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(54) MULTI-FUNCTIONAL BASE FOR A PLASTIC, WIDE-MOUTH, BLOW-MOLDED CONTAINER

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(60) Provisional application No. 60/284,795, filed on Apr. 19, 2001.

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(57) **ABSTRACT**

A blow molded container having a multi-functional base which enables use of the container in both hot-fill operations and pasteurization/retort operations and enables efficient vertical stacking of like containers. To this end, a portion of the base is capable of flexing upwardly and/or downwardly in response to variations in pressures in a filled and sealed container. Structurally, the base has a continuous or discontinuous concave outer annular wall forming a continuous or discontinuous standing ring and an inner annular wall functioning as a flex panel. The inner annular wall connects outwardly to a plurality of radial webs extending at an elevation above the standing ring and connects inwardly to a central dimple. Preferably, the inner periphery of the annular wall is heat-set and biaxially oriented.

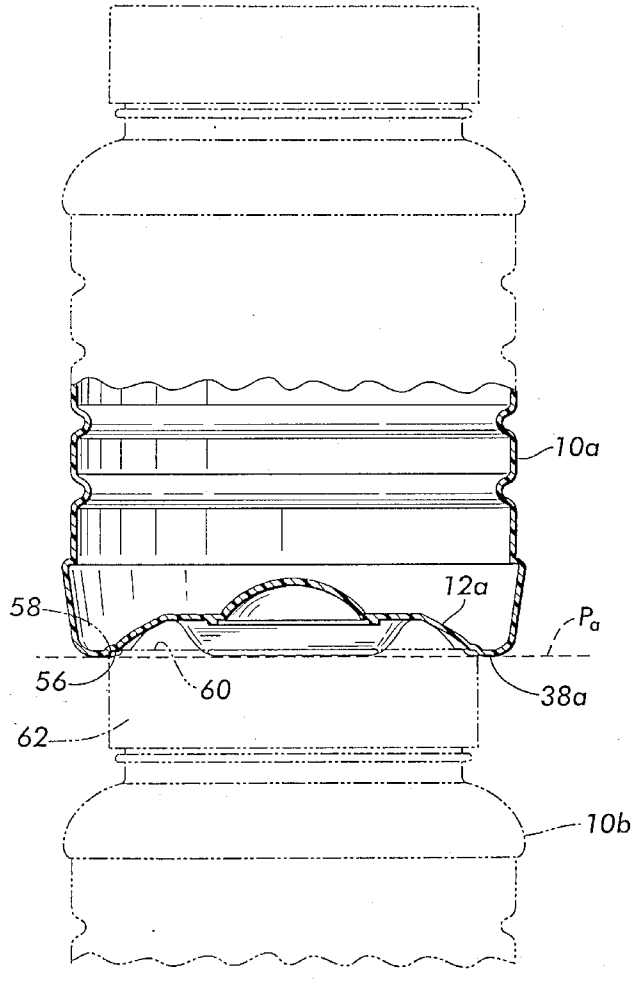

FIG.1

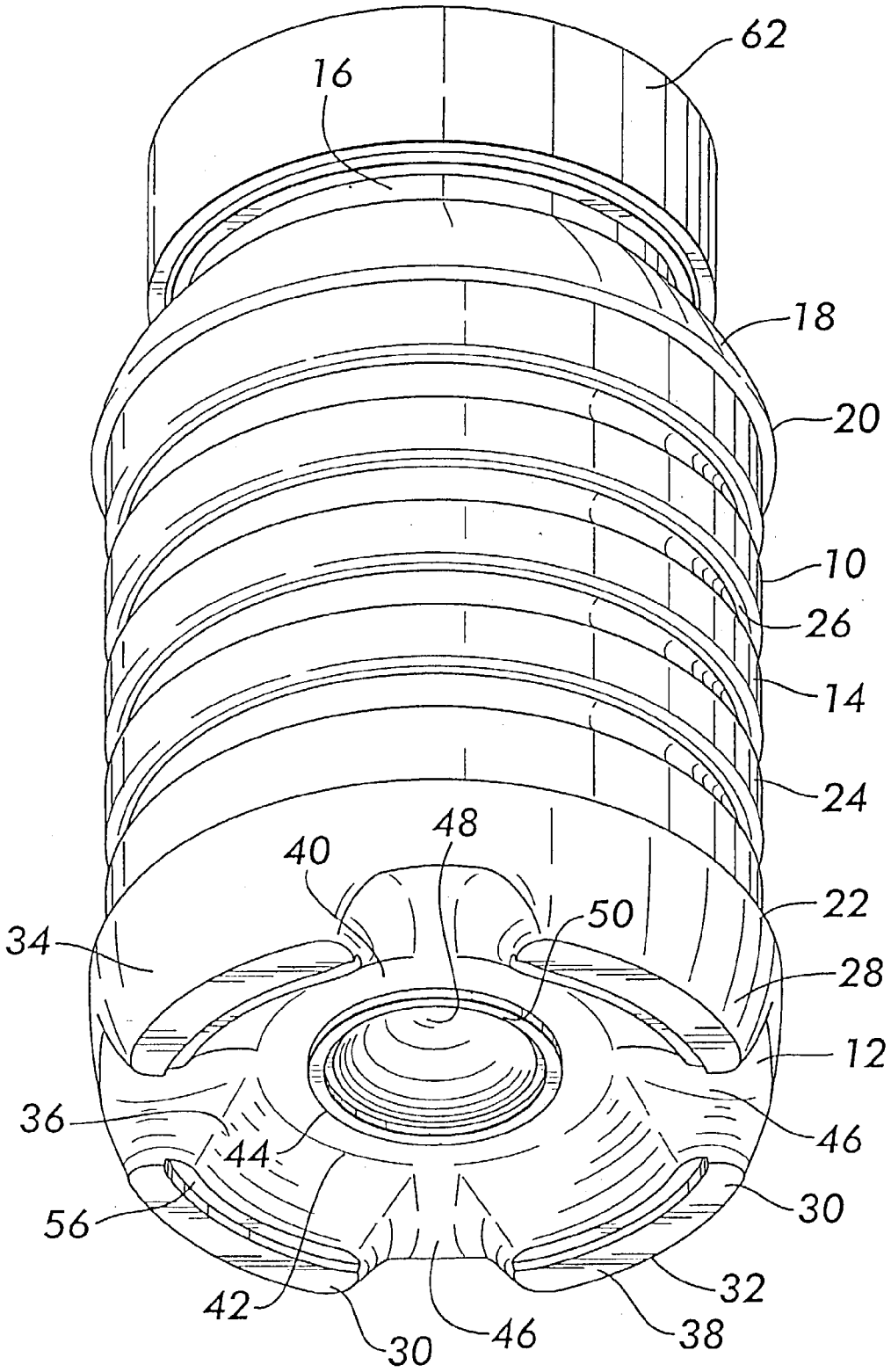
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FIG. 2

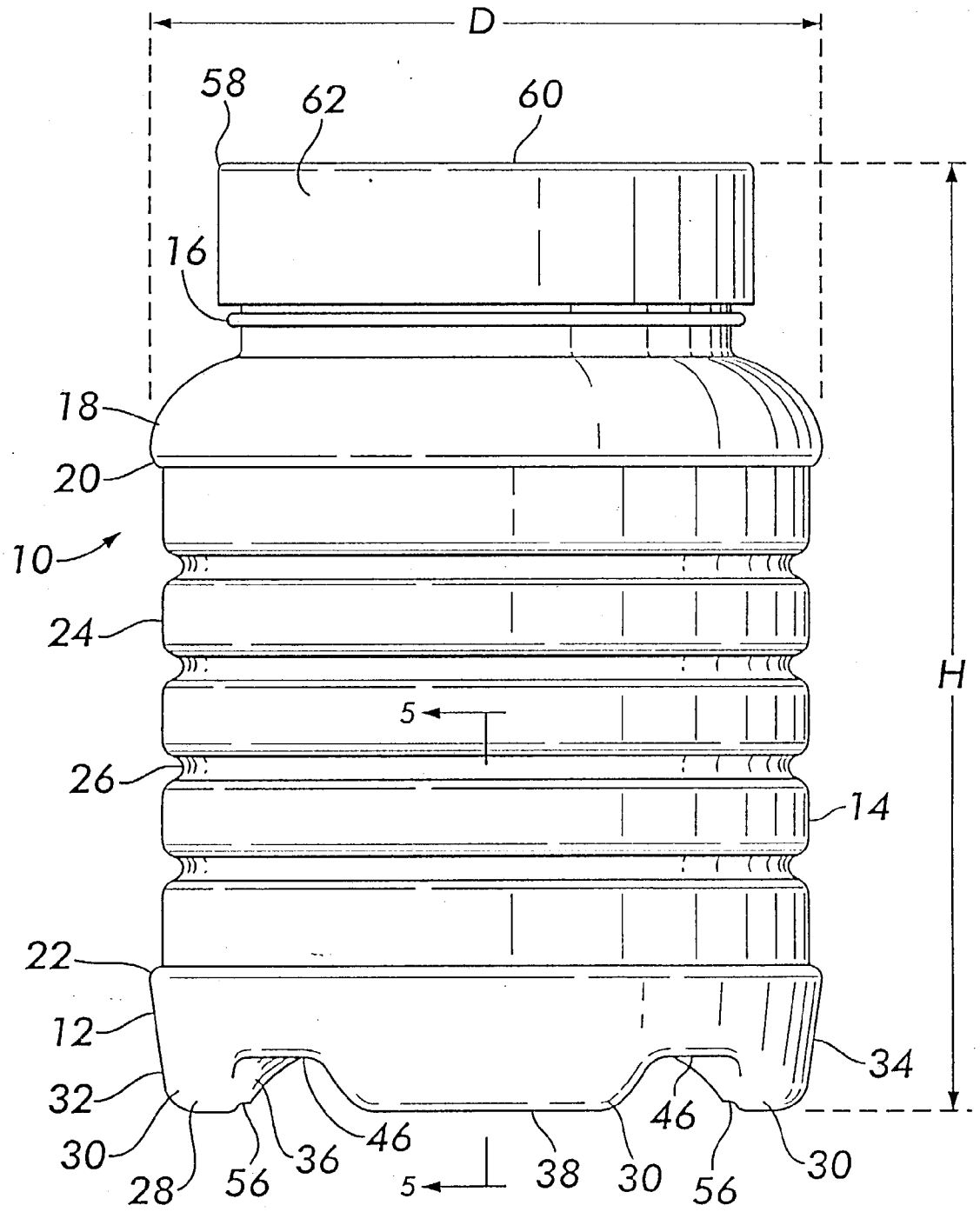
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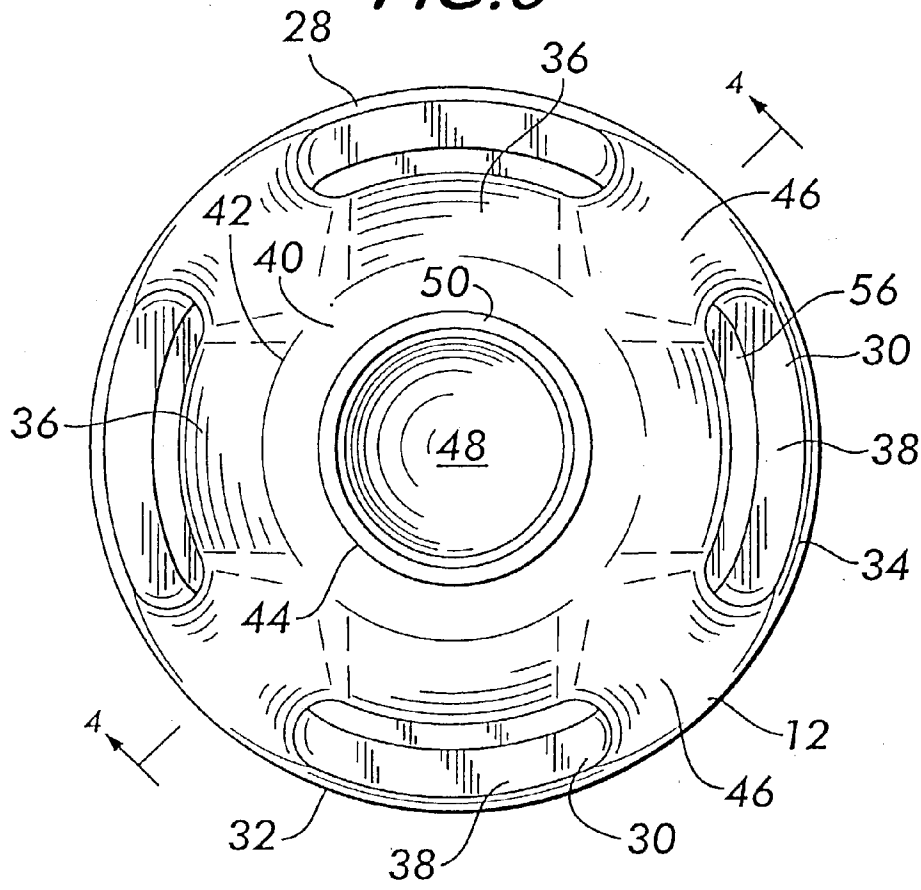
FIG.3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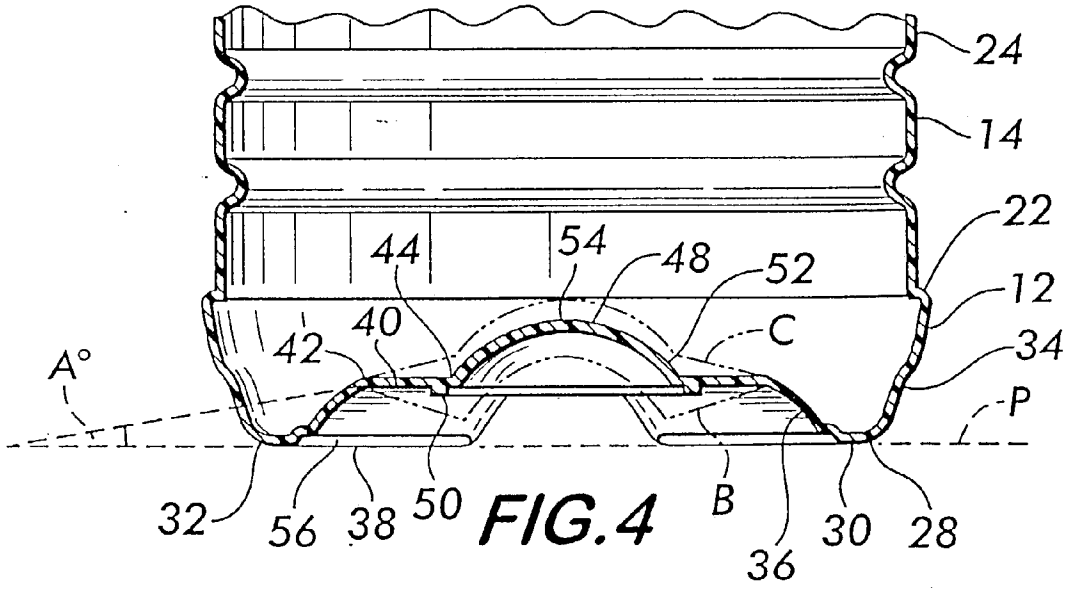
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FIG.4

FIG.5

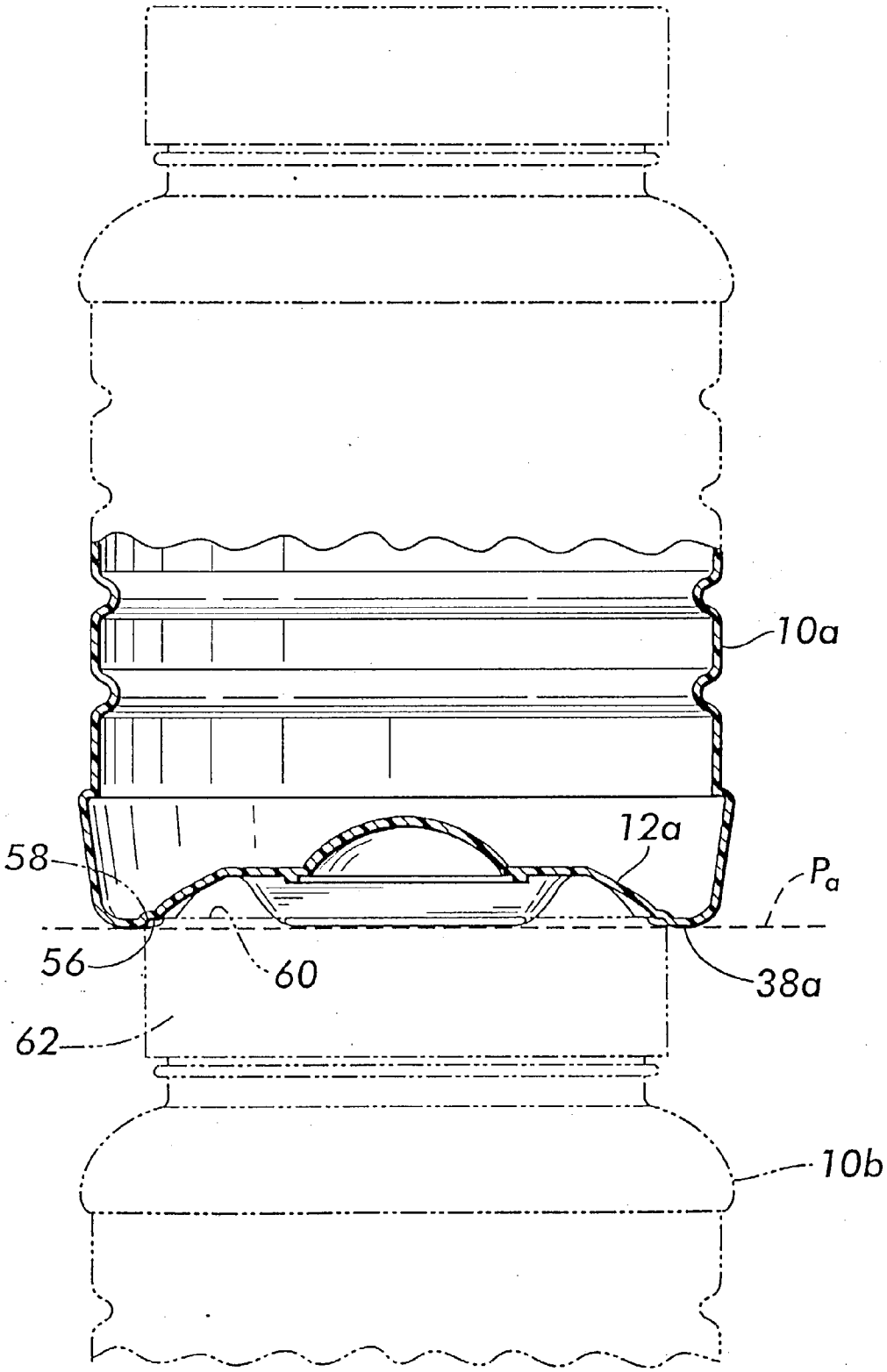

FIG. 6

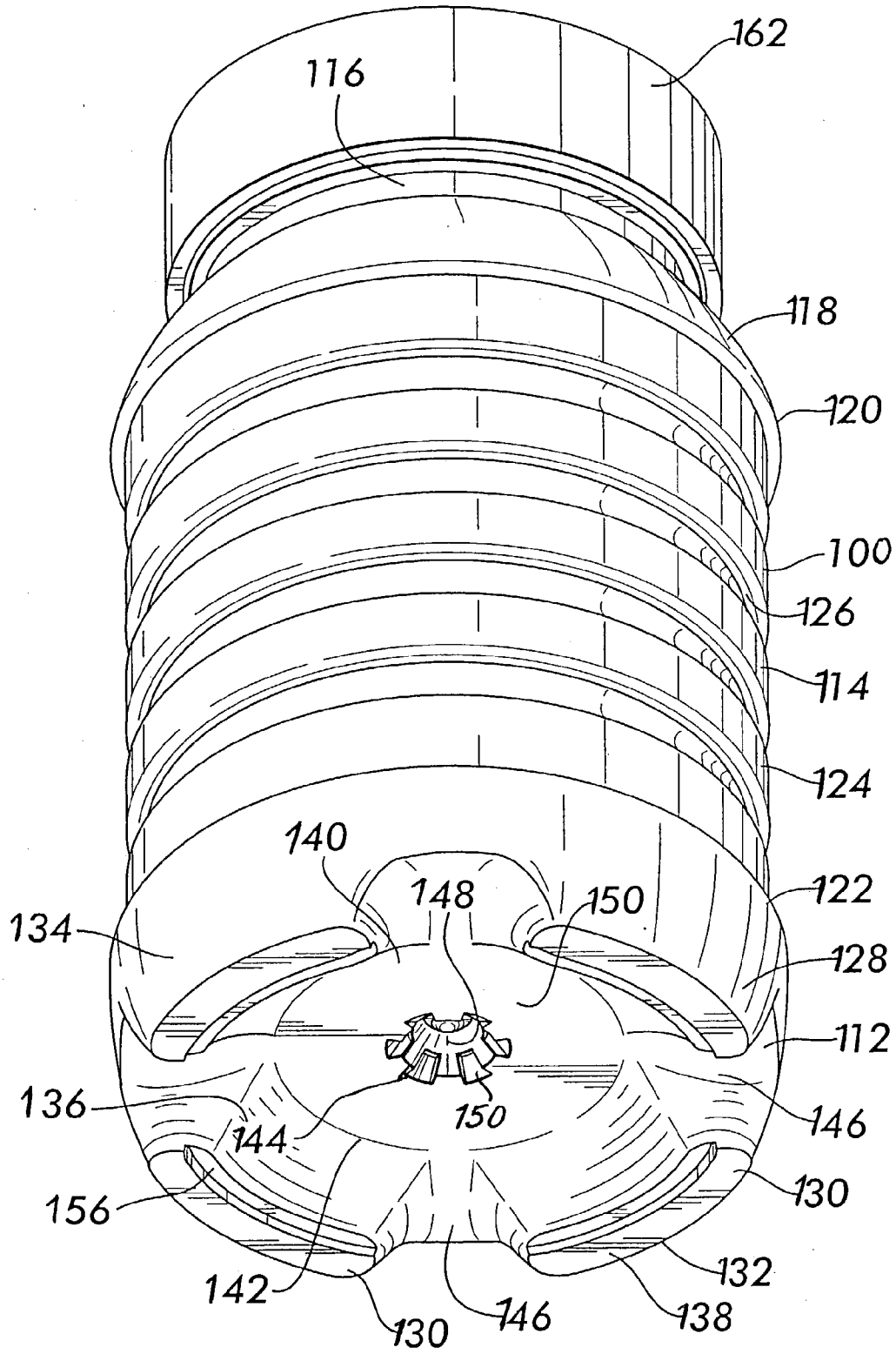
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FIG. 7

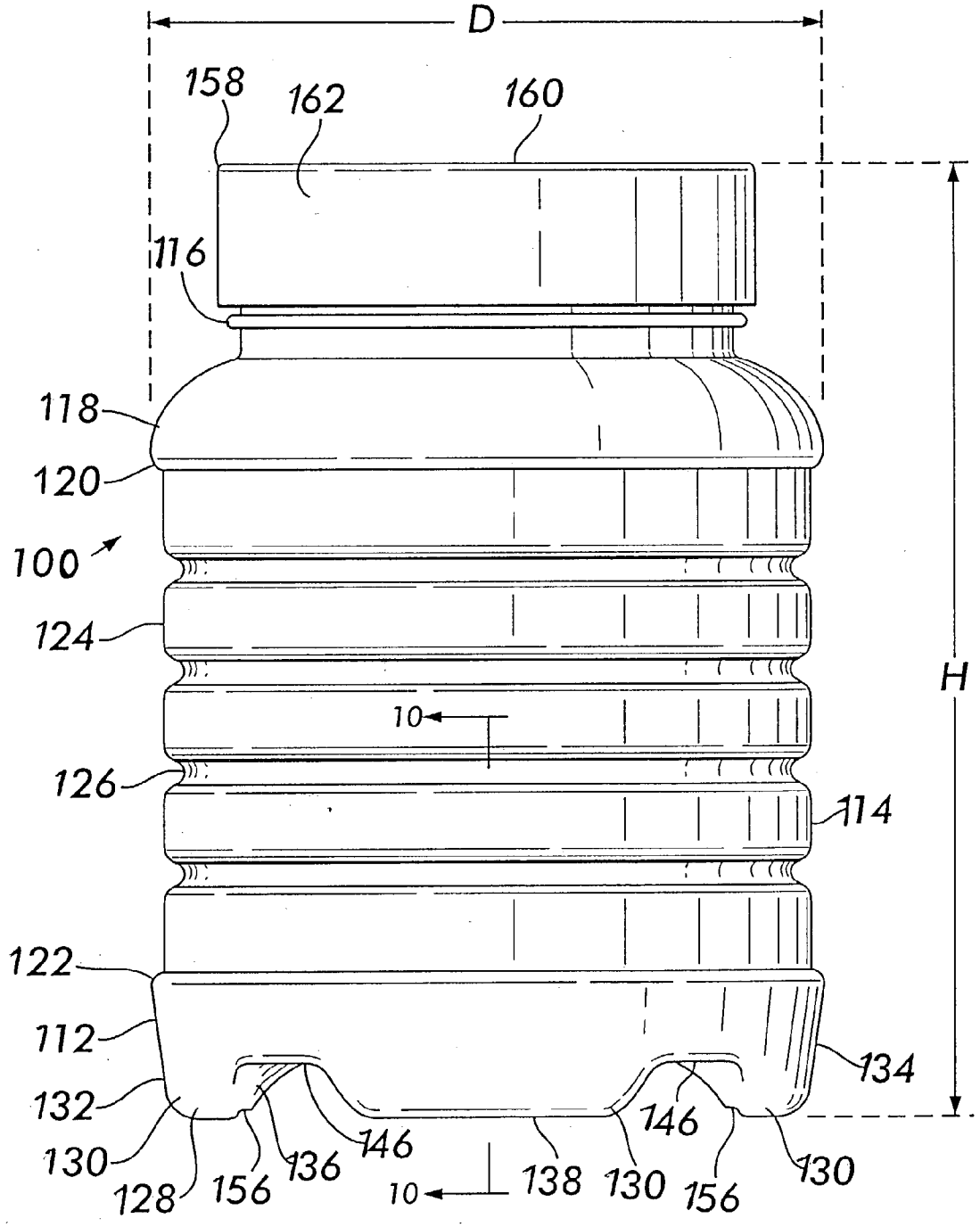
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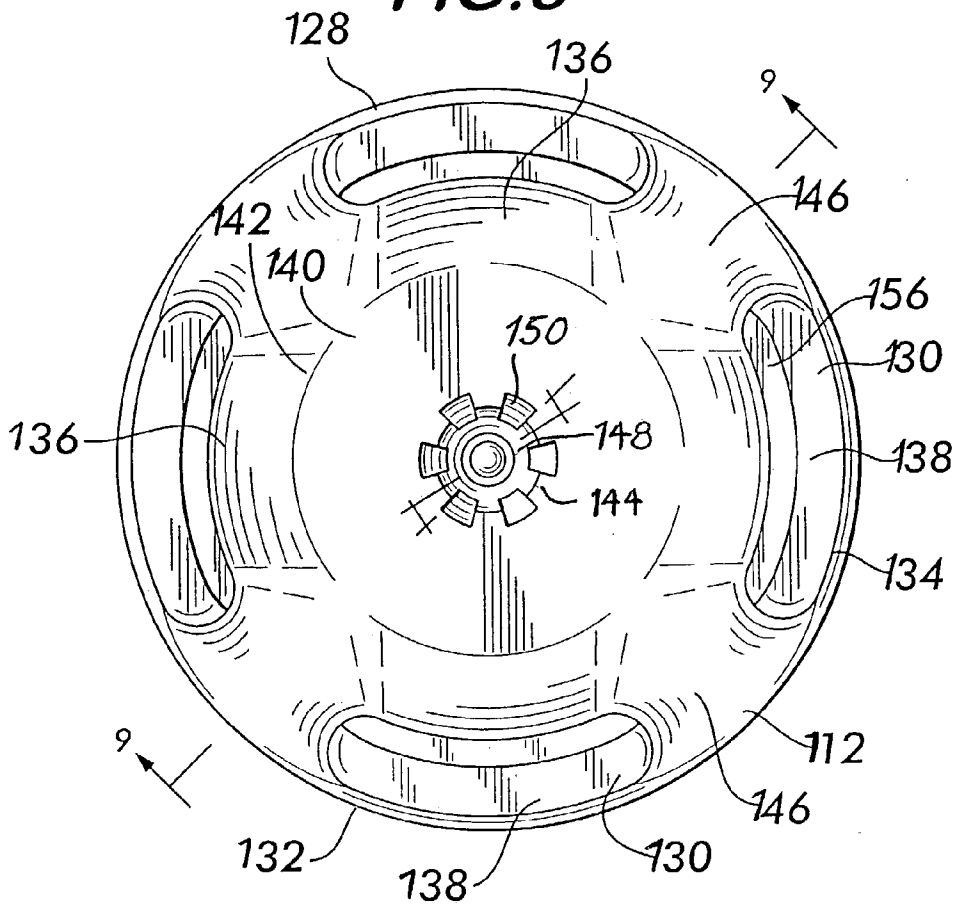
FIG. 8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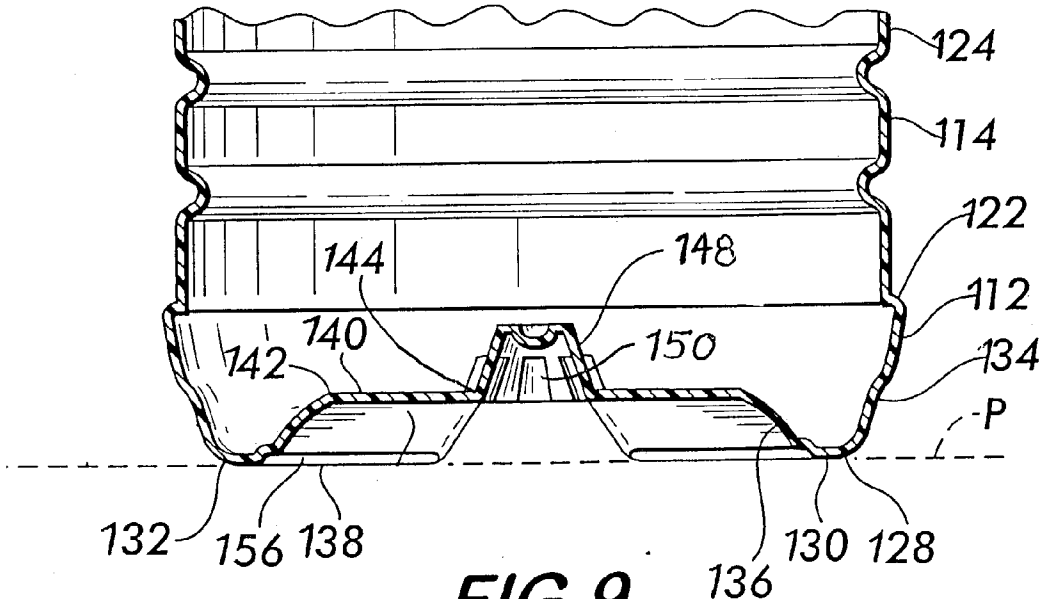
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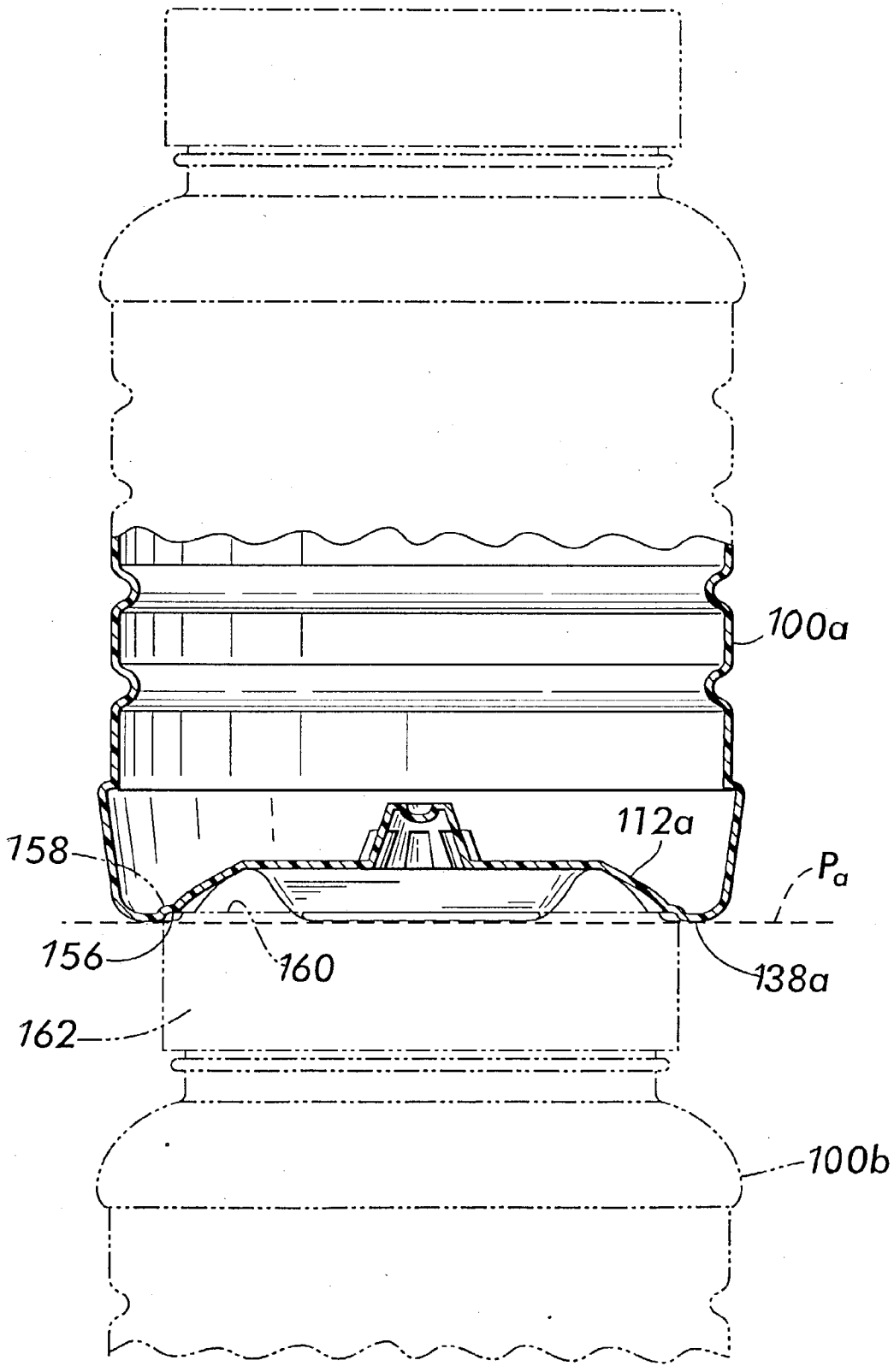
FIG. 9

FIG. 10



MULTI-FUNCTIONAL BASE FOR A PLASTIC, WIDE-MOUTH, BLOW-MOLDED CONTAINER

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a continuation-in-part of co-pending U.S. Non-Provisional Application No. 10/124,734 filed on Apr. 17, 2002 which claims the benefit of priority of U.S. Provisional Patent Application No. 60/284,795 filed on Apr. 19, 2001.

FIELD OF THE INVENTION

[0002] The present invention relates to a base for a wide mouth blow-molded plastic container, and more particularly, the present invention relates to a multi-functional base structure which enables use of the container in hot-fill, as well as pasteurization/retort processing.

BACKGROUND OF THE INVENTION

[0003] Plastic blow-molded containers, particularly those molded of PET, have been utilized in hot fill applications where the container is filled with a liquid product heated to a temperature in excess of 180° F. (82° C.), capped immediately after filling, and allowed to cool to ambient temperatures. Plastic blow-molded containers have also been utilized in pasteurization/retort processes where a filled and sealed container is subjected to thermal processing and is then cooled to ambient temperatures. In both cases, the containers are typically provided with vacuum absorption panels to accommodate volumetric changes in the container as the contents of the sealed container are heated and/or as the contents cool within the sealed container.

[0004] U.S. Pat. No. 6,439,413 issued to Prevot et al. and assigned to Graham Packaging Company, L.P. discloses a hot-fillable and retortable plastic wide-mouth blow-molded container having a sidewall with a pair of flex panels.

[0005] Co-pending U.S. patent application Ser. No. 10/129,885 filed on May 10, 2002 is the U.S. national phase of International Application No. PCT/US00/31834, is assigned to Graham Packaging Company, L.P., and discloses a pasteurizable wide-mouth container having a novel base.

[0006] Other plastic wide-mouth containers having paneled sidewalls are disclosed in U.S. Pat. Nos.: 5,887,739 issued to Prevot et al.; 5,261,544 issued to Weaver, Jr.; and 5,092,474 issued to Leigner. A pasteurizable plastic container having paneled sidewalls and a narrow neck finish is disclosed by U.S. Pat. No. 5,908,128 issued to Krishnakumar et al.

[0007] Containers having non-paneled sidewalls and yieldable endwall structures are disclosed in U.S. Pat. Nos. 4,642,968, 4,667,454 and 4,880,129 issued to McHenry et al.; 5,217,737 issued to Gygax et al.; 5,234,126 issued to Jonas et al.; 4,381,061 issued to Cerny et al.; 4,125,632 issued to Vosti et al.; and 3,409,167 issued to Blanchard. The above cited U.S. patents disclose containers having various base structures.

[0008] The structure of a so-called footed base is disclosed, in general, in U.S. Pat. Nos.: 4,355,728 issued to Yoshino et al.; 5,713,480 issued to Petre et al.; 3,727,783 issued to Carmichael; 4,318,489 issued to Snyder et al.; 5,133,468 issued to Brunson et al.; 5,024,340 issued to Alberghini et al.; 3,935,955 issued to Das; 4,892,205, 4,867,323 and Re. 35,140 issued to Powers et al.; and 5,785,197 issued to Slat.

[0009] U.S. Pat. No. 4,321,483 issued to Dechenne et al. discloses a base having slightly angled annular surface and a central conical projection; and U.S. Pat. No. 4,386,701 issued to Galer discloses a blow molded plastic drum having a base which is designed to stack efficiently with the lid of a like drum.

[0010] While the above referenced containers and base structures may function satisfactorily for their intended purposes, there is a need for a plastic, wide-mouth, blow-molded container which is particularly suited for packaging a variety of viscous and other food products and which has a novel base structure that enables the container to be utilized in hot-fill and pasteurization processes. The base structure should be capable of accommodating increased internal pressure experienced during pasteurization; capable of accommodating vacuum formed in the sealed container during cool down; capable of resisting unwanted inversion or like deformation; and capable of efficient stacking with like containers.

OBJECTS OF THE INVENTION

[0011] With the foregoing in mind, a primary object of the present invention is to provide a commercially satisfactory wide-mouth blow-molded container that can be utilized in hot-fill applications as well as pasteurization, or retort, applications for packaging fluent, viscous and solid food products.

[0012] Another object of the present invention is to provide a base structure capable of accommodating an increase in internal container pressure when the sealed container is subjected to thermal treatment and capable of accommodating vacuum during cool down.

[0013] Still another object of the present invention is to provide a hot-fillable and pasteurizable container having a base which accommodates changes in internal pressure and volume and which resists unwanted inversion and other deformation.

[0014] A further object of the present invention is to provide a structure for a wide-mouth plastic container which can be efficiently stacked, one on top of the other, with like containers and which can be produced by means of high speed manufacturing equipment in an economical manner that ensures consistent quality and performance.

SUMMARY OF THE INVENTION

[0015] More specifically, the present invention provides a blow molded plastic container having a base with a continuous or discontinuous concave outer annular wall having an outer portion and an inner portion forming a standing ring therebetween. The base also includes an inner annular wall that extends within the outer annular wall and above the standing ring. The inner periphery of the inner annular wall is made of blow molded plastic material that is heat-set and biaxially-oriented and connects to an anti-inverting central dimple. Functionally, the inner annular wall is capable of flexing upwardly and downwardly in response to variations in pressures in a filled and sealed container without under-

going unwanted permanent deformation. In addition, preferably a shoulder extends radially inward on the inner portion of the outer annular wall above a level of the standing ring to facilitate vertical stacking of containers having like bases.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The foregoing and other objects, features and advantages of the present invention should become apparent from the following description when taken in conjunction with the accompanying drawings, in which:

[0017] **FIG. 1** is a perspective view of a container having a base embodying the present invention;

[0018] **FIG. 2** is an elevational view of the container illustrated in **FIG. 1**;

[0019] **FIG. 3** is bottom plan view of the base illustrated in **FIG. 1**;

[0020] **FIG. 4** is a cross-sectional view of the base taken along line **4--4** of **FIG. 3**;

[0021] **FIG. 5** is a cross-sectional view of the base taken along line **5--5** of **FIG. 2** and illustrates a pair of containers in a stacked arrangement;

[0022] **FIG. 6** is a perspective view of a second embodiment of a container having a base embodying the present invention;

[0023] **FIG. 7** is an elevational view of the container illustrated in **FIG. 6**;

[0024] **FIG. 8** is bottom plan view of the base illustrated in **FIG. 6**;

[0025] **FIG. 9** is a cross-sectional view of the base taken along line **9--9** of **FIG. 8**; and

[0026] **FIG. 10** is a cross-sectional view of the base taken along line **10-- 10** of **FIG. 7** and illustrates a pair of containers in a stacked arrangement.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0027] The present invention provides containers, **10** and **100**, which are particularly suited for use as a jar for packaging food products. For example, the containers **10** and **100** can be used to package fluent or semi-fluent food products such as applesauce, spaghetti sauce, relishes, sauerkraut, baby foods, and the like. They can also be used to package a solid food product suspended in a liquid brine, such as pickles. Thus, the containers, **10** and **100**, can be utilized for packaging various food products and can withstand various fill and treatment operations, as will be discussed.

[0028] The embodiment of the present invention illustrated in FIGS. **1-5** is a container **10** having a base **12**, a substantially cylindrical sidewall **14**, and a wide-mouth threaded finish **16** which projects from the upper end of the sidewall **14** via a shoulder **18**. Preferably, as illustrated, upper and lower label bumpers, **20** and **22**, are located adjacent the shoulder **14** and base **12**, respectfully, and outline a substantially cylindrical label area **24** on the sidewall **14**. Thus, a label (not shown) can be attached to, and extend completely around, the container sidewall **14**. In addition, preferably the sidewall **14** has a series of circumferential grooves **26** which reinforce the cylindrical shape of the sidewall **14** and resist paneling, dents and other unwanted deformation of the sidewall **14**.

[0029] The container **10** is multi-functional since it can be utilized in hot-fill as well as pasteurization/retort processing. To accomplish this objective, the base **12** has a structure which is capable of accommodating elevated internal container pressure experienced during pasteurization/retort processing and which is capable of accommodating reduced container volume experienced upon cool down of a filled and sealed container after hot-fill or pasteurization/retort processing. To this end, the base **12** flexes downwardly in a controlled manner and to a desired extent when pressure within the filled and sealed container is elevated, and the base **12** flexes upwardly in a controlled manner and to a desired extent when a vacuum develops within the filled and sealed container.

[0030] Structurally, the base **12** includes a continuous or discontinuous concave outer annular wall **28**. In the illustrated embodiment of base **12**, concave outer annular wall **28** is discontinuous and provides a plurality of spaced-apart, arcuate supports **30** adjacent the outer periphery **32** of the base **12**. Four supports **30** are utilized in the illustrated embodiment; however, two, three, five or more supports **30** could also be utilized. Yet another alternative includes providing concave outer annular wall **28** as a continuous structure that forms a continuous standing ring.

[0031] Each support **30** has an outer wall portion **34** which extends upwardly toward the lower label bumper **22** and an inner wall portion **36** which extends upwardly and inwardly into the remaining base structure as will be discussed. A standing surface **38** is formed at the juncture of each outer and inner wall portions, **34** and **36**. Thus, a discontinuous support ring of the container **10** is provided in the illustrated embodiment. Alternatively, as discussed above, a continuous support ring can be provided.

[0032] An inner annular wall **40** extends within the concave outer annular wall **28** and may, or may not, be slightly inclined relative to the horizontal. For instance, the inclined inner annular wall **40** can extend upwardly and inwardly at an angle "A" relative to the horizontal as it extends from its outer periphery **42** to its inner periphery **44**. By way of example, the inner annular wall **40** can incline at an angle "A" in a range of about 5° to about 6° relative to a horizontal plane "P" extending through the standing surfaces **38**. Alternatively, the inner annular wall **40** can be formed substantially planar and parallel to a horizontal plane "P" extending through the standing surfaces **38**.

[0033] The outer periphery **42** of the inner annular wall **40** merges with the inner wall portion **36** and, in the illustrated embodiment, with a plurality of spaced-apart, horizontally-disposed, radial webs **46** located adjacent the outer periphery **32** of the base **12**. Each of the webs **46** extends between the supports **30** and connects to the container sidewall **14** at an elevation above the horizontal plane "P" extending through the standing surfaces **38**. A base having a continuous outer annular wall would not include webs **46**.

[0034] The inner periphery **44** of the inner annular wall **40** merges into an anti-inverting dome **48** which projects upwardly into the container **10**. In the illustrated embodi-

ment, the inner annular wall **40** and anti-inverting dome **48** merge via an annular hinge **50**. As illustrated in **FIG. 4**, the anti-inverting dome **48** has a conical lower portion **52** adjacent hinge **50** and a convex upper portion **54**.

[**0035**] The inner annular wall **40** functions as a flex panel. To this end, when the internal pressure increases within a filled and sealed container, the inner annular wall **40** flexes downwardly as shown in dashed lines "B" in **FIG. 4** to accommodate the increased pressure and prevent the sidewall **14** of the container **10** from undergoing unwanted permanent distortion. In addition, the inner annular wall **40** flexes upwardly to relieve vacuum when the contents of a hot filled and capped container, or a filled, capped and subsequently pasteurized container, cool to ambient. This is shown in dashed lines "C" in **FIG. 4**. Thus, when the sealed container and contents cool to ambient, the sidewall **14** is substantially cylindrical and unchanged from its as-formed shape and is capable of neatly supporting a wrap-around label without unwanted voids or the like beneath the label. In addition, the sidewall **14** resists ovalization and the base **12** provides a level seating surface which is not subject to rocking or the like.

[**0036**] The anti-inverting dome **48**, the supports **30** and the radial webs **46** support the inner annular wall **40** and permit it to flex only within a desired range of movement as illustrated by dashed lines "B" and "C". For instance, the inner annular wall **40** flexes downwardly due to an increase in pressure within the container, but is prevented from complete inversion and failure by the anti-inverting dome **48** which travels with the inner annular wall **40** but substantially maintains a constant shape regardless of the internal pressure experienced within the container.

[**0037**] Another feature of the base **12** of the present invention is that each inner wall portion **36** of the arcuate supports **30** has an arcuate shoulder, or support ridge, **56** formed therein and spaced in elevation from both the support surfaces **38** and the inner annular wall **40** to facilitate vertical stacking of like containers **10**. For example, as illustrated **FIG. 5**, an upper container **10***a* is stacked on a lower container **10***b*. The support ridge **56** in the base **12***a* of the upper container **10***a* seats on the outer edge **58** of the upper surface **60** of the lid **62** of the lower container **10***b* such that the horizontal plane "Pa" extending through the standing surfaces **38***a* of the upper container **10***a* extends a spaced distance beneath the top surface **60** of the lid **62** of the lower container **10***b*.

[**0038**] By way of example, and not by way of limitation, the container **10** according to the present invention preferably has a height "H" of about 5.8 inches, a container outermost diameter "D" of about 4.2 inches, and contain a capacity of about 32 fluid ounces. The discontinuous standing ring formed by the standing surfaces **38** has a diameter of about 3.6 inches, and the inner annular wall **40** of the base **12** has an inner periphery **44** with a diameter of about 1.6 inches and an outer periphery **42** with a diameter of about 2.2 inches. The radial webs **46** are uniformly spaced apart and separate each support **30** such that each support **30** is at least about 0.8 radians. In addition, each support **30** has a slightly larger arcuate extent than that of each radial web **46**.

[**0039**] A second embodiment of the of the present invention is illustrated in FIGS. **6-10** as container **100**. Container **100** has a base **112**, a sidewall **114**, and a wide-mouth threaded finish **116** which projects from the upper end of the sidewall **114** via a shoulder **118**. Preferably, as illustrated, upper and lower label bumpers, **120** and **122**, are located adjacent the shoulder **114** and base **112**, respectfully, and outline a substantially cylindrical label area **124** on the sidewall **114**. In addition, preferably the sidewall **114** has a series of circumferential grooves **126** which reinforce the sidewall **114** and resist paneling, dents and other unwanted deformation of the sidewall **114**.

[**0040**] The container **100** is multi-functional since it can be utilized in hot-fill as well as pasteurization/retort processing. To accomplish this objective, the base **112** has a structure which is capable of accommodating elevated internal container pressure experienced during pasteurization/retort processing and which is capable of accommodating reduced container volume experienced upon cool down of a filled and sealed container after hot-fill or pasteurization/retort processing. To this end, the base **112** flexes downwardly in a controlled manner and to a desired extent when pressure within the filled and sealed container is elevated, and the base **112** flexes upwardly in a controlled manner and to a desired extent when a vacuum develops within the filled and sealed container.

[**0041**] Structurally, the base **112** includes a concave outer annular wall **128** that is either continuous or discontinuous. In the illustrated embodiment, base **112** has a discontinuous concave outer annular wall **128** that provides a plurality of spaced-apart, arcuate supports **130** adjacent the outer periphery **132** of the base **112**. Each support **130** has an outer wall portion **134** that extends upwardly toward the lower label bumper **122** and an inner wall portion **136** that extends upwardly and inwardly into the remaining base structure as will be discussed. A standing surface **138** is formed at the juncture of each outer and inner wall portions, **134** and **136**, thereby forming a discontinuous support ring of the container **100**. In an additional contemplated embodiment of the present invention, the concave outer annular wall **128** is provided as a continuous structure that forms a continuous support ring.

[**0042**] An inner annular wall **140** extends within the concave outer annular wall **128**. The inner annular wall **140** has an outer periphery **142** and an inner periphery **144**. The outer periphery **142** of the inner annular wall **140** merges with the inner wall portion **136** of each of the supports **130** and, in the illustrated embodiment, with a plurality of spaced-apart, horizontally-disposed, radial webs **146** located adjacent the outer periphery **132** of the base **112**. Each of the webs **146** extends between the supports **130** and connects to the container sidewall **114** at an elevation above the horizontal plane "P" extending through the standing surface **138**. In an embodiment of the present invention in which the concave outer annular wall **128** is continuous, webs **146** are not provided. The inner periphery **144** of the inner annular wall **140** merges into an anti-inverting central dimple **148**.

[**0043**] The inner annular wall **140** functions as a flex panel. To this end, when the internal pressure increases within a filled and sealed container, the inner annular wall **140** flexes downwardly to accommodate the increased pressure and to prevent the sidewall **114** of the container **100** from undergoing unwanted permanent distortion. In addition, the inner annular wall **140** flexes upwardly to relieve vacuum when the contents of a hot filled and capped

container, or a filled, capped and subsequently pasteurized container, cool to ambient. Thus, when the sealed container and contents cool to ambient, the sidewall **114** is substantially unchanged from its as-formed shape and is capable of neatly supporting a wrap-around label without unwanted voids or the like beneath the label. In addition, the sidewall **114** resists ovalization and the base **112** provides a level seating surface which is not subject to rocking or the like.

[**0044**] The base **112** of container **100** is specifically designed to provide greater flexural movement than base **12** of container **10** discussed above so that it can be utilized in processes that require relatively high hot-fill and/or pasteurization/retort temperatures. Increasing flexure of the base **112** is accomplished by providing a larger circular flat between the dimple **148** and the arcuate supports **130**. Thus, the inner annular wall **140** of container **100** is larger than the inner annular wall **40** of the container **10**, despite the containers **10** and **100** being of the same given size. To this end, the diameter, size, or extent of the central dimple **148** is reduced relative to the size of dome **48**, and the inner diameter of the arcuate supports **130** is increased relative to that of arcuate supports **30**.

[**0045**] The relatively large flat provided by inner annular wall **140** provides greater flexure; however, it also is more prone to "roll out", ie. becoming permanently deformed in an outwardly projecting position when its contents are hot-filled or heated at relatively high temperatures. This is because an amorphous ring of material is created at the interconnection of the inner periphery **144** of the inner annular wall **140** and the dimple **148** due to the reduced size of the dimple **148**. This ring of unoriented, non heat-set material provides a weakened area that permits the base to "roll out" when filled and sealed with contents at high temperatures.

[**0046**] The base **112** of the present invention overcomes the "roll out" problem by providing a series of spaced-apart, radially-extending, hollow, indented ribs **150** in the dimple **148** where the inner periphery **144** of the inner annular wall **140** interconnects to the central dimple **148**. The structure provided by the ribs **150** causes the material in this region to be stretched during blow molding of the container **100** so that the ring of material adjacent the interconnection of the dimple **148** and inner annular wall **140** is both heat-set and bi-axially oriented to structurally reinforce the base and prevent "roll out" of the base **112**. If desired, the dimple **148** can be indented to a given extent into the container **100** to provide additional stretching, and the total number of ribs **150** can be three or more, such as six as illustrated in **FIG. 6**. In addition, the shape and size of the ribs can vary as long as the blow molded plastic material forming the base at the interconnection of the dimple **148** and inner annular wall **140** is bi-axially oriented and capable of being heat-set by heated surfaces of a blow mold.

[**0047**] Thus, the inner annular wall **140** flexes downwardly when the container is filled, capped and subjected to an increase in pressure within the container, but is prevented from complete inversion and failure due to the reinforcement ribs **150** formed in the dimple **148** which travel with the inner annular wall **40** but substantially maintain a constant shape regardless of the internal pressure experienced within the container.

[**0048**] Another feature of the base **112** of the present invention is that each inner wall portion **136** of the arcuate supports **130** has an arcuate shoulder, or support ridge, **156** formed therein and spaced in elevation from both the support surfaces **138** and the inner annular wall **140** to facilitate vertical stacking of like containers **100**. For example, as illustrated **FIG. 10**, an upper container **100***a* is stacked on a lower container **100***b*. The support ridge **156** in the base **112***a* of the upper container **100***a* seats on the outer edge **158** of the upper surface **160** of the lid **162** of the lower container **100***b* such that the horizontal plane "Pa" extending through the standing surfaces **138***a* of the upper container **100***a* extends a spaced distance beneath the top surface **160** of the lid **162** of the lower container **100***b*.

[**0049**] By way of example, and not by way of limitation, the container **10** according to the present invention preferably has a height "H" of about 5.8 inches, a container outermost diameter "D" of about 4.2 inches, and can contain a capacity of about 32 fluid ounces. The discontinuous standing ring formed by the standing surfaces **38** has a diameter of about 3.7 inches, and the inner annular wall **140** of the base **112** has an inner periphery **144** with a diameter of less than about 1.25 inches and an outer periphery **142** with a diameter of at least about 2.5 inches. The radial webs **146** are uniformly spaced apart and separate each support **130** such that each support **130** is at least about 0.8 radians. In addition, each support **130** has a larger arcuate extent than that of each radial web **146**.

[**0050**] Preferably, the containers **10** and **100** are blow molded from an injection molded preform made of PET, PEN or blends thereof or is extrusion blow molded of PP. In addition, the containers **10** and **100** may be multilayered including a layer of gas barrier material or a layer of scrap material. Preferably, the finishes of the containers are threaded, blow molded, and severed from an accommodation feature formed thereabove.

[**0051**] The above described containers **10** and **100** are capable of use, for instance, in hot-fill operations having fill temperatures up to about 205° F. As explained above, preferably container **100** having base **112** is utilized when temperatures approach or exceed the 205° F temperature level. The containers can also be utilized in pasteurization processes wherein a cold solid product, such as pickles, is combined within the container with mildly heated brine at 120 to 140° F. After the container is capped, the filled container can be processed through a pasteurization tank where temperatures approach about 212° F. so that the solid products in the sealed container are heated to approximately 175° F. for 15 minutes before the filled and sealed container is cooled to ambient temperature.

[**0052**] While preferred containers and base structures have been described in detail, various modifications, alterations and changes may be made without departing from the spirit and scope of the present invention as defined in the appended claims.

1. A container comprising a blow molded plastic body having an integrally formed base with a central annular wall having an inner periphery connecting to an anti-inverting central dimple that projects from said inner periphery of said inner annular wall, said inner periphery being made of blow molded plastic material that is heat-set and biaxially-oriented, said inner annular wall of said base flexing upwardly and downwardly in response to variations in pressures

within the container, when capped and filled, without undergoing unwanted permanent deformation.

2. A container according to claim 1, wherein said central dimple includes an indented, substantially-circular surface having indented hollow ribs formed therein.

3. A container according to claim 1, further comprising a plurality of spaced-apart, radially-extending, indented ribs on said base where said inner periphery of said central annular wall interconnects to said central dimple.

4. A container according to claim 3, wherein said base has a concave outer annular wall with an outer portion and an inner portion forming a container standing surface therebetween.

5. A container according to claim 4, wherein said concave outer annular wall is continuous.

6. A container according to claim 4, wherein said concave outer annular wall is discontinuous.

7. A container according to claim 4, wherein said inner portion of said outer annular wall has a support ridge formed therein above a level of said container standing surface to facilitate vertical stacking of containers having like bases.

8. A container according to claim 4, wherein said standing ring has a diameter of at least about 3.7 inches, and said inner periphery of said central annular wall is less than about 1.25 inches.

9. A blow-molded plastic container comprising an integrally formed base made of blow molded plastic material, said base having:

a discontinuous concave outer annular wall having an outer portion and an inner portion forming a standing ring therebetween;

an inner annular wall extending inwardly from said inner portion of said outer annular wall, said inner annular wall having an inner periphery and an outer periphery, said outer periphery having a plurality of radial webs extending outwardly at an elevation above said standing ring, and said inner periphery being made of blow molded plastic material that is heat-set and biaxially-oriented; and

an anti-inverting central dimple projecting upwardly from said inner periphery of said inner annular wall;

said inner annular wall being deflectable upwardly and downwardly in response to variations in pressures within the container, when capped and filled, without undergoing unwanted permanent deformation below the level of the standing ring.

10. A container according to claim 9, further comprising a plurality of spaced-apart, radially-extending, indented ribs on said base where said inner periphery of said inner annular wall interconnects to said central dimple.

11. A container according to claim 9, wherein said central dimple has a plurality of spaced-apart, radially-extending, indented ribs formed therein.

12. A container according to claim 9, further comprising a shoulder extending radially inward on said inner portion of said outer annular wall above a level of said standing ring to facilitate vertical stacking of containers having like bases.

13. A container according to claim 9, further comprising a thin-walled body extending upwardly from said outer annular wall and having a blown wide-mouth threaded finish at an upper end of said body.

14. A container according to claim 9, wherein said container and base is made of PET, wherein said standing ring has a diameter of at least about 3.7 inches, and said inner periphery of said inner annular wall is less than about 1.25 inches and said outer periphery of said inner annular wall is at least about 2.5 inches.

15. A container, comprising:

a blow molded plastic body having a circular base, a cylindrical sidewall projecting from said base, and a threaded finish opposite said base;

said base having a discontinuous concave outer annular wall with an outer portion and an inner portion forming a container standing surface therebetween, said outer portion connecting to said sidewall;

said base having an inner annular wall extending inwardly from said inner portion of said outer annular wall, said inner annular wall having an inner periphery and an outer. periphery, said outer periphery connecting to a plurality of radial webs which extend at an elevation above said container standing surface and which connect to said sidewall, and said inner periphery being made of blow molded plastic material that is heat-set and biaxially-oriented;

said base having an anti-inverting central dimple projecting upwardly from said inner periphery of said inner annular wall; and

said inner annular wall of said base flexing upwardly and downwardly in response to variations in pressures in the container without undergoing unwanted permanent deformation.

16. A container according to claim 15, further comprising a plurality of spaced-apart, radially-extending, indented ribs on said base where said inner periphery of said inner annular wall interconnects to said central dimple.

17. A container according to claim 16, wherein said inner portion of said outer annular wall has a support ridge formed therein above a level of said container standing surface to facilitate vertical stacking of containers having like bases.

18. A container according to claim 17, further comprising a cap for sealing said finish, said cap having a top surface with an outer edge and said outer edge of said cap being engagable with said support ridge formed on a container having a like base to facilitate vertical stacking.

19. A container according to claim 17, wherein said cylindrical sidewall provides a cylindrical label panel having a plurality of longitudinally spaced circumferential reinforcement grooves and outlined by an upper and lower label bumper.

20. A container according to claim 17, wherein said body is made of PET, said discontinuous outer annular wall of said base forms four identical, equally spaced apart, arcuate supports, and said arcuate extent of each arcuate support is greater than an arcuate extent of each radial web.

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