess **30**, and attachment of the utensil **24** is then achieved in an identical manner as in the prior illustrated embodiments. The use of said recess **30** leaves main tray member underside **32** flat so as to permit the main tray member **4** to stand flat on a planar surface. Further, the recess **30** is formed with a peripheral edge **36** that mates with and is complementary to lid member raised male rib **26** to permit stacking to restrict lateral movement.

[0035] FIG. **15** illustrates one manner in which stacking of the container system described herein may be achieved for the purpose of transportation or display at the market. FIG. **16** more clearly shows that male ribs **26** in the lid member **2** are formed so that the said lid member may slot into and make a mechanical fit with complementary male ribs **37** formed on the underside of the main tray member **4**. Though continuous ribs are used to illustrate the manner of mechani-

cal retention, discrete male ribs may be used to achieve same. The slotably connected lid and tray members have a mechanical fit that restrict lateral movement of the container system when they are stacked.

[0036] Although particular embodiments of the invention have been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the spirit and scope of the invention. Accordingly, the invention is not to be limited except as by the appended claims.

We claim:

- 1. A food container system comprising:
 - a lid member;
 - a main tray member;
 wherein the lid member and main tray member possess complementary mating rims that are releaseably lockable to each other;
 - an intermediate tray member that is located between the lid member and main tray member;
 wherein said intermediate tray member has a top surface plan view cross-sectional area that is not more than 80% of the top surface plan view cross-sectional area of the mouth of the main tray member
 - and further wherein the intermediate tray member is removeably connected to the main tray member.
- 2. The claim as in claim 1 wherein the releaseably lockable mechanism that connects the lid member to the main tray member is a snap-fit grip.
- 3. The claim as in claim 1 wherein the removeably connected feature holding the intermediate tray member to the main tray member are mechanical engagements between at least two corners of the intermediate tray member and at least two complementary mating corners formed into the body of the main tray member.
- 4. The claim as in claim 1 wherein the removeably connected feature holding the intermediate tray member to the main tray member are tongue-in-groove mechanisms.
- 5. The claim as in claim 4 wherein the tongue elements of the tongue-in-groove mechanisms are formed into the intermediate tray and the complementary grooves are formed into the main tray member.
- 6. The claim as in claim 1 wherein the intermediate tray member includes at least one recess.
- 7. The claim as in claim 6 wherein a membrane disposed over the mouths of the recesses and structured to retain the contents of the recesses
- 8. The claim as in claim 1 wherein a quick-release fastener mechanism is formed into the intermediate tray member for holding a utensil.
- 9. The claim as in claim 8 wherein the quick-release fastener mechanism is formed on a side wall of the intermediate tray member.

10. The claim as in claim 8 wherein the quick-release fastener mechanism is formed on the underside of the intermediate tray member.

11. A food container system comprising:

- a lid member;
 - a main tray member;
- wherein the lid member and main tray member possess complementary mating rims that are releaseably lockable to each other;
- an intermediate tray member that is located between the lid member and main tray member;
- wherein formed into the underside of the main tray member is a quick-release fastener mechanism for retaining a utensil.

12. The claim as in claim 11 wherein a utensil recess is formed into the underside of the main tray member; and

further wherein the quick-release fastener mechanism is formed in the recess of the underside of the main tray member.

13. The claim as in claim 12 wherein a membrane is disposed over the mouth of the utensil recess.

14. The claim as in claim 13 wherein the membrane is a film or a foil.

15. The claim as in claims 1 or 11 wherein the material of the lid member, main tray member and intermediate tray member is Polystyrene, Polypropylene, Polyethylene Terephthalate, Polylactide, Polyvinyl Chloride, or other rigid polymers.

16. The claim as in claims 1 or 11 wherein the lid member or tray member is constructed using a process taken from the group consisting of thermoforming, injection molding, transfer molding and blow molding.

17. The claim as in claims 1 or 11 wherein the lid member is formed with raised ribs on its top surface, and complementary mating raised ribs are formed onto the bottom surface of the main tray member so that the lid member raised ribs interlock with the main tray member raised ribs in order to restrict lateral movement when the container system is stacked one on top of each other.

18. The claim as in claims 1 or 11 wherein the lid member and main tray member are a single construct and hingeably attached to each other.

19. The claim as in claims 1 or 11 wherein the container system is circular, rectangular, square, and elliptical, or other polygonal shape.

20. The claim as in claims 1 or 11 wherein the container system is stackable.

21. The claim as in claim 20 wherein the stacking feature is enabled by forming raised male ribs on the lid member and complementary raised male ribs on the bottom surface of the main tray member.

22. The claim as in claim 1 or 11 wherein the food container system possesses tamper-evident features.

* * * * *