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(54) **MULTI-COMPARTMENT FLEXIBLE PACKAGE**

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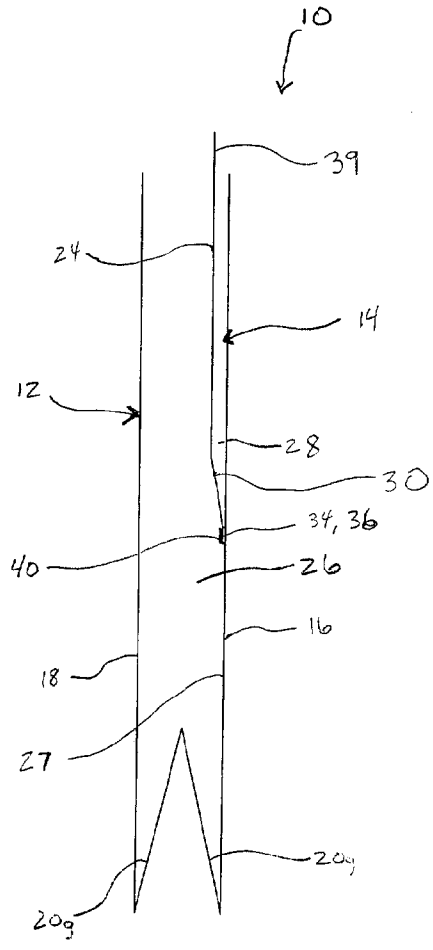
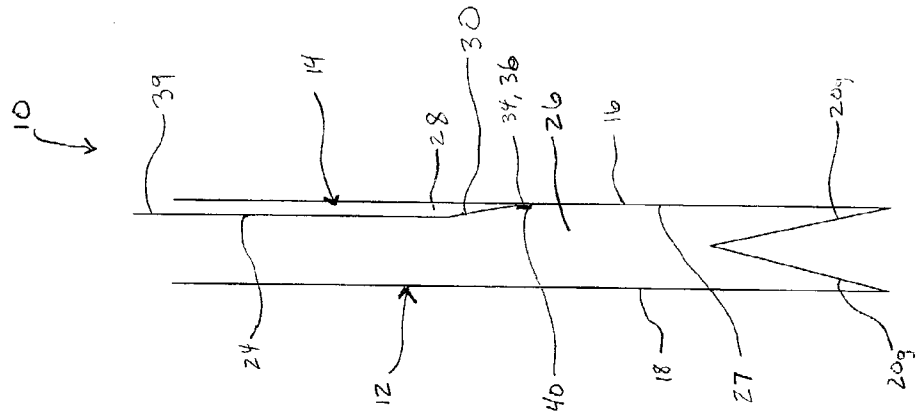
(57) **ABSTRACT**

A flexible package having a main package compartment and a segregated internal compartment package. The main package generally includes a plurality of outer panel portions. These panel portions can include a front panel portion, a back panel portion, and a bottom panel portion. The formation of these panels into the main package defines an internal cavity for holding material contents. Any of the panels can be gusseted with the processes and techniques known to one skilled in the art. The main package includes the segregated internal compartment package, wherein the compartment package can include at least one internal panel portion having a transverse edge portion adapted joined to an inner surface of one of the main package panels, i.e. the front or back panels, within the internal cavity to define a second compartment cavity distinct from the internal cavity of the main package. At least two separate openings are available into the package to enable selectively separate access into the internal cavity of the main package and the compartment cavity of the segregated internal compartment package.

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39
14
30
28
34, 36
26
16
20d
24
12
40
18
27
20g

Fig. 2

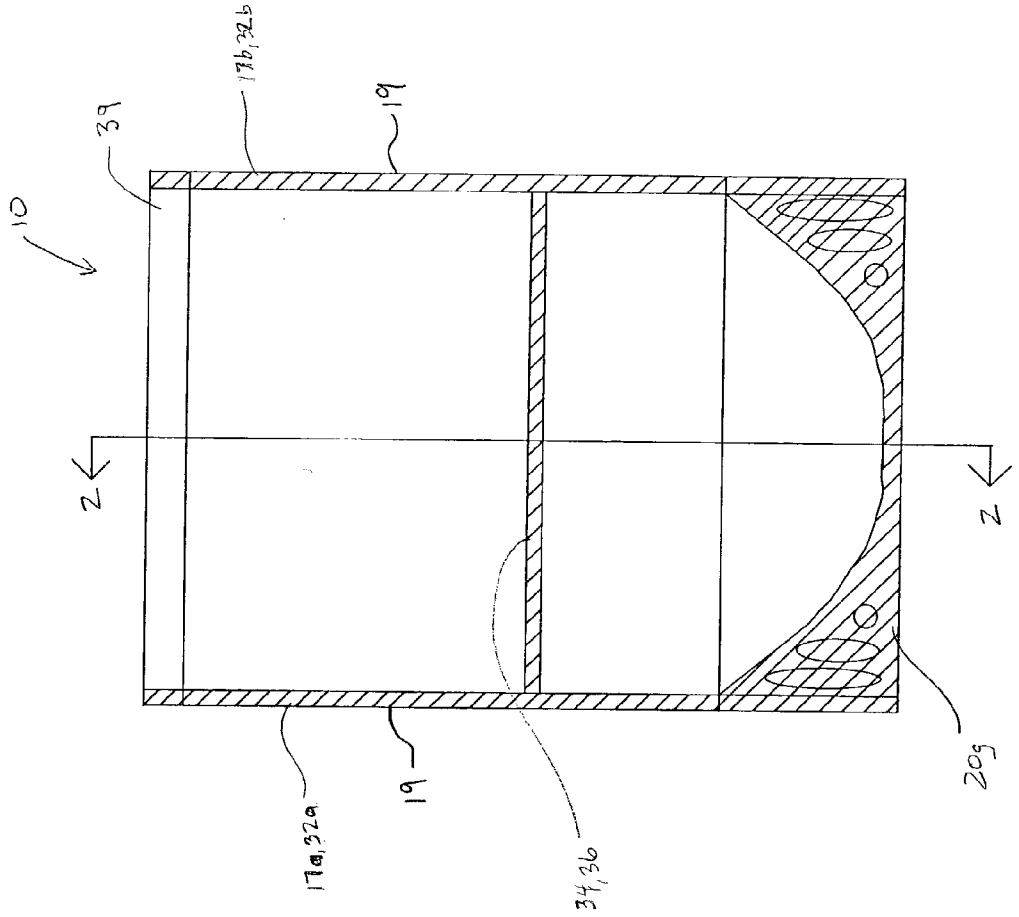
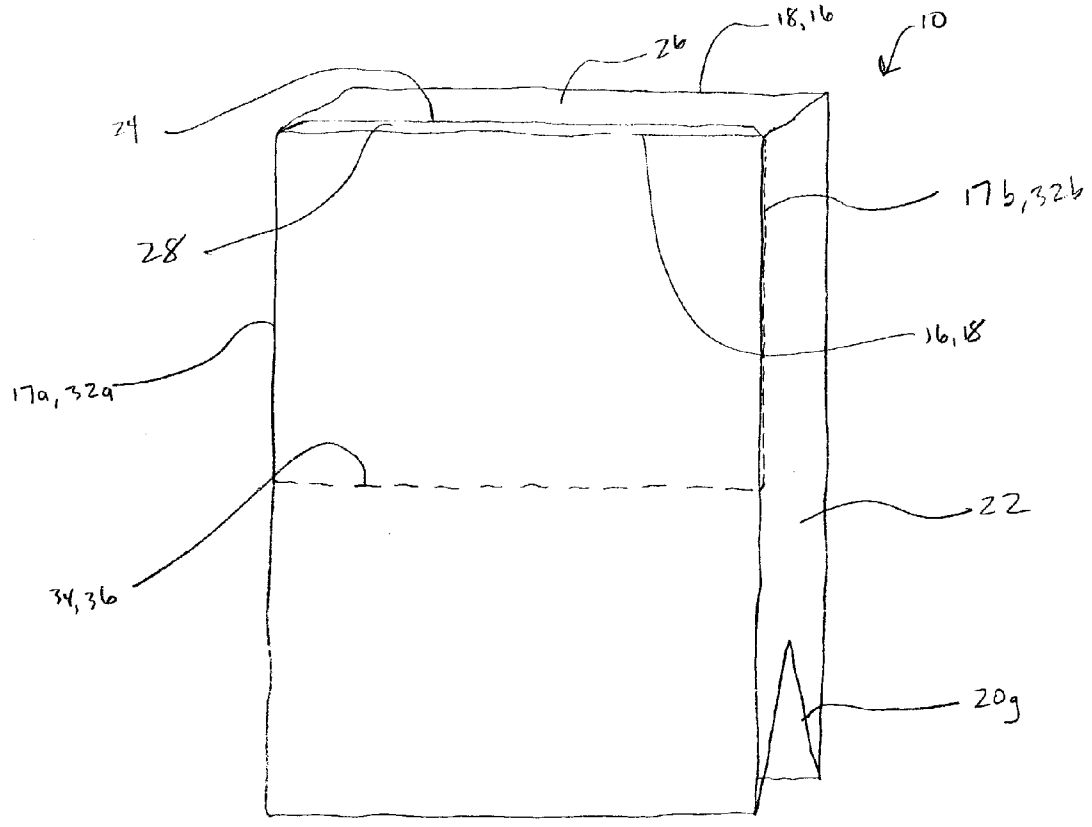

10
39
17b, 32b
19
Z
Z
17a, 32a
19
34, 36
20g

Fig. 1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16,18
17a,32a
22
34,36
20g

Fig. 2b

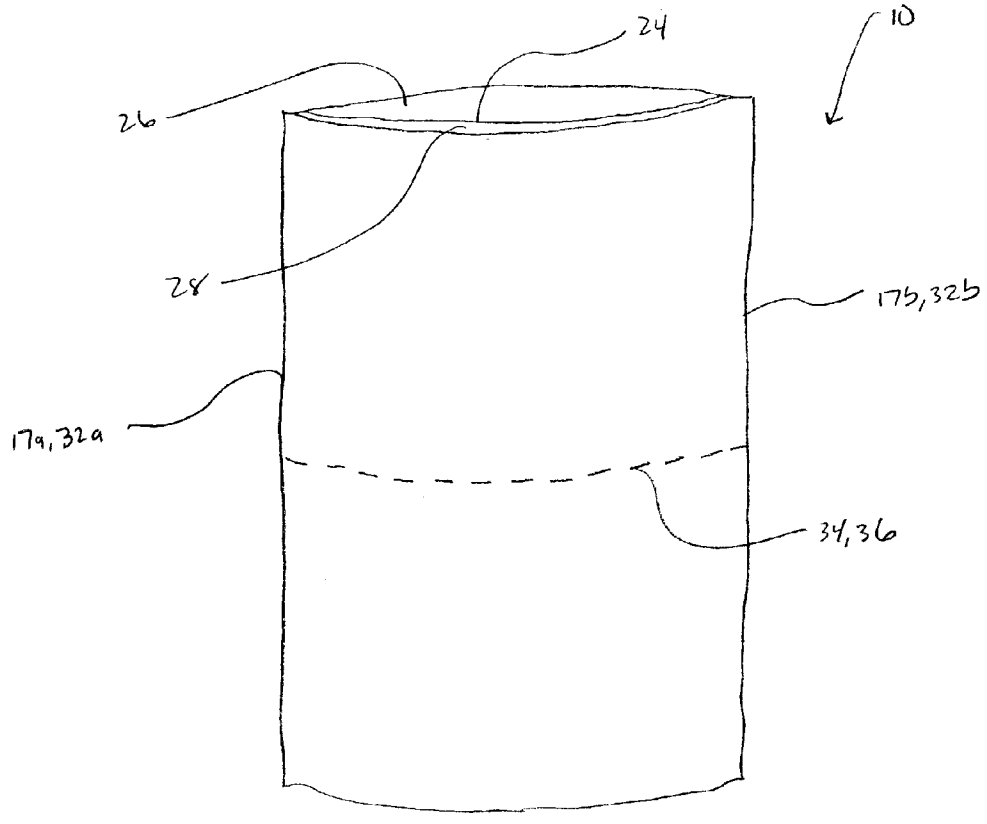
24
10
26
28
17b,32b
17a,32a
34,36

Fig. 2a

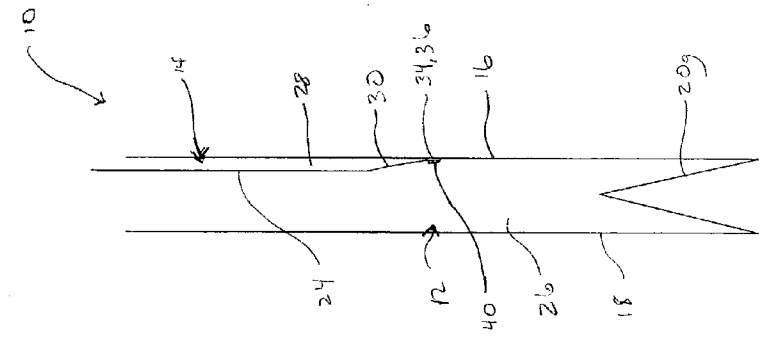

Fig. 4

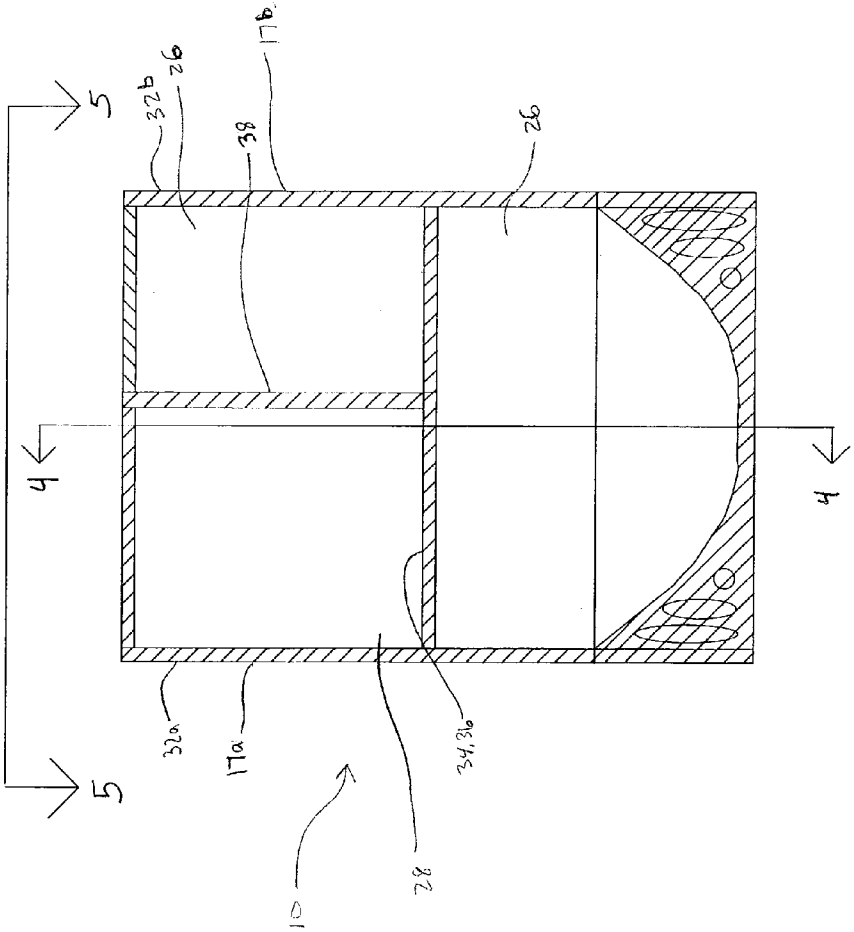

Fig. 3

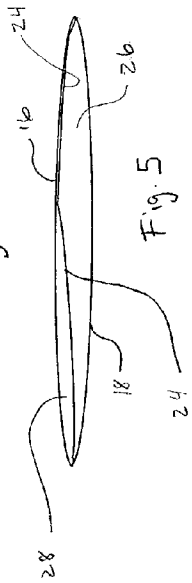

Fig. 5

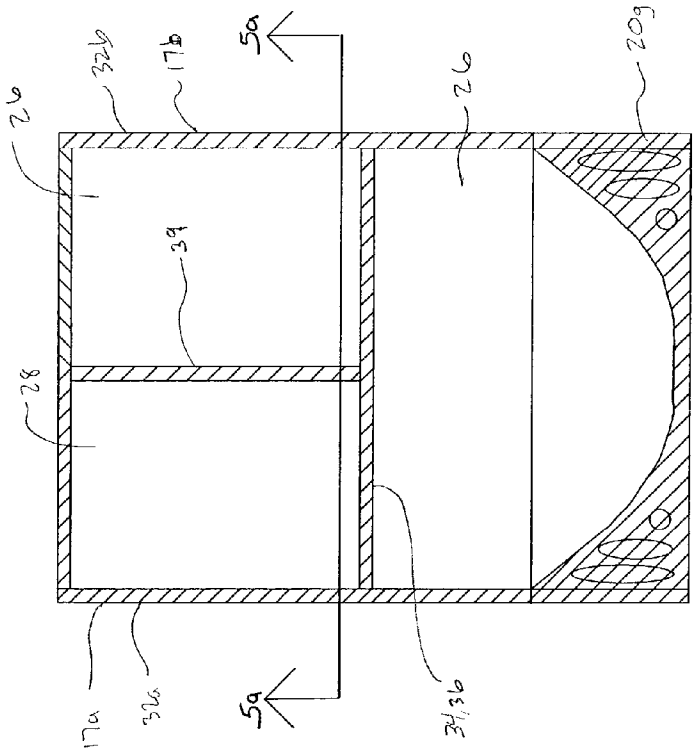

Fig. 3a

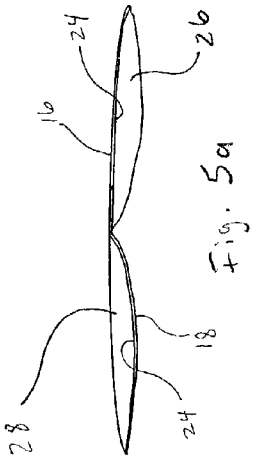

Fig. 5a

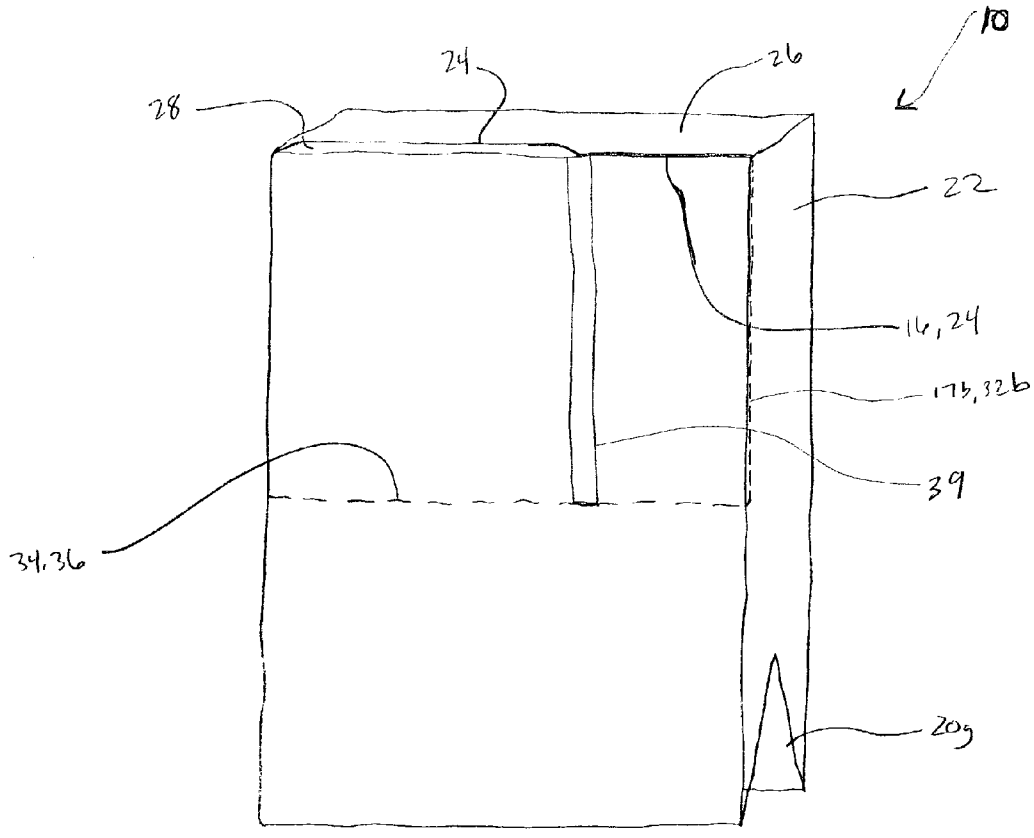

Fig. 5b

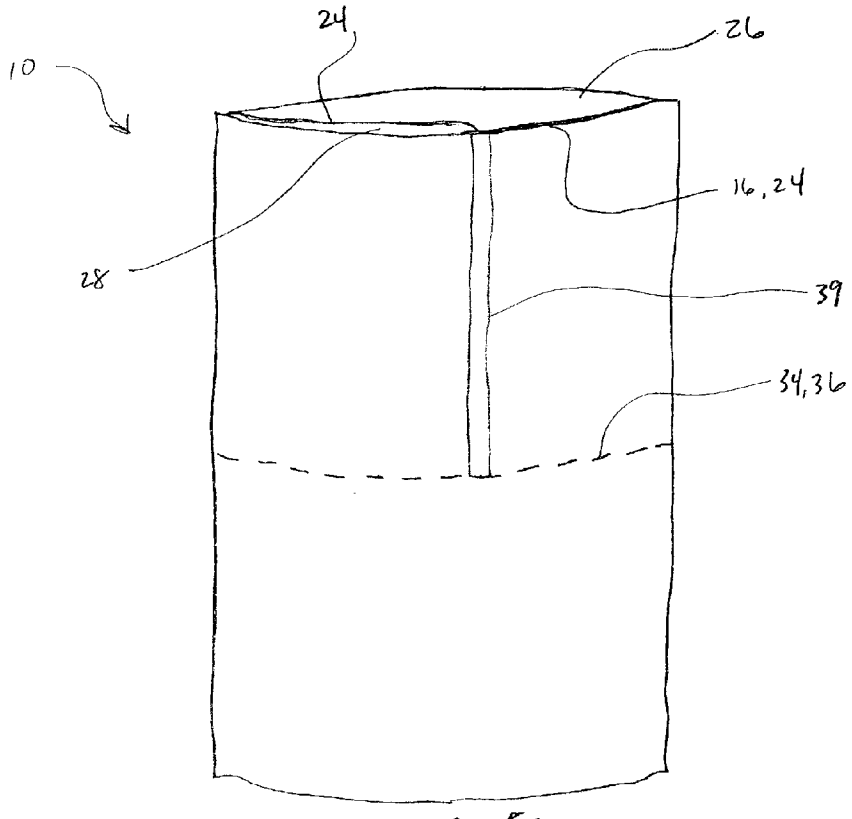

Fig. 5c

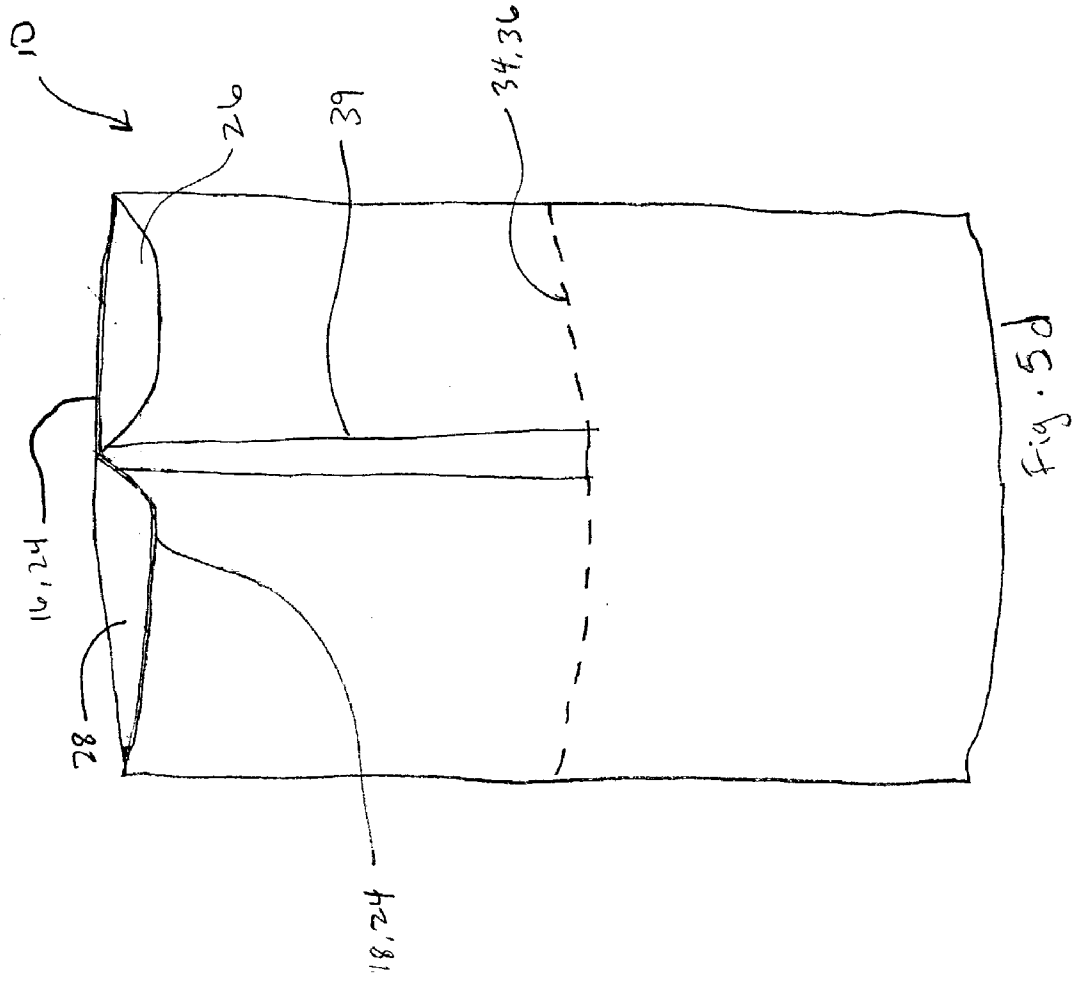

Fig. 5d

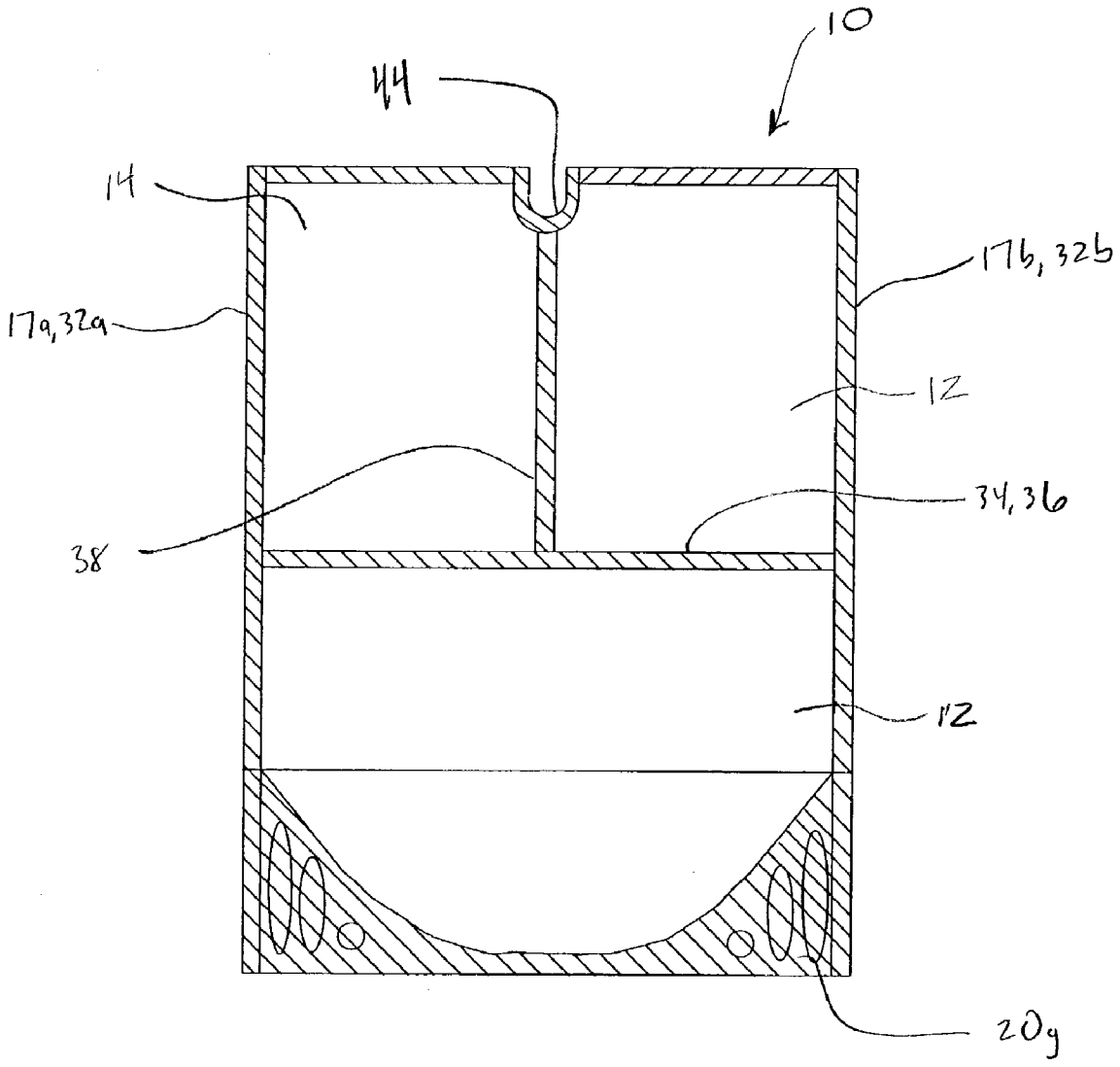

Fig. 5e

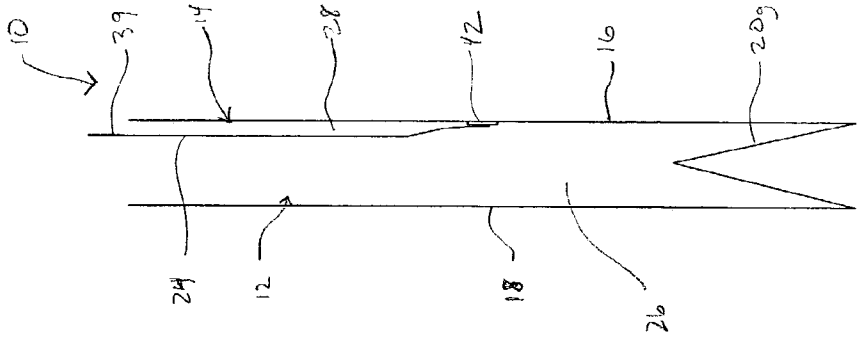

Fig. 7

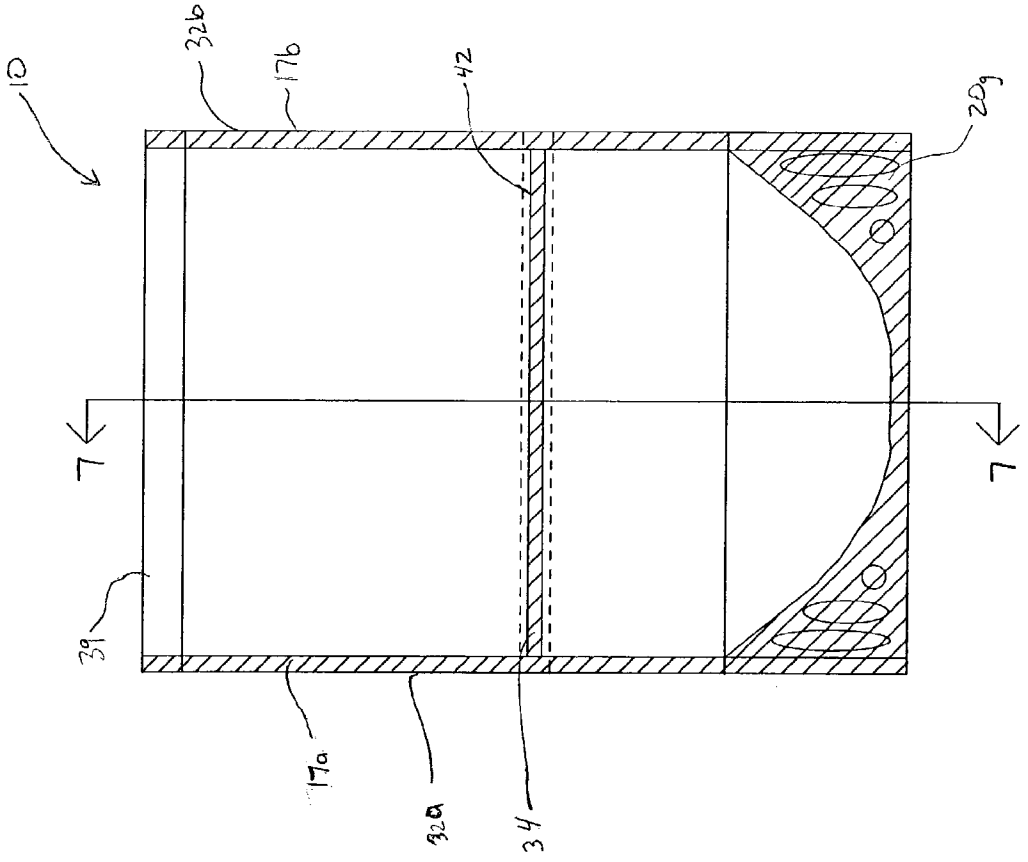

Fig. 6

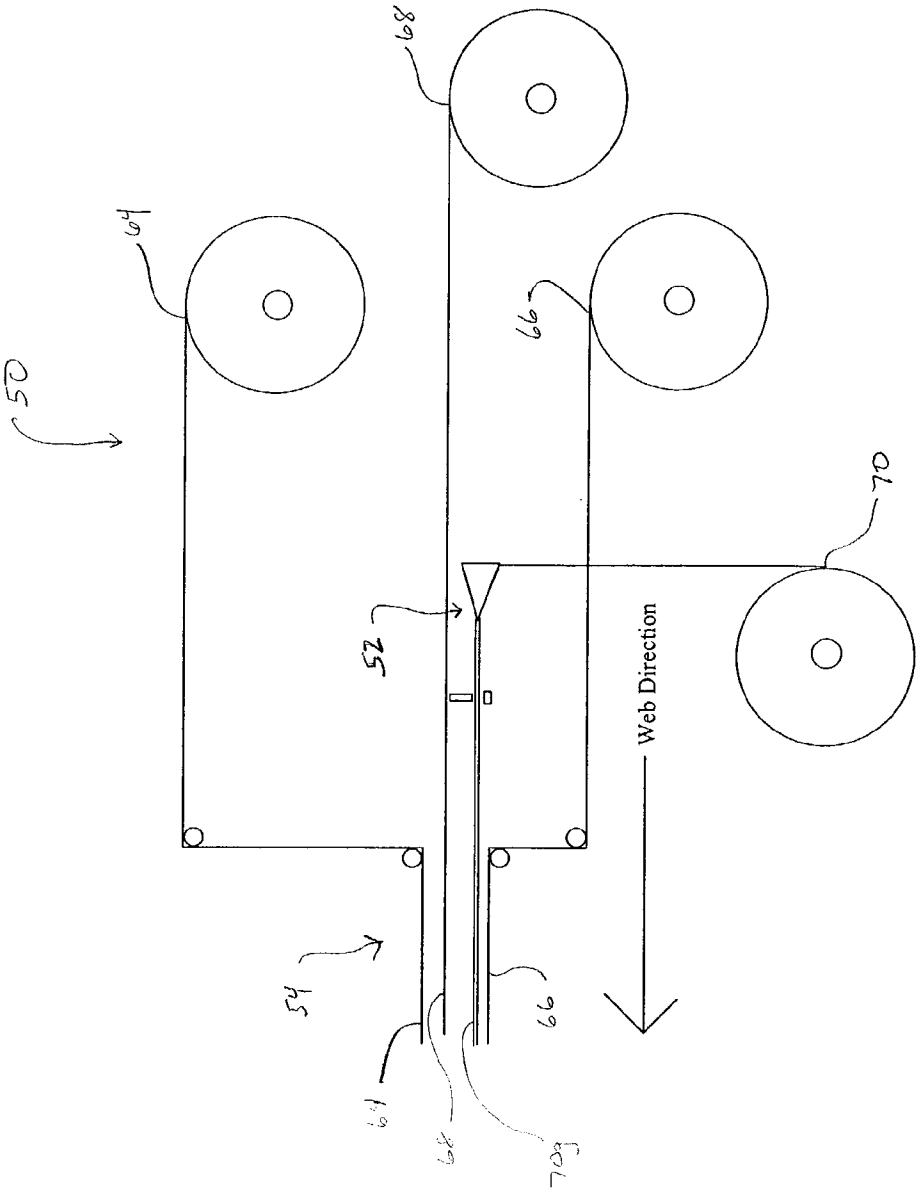

Fig. 8

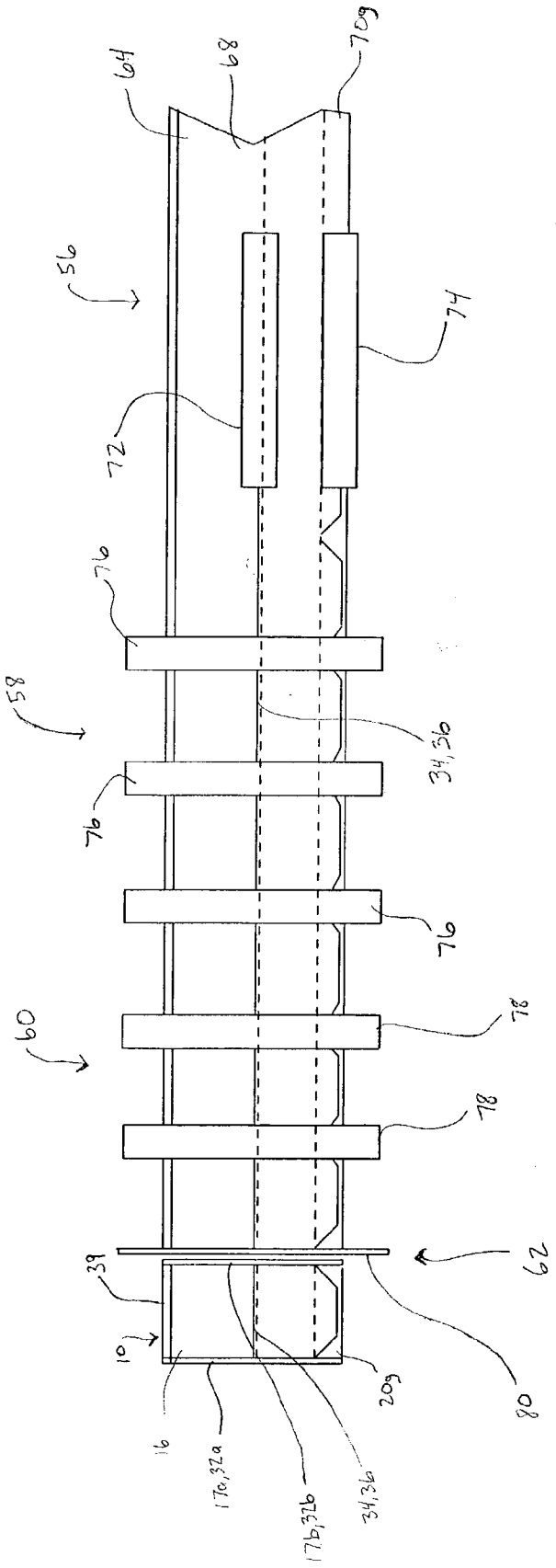
64
68
70a
56
74
72
76a
58
34,36a
76
76
90
78
78
39
27
101
80
209
16
17a,32a
17b,32b
34,36a

Fig. 9

MULTI-COMPARTMENT FLEXIBLE PACKAGE

RELATED APPLICATIONS

[0001] The present invention claims the benefit of U.S. Provisional Application No. 60/386,798 filed Jun. 6, 2002 and entitled "MULTI-COMPARTMENT SEGREGATING FLEXIBLE PACKAGE," which is hereby incorporated in its entirety by reference.

FIELD OF THE INVENTION

[0002] The present invention relates generally to flexible packaging and, more particularly, to flexible packaging having at least one segregated internal compartment designed for selective compartmental use.

BACKGROUND OF THE INVENTION

[0003] Conventional flexible packaging does not generally include compartments within the internal cavity of the package. Those packages that do, merely provide for a positioned wall down a section of the internal cavity of the main packaging such that a division is merely created within said internal cavity. Distinct and selectively usable compartments within the cavity are not provided for in these conventional package designs.

[0004] For instance, U.S. Pat. Nos. 4,201,031, 4,993,844, 5,335,478, and 5,409,116 disclose packages having a divider panel disposed between the two main panels to create a partition. However, since the partition panel spans the full longitudinal distance and is equal in width to the two main panels, the two compartments are accordingly of equal size. Consequently, such partitioned package configurations are not ideal for selective applications and uses where one of the segregated compartments is not required to be identically volumetrically sized with respect to the other. Further, such designs are not ideally compatible with flexible packaging designs employing side or bottom gusset panels. Since the edges of the partition panel are bonded intermediate the edges of the main panel portions, allowing the full length gusseted panels would be rendered unusable as expansion and contraction at the gusset would be restricted by the intermediately bonded partition panel.

[0005] Other conventional techniques include creating multi-compartment packages by heat sealing or otherwise bonding two parallel panels proximate the middle portion of the panels such that a divider strip is established. Such designs are demonstrated in U.S. Pat. No. 3,390,507, U.S. Patent Application No. 2002/0067865, and E.P. Patent Publication 594,449A1. The formation and design of these conventional packages merely creates two adjacent packaging portions of substantially equal size. Again, gusseted features are unacceptably limited.

[0006] As a result, there is a need for a flexible package that substantially solves the above-referenced problems with conventional package designs, configurations, and manufacturing methods.

SUMMARY OF THE INVENTION

[0007] The present invention solves many of the problems that plague conventional flexible packages and packaging methods. Various embodiments of the present invention are directed to a main package and a segregated internal compartment package. The main package generally includes a plurality of outer panel portions. These panel portions can include a front panel portion, a back panel portion, and a bottom panel portion. In addition, the main package can include a first side panel portion, and a second side panel portion. The formation of these panels into the main package defines an internal cavity for holding material contents. Any of the panels can be gusseted with the processes and techniques known to one skilled in the art. The main package includes the segregated internal compartment package, wherein the compartment package can include at least one internal panel portion having a transverse bottom edge portion joined to an inner surface of one of the main package panels within the internal cavity to define a second compartment cavity distinct from the internal cavity of the main package. Further, the present invention can include at least two separate openings into the package to enable selectively separate access into the internal cavity of the main package and the second compartment cavity of the segregated internal compartment package.

[0008] In one embodiment, the internal compartment is some size generally smaller than the vertical or longitudinal length of the front and back panels, of varying available width. The internal panel portion can be of a polyethylene, or like plastic or plastic laminate, and is uniquely sealed within the inner cavity at an inner surface of the front or back panels, within the inner cavity. While the outside of the package may look much like any stand up flexible package, there are nonetheless dual top accesses that can be created by a vertical/longitudinal seal of the internal panel portion to clearly identify the two separate cavities.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] **FIG. 1** is a front view of a multi-compartment package in accordance with an embodiment of the present invention.

[0010] **FIG. 2** is a side section view of a multi-compartment package in accordance with an embodiment of the present invention.

[0011] **FIG. 2***a* is a perspective view of a multi-compartment package in accordance with an embodiment of the present invention.

[0012] **FIG. 2***b* is a perspective view of a multi-compartment package having side panels in accordance with an embodiment of the present invention.

[0013] **FIG. 3** is a front view of a multi-compartment package having a longitudinal seal in accordance with an embodiment of the present invention.

[0014] **FIG. 3***a* is a front view of a multi-compartment package having a longitudinal seal in accordance with an embodiment of the present invention.

[0015] **FIG. 4** is a side section view of the multi-compartment package of **FIG. 3**.

[0016] **FIG. 5** is a top view of the multi-compartment package of **FIG. 3**.

[0017] **FIG. 5***a* is a top view of the multi-compartment package of **FIG. 3***a*.

[0018] **FIG. 5***b* is a perspective view of a multi-compartment package having a longitudinal seal and side panels in accordance with an embodiment of the present invention.

[0019] **FIG. 5***c* is a perspective view of a multi-compartment package having a longitudinal seal in accordance with an embodiment of the present invention.

[0020] **FIG. 5***d* is a perspective view of a multi-compartment package having a longitudinal seal in accordance with an embodiment of the present invention.

[0021] **FIG. 5***e* is a front view of a multi-compartment package having a longitudinal seal and notch in accordance with an embodiment of the present invention.

[0022] **FIG. 6** is a front view of a multi-compartment package having a temporary seal in accordance with an embodiment of the present invention.

[0023] **FIG. 7** is a side section view of the multi-compartment package of **FIG. 6**.

[0024] **FIG. 8** is a side view of feeding and aligning stations and methods used in forming multi-compartment packages in accordance with embodiments of the present invention.

[0025] **FIG. 9** is a top view of sealing, cooling, and cutting stations and methods used in forming multi-compartment packages in accordance with embodiments of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0026] Referring to FIGS. **1-9**, a flexible package **10** in accordance with the present invention, and the manufacturing steps for forming said flexible package **10**, are shown. The package **10** generally includes a main package **12** and a segregated internal compartment package **14**. The main package **12** generally includes a front panel portion **16**, a back panel portion **18**, and a bottom panel portion **20**. Further, a top panel portion **21** and/or at least one side panel portion **22** can be included in various embodiments, as demonstrated with side panels **22** in **FIGS. 2***b* and **5***b*. Panel portions **16-20** can be joined to form or define an inner cavity **26** of the main package **10** for holding, transporting, or otherwise containing material contents. At least one of the front **16** or back **18** panel portions includes a main sealant surface **27** for bondable joining with selectively positioned portions of the internal compartment package **14**. The front panel portion **16** can include front longitudinal edges **17***a*, **17***b* and the back panel portion **18** can include back longitudinal edges **19**. The cross-hatching in the figures can be utilized to generally denote the seal lines which are further described herein.

[0027] The segregated internal compartment package **14** generally includes at least one internal compartment panel portion **24**, wherein the compartment panel portion **24** is peripherally joined to the inner surface of at least one of the main package **10** panel portions to create a second compartment cavity **28**. The at least one internal compartment panel **24** includes an internal panel sealant surface **30**, longitudinal compartment panel edges **32***a*, **32***b* and transverse compartment panel edges **34**.

[0028] The package portions **12-22** are generally constructed of flexible sheet material such as polyethylene, polyester, metal foil, polypropylene, or polyethylenes laminated with other materials such as nylon, polyester, and like films. To provide for higher barriers, embodiments can use combination layers of said materials and material of the like. Generally, the confronting or joinable materials of the main package **12** and the internal compartment package **14** must have acceptable sealing characteristics for bonding to the respective target material. For instance, the sealant surface **30** of the internal panel **24** is constructed of a plastic web of polyethylene, or a material with like characteristics and heat bonding qualities for joining to the target main sealant surface **27** of one of the main package panels, such as the front **16** or back **18** panel portions. One skilled in the art will understand that a myriad of materials and material laminates are available for selective use for the main sealant surface **27** and the internal sealant surface **30** to facilitate the bonding attachment described herein. In one embodiment, at least one of the sealant surfaces **27**, **30** will comprise "contaminants" that permit a varying level of bonding, wherein the level of bondable attachment is dependent on the heat applied from a corresponding heat sealing bar or other device. Higher temperatures will create "destructive", i.e., permanent, bonds while lower temperatures will create a more temporary bond for selective disengagement. Such bonding techniques can be applied at any sealable surface or region of the main package **12** or the internal compartment package **14** to create the desired level of bonding.

[0029] Preferably, the package of the present invention is to be formed into a stand-up pouch, but it could be a three-side-seal pouch, a pouch that displays lying down, or other known pouch or packaging designs and configurations. The internal panel or web **20** can be of the same width and height as the back and/or front panels, or it can be some size smaller, depending on the compartmental needs of the manufacturer or end user. Regardless, and unlike conventional techniques, the transverse compartment panel edge **24** of the internal panel **24** will not be bound to both the front and back panel portions. Instead, the edges **32** of the internal compartment panel **24** will be bonded intermediate the front **16** and back panels **18** and the transverse edge **34** will be bonded to only one of the front **16** or back **18** panels some distance intermediate the bottom and top edges of said one of the front **16** and back **18** panels. In embodiments including the at least one side panel **22**, the longitudinal edges **32***a*, **32***b* will also be bonded to the same one of the front **16** or back **18** panels at respective edges **17**, **19**. Bonding descriptions of the internal compartment panel **24** to various panel designations herein will generally require particular panel portion descriptions for ease of explanation, i.e., panels **16** and **18**, but it must be noted that each of the panel portions **16**, **18** are interchangeably capable of providing the inner target surface for the internal panel **24** attachment, and the transverse edge **34** in particular. For instance, specific embodiments will require attachment or bonding of the internal panel **24** to the inner surface **27** of the back panel **18** where the outside surface of the front panel **16** includes graphical indicia. Attachment of the internal panel **24** to the back panel **18** will protect the indicia on the front panel **16** as specific sealing processes may require sealing bars to contact the outside of the package to bond the internal panel **24** in place.

[0030] In FIGS. **1-2***a*, one embodiment of the package **10** of the present invention is shown. In this embodiment, the internal compartment package **14** is defined by bonding the internal sealant surface **30** at the transverse edge **34** of the at least one internal compartment panel portion **24** to the main sealant surface **27** of the front panel **16**, with the back panel

18 being free from bonding contact with the transverse edge **34**. Again, the orientation of the panels **16**, **18** in relation to the attachment of the internal panel portion **24** is merely for demonstrative purposes and can be interchangeable. Further, the bottom panel **20**, or the bottom panel portion **20** defined by joining the ends of the front **16** and back panel **18** portions, is gusseted to create a bottom gusseted panel portion $\mathbf{20}_g$. For ease of explanation and differentiation, gusseted panels are denoted herein with a subscript "g" character. As best demonstrated in **FIGS. 1 and 2***a*, the internal panel portion **24** spans substantially the full width of the front panel **16** but is closeably sealed some distances short of the complete longitudinal length of the front panel **16**. In this embodiment, the longitudinal edges **32***a*, **32***b* of the internal panel portion **24** are substantially and correspondingly matched and bonded to the longitudinal edges **17***a*, **17***b* of the front panel **16** and the bottom transverse compartment panel edge **34** of the internal panel portion **24** is bonded across the front panel **16** some distance above the bottom panel portion **20***g*. As such, the transverse edge **34** of the internal panel **24** is attached at a transverse seal **36**, transverse to the longitudinal edges **17***a*, **17***b* of the front panel portion **16** and the longitudinal edges **32***a*, **32***b* of the internal panel **24** itself. To prevent the internal panel **24**, and the transverse edge **34** in particular, from sealing to the back panel **18** during formation and sealing at the transverse seal **36**, a barrier material **40** such as Teflon, Teflon coated materials, or materials of like heat barrier qualities and characteristics can be selectively disposed between the back panel **18** and the internal panel **24** proximate the line of the transverse edge **34**. During formation of the package **10**, the longitudinal edges **32***a*, **32***b* of the internal panel **24** are bonded intermediate the edge portions **17-19** of the front **16** and back panel **18**. The described attachment of the internal panel portion **24** creates the compartment cavity **28**, wherein the capacity or volumetric limitations of the compartment cavity **28** are measurably smaller than that of the inner cavity **26** of the main package **10**.

[**0031**] In FIGS. **3-5***e*, another embodiment of the package **10** of the present invention is shown. In this embodiment, the internal compartment package **14** is also defined by bonding the internal sealant surface **30** at the transverse edge **34** of the at least one internal compartment panel portion **24** to the main sealant surface **27** of the front panel **16**, with the back panel **18** being free from bonding contact with the transverse edge **34** of the internal panel **24**. Further, the bottom panel **20**, or the bottom panel portion **20** defined by joining the ends of the front **16** and back panel **18** portions, is gusseted to create a bottom gusseted panel portion $\mathbf{20}_g$. As best demonstrated in **FIGS. 3 and 3***a*, the internal panel portion **24** substantially spans the entire width of the front panel **16** and is closeably sealed some distance short of the complete longitudinal length of the front panel **16** at the transverse edge **34** and seal **36**. However, while the longitudinal edges **17***a*, **17***b* of the front panel **16** are bonded with the longitudinal edges **32***a*, **32***b* of the internal panel **24**, respectively, an intermediate longitudinal seal **38** is provided at some location intermediate the edges **32***a*, **32***b*, as demonstrated in FIGS. **3-3***a*, and **5***b*-**5***d*. The bonding at the longitudinal seal **38** traverses from the top of the package **10** down to the transverse edge **34** and seal **36**. As such, this creation of the longitudinal seal **38** between or intermediate the longitudinal edges **17***a*, **17***b*, **32***a*, **32***b* creates an internal compartment **14** measurably smaller in width than the overall width of the front panel **16** and the main package **10**.

[**0032**] While the transverse seal **36** can create a continuous bond between the front **16** panel and the internal panel **24** along the transverse edge **34**, attachment of the back panel **18** to the transverse edge **34** and seal **36** is preferably avoided to maintain the capacity and configuration of the inner cavity **26**. Since seal bars and other bonding mechanisms and techniques known to one skilled in the art are easily utilized and often implement a seal bar across the entire width of the package **10** at the line defined by the transverse edge **34**, it may be necessary to include a material barrier **40** protection along the line of the transverse edge **34** extending from the longitudinal seal **38** to the longitudinal edges **17***b*, **32***b*. Like the previous embodiment, a barrier material **40** such as Teflon, Teflon coated materials, or materials of like heat barrier qualities and characteristics can be selectively disposed between the back panel **18** and the front panel **16** along the width of the panels. This barrier **40** will prevent bonding of the back panel **18** to the transverse edge **34** along the seal **36** between the edges **17***a*, **32***a* and the edges **17***b*, **32***b*, thus also providing a barrier along the seal **36** between the longitudinal seal **28** and the edges **17***b*, **32***b*. At the same time, a bond is created between the front **16** panel and the internal panel **24** along the length of the transverse seal **36**. Various applications of such a barrier material to a selected portion of a package panel known to one skilled in the art can be employed without deviating from the spirit and scope of the present invention. The described attachment of the internal panel portion **24** creates the compartment cavity **28**, wherein the capacity or volumetric limitations of the compartment cavity **28** are measurably smaller than that of the inner cavity **26** of the main package **10**. The boundaries of the compartment **14** and compartment cavity **28** are generally defined in this embodiment by the u-shaped sealed continuity of the longitudinal edge **32***a*, the transverse edge **34**, and the longitudinal seal **38**.

[**0033**] With such an embodiment, it may be necessary to additionally bond at least a portion of the top region of the internal panel **24** to the top portion of the front panel **16**, distal the transverse seal **36**, as shown in FIGS. **5-5***a*, and **5***d*. In **FIG. 5**, this top portion of the internal panel **24** is sealed to the top portion of the front panel **16** only from the longitudinal seal **38** to the longitudinal edges **17***b*, **32***b*. Accordingly, the openings into the internal compartment cavity **28** and the main inner cavity **26** are distinctly defined. In **FIGS. 5***a* and **5***d*, the top portion of the internal panel **24** confronting the top portion of the back panel **18** is sealed between the longitudinal edges **17***a*, **32***a* and the longitudinal seal **38**, and the top portion of the internal panel **24** confronting the top portion of the front panel **16** is still sealed to the top portion of the front panel **16** from the longitudinal seal **38** to the longitudinal edges **17***b*, **32***b*. Each of the seals defined herein and shown in FIGS. **5-5***a*, and **5***d* can be temporary or permanent and can be created using materials, techniques, and methods known to one skilled in the art. These embodiments create more defined and distinct openings into the compartment cavity **28** and the inner cavity **26** such that filling of each of said cavities **26**, **28** with material and/or fluid contents is easily accomplished by various packagers using known filling techniques and

machines. Upon filling of either or both of the cavities **26**, **28**, the top portions of the front **16** and back **18** panels can be sealed together.

[**0034**] Various embodiments of the present invention can include a temporary seal **42** bond along any of the edges or seals of the internal panel **24**. Preferably, the temporary seal **42** is provided along the transverse edge **34** of the internal panel **24** to create at least a portion of the transverse seal **36**, as shown in FIGS. **6-7**. In one embodiment of the temporary seal **42**, an adhesive, tape, or other selectively engageable material or substance comprises at least a portion of the transverse seal **36** such that when it is closeably engaged to temporarily bond the transverse edge **34** of the internal panel **24** to the inner surface of one panel of the main package **10**, i.e., the sealant surface **27** of the front panel **16**, the compartment cavity **28** is segregated from the inner cavity **26**. However, when the temporary seal **42** is opened or disengaged, the compartment cavity **28** is brought into fluid communication with the inner cavity **26**. Such temporary seal embodiments can be utilized to isolate material contents of the two cavities **26**, **28** until such time as it is needed and/or desirable. Medical materials and contents, food, liquids, solids, and a myriad of other materials and substances can be segregated for a desired period of time or use and then selectively brought into communication with such an embodiment. Further, communication between the cavities **26**, **28** can be closed by engaging or actuating the temporary seal **42** to again provide desired segregation in those embodiments using adhesives, tapes, and the like.

[**0035**] In one embodiment, the temporary seal **42** will include a compatible tape material such that the temporary bond is broken upon sufficient pressure by the end user on the internal compartment **14** and/or main package **10** structures. In another embodiment, the temporary seal **42** is created by heat sealing the transverse edge **34** of the internal panel **24** to the front **16** or back panel **18** portions in such a manner as to not create a permanent bond. As described herein, this temporary seal **42** generated from a heat sealing technique can comprise selectively utilizing materials with known contaminant characteristics such that a relatively low heat application along the seal **42** provides temporary sealing and avoids a destructive or permanent seal. Various selective and temporary bonding techniques known to one skilled in the art can be employed to implement and create the temporary seal **42** without deviating from the spirit and scope of the present invention. Further, the temporary seal **42** techniques and methods can be included along the longitudinal seal **38** rather than the transverse edge **34** in those packages **10** implementing the compartment package **14** of FIGS. **3-5***d*.

[**0036**] Various embodiments can further include a notch **44**, as shown in **FIG. 5***e*. This notch **44** is preferably located proximate the longitudinal seal **38** at the top of the package **10** and traverses down into at least the internal panel **24** and one of the front **16** or back **18** panels. A slit can be further provided transversely running into the notch **44** to facilitate selective tearing. This notch **44** permits the end user or packager to selectively open one or both of the compartments **12**, **14** to gain access into the corresponding cavities **26**, **28**. Distinct access is thus permitted. For instance, a user can rip the notch **44** across to edges **17***a*, **32***a* to access the internal compartment **12**, while ripping the notch **44** the opposite direction toward edges **17***b*, **32***b* will provide access into the main package compartment **12**.

[**0037**] Each of the embodiments of the present invention can further include a tab or lip portion **39** at the top end portion of the internal panel **24** as shown in **FIGS. 2, 4**, and **7**. The lip portion **39** generally extends some distance outside of the opened package **10** after formation to provide yet another means of facilitating the filling of the inner cavity **26** and/or the compartment cavity **28** with contents. By providing the lip **39**, a filling machine, such as a pouch machine, a form-fill-seal machine, a premade pouch filling machine or other like machines known to one skilled in the art can easily push back the internal panel **24** toward a panel (i.e., the back panel **18**) of the package **12** opposite the panel having the sealing surface **27** (i.e., the front panel **16**). In those packages and embodiments of the present invention attaching the internal panel **24** to the front panel **16**, this pushes the internal panel **24** towards the back panel **18** to more clearly define and separate the opening of the inner cavity **26** and the compartment cavity **28** such that contents designated for one cavity will not accidentally enter the other cavity.

[**0038**] In the embodiments of **FIGS. 2***b* and **5***b*, the transverse edge **34** of the internal panel **24** is similarly bonded to only one of the front **16** or back **18** panels. In addition, the inclusion of the at least one side panel **22** makes it possible to only bond the edges **32***a*, **32***b* of the internal panel **24** to the same of the front **16** or back **18** panels. For instance, the edges **19** of the back panel **18** are free from bondable sealing with the edges **17** of the front panel **16** and the edges **32***a*, **32***b* of the internal panel **24**. Instead, the edges **32***a* are bonded to edges **17***a* and edges **32***b* are bonded to edges **17***b*. As with the other embodiments, the longitudinal seal **38** can be included, as shown in **FIG. 5***b*. To prevent the edges **32***a*, **32***b* from bonding to the back panel **18**, the barrier **40** and the various barrier techniques described herein can be employed at any of the sealing regions. With such an embodiment having a side panel **22**, expansion of the bottom panel **10**, or gusseted bottom panel **20***g*, and expansion of the side panel **22**, or side panel **22***g*, is not substantially hindered by the bonded internal panel **24** or its sealed portions.

[**0039**] Referring to FIGS. **8-9**, the manufacturing process generally includes placing the internal panel portion **24** between the front **16** and back **18** panel portions such that the segregated multi-compartment package **10** of the present invention is formed. This formation process generally comprises a roller feed station **50**, a gusseting/folding station **52**, an alignment station **54**, a first seal station **56**, and a side seal station **58**. The formation process can further include a cooling station **60** and a cut-off station **62**. Each of the base steps in forming the package **10** of the present invention can be performed by known pouch machines, form-fill-seal machines, and like machines known to one skilled in the art for forming pouches and/or forming and filling pouches in the confines of the same manufacturing process.

[**0040**] During formation of the package, the internal panel **24** is fed between the front **16** and back **18** panel portions such that the internal panel **24** extends from the top of the pouch down a distance short of where the folded gusset bottom $\mathbf{20}_g$ starts, depending on the length of longitudinal edges **32***a*, **32***b*. As shown in **FIG. 8**, at the roller feed station

50, a front panel web roll **64**, a back panel web roll **66**, an internal panel web roll **68**, and a bottom panel web roll **70** are each individually positioned and fed along a general web direction using rollers, brackets, guides, and other techniques and mechanism known to one skilled in the art for forming flexible packages. The sealant surface **27** of the front panel web roll **64** is facing inward toward the alignable internal web **68** and the internal panel sealant surface **30** of the internal panel web roll **68** is likewise facing out toward the alignable front panel web roll **64**. Prior to final alignment of the webs **64-70** before bondable sealing, the bottom web **70** can be gusseted at the gusseting station **52** using known techniques, mechanisms and methods known to one skilled in the art. For instance, a v-bracket can be inserted along an intermediate portion of the bottom web **70** as it is being fed through the process such that a gusset fold forms web $\mathbf{70}_g$ to define what will be bottom panel $\mathbf{20}_g$ for each of the packages **10**.

[**0041**] Referring primarily to **FIG. 9**, the aligned webs **64**, **66**, **68**, and $\mathbf{70}_g$ are positioned or laid upon each other and fed into the first seal station **56**. At this station, seals running along the line of the web direction but transverse to the orientation of the final package **10** can be employed. Specifically, a first seal bar **72** can contact the outer surface of a panel, such as a portion of the front panel web **64** (or the back panel web **66**) to create the transverse seal **36**, and/or the temporary seal **42** to bondably attach the transverse edge **34** of the internal web **68**. Further, a second seal bar **74** can contact the outer surface of the front panel web **65** (or the back panel web **66**) to fully seal the bottom gusseted panel web $\mathbf{70}_g$ to the front web **65** and/or the back web **66**. Following these seals at the first seal station **56**, the now partially-sealed webs **64**, **66**, **68**, and $\mathbf{70}_g$ continue along the web direction to the side seal station **58**. The side seal station **58** can include at least one side seal bar **76**, and preferably two side seal bars **76**, positioned and designed to contact the outer portion of the webs to intermediately seal the longitudinal edges **32** of the internal panel web **68** to the respective confronting edges **17**, **19** of the front **64** and back **66** panel webs. A seal bar can be implemented at this stage to selectively seal along the package to form the longitudinal seal **38** described herein. As previously indicated, pieces or strips of Teflon, or similar materials having beneficial heat resistant qualities have been placed at the designated target regions described herein so that unwanted bonding of particular panel portions is avoided. Following the sealing at the side seal station **58**, the boundaries and seals for the internal compartment package **14** and the main package **12** are defined for each contiguous package **10** passing along the web path of the machine.

[**0042**] As the now forming package **10** leaves the side seal station **58** along the web path of the machine, each package **10** can enter a cooling station **60**. The cooling station **60** can include at least one cooling bar **78** which is applied along the various seals, i.e., the seals created at the side seal station **58**, to lower the web material temperature to further promote and stabilize the bonds created. Once the cooling bars **78** have performed the cooling functions required upon application, each package **10**, still contiguously linked, can be separated to define the distinct package **10** at the cut-off station **62**. The cut-off station **62** can include a cutting device **80** such as a blade or other known mechanism that can trim the edges of the package **10** and cut the end package **10** from the adjacently joined package **10**. Other trimming devices and mechanisms can further be employed to trim the various edges of the package **10**.

[**0043**] With this manufactured package product, a compartmentalized package is created such that there is no mingling or intrusion of the contents of the distinct compartments **12**, **14** and corresponding cavities **26**, **28**. In addition, the transverse edge **34** of the internal panel **24** is bonded only to one of the selected target panels **16**, **18**. This leaves the remaining panel not targeted for receiving the internal panel **24** free for movement. For instance, a bottom panel $\mathbf{20}_g$ and/or a side panel $\mathbf{22}_g$ are free to expand or contract contingent upon the insertion or removal of contents within the inner cavity **16**, thus not detrimentally affecting the functionality of the package **10** or the capacity or functionality of the compartment cavity **28**. Each cavity **26**, **28** and package portion **12**, **14** is substantially independent from the other. Various handles, graphics, closeable and re-closeable devices, gusseted portions, and like features known to one skilled in the art are also envisioned for use with this invention and can be implemented without deviating from the spirit and scope of the present invention. All references to front, back, bottom, and the like are merely for demonstrative purposes and are not intended to limit the variations and positional references and orientations of the panels in the present invention.

[**0044**] The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is, therefore, desired that the present embodiment be considered in all respects as illustrative and not restrictive. Similarly, the above-described methods and techniques for manufacturing the present invention are illustrative sequential processes and are not intended to limit the methods of manufacturing the present invention to those specifically defined herein. It is envisioned that various depicted steps can be performed in differing substantive and sequential order. In addition, various unspecified steps and procedures can be performed in between those steps described herein without deviating from the spirit and scope of the present invention and the method of manufacturing the same.

1. A multi-compartment flexible package, comprising:

a main package having at least

a first panel including an inner first panel surface, an outer first panel surface, a plurality of first panel edge portions, a top portion, and a bottom portion;

a second panel including an inner second panel surface, an outer second panel surface, and a plurality of second panel edge portions joined to the plurality of first panel edge portions to define an inner cavity of the main package, wherein the inner second panel surface and the inner first panel surface are within the inner cavity;

at least one gusseted panel; and

an internal compartment panel including two longitudinal edge portions, and a transverse edge portion transverse to the two longitudinal edge portions, wherein the two longitudinal edge portions are joined to the inner surface of the first panel within the inner cavity and the transverse edge portion is joined to the inner surface of

the first panel intermediate the top portion and the bottom portion of the first panel to define a second compartment cavity distinct from the inner cavity of the main package.

2. The multi-compartment flexible package of claim 1, wherein the first panel is a front panel of the main package.

3. The multi-compartment flexible package of claim 2, the second panel further including a second bottom portion, and the at least one gusseted panel is a bottom panel, wherein the gusseted bottom panel is joined to the bottom portions of the front panel and the second panel in a substantially transverse relationship.

4. The multi-compartment flexible package of claim 1, wherein the first panel is a back panel of the main package.

5. The multi-compartment flexible package of claim 4, the second panel further including a second bottom portion, and the at least one gusseted panel is a bottom panel, wherein the gusseted bottom panel is joined to the bottom portions of the back panel and the second panel in a substantially transverse relationship.

6. The multi-compartment flexible package of claim 1, wherein the first panel further includes a longitudinal seal intermediate the edge portions of the first panel and substantially traversing from the transverse edge portion to the top portion of the first panel to longitudinally seal the internal compartment panel to the first panel to define the second compartment cavity.

7. The multi-compartment flexible package of claim 6, wherein at least one barrier is disposed between the longitudinal seal and the second panel to prevent joining of the internal compartment panel to the inner second panel surface.

8. The multi-compartment flexible package of claim 6, wherein a top portion of the internal compartment panel distal the transverse edge portion is joined to the inner surface of the second panel creating a first top seal.

9. The multi-compartment flexible package of claim 8, wherein the first top seal is a temporary seal providing selective disengagement of the top portion of the internal compartment panel from the second panel.

10. The multi-compartment flexible package of claim 9, wherein another top portion of the internal compartment panel distal the transverse edge portion is joined to the inner surface of the first panel creating a second top seal.

11 The multi-compartment flexible package of claim 10, wherein the second top seal is a temporary seal providing selective disengagement of the top portion of the internal compartment panel from the first panel.

12. The multi-compartment flexible package of claim 1, wherein the joining of the transverse edge portion of the internal compartment panel to the first panel is a temporary seal capable of selective disengagement from the first panel to bring the inner cavity and the second compartment cavity into fluid communication.

13. The multi-compartment flexible package of claim 6, wherein the longitudinal seal is a temporary seal capable of selective disengagement from the first panel to bring the inner cavity and the second compartment cavity into fluid communication.

14. The multi-compartment flexible package of claim 6, further including a notch extending a distance into at least a portion of the longitudinal seal proximate the top portion of the first panel and adapted to enable selective tearing transverse to the longitudinal seal for access into both the inner cavity and the second compartment cavity.

15. The multi-compartment flexible package of claim 1, wherein the internal compartment panel further comprises a lip portion distal the transverse edge portion and extending above the top portion of the first panel.

16. The multi-compartment flexible package of claim 1, wherein at least one barrier is selectively disposed between the internal compartment panel and the second panel to prevent joining of the internal compartment panel to the inner second panel surface.

17. The multi-compartment flexible package of claim 16, wherein the at least one barrier is disposed substantially along the transverse edge portion of the internal compartment panel.

18. A multi-compartment flexible package, comprising:

a main package having at least

a front panel including an inner front panel surface, an outer front panel surface, a plurality of front panel edge portions, and a top and bottom front portion;

a back panel including an inner back panel surface, an outer back panel surface, a plurality of back panel edge portions, and a top and bottom back portion, wherein the back panel is joined to the plurality of front panel edge portions to define an inner cavity of the main package, wherein the inner back panel surface and the inner front panel surface are within the inner cavity; and

an internal compartment panel including two longitudinal edge portions, and a transverse edge portion transverse to the two longitudinal edge portions, wherein the two longitudinal edge portions are joined to the inner surface of the back panel within the inner cavity and the transverse edge portion is joined to the same inner surface of the back panel intermediate the top and bottom portion of the back panel to define a second compartment cavity distinct from the inner cavity of the main package.

19. The multi-compartment flexible package of claim 18, further including at least one gusseted panel.

20. The multi-compartment flexible package of claim 19, wherein the at least one gusseted panel is a bottom gusseted panel joined to the bottom portions of the front panel and the back panel in a substantially transverse relationship.

21. The multi-compartment flexible package of claim 18, wherein the back panel further includes a longitudinal seal intermediate the edge portions of the back panel and substantially traversing the longitudinal length of the back panel portion from the transverse edge portion to longitudinally seal the internal compartment panel to the back panel to define the second compartment cavity.

22. The multi-compartment flexible package of claim 21, wherein at least one barrier is disposed between the longitudinal seal and the front panel to prevent joining of the internal compartment panel to the inner surface of the front panel.

23. The multi-compartment flexible package of claim 18, wherein the joining of the transverse edge portion of the internal compartment panel to the back panel is a temporary seal capable of selective disengagement from the back panel to bring the inner cavity and the second compartment cavity into fluid communication.

24. The multi-compartment flexible package of claim 21, wherein the longitudinal seal is a temporary seal capable of selective disengagement from the back panel to bring the inner cavity and the second compartment cavity into fluid communication.

25. The multi-compartment flexible package of claim 21, further including a notch extending a distance into at least a portion of the longitudinal seal proximate the top portion of the back panel and adapted to enable selective tearing transverse to the longitudinal seal for access into both the inner cavity and the second compartment cavity.

26. The multi-compartment flexible package of claim 18, wherein the internal compartment panel further comprises a lip portion distal the transverse edge portion and extending above the top portion of the back panel.

27. The multi-compartment flexible package of claim 18, wherein at least one barrier is disposed between the internal compartment panel and the front panel to prevent joining of the internal compartment panel to the inner surface of the front panel.

28. The multi-compartment flexible package of claim 27, wherein the at least one barrier is disposed substantially along the transverse edge portion of the internal compartment panel.

29. A multi-compartment flexible package, comprising:

a main package having at least

a first panel including an inner first panel surface, an outer first panel surface, a plurality of first panel edge portions, a top portion, and a bottom portion;

a second panel including an inner second panel surface, an outer second panel surface, and a plurality of second panel edge portions;

at least one side panel including a plurality of side panel edge portions joined to edge portions of the first panel and the second panel to define an inner cavity of the main package, wherein the inner second panel surface and the inner first panel surface are within the inner cavity; and

an internal compartment panel including two longitudinal edge portions, and a transverse edge portion transverse to the two longitudinal edge portions, wherein the two longitudinal edge portions are joined to the inner surface of the first panel within the inner cavity and the transverse edge portion is joined to the inner surface of the first panel intermediate the top portion and the bottom portion of the first panel to define a second compartment cavity distinct from the inner cavity of the main package.

30. The multi-compartment package of claim 29, wherein the at least one side panel is gusseted.

31. The multi-compartment package of claim 29, wherein the at least one side panel is two side panels, with a first of the side panels being joined to a first of the edge portions of the second panel and a first of the edge portions of the first panel, and the second of the side panels being joined to a second of the edge portions of the second panel and a second of the edge portions of the first panel.

32. The multi-compartment package of claim 31, wherein at least one of the two side panels is gusseted.

33. The multi-compartment flexible package of claim 29, wherein the first panel further includes a longitudinal seal intermediate the edge portions of the first panel and substantially traversing from the transverse edge portion to the top portion of the first panel to longitudinally seal the internal compartment panel to the first panel to define the second compartment cavity.

34. The multi-compartment flexible package of claim 33, wherein at least one barrier is selectively disposed between the longitudinal seal and the second panel to prevent joining of the internal compartment panel to the inner surface of the second panel.

35. The multi-compartment flexible package of claim 29, wherein the joining of the transverse edge portion of the internal compartment panel to the first panel is a temporary seal capable of selective disengagement from the first panel to bring the inner cavity and the second compartment cavity into fluid communication.

36. The multi-compartment flexible package of claim 33, wherein the longitudinal seal is a temporary seal capable of selective disengagement from the first panel to bring the inner cavity and the second compartment cavity into fluid communication.

37. A method of forming a multi-compartment flexible package with a package forming machine, comprising the steps of:

feeding a roll of a first panel web in the package forming machine, the first panel web having a first panel width defined by a first top edge portion and a first bottom edge portion;

feeding a roll of a second panel web in the package forming machine planarly parallel and separate from the first panel web, the second panel web having a second panel width substantially the same as the first panel width;

feeding a roll of a gusseted bottom panel web in the package forming machine intermediate the first panel web and the second panel, wherein the gusseted bottom panel web has a bottom panel width smaller than the first and second panel width;

feeding a roll of an internal panel web in the package forming machine intermediate the first panel web and the gusseted bottom panel, wherein the internal panel web has an internal panel width smaller than the first and second panel width, the internal panel width being defined by an internal top edge portion and an internal bottom edge portion;

confrontingly aligning each of the first panel web, the second panel web, the gusseted bottom panel web, and the internal panel web whereby the intermediately aligned internal panel web is positioned such that the internal bottom edge portion substantially aligns between the first top edge portion of the first panel web and the gusseted bottom panel web;

sealing the internal bottom edge portion of the internal panel web to the first panel web;

sealing the bottom gusseted panel web to the first panel web and the second panel web;

transversely sealing across the width of the first panel web two spaced side seals to define side portions of the multi-compartment package and a main package cavity, and wherein the sealing of the internal bottom edge portion of the internal panel web to the first panel web

forms a second compartment cavity distinct from the main package cavity within the multi-compartment package;

cutting away the multi-compartment package from an adjacently connected multi-compartment package.

38. The method of claim 37, further comprising the step of sealing across the width of the first panel web intermediate the two side seals a longitudinal seal to bond a portion of the internal panel web to the front panel web transverse to the internal bottom edge portion of the internal panel web.

39. The method of claim 37, further comprising the step of filling at least one of the second compartment cavity and the main package cavity with contents.

40. The method of claim 39, further comprising the step of sealing top portions of the first panel and the second panel together to close off access into the second compartment cavity and the main package cavity.

41. A method of forming a multi-compartment flexible package, comprising the steps of:

alignably feeding a first panel, a second panel, a bottom panel, and an internal compartment panel along a general web path in a package forming machine such that a main package having a main inner cavity is defined by at least the first panel, the second panel, and the bottom panel, and wherein the internal compartment panel is aligned between the first panel and the second panel within the main inner cavity such that the internal compartment panel traverses some distances short of the full longitudinal length of the first panel;

sealing longitudinal edges of the internal compartment panel intermediate corresponding longitudinal edges of the first and second panel; and

sealing a transverse edge of the internal compartment panel to an inside surface of the first panel transverse to the longitudinal edges of the first panel between a top portion of the first panel and the bottom panel to define a second compartment having a compartment cavity, wherein the main inner cavity and the compartment cavity are distinct cavities within the multi-compartment flexible package.

42. The method of claim 41, further comprising the step of sealing a longitudinal seal along the first panel between the two longitudinal edges of the first panel to seal a portion of the internal compartment panel to the first panel.

43. The method of claim 41, further comprising the step of selectively providing a barrier material between the second panel and at least a portion of the proximate internal compartment panel to prevent joining of the internal compartment panel to the second panel.

44. The method of claim 43, further comprising providing the barrier material between the second panel and the transverse edge of the internal compartment panel.

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