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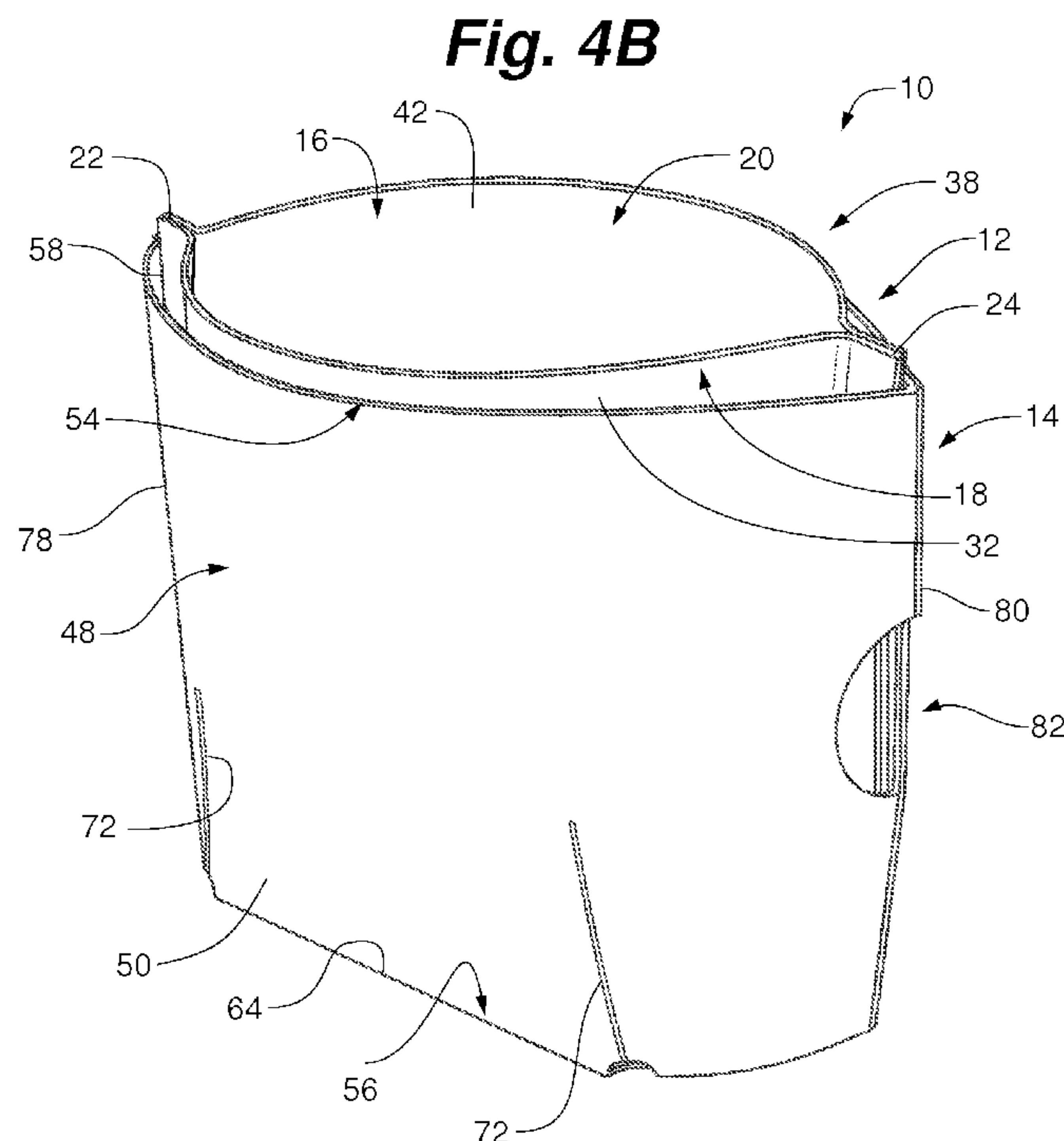
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(54) Titre : POCHETTE A SOUFFLET DILATABLE DE SACHET
(54) Title: EXPANDABLE GUSSETED SLEEVE FOR A POUCH



(57) **Abrégé/Abstract:**

A method for heating an edible product enclosed within a pouch. The method includes placing the pouch within a sleeve having a wall extending between an open first end and a second end having a sleeve gusset. The edible product within the pouch is then heated causing the pouch to bulge due to an increase in pressure within the pouch. The bulging pouch pushes against the wall of the sleeve causing the sleeve to bulge and un-fold the sleeve gusset at the second end. The increased pressure within the pouch may also unseal at least one sealed vent on the pouch. Once heated, the pouch is torn open along one or more tear lines, thereby providing access to the edible content of the pouch. In some embodiments, the sleeve is reusable and included in a kit having two or more pouches.

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(57) Abstract: A method for heating an edible product enclosed within a pouch. The method includes placing the pouch within a sleeve having a wall extending between an open first end and a second end having a sleeve gusset. The edible product within the pouch is then heated causing the pouch to bulge due to an increase in pressure within the pouch. The bulging pouch pushes against the wall of the sleeve causing the sleeve to bulge and un-fold the sleeve gusset at the second end. The increased pressure within the pouch may also un-seal at least one sealed vent on the pouch. Once heated, the pouch is torn open along one or more tear lines, thereby providing access to the edible content of the pouch. In some embodiments, the sleeve is reusable and included in a kit having two or more pouches.

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EXPANDABLE GUSSETED SLEEVE FOR A POUCH

TECHNICAL FIELD

5 The present disclosure relates to a packaging for edible products. In particular, the disclosure pertains to an expandable packaging for heating an edible product within a pouch.

BACKGROUND

10 In the interest of convenience, a wide variety of edible products are pre-packaged in pouches. Generally, the contents of the pouch are emptied into an eating vessel, e.g., a bowl or a plate, prior to consumption. Under circumstances such as when a eating vessel is not available or for the sake of convenience, such as not having to clean the vessels, it is desirable to provide a pouch pre-package with items that can be consumed directly from the pouch. However, pouches typically used for edible products are cumbersome to handle,
15 unstable when placed on a flat surface, and generally unwieldy. In particular, pouches containing an edible product that is warmed or heated before being consumed can be difficult to handle because the surface of the pouch is essentially at the same temperature as its content.

20 Accordingly, there exists a need for a package that overcomes the short-comings of prior art packages.

SUMMARY

25 A method for heating an edible product enclosed within a pouch includes providing one or more pouches having an enclosed space containing the edible product. The pouch includes one or more tear notches and one or more tear lines extending from the one or more notches and along at least a portion of a surface of the pouch. The pouch also includes one or more sealed vents defining at least a portion of a flow path between the enclosed space and an external environment surrounding the pouch. The method also includes providing a sleeve having a first and a second end and a wall having an internal and an external surface and extending between the first and the second ends. The first end of the
30 sleeve is open and the second end of the sleeve includes a sleeve gusset. The sleeve also includes one or more thumb holes in the wall. In some embodiments, the method includes

inserting at least a portion of the pouch through the first end of the sleeve and placing it within the sleeve. Heating the edible product within the pouch will cause the pouch to bulge due to an increase in a pressure within the enclosed space. This, in turn, causes the sleeve to bulge and un-fold the sleeve gusset at the second end. During heating, at least one
5 of the sealed vents may be forced open by the pressure built up within the enclosed space. The pouch may be torn open along the one or more tear lines, thereby providing access to the edible product contained therein.

In some embodiments, the pouch initially placed within the sleeve is removed and replaced by another pouch containing an edible product. Accordingly, the sleeve and two or
10 more pouches are provided as a kit wherein the sleeve is reusable. In certain embodiments, at least one of the one or more sealed vents is forced open (or unsealed) when the pressure within the enclosed space is greater than a predefined value. In a non-limiting exemplary embodiment, the edible product includes a moisture content of at least 15 percent. Accordingly, steam is generated within the enclosed space when the edible product is
15 heated. In some such embodiments, the steam unseals at least one the one or more sealed vents in the pouch. In certain embodiments, the one or more pouches are retort pouches having pouch gussets. In such embodiments, the pouch gusset is positioned proximate the second end of the sleeve, i.e., proximate the sleeve gusset.

In some embodiments, the sleeve and at least one pouch are provided as a package
20 wherein the sleeve surrounds at least a portion of the pouch. The pouch includes an enclosed space defined at least partially by opposed first and second panels sealed one to another along one or more edges, and includes one or more tear notches on an exterior section thereof. At least one or more tear lines on an external surface of the pouch extends from at least one tear notch and partition the pouch into a top section and a bottom section.
25 The top and bottom sections are thus separable for accessing an item contained in the enclosed space of the pouch. The sleeve includes a space defined by a peripheral wall and opposed first and second ends. The first end of the sleeve is open and configured for receiving at least a portion of the pouch there within. In some embodiments, at least a portion of an external surface of the pouch is adhered to at least a portion of an internal
30 surface of the peripheral wall of the sleeve. The second end of the sleeve is at least partially closed by a sleeve gusset configured for being placed in any one or more positions between a collapsed or folded state and a partially un-folded state and/or an expanded or fully un-folded state.

In certain embodiments, when the package is warmed or heated in a heating device, the pouch bulges and exerts pressure on the peripheral wall of the sleeve, causing the sleeve to bulge and moving the peripheral wall. This movement of the peripheral wall transitions the sleeve gusset from the collapsed or folded state to the partially un-folded state and/or the expanded or fully un-folded state. The pouch is opened and the content accessed by tearing the external surface of the pouch along the one or more tear lines. In some embodiments, the pouch includes a vent providing fluid communication between the enclosed space of the pouch and the external environment surrounding the pouch.

In some embodiments, the package includes a susceptor or a shielding or some combination thereof for regulating the heating and/or conditioning of the content of the pouch.

In certain embodiments, pressure applied on opposed sides of an external surface of the peripheral wall causes the sleeve to bulge and separate the panels of the pouch apart from one another. As the sleeve bulges, movement of the peripheral wall transitions the sleeve gusset from the collapsed or folded state to the partially un-folded state and/or the expanded or fully un-folded state. In one such embodiment, it is not necessary to wait until the sleeve gusset is in the expanded or fully un-folded state before opening the pouch by tearing the external surface of the pouch along the one or more tear lines.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1A is a perspective view of an embodiment of a package;
FIG. 1B is a top view of the package of FIG. 1A;
FIG. 2A is a perspective view of a sleeve with a sleeve gusset in a collapsed state;
FIG. 2B is a perspective of the sleeve and sleeve gusset of FIG. 2A at an intermediate partially un-folded state;
FIG. 3A is a perspective view of the sleeve of FIGS. 2A and 2B with the sleeve gusset in an un-folded state;
FIG. 3B is a bottom view of the sleeve and sleeve gusset of FIG. 3A;
FIG. 3C is a top view of the sleeve and sleeve gusset of FIG. 3A;
FIG. 4A is a perspective view of the package of FIG. 1A with a bulging pouch and a sleeve gusset in an un-folded state; and
FIG. 4B is a perspective view of the package of FIG. 4A with an open pouch.

DETAILED DESCRIPTION

While multiple embodiments are disclosed, still other embodiments may become apparent to one skilled in the art. The following detailed description describes only some non-limiting exemplary embodiments. It should be clearly understood that there is no intent, implied or otherwise, to limit the embodiments in any form or manner to those described herein. As such, all alternative embodiments are considered as falling within the spirit, scope and intent of the disclosure. The metes and bounds of the disclosure are defined by the appended claims and any and all equivalents thereof.

FIGS. 1A and 1B, respectively, are a perspective view and a top view of an embodiment of package 10. Package 10 includes pouch 12 and sleeve 14 for receiving at least a portion of pouch 12. Pouch 12 is illustrated having enclosed space 16 (shown in FIG. 4B) defined at least partially by opposed first and second pouch panels 18 and 20, respectively, sealed one to another along at least one or more side edges thereof, e.g., side edges 22 and 24, top edge 26, and a bottom edge (not shown). In some embodiments, enclosed space 16 of pouch 12 is defined at least partially by three or more pouch panels, e.g., two side pouch panels and a bottom pouch panel. A non-limiting exemplary embodiment of one such pouch is the retort pouch as is well known in the art. In other embodiments, pouch 12 includes a longitudinally and circumferentially extending contiguous peripheral wall with or without any seams or seals along its longitudinal extent. In such embodiments of pouch 12, enclosed space 16 is defined or formed at least partially by sealing each longitudinally opposed ends of the peripheral wall.

In some embodiments, pouch 12 includes one or more tear notches 28 and one or more tear lines 30, illustrated as a broken line, extending from at least one tear notch 28. While pouch 12 of FIG. 1A is illustrated having one tear notch 28 on side edge 22 of pouch 12, and another tear notch 28 on side edge 24 of pouch 12, this does not always have to be the case. For instance, in a non-limiting exemplary embodiment, pouch 12 includes only one tear notch 28 on only one side edge 22 or 24. In other embodiments of pouch 12, one or more tear notches 28 are elsewhere on pouch 12 and not necessarily on one or more side edges 22 and 24. In some embodiments, pouch 12 includes one or more tear notches 28 on respective external surfaces 32 and 34 of either one or both first and second pouch panels 18 and 20. In other embodiments, tear notches 28 are not directly across from one another on side edges 22 and 24 as shown in FIG. 1A, but rather are angularly disposed from one

another. Thus, some embodiments of pouch 12 may include a plurality of notches 28 in different locations.

In FIG. 1A, pouch 12 is illustrated having one tear line 30 on external surface 32 of first pouch panel 16 and extending between tear notches 28 on side edges 22 and 24. However, this does not always have to be the case. For instance, in a non-limiting exemplary embodiment, pouch 12 includes two or more tear lines 30, e.g., one on each external surface 32 and 34, respectively, of first and second pouch panels 18 and 20. Pouch 12 is illustrated having one tear line 30 extending essentially as a straight line from tear notches 28 in a direction generally orthogonal to side edges 22 and 24. Again, this is not always necessary. In alternate embodiments, pouch 12 includes one or more tear lines 30 extending in different directions or angles from any one or more tear notches 28 anywhere on pouch 12. For instance, in a non-limiting exemplary embodiment, pouch 12 includes one or more tear lines 30 extending at one or more angles relative to side edges 22 and 24. In other embodiments, one or more tear lines 30 are curved or shaped like a wave, e.g., a sine wave, a triangular wave, a square wave, a rectangular wave, etc.

One or more tear notches 28 and one or more tear lines 30 are a means for opening pouch 12, and gaining access to the contents stored within enclosed space 16 of pouch 12. Pouch 12 is opened by gripping opposing sides of one tear notch 28 and pulling the gripped sides in opposing directions. Such pulling action causes a tear in first and/or second pouch panels 18 and 20 along one or more tear lines 30 on their respective external surfaces 32 and 34. In certain embodiments, tear notches 28 and/or tear lines 30 assist and/or guide cutting open pouch 12 using a cutting device, e.g., a scissor, a knife, a blade, etc. for cutting the first and/or second pouch panels 18 and 20. In other embodiments, pouch 12 does not include tear notches 28 and/or tear lines 30 and is cut open using the afore-described cutting devices. Yet other embodiments incorporate alternate devices, means and/or methods for opening pouch 12, e.g., a zipper, a slider, Ziplock™, a mechanical score, a laser score, etc. Hereinafter, the section of pouch 12 above one or more tear lines 30 is referred to as top section 36, and the section of pouch 12 below one or more tear lines 30 is referred to as bottom section 38. From the foregoing, it should be apparent that top section 36 can be partially or completely separated and/or detached from bottom section 38. FIG. 4B provides an illustration of package 10 with top section 36 of pouch 12 removed. Generally, the contents of pouch 12 will be retained in bottom section 38.

In accordance with a non-limiting exemplary embodiment, pouch 12 is configured for housing an edible product within enclosed space 16. In some embodiments, first and second pouch panels 18 and 20 may be formed of one or more layers such as in a laminated panel, as are well known in the art, suitable for housing edible products. Accordingly, at least internal surfaces 40 and 42 of respective first and second pouch panels 18 and 20 that are in contact with the edible product within enclosed space 16 of pouch 12, are of a material known to be suitable for use with edible products.

Pouch 12, in some embodiments, contains an edible product that is to be warmed or heated before being consumed. Accordingly, un-opened pouch 12 is first placed and then heated in a heating device, e.g., a microwave or a conventional oven. It should be apparent that, upon heating, fluids, e.g., moisture, contained within the edible product will be released as vapor. Also, any air in enclosed space 16 will be heated. The vapor and/or heated air within pouch 12 will expand and pressurize the interior of pouch 12, and cause pouch 12 to bulge as illustrated in FIG. 4A. Accordingly, in some embodiments, pouch 12 includes at least one vent 44 providing fluid communication between enclosed space 16 and the external environment surrounding pouch 12. Thus, vapor and/or heated air within pouch 12 is released through vent 44. In some embodiments, vent 44 is an automatic pressure relief valve that opens and permits vapor and/or heated air to vent out (or escape) from pouch 12 when the pressure within equals or exceeds a predefined value. In other embodiments, vent 44 is a means, e.g., a tab, a nick, a notch, etc., that is manipulated by the consumer, or user, to establish fluid communication between enclosed space 16 and the external environment surrounding pouch 12 prior to placing package 10 with un-opened pouch 12 inside a heating device.

In some embodiments, pouch 12 includes a susceptor or a shielding or some combination thereof for regulating or facilitating the heating and/or conditioning (e.g., browning) of the edible product there within. The use of susceptors and/or shielding for such purposes is well known in the art. For instance, in a non-limiting exemplary embodiment, susceptors and/or shielding are used as one or more layers forming at least a portion of a laminate used in the manufacture of pouch 12, i.e., the laminate used for either one or both first and second pouch panels 18 and 20.

In alternate embodiments, pouch 12 contains an edible product that is served or consumed without being warmed or heated. The consumer, or user, opens pouch 12 as previously described and gains access to the edible product thereof. The contents are

consumed directly from the now open pouch 12 either as is or after mixing with one or more other edible products. For example, in a non-limiting exemplary embodiment, pouch 12 contains a cereal which can be consumed directly from pouch 12, or mixed with milk poured onto the cereal in bottom section 38 of the now open pouch 12. Alternatively, the contents of pouch 12 can be emptied into an eating vessel such as a bowl or a plate.

In view of the foregoing, modifications and/or alternative embodiments of pouch 12 will become apparent upon reading the description. All such modifications and alternatives are considered as being within the scope, intent and spirit of the instant disclosure.

Referring back to FIGS. 1A and 1B, a non-limiting exemplary embodiment of sleeve 14 includes peripheral wall 48, and opposed first and second sleeve panels 50 and 52, and opposed first and second ends 54 and 56. Space 46 is at least partially defined by peripheral wall 48, first and second sleeve panels 50 and 52, and first and second ends 54 and 56. In the figures, first and second sleeve panels 50 and 52 are illustrated as fixedly attached one to another along their respective opposed side edges. In alternate embodiments, peripheral wall 48 of sleeve 14 is a longitudinally and circumferentially extending contiguous wall with or without any seams or seals along its longitudinal extent. First end 54 is open and sleeve 14 is configured for receiving at least a portion of bottom section 38 of pouch 12 within space 46 such that the portion of pouch 12 received within space 46 is surrounded by (or housed within) sleeve 14. In some embodiments, at least a portion of one or both external surfaces 32 and 34 of pouch 12 is adhered to at least a portion of the corresponding one or both adjacent internal surfaces 58 and 60 of peripheral wall 48.

FIGS. 2A and 2B are perspective views of an embodiment of sleeve gusset 62 configured for at least partially closing or blocking second end 56 of sleeve 14. At least a portion of sleeve gusset 62 is either contiguous (or conjoined) with or fixedly attached to first and second sleeve panels 50 and 52. For instance, in a non-limiting exemplary embodiment, sleeve gusset 62 is contiguous (or conjoined) with first and second sleeve panels 50 and 52 at least along their respective edges 64 and 66 (or edges 64 and 66 of sleeve 14). As such, if sleeve 14 is disassembled, a contiguous and unitary, one-piece component will include sections having first and second sleeve panels 50 and 52, and sleeve gusset 62. In alternate embodiments, at least a portion of sleeve gusset 62 is fixedly attached to one or both first and second sleeve panels 50 and 52 along respective edges 64 and 66.

Sleeve gusset 62 includes foldable panel 68 including a plurality of fold lines 70. As such, foldable panel 68 is configured for being folded and un-folded along one or more fold lines 70. This enables sleeve gusset 62 to be placed in any one or more states or positions between a folded or collapsed state, for example as illustrated in FIG. 2A, a partially un-
5 folded intermediate state, for example as illustrated in FIG. 2B, and/or an expanded or fully un-folded state such as that illustrated in FIGS. 3A, 3B and 3C. Hereinafter, the folded state of sleeve gusset 62 is referred to as state A, and the fully un-folded state of sleeve gusset 62 is referred to as state B. Also hereinafter, the terms “expanded state” and “fully un-folded state” are interchangeably used for the same meaning and purpose of defining or indicating
10 that foldable panel 68 of sleeve gusset 62 is un-folded as illustrated in FIGS. 3A-3C. In some embodiments, sleeve gusset 62 is configured to be “locked” upon reaching a fully un-folded state, such as state B. FIGS. 2A and 2B illustrate sleeve 14 and sleeve gusset 62 at different stages of the transition between states A and B. For the purposes of discussing the operation of sleeve gusset 62, FIG. 2A could be considered as state A or a state shortly after the transition begins, and FIG. 2B could be considered as a partially un-folded intermediate
15 state as sleeve gusset 62 transitions from state A to state B. As illustrated, at least an external surface of sleeve 14 includes one or more scored (or fold) lines 72 for enabling and guiding the bending of peripheral wall 48 when sleeve gusset 62 transitions between states A and B. First and second sleeve panels 50 and 52 and sleeve gusset 62 are configured such
20 that at least a portion of edges 64 and 66 are spaced apart and share a common plane. As such, at least a portion of edges 64 and 66 serve as a base for standing sleeve 14 upright. When sleeve gusset 62 is in state B, at least a portion of foldable panel 68 extends between and lies in the same plane as edges 64 and 66, and functions as a base or at least a portion of a base for standing sleeve 14 upright. In some embodiments, the extended foldable panel 68
25 provides at least some stability for standing sleeve 14 upright and aids in preventing it from tipping over.

In certain embodiments, peripheral wall 48 and foldable panel 68 are configured such that when sleeve gusset 62 is in state A, pressure applied in the general directions indicated by arrows 74 on internal surfaces 58 and 60 of respective first and second sleeve
30 panels 50 and 52, will start unfolding sleeve gusset 62. With continued application of the pressure, sleeve gusset 62 will un-fold and transition from state A to state B, i.e., sleeve gusset 62 will expand and un-fold. In some embodiments, sleeve gusset 62 will un-fold

fully into a locked state. FIGS. 3A, 3B and 3C, respectively, are a perspective view, a bottom view and a top view illustrating sleeve gusset 62 in state B.

As previously described, at least a portion of bottom section 38 of pouch 12 is received or housed within space 46 of sleeve 14. Also as previously described, some
5 embodiments of pouch 12 contain an edible product that is warmed or heated before being consumed, and that the warming or heating of the contents will cause pouch 12 to bulge. In view of the foregoing description pertaining to the movement of sleeve gusset 62 from state A to state B, it should be apparent that the bulging of pouch 12, and by extension the bulging of bottom section 38 within sleeve 14, will result in pressure being applied on
10 internal surfaces 58 and 60 of respective first and second sleeve panels 50 and 52 in the general directions indicated by arrows 74. Accordingly, sleeve gusset 62 will start unfolding and transition from the collapsed state (state A) to the fully-unfolded or expanded state (state B) in response to such applied pressure. This is perhaps best seen in FIG. 4A which is a perspective view of package 10 of FIG. 1A illustrated with a bulging and un-
15 opened pouch 12 and sleeve gusset 62 in state B. Pouch 12 can then be opened, as previously described, for gaining access to the contents thereof as seen in FIG. 4B wherein package 10 of FIG. 4A is illustrated with pouch 12 open after removal of top section 36. As shown in FIG. 4B, it should be apparent that in a non-limiting exemplary embodiment, when sleeve gusset 62 is in state B, sleeve 14 of package 10 is functionally similar to a bowl
20 and bottom section 38 of the now open pouch 12 is functionally similar to a liner (or lining) for the bowl, i.e., sleeve 14.

In some embodiments, it may not be necessary and/or desirable to fully un-fold sleeve gusset 62 to state B. For instance, in a non-limiting exemplary embodiment, it may not be necessary and/or desirable to warm or heat the contents stored within enclosed space
25 16 of pouch 12. In certain embodiments, it may be necessary and/or desirable to partially warm or heat the contents stored within enclosed space 16 of pouch 12 in a manner which does not fully un-fold sleeve gusset 62 to state B. As such, regardless of whether the contents stored within enclosed space 16 of pouch 12 are warmed/heated or not warmed/heated, the contents may be accessible once the sleeve gusset 62 and/or pouch 12
30 are at least partially un-folded. In some such embodiments, sleeve gusset 62 may be configured for being locked and/or held in any one or more positions or states between the afore-described folded and un-folded states A and B, respectively. In a non-limiting exemplary embodiment, sleeve gusset 62 may be configured to be held or locked in a

partially un-folded state X between states A and B. In some embodiments, sleeve gusset 62 may be configured for being held or locked in two partially un-folded states X1 and X2 between states A and B. As will be apparent to one skilled in the art, sleeve gusset 62 can be configured to be held or locked in a plurality of partially un-folded states between states A and B. In addition to the foregoing and/or in the alternative, sleeve gusset 62 may be configured to lock when it reaches a fully un-folded state, such as state B. As illustrated in FIG. 2B, or perhaps as shown in FIG. 4B, it should be apparent that in a non-limiting exemplary embodiment, when sleeve gusset 62 is in an intermediate state, i.e., in a partially un-folded state between states A and B, sleeve 14 of package 10 is functionally similar to a bowl, and bottom section 38 of the now at least partially open pouch 12 is functionally similar to a liner (or lining) for the bowl, i.e., sleeve 14. Accordingly, all configurations for providing the described functionality of locking or holding sleeve gusset 62 in a partially un-folded or intermediate state and/or in a fully un-folded state are considered as being within the metes and bounds of the instant disclosure.

In some embodiments, and as previously described, pouch 12 contains an edible product that is served or consumed without being warmed or heated. Also as previously described, at least a portion of bottom section 38 of pouch 12 is received or housed within space 46 of sleeve 14, and at least a portion of one or both external surfaces 32 and 34 of pouch 12 is adhered to at least a portion of the corresponding one or both adjacent internal surfaces 58 and 60 of peripheral wall 48. Accordingly, when sleeve gusset 62 is in state A, pressure applied in the general directions indicated by arrows 76 on opposing first and second side edges 78 and 80, respectively, of sleeve 14, will push peripheral wall 48 in the general directions indicated by arrows 74. Such movement of peripheral wall 48, and by extension the movement of first and second sleeve panels 50 and 52, will start un-folding sleeve gusset 62 and concurrently move first and second pouch panels 18 and 20 apart from one another. With continued application of the pressure, sleeve gusset 62 will un-fold and transition from state A to state B, i.e., sleeve gusset 62 will expand and un-fold. In some embodiments, pouch 12 may be opened for accessing the contents thereof, as previously described, while sleeve gusset 62 is in state A, or in state B, or in an intermediate state during the transition between states A and B. Of course, sleeve gusset 62 can be configured such that upon removal of the pressure applied in the general direction indicated by arrows 76, sleeve gusset 62 will maintain or can be retained in any partially un-folded state between the fore described states A and B.

In view of the foregoing, it will be apparent that in some non-limiting exemplary embodiments, one or more tear notches 28 and/or one or more tear lines 30 on pouch 12 will be proximate an edge of open first end 54 of sleeve 14. In some embodiments, pouch 12 is configured such that upon opening, at least a portion of an edge of bottom section 38 extends away and outwardly from the edge of first end 54 of sleeve 14.

Package 10, in accordance with a non-limiting exemplary embodiment, includes one or more thumb holes 82 in peripheral wall 48 of sleeve 14. In some embodiments, one or more thumb holes 82 allow for holding package 10 between one or more fingers or between a thumb and one or more fingers. In other embodiments, one or more thumb holes 82 is used for holding package 10 and applying pressure in the general directions indicated by arrows 76 for un-folding sleeve gusset 62 in state B. While thumb holes 82 are illustrated as being positioned along or on first and second side edges 78 and 80 of sleeve 14, this does not always have to be the case. For instance, in some non-limiting exemplary embodiments of sleeve 14, one or more thumb holes 82 are positioned anywhere on peripheral wall 48. However, in some embodiments, it may be beneficial or preferential to position one or more thumb holes 82 on first and second side edges 78 and 80 of sleeve 14 for providing at least some isolation or separation from a hot or cold peripheral wall 48. For instance, in a non-limiting exemplary embodiment, when pouch 12 bulges upon being heated or warmed in a heating device, external surfaces 32 and 34 of respective first and second pouch panels 18 and 20 will be in close proximity of, or even in contact with, internal surfaces 58 and 60 of sleeve 14. As such, the temperature of peripheral wall 48 may be approximately equal to that of the contents of pouch 12, and one or more thumb holes 82 in first and second side edges 78 and 80 of sleeve 14 could provide a location whereat internal surfaces 58 and 60 of peripheral wall 48 are not in contact with external surfaces 32 and 34 of pouch 12.

In view of the foregoing, some embodiments of sleeve 14 include a material that is a thermal insulator. In other embodiments, sleeve 14 is made of one or more material selected from the group consisting of paperboard, corrugated paper, corrugated fiberboard, and polymer (polymeric sheet). In yet other embodiments, sleeve 14 is a laminate and, as such, may or may not include a thermal insulator.

Sleeve 14, in a non-limiting exemplary embodiment, includes a susceptor or a shielding or some combination thereof for regulating or facilitating the heating and/or conditioning (e.g., browning) of the edible product within pouch 12. The use of susceptors and/or shielding for such purposes is well known in the art. The susceptor and/or shielding

may be placed on internal surfaces 58 and/or 60 of peripheral wall 48 and/or within peripheral wall 48. In some embodiments, a susceptor or a shielding or some combination thereof is placed between at least that portion of pouch 12 received within space 46 and peripheral wall 48.

5 A method for heating an edible product enclosed within a pouch includes providing one or more pouches 12 having enclosed space 16 containing the edible product. Pouch 12 includes one or more tear notches 28 and one or more tear lines 30 extending from one or more notches 28 along at least a portion of one or more external surfaces 32, 34 of pouch 12. Pouch 12 also includes one or more sealed vents 44 defining at least a portion of a flow
10 path between enclosed space 16 and an external environment surrounding pouch 12. The method also includes providing sleeve 14 having opposed first and a second ends 54, 56 and wall 48 having internal and external surfaces 58, 60 and extending between first and second ends 54, 56. First end 54 of sleeve 14 is open and second end 56 of sleeve 14 includes sleeve gusset 62. Sleeve 14 also includes one or more thumb holes 82 in wall 48. In some
15 embodiments, the method includes inserting at least a portion of pouch 12 through first end 54 of sleeve 14 and placing it therewithin. Heating the edible product within pouch 12 will cause bulging of pouch 12 due to an increase in a pressure within enclosed space 16. This, in turn, will cause sleeve 14 to bulge and spread or un-fold sleeve gusset 62 at second end 56. Pouch 12 may be torn open along one or more tear lines 30, thereby providing access to
20 the edible product contained therein.

In some embodiments, pouch 12 initially placed within sleeve 14 is removed and replaced by another pouch 12 containing the same or different edible product. Accordingly, sleeve 14 and two or more pouches 12 are provided as a kit wherein sleeve 14 is reusable. In certain embodiment the kit is provided with at least the initial pouch 12 placed within
25 sleeve 14 and one or more additional pouches 12 for placement within reusable sleeve 14.

In alternate embodiments, each pouch 12 includes at least one sleeve 14. In other words, the method includes providing each pouch 12 preassembled with one sleeve 14.

In certain embodiments, prior to heating the edible product within replacement pouch 12, sleeve gusset 62 may be collapsed from a partially un-folded state or a fully un-
30 folded state to a different partially un-folded state or a fully folded state. Such collapsing or partial folding of sleeve gusset 62 can be performed after initial pouch 12 is emptied and removed from sleeve gusset 62 and before placing replacement pouch 12 within sleeve gusset 62 prior to heating the edible product within replacement pouch 12. Of course,

sleeve gusset 62 may be collapsed or partially folded prior to removing initial pouch 12. In alternate embodiments, it may not be necessary to collapse or partially fold sleeve gusset 62 prior to replacing initial pouch 12 with replacement pouch 12.

In alternate embodiments, the method includes providing sleeve 14 in a bulged state either with or without one or more pouches 12. For example, in a non-limiting embodiment, the bulging sleeve 14 is provided with one or more pouches 12 pre-placed therewithin. In one such embodiment, all but one pouch 12 is removed from the bulging sleeve 14 prior to heating the edible product within the one pouch 12 that has not been removed therefrom. In certain embodiments, sleeve 14 when provided in an initially bulged state may or may not be collapsible into an un-bulged state. For example, in a non-limiting embodiment, the initially bulging sleeve 14 is collapsed into an un-bulging state after removing all but one pouch 12 therefrom and prior to heating the edible product with pouch 12 still remaining within sleeve 14.

In alternate embodiments, one or more pouches 12 are provided separately from one or more sleeve 14. In a non-limiting exemplary embodiment the one or more pouches 12 are pre-packaged together with one or more sleeves 14. As in other embodiments, the one or more sleeves 14 may be provided either in the bulged state or in the collapsed (or un-bulged) state.

As can be seen, several packaging options are available including those described herein and alternate embodiments as will be apparent to one skilled in the art. All such alternate embodiments are considered as falling within the metes and bounds of the claimed subject matter.

During heating, at least one of sealed vents 44 may be forced open due to an expansion of the contents of enclosed space 16. In certain embodiments, at least one sealed vent 44 is unsealed when the pressure within enclosed space 16 is greater than a predefined value. In a non-limiting exemplary embodiment, the increase in pressure within pouch 12 may be due to an expansion of air and/or other fluid within enclosed space 16. In another non-limiting exemplary embodiment, the edible product includes a moisture content of at least 15 percent. Accordingly, steam may be generated within enclosed space 16 when the edible product is heated. In some embodiments, wherein a moisture sensitive compound (e.g., a moisture sensitive adhesive) is used in sealing one or more vents 44, the water vapor in the steam generated from heating the edible product will unseal at least one sealed vent 44 in pouch 12. In other embodiments, the pressure of the steam unseals at least one sealed

vent 44. In yet other embodiments, a combination of the moisture content and the pressure of the steam unseals at least one or more sealed vents 44.

As will be apparent to one skilled in the art, a fluidic flow path extending between enclosed space 16 and the external environment surrounding pouch 12 is necessary for relieving the increase in pressure within enclosed space 16 when the edible product is heated. If one or more such flow paths are not provided, then the pressure within enclosed space 16 may increase to a level at which pouch 12 is burst open. Accordingly, in some embodiments, at least one of the one or more sealed vents 44 is opened (or unsealed) before heating the contents of pouch 12. In a non-limiting exemplary embodiment, the unsealing is accomplished by a tear or a cut in the one or more sealed vents 44. In alternate embodiments, pouch 12 may not include any sealed vents 44. As such, at least a portion of pouch 12 may be torn or cut open prior to heating the edible product therewithin. In other embodiments with or without one or more sealed vents 44, the edible product within pouch 12 may be heated only to a level that causes pouch 12 to bulge without bursting open. As such, it may not be necessary to provide a fluidic flow path extending between enclosed space 16 and the external environment surrounding pouch 12.

In certain embodiments, pouch 12 is a retort pouch having a pouch gusset. In a non-limiting exemplary embodiment, the pouch gusset of the retort pouch is placed within sleeve 14 and positioned proximate second end 56 of sleeve 14, i.e., proximate sleeve gusset 62.

In some embodiments, pouch 12 is a heat-in packaging including a doneness indicator as disclosed in U.S. Patent Application No. 12/773,210 filed May 4, 2010, titled “Doneness Indicator for Heat-In Packaging and Method of Making Same”, which is assigned to the assignee of the instant application and incorporated herein in its entirety by reference. In a non-limiting exemplary embodiment, pouch 12 is defined at least in part by the heat-in packaging wherein the “doneness” indicator, at least in part, corresponds to a state or level of “doneness” of the contents of pouch 12. In certain embodiments, the state of “doneness” corresponds to an indication of whether or not the food is ready for consumption. For instance, in a non-limiting exemplary embodiment, the state of “doneness” may be indicative of whether the content of pouch 12, for example an edible product, is fully cooked or partially cooked or not cooked. In some embodiments, the “doneness” indicator may indicate that the contents of pouch 12 have reached a predetermined condition. In some embodiments, the predetermined condition may be an

intermediate state at which the user and/or consumer is required to take or proceed to the next step in the warming, heating or cooking stage. For instance, in a non-limiting exemplary embodiment, the predetermined condition indicated by the “doneness” indicator may be that at which the process (e.g., warming, heating or cooking) should be terminated.

5 In some embodiments, the predetermined condition indicated by the “doneness” indicator may be that at which an intensity of heating should be changed. In a non-limiting exemplary embodiment, the intensity of heating that may be changed may include one or more of a temperature, a power level in a microwave oven, a firing rate of a burner in a conventional oven, electrical power supplied to an electrical resistance heater in a
10 conventional oven, etc. In certain embodiments, the “doneness” indicator may indicate that the contents and/or enclosed space 16 within pouch 12 has reached or attained a predetermined temperature, pressure, or other condition. All additional and/or alternative embodiments of a “doneness” indicator, as may become apparent, are considered as being within the metes and bounds of the instant disclosure

15 Non-limiting exemplary embodiments of the edible product contained within enclosed space 16 include one or more of or a combination of any of the following: a pasteurized product, a refrigerated product, a thermally processed product, a shelf-stable product, a product enclosing a filling therewithin, a hot filled product, a frozen product, etc. Further non-limiting exemplary embodiments of the edible product contained within
20 enclosed space 16 include one or more of or a combination of any of the following: edible products containing grains, rice, pasta, protein, beans, vegetable, sauce, seasoning, spice, legumes, tofu, meat, meat alternatives, mashed potatoes, potato pieces, soup, chili, stew, fruit, puree, sugar, sweetener, granola, nut, yogurt, juice, dairy ingredient, coffee, tea,

Various modifications and additions may be made to the non-limiting exemplary
25 embodiments disclosed hereinabove without departing from the spirit, scope and intent of the present disclosure. While the described embodiments refer to particular features, the instant disclosure is considered to also include embodiments having combinations of features different from and/or in addition to those described herein. Accordingly, the scope and intent of the disclosed embodiments is intended to embrace all alternatives,
30 modifications, and variations as may become apparent to one skilled in the art and/or upon reading the described embodiments. The metes and bounds of the disclosure are defined by the appended claims and any and all equivalents thereof.

CLAIMS

1. A method for heating an edible product, comprising:
 - providing at least one pouch wherein each one of said at least one pouch comprises
 - an enclosed space containing said edible product;
 - one or more tear notches on an external section of said at least one pouch;
 - one or more tear lines along at least a portion of a surface of said at least one pouch, said one or more tear lines extending from at least one of said one or more tear notches; and
 - one or more sealed vents configured to unseal in response to an increase in pressure within said at least one pouch, said one or more vents defining at least a portion of a flow path between said enclosed space of said at least one pouch and an external environment surrounding said at least one pouch;
 - providing a sleeve comprising
 - opposed first and second ends, wherein
 - said first end is open; and
 - said second end includes a sleeve gusset;
 - a wall extending between said first and said second end, said wall defined at least in part by an internal and an external surface; and
 - one or more thumb holes in said wall;
 - inserting at least a portion of said at least one pouch through said first end thereby placing said portion of said at least one pouch within said sleeve; and
 - heating said edible product enclosed within said at least one pouch placed within said sleeve, thereby
 - bulging at least said portion of said at least one pouch placed within said sleeve in response to said increase in pressure within said enclosed space of said at least one pouch;
 - bulging at least said second end of said sleeve in response to said bulging of said at least one pouch; and
 - spreading said sleeve gusset into an un-folded position in response to said bulging of said second end of said sleeve.

2. The method of claim 1, comprising unsealing at least one of said one or more sealed vents when said pressure within said at least one pouch is greater than a predefined value.
3. The method of claim 1, comprising tearing open said at least one pouch along at least one of said one or more tear lines thereby defining an opening for accessing said edible product in said portion of said at least one pouch placed within said sleeve.
4. The method of claim 1, comprising replacing said at least one pouch placed within said sleeve with another one of said at least one pouch.
5. The method of claim 4, comprising collapsing and at least partially folding said sleeve gusset from said un-folded position prior to heating said edible product contained in said enclosed space of said at least one pouch.
6. The method of claim 1, comprising generating steam within said enclosed space of said at least one pouch by heating said edible product comprising a moisture content of at least 15 percent.
7. The method of claim 6, comprising unsealing at least one of said one or more sealed vents with said steam.
8. The method of claim 1, comprising selecting said edible product from the group consisting of a pasteurized product, a refrigerated product, a thermally processed product, a shelf-stable product, a product enclosing a filling, a hot filled product, a frozen product, and any combination of one or more thereof.
9. The method of claim 1, comprising providing a kit comprising at least one sleeve and two or more pouches.
10. The method of claim 1, wherein one or more of said at least one pouch is a retort pouch comprising a pouch gusset, the method comprising positioning said pouch gusset within said sleeve proximate said sleeve gusset.
11. The method of claim 1, comprising providing said sleeve with at least one pouch pre-positioned therewithin.
12. The method of claim 1, wherein said at least one pouch is a heat-in packaging comprising a doneness indicator.
13. The method of claim 12, comprising terminating the step of heating when said doneness indicator indicates or attains a predetermined condition.

14. The method of claim 12, comprising changing an intensity of heating when said doneness indicator indicates or attains a predetermined condition.
15. The method of claim 1, wherein said sleeve gusset is a lockable sleeve gusset configured for being locked at any one or more of a plurality of locked stages including being locked at a folded or collapsed stage, a fully un-folded or expanded stage, and one or more stages between said folded or collapsed stage and said fully un-folded or expanded stage, said lockable sleeve gusset further configured for being un-locked from any one or more of said plurality of locked stages, said method comprising
locking said lockable sleeve gusset at one of said plurality of locked stages; and
un-locking said lockable sleeve gusset from a locked stage.
16. A package for heating an edible product, comprising:
at least one pouch enclosing said edible product, said at least one pouch comprising
an enclosed space containing said edible product;
one or more tear notches on an external section of said at least one pouch;
one or more tear lines extending from said one or more tear notches; and
one or more sealed vents configured to unseal in response to an increase in
pressure within said at least one pouch, said one or more vents
defining at least a portion of a flow path between said internal
volume of said at least one pouch and an external environment
surrounding said at least one pouch;
a sleeve comprising
opposed first and second ends, wherein said first end is open and said second
end includes a sleeve gusset;
a wall extending between said first and said second end, said wall defined at
least in part by an internal and an external surface; and
one or more thumb holes in said wall;
wherein, said sleeve is configured for
receiving through said first end at least a portion of said at least one pouch;
bulging at least a portion of said sleeve at said second end in response to said
increase in pressure within said at least one pouch received
therewithin; and
spreading said sleeve gusset.

17. The package of claim 16, wherein said increase in pressure within said at least one pouch is in response to heating said edible product.
18. The package of claim 17, wherein at least one of said one or more sealed vents unseals when said pressure within said at least one pouch is greater than a predefined value.
19. The package of claim 18, wherein said at least one pouch is a heat-in packaging comprising a doneness indicator.
20. The package of claim 19, wherein said heating is terminated when said doneness indicator exhibits a predetermined condition.
21. The package of claim 19, wherein an intensity of said heating is changed when said doneness indicator exhibits a predetermined condition.
22. The package of claim 16, wherein
said at least one pouch is defined at least in part by first, second and third panels
sealed one to another along adjacent edges; and
said at least one pouch comprises a pouch gusset defined at least in part by said third
panel.
23. The package of claim 22, wherein
said portion of said at least one pouch received within said sleeve includes said
pouch gusset; and
said pouch gusset is positioned proximate said sleeve gusset.
24. The package of claim 15, wherein said at least one pouch is defined at least in part
by opposed first and second panels sealed one to another along adjacent edges.
25. The package of claim 15, wherein said portion of said at least one pouch received
within said sleeve includes a pouch gusset positioned proximate said sleeve gusset.
26. The package of claim 15, wherein said enclosed space of said at least one pouch is
defined by two or more panels comprising laminates suitable for use with edible
products.
27. The package of claim 26, wherein at least one of said two or more panels comprises
a material selected from the group consisting of a susceptor, a shielding, and a
combination of a susceptor and a shielding.
28. The package of claim 16, wherein
said at least one pouch is a retort pouch comprising a pouch gusset;

said portion of said at least one pouch received within said sleeve includes said pouch gusset; and
said pouch gusset is located proximate said sleeve gusset.

29. The package of claim 16, wherein
at least one of said one or more tear lines divides said at least one pouch into a top section and a bottom section;
said second section is said portion of said at least one pouch received within said sleeve;
said top and bottom sections are detachable from one another along said at least one tear line such that a detachment of said top and bottom sections along said at least one tear line defines an opening for accessing said edible product within said bottom section retained within said sleeve.
30. The package of claim 29, wherein an entirety of said top section extends outwardly and away from said first end of said sleeve.
31. The package of claim 16, comprising a kit including at least one sleeve and two or more pouches, wherein said at least one sleeve is reusable with any one of said two or more pouches.
32. The package of claim 16, wherein said sleeve gusset is a lockable sleeve gusset configured for being locked at any one or more of a plurality of locked stages including being locked at a folded or collapsed stage, a fully un-folded or expanded stage, and one or more stages between said folded or collapsed stage and said fully un-folded or expanded stage, said lockable sleeve gusset further configured for being un-locked from any one or more of said plurality of locked stages.

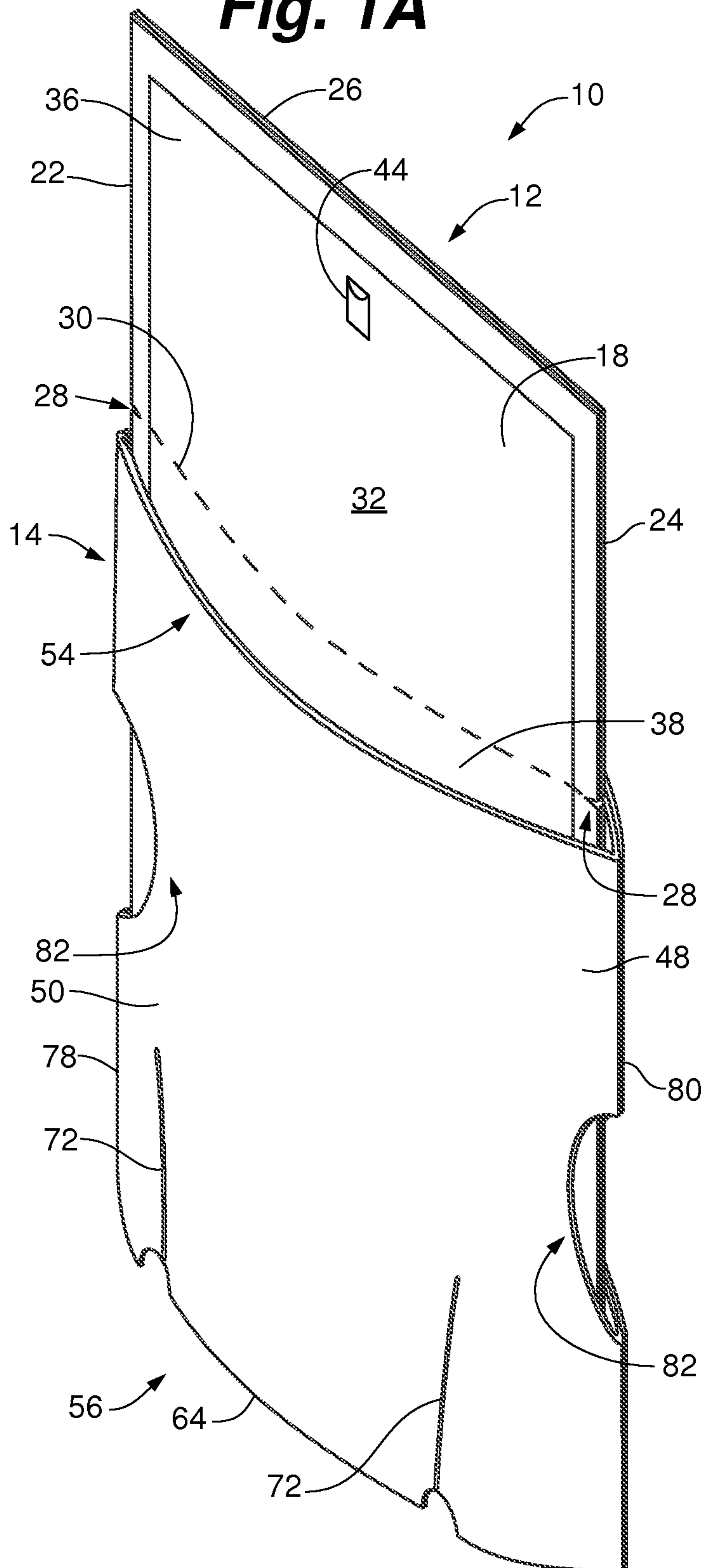
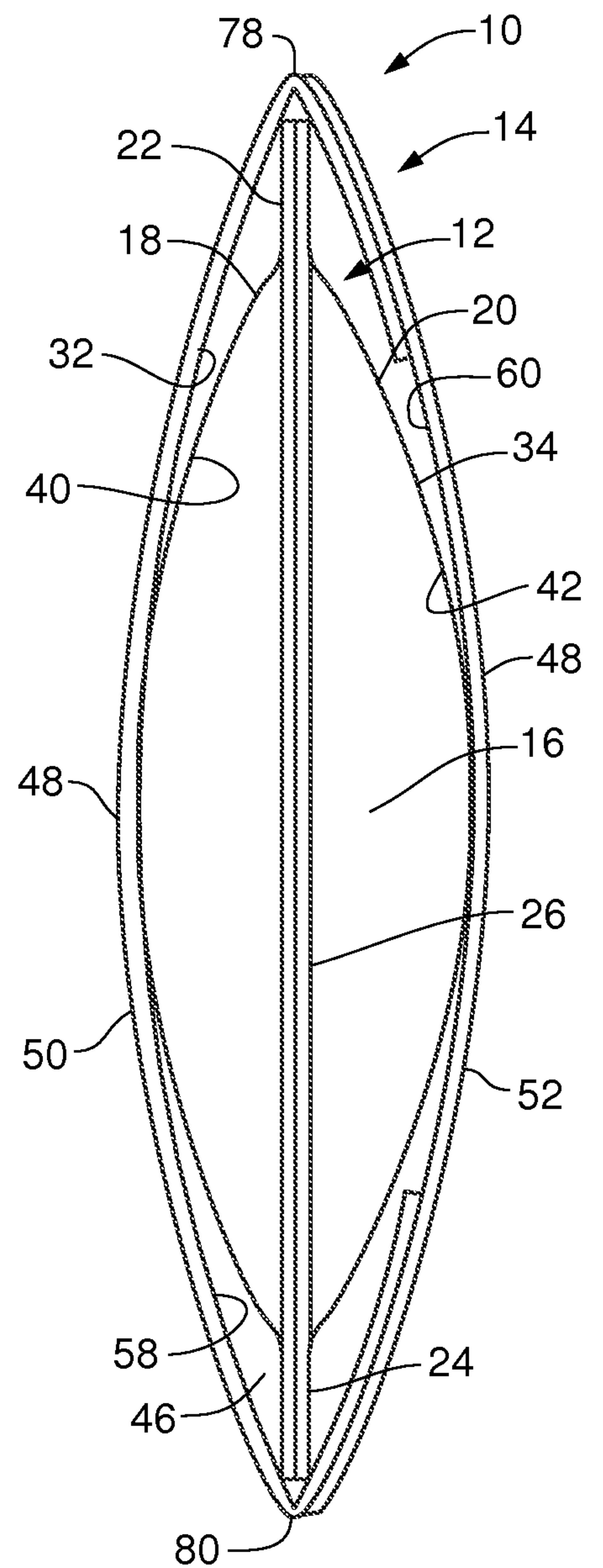
Fig. 1A**Fig. 1B**

Fig. 2A

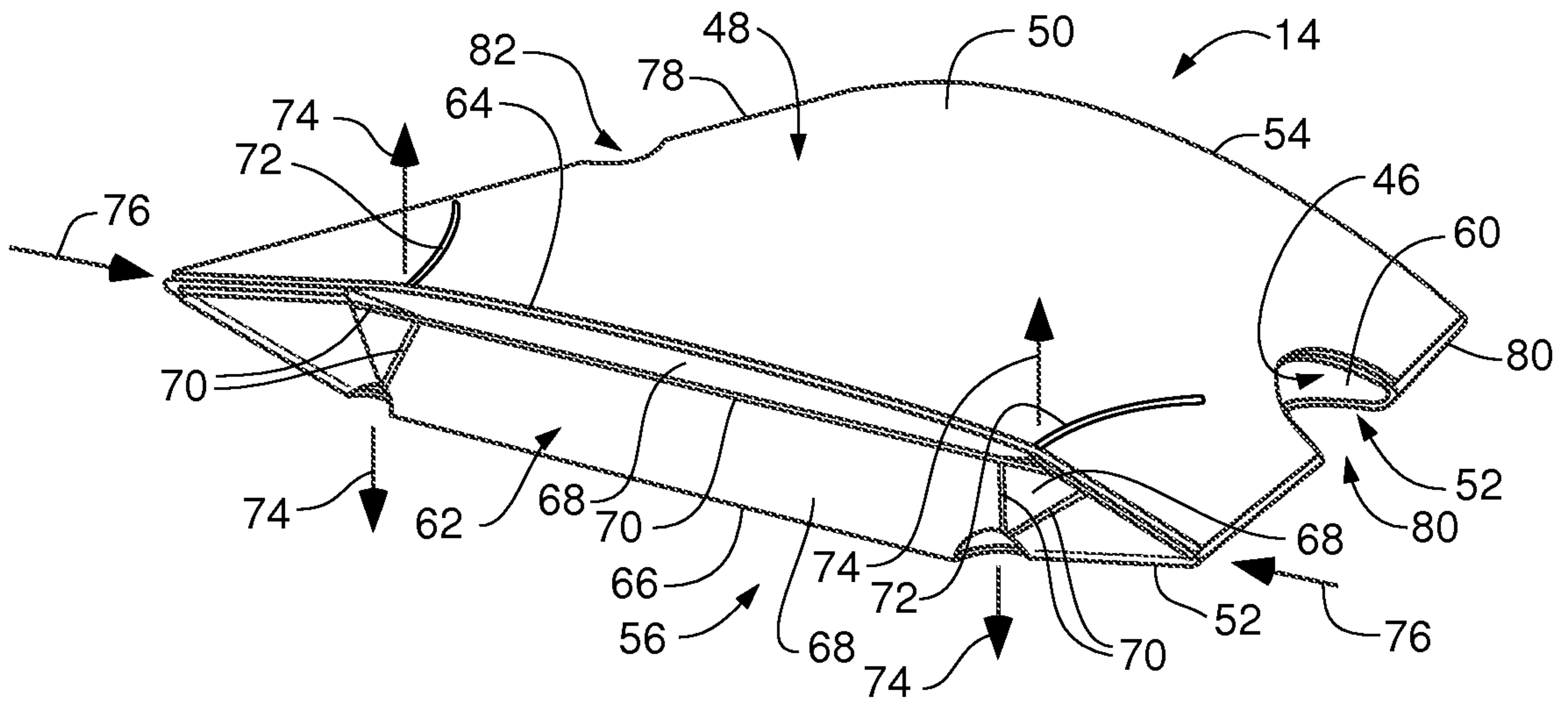


Fig. 2B

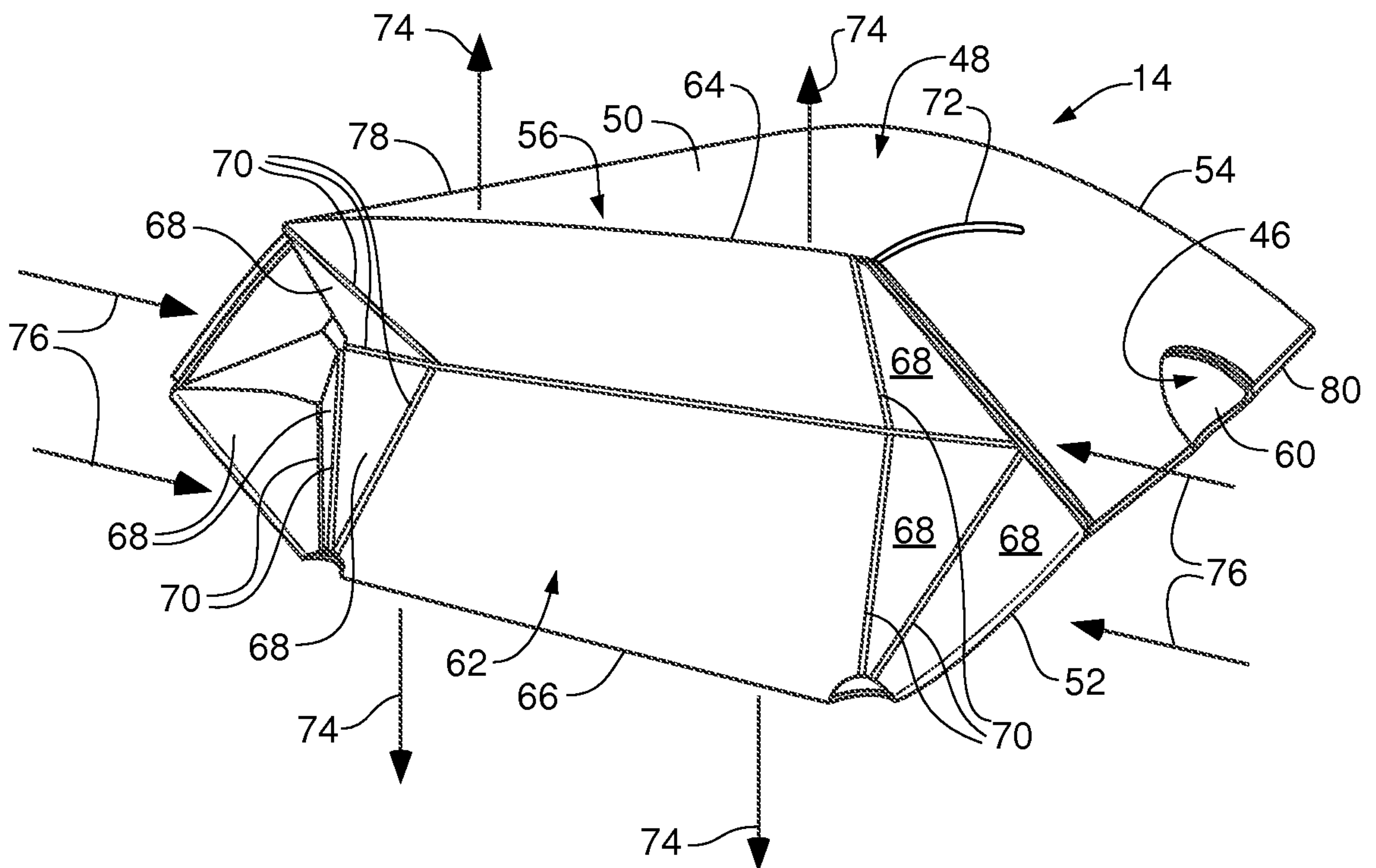
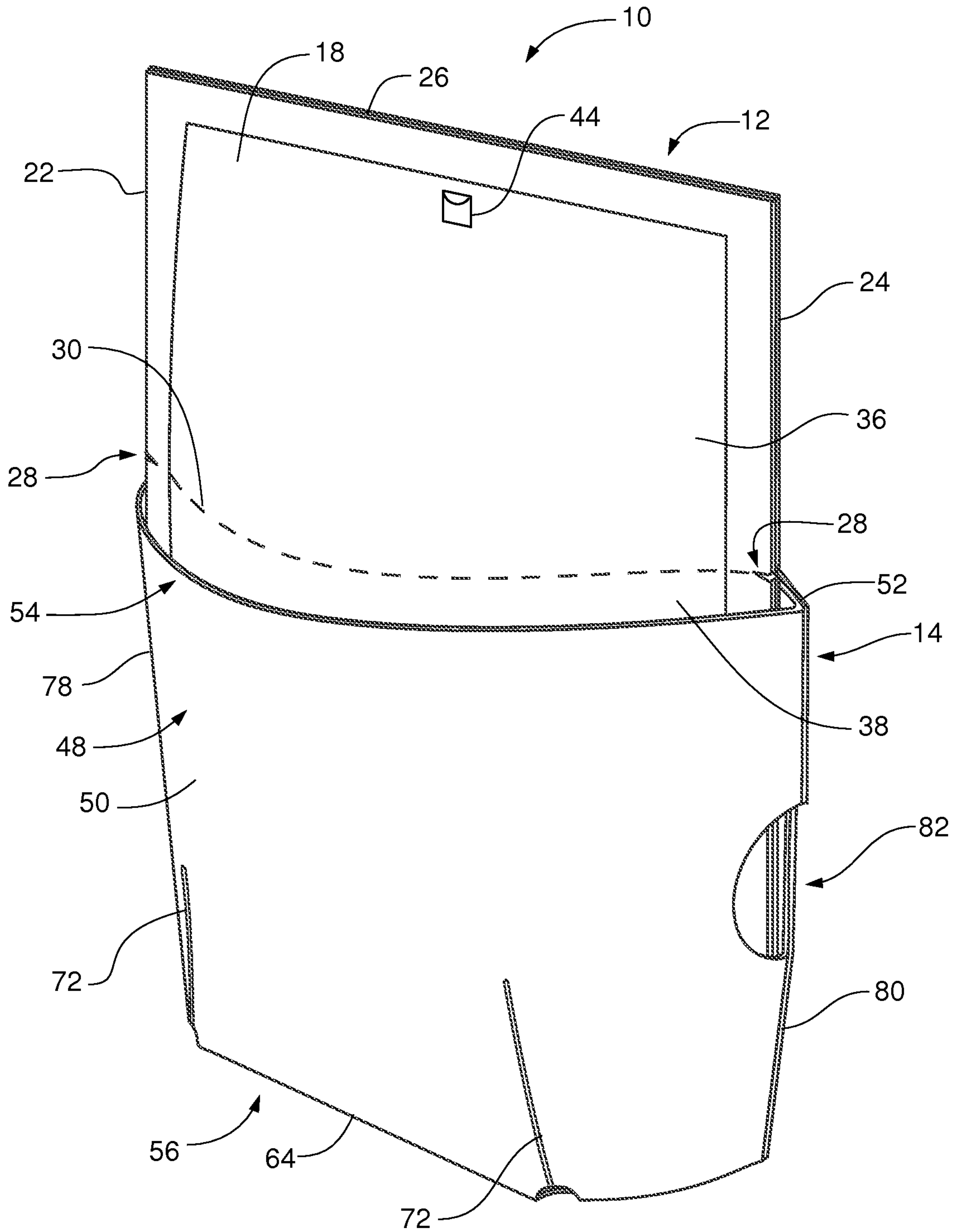


Fig. 4A

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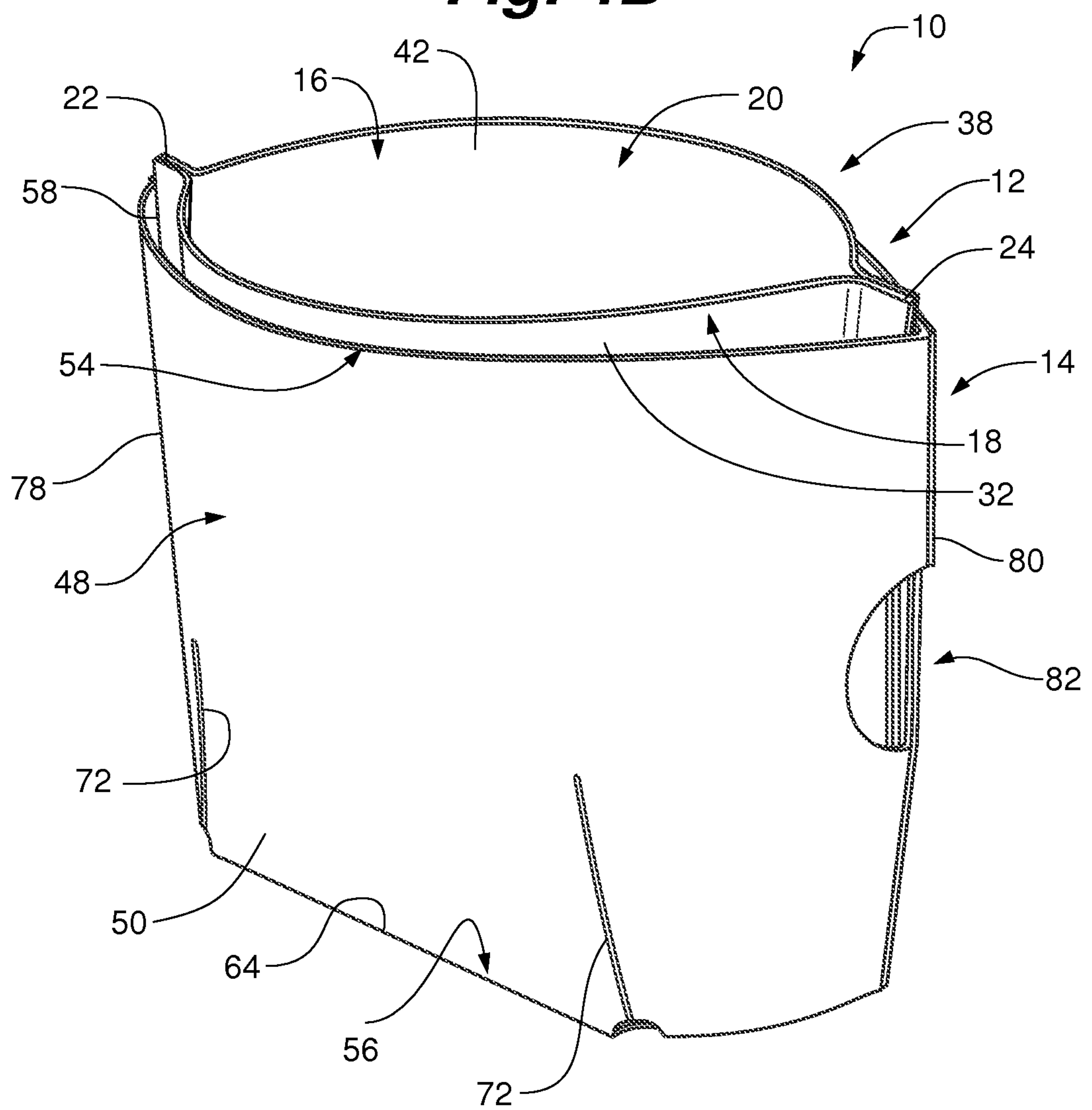
Fig. 4B

Fig. 4B

