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(54) **FOLDABLE AIR INSULATING SLEEVE**

FALTBARE LUFTISOLIERHÜLSE

MANCHON PLIABLE ISOLANT

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Description

[0001] The present invention relates to insulating devices for beverage containers and more particularly, to insulating beverages and foods by using air as the insulator.

Background and Related Art

[0002] Disposable cups are routinely used in fast food and roadside restaurants to contain both hot and cold drinks. Because such cups have relatively thin walls, insulation is poor. As a result, the cups in which hot beverages are served are often too hot to hold comfortably, and the outside surface of cups in which cold beverages are served often accumulate moisture also making the cups difficult to hold, thus causing the holder's hand and the table to become wet. In addition, cold drinks warm quickly and hot drinks lose heat rapidly.

[0003] In response to the need for a better beverage insulator, various types of disposable cardboard and paper sleeves have been used. The sleeves are sized to slide onto the outside of a beverage cup and are held in place by friction. The wide-diameter end of the typical beverage cup prevents the sleeve from sliding off the cup while the cup is being held. However, such devices are poor insulators because they are generally thin. Moreover, the close contact with the cup causes additional heat transfer to the outside of the insulator. Additional insulation is needed at the bottom of beverage cups because the fluid has been there for a longer period of time. Also, such devices typically cover any printable material on the outside of the cup, resulting in a lost opportunity for advertising. While some transparent insulators have been created, they also lose effectiveness as insulators because of the close contact with the cups and the conductive material out of which they are typically made. Some of the more effective insulators are too bulky and take up too much storage space in small convenience stores, thus making the disposable cups too big to fit in most cup-holders. Another problem with most disposable cups is that since typical cups have narrow bases, they are unstable. Thus, there is a great need in the beverage industry for cups with better insulation and overall improvement.

[0004] To solve the problem of difficulty in gripping either hot drinks or cold drinks that accumulate moisture on the outside of the cup, some disposable cups include handles. Unfortunately, the problem with handles is that they are typically made out of paper or other sheet-like material and they lack sufficient strength to hold the cup in an upright position when the user is holding the cup by the handle. In other words, the weight of the cup can cause the handle to sag or tear such that the cup will tilt, spilling the beverage.

[0005] US 6 412 686 discloses a thermal insulating sleeve for a container that is easily converted from a generally planar configuration during periods of nonuse and

into an expanded or open configuration for receiving a container during periods of use.

[0006] US 3 337 109 discloses a disposable container holder including a cup and a disposable holder for the cup. The holder provides an attractive holder which shields and insulates the hand of a user. In addition, the holders provide compact storage and shipment by being flattened and arranged in a stack.

[0007] US 6 164 487 provides an insulative jacket for a beverage container formed from a blank of flexible insulative material. The jacket is readily flattened when not in use in order for the jacket to be easily stored and carried.

SUMMARY OF THE INVENTION

[0008] According to a first aspect of the present invention there is provided an air insulating system, the air insulating system comprising: a cup; and a foldable air insulating sleeve configured to insulate said cup via at least a continuous circumferential first pocket of air, said pocket of air being substantially completely enclosed by said cup and said air insulating sleeve, and said foldable air insulating sleeve comprising: a substantially tubular outer shell; a rim; an inner base; and the system being characterised in that the sleeve comprises an outer base, wherein said inner base and said outer base are connected by at least one base connection strip and are separated by an air space when the foldable air insulating sleeve is in a unfolded insulating position; and in that said substantially tubular outer shell is foldable along at least two longitudinal folds and wherein said inner base and said outer base are foldable so that said inner base and said outer base are parallel to said rim when folded and perpendicular to said rim when open and wherein said substantially tubular outer shell is foldable into a substantially flat condition.

[0009] Said rim of said foldable air insulating sleeve may be coupled to a top rim of said cup and said inner base of said foldable insulating sleeve supports a bottom edge of said cup.

[0010] Said foldable air insulating sleeve's inner base may have an opening through which said cup enters until said cup is either too wide and is stopped from further passage or until said cup meets said outer base of said foldable air insulating sleeve.

[0011] Said bottom edge of said cup may be narrower than said top rim, causing, when coupled to said foldable air insulating sleeve, the area of said first pocket of air to be greater near said bottom edge of said cup than at said top rim.

[0012] Said first pocket of air may exist between said substantially tubular outer shell of said foldable air insulating sleeve and said cup.

[0013] Preferably a second pocket of air exists between said inner base and said outer base of said foldable air insulating sleeve.

[0014] Said foldable air insulating sleeve may be made

substantially out of at least one of the following materials:

- i) plastic; and
- ii) paper.

[0015] The inner base may have an inner base fold.

[0016] According to a second aspect of the present invention there is provided a method for insulating a cup, the method comprising: providing a foldable air insulating sleeve, the foldable air insulating sleeve configured to insulate a cup via at least a continuous circumferential first pocket of air, said pocket of air being substantially completely enclosed by said cup and said air insulating sleeve, and said foldable air insulating sleeve comprising: a substantially tubular outer shell; a rim; an inner base; and an outer base, wherein said inner base and said outer base are connected by at least one base connection strip and are separated by an air space when the foldable air insulating sleeve is in a unfolded insulating position; wherein said substantially tubular outer shell is foldable along at least two longitudinal folds and wherein said inner base and said outer base are foldable so that said inner base and said outer base are parallel to said rim when folded and perpendicular to said rim when open and wherein said substantially tubular outer shell is foldable into a substantially flat condition; coupling said foldable air insulating sleeve to said cup to form at least said first pocket of air; and insulating said cup using at least said first pocket of air.

[0017] Said rim of said foldable air insulating sleeve may be coupled to a top rim of said cup and said inner base of said foldable insulating sleeve supports a bottom edge of said cup.

[0018] Said foldable air insulating sleeve's inner base may have an opening through which said cup enters until said cup is either too wide and is stopped from further passage or until said cup meets said outer base of said foldable air insulating sleeve.

[0019] Said bottom edge of said cup may be narrower than said top rim, causing, when coupled to said foldable air insulating sleeve, the area of said first pocket of air to be greater near said bottom edge of said cup than at said top rim.

[0020] Said first pocket of air may exist between said substantially tubular outer shell of said foldable air insulating sleeve and said cup.

[0021] Preferably a second pocket of air exists between said inner base and said outer base of said foldable air insulating sleeve.

[0022] Said foldable air insulating sleeve may be made substantially out of at least one of the following materials: i) plastic; and ii) paper.

[0023] The present invention relates to an insulating device for beverage containers and more particularly, to insulating beverages and foods by using air as the insulator.

[0024] The preferred embodiment of the present invention involves a foldable air insulating sleeve config-

ured to slidably receive and secure a beverage cup. The foldable air insulating sleeve secures the cup in a manner that allows for a pocket of air to surround the cup. This pocket of air insulates the beverage. The user can hold the cup by grasping the outer surface of the foldable air insulating sleeve, thus avoiding contact with a hot or wet cup surface. Because the bases of most disposable cups are narrower than their respective rims, more air and thus greater insulation is possible, especially towards the bottom of cups secured by the foldable air insulating sleeve. The wider base also gives the cup greater stability. Furthermore, the material out of which the foldable air insulating sleeve is made allows for advertisements or other printable material to be affixed on its outer surface. The foldable air insulating sleeve can be made out of many materials, including plastic or paper. The foldable air insulating sleeve is also foldable into a substantially flat position.

[0025] In this embodiment the base of the cup rests on an inner base of the foldable air insulating sleeve. The inner base is connected to an outer base, which is in contact with the outer surface and supports the entire sleeve-cup configuration. The space between the inner and outer base is filled with air and further acts to insulate the contents of the cup.

[0026] In another embodiment, the foldable air insulating sleeve's outer base is in contact with the outer surface and supports the entire sleeve-cup configuration.

[0027] In yet another embodiment, the foldable air insulating sleeve's inner base has an opening through which the cup enters until the cup is either too wide and is stopped from further passage or until the cup meets the outer base of the foldable air insulating sleeve and is supported by it.

[0028] In even another embodiment, the foldable air insulating sleeve's outer base, while wider than the cup it supports, is narrow enough to fit into most cup holders.

[0029] In an additional embodiment that is not part of the invention, the foldable air insulating sleeve includes a lid that attaches to the top rim of the cup. The lid is substantially hollow, providing an air chamber, which further insulates the contents of the cup. When the foldable air insulating sleeve is used with food, the lid has no openings. When used with a cold drink, the lid has an opening through which a straw is placed. Finally, when used with a hot drink, the lid has a rounded mouth piece and a cap.

[0030] While the methods and processes of the present invention have proven to be particularly useful in association with beverage containers, those skilled in the art will appreciate that the methods and processes can be used in a variety of different applications to insulate a variety of different kinds of temperature sensitive substances (e.g. soups and other foods).

[0031] These and other features and advantages of the present invention will be set forth or will become more fully apparent in the description that follows and in the appended claims. The features and advantages may be realized and obtained by means of the instruments and

combinations particularly pointed out in the appended claims. Furthermore, the features and advantages of the invention may be learned by the practice of the invention or will be obvious from the description, as set forth hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0032] In order that the manner in which the above recited and other features and advantages of the present invention are obtained, a more particular description of the invention will be rendered by reference to specific embodiments thereof, which are illustrated in the appended drawings. Understanding that the drawings depict only typical embodiments of the present invention and are not, therefore, to be considered as limiting the scope of the invention, the present invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

Figure 1 provides an illustration of a representative embodiment of the present invention, wherein a foldable air insulating sleeve comprises a rim, an inner base and an outer base, where the inner base and outer base are connected.

Figure 2 provides an illustration of a representative embodiment of the present invention that houses a cup.

Figure 3 provides an illustration of a representative foldable air insulating sleeve in folded position.

Figure 4 provides an illustration of another representative foldable air insulating sleeve with cup that is not part of the invention where the foldable air insulating sleeve includes an inner base but no outer base.

Figure 5 shows an alternative illustration of the foldable air insulating sleeve of Fig. 4 in folded position without outer base.

Figure 6 provides an illustration of another representative foldable air insulating sleeve with cup that is not part of the invention that includes a modified inner base.

Figure 7 provides an illustration of the foldable air insulating sleeve with modified inner base of Fig. 6 in folded position.

Figure 8 provides an illustration of the foldable air insulating sleeve with a hollow food container lid.

Figure 9 provides an illustration of the foldable air insulating sleeve with a hollow cold drink lid.

Figure 10 provides an illustration of the foldable air insulating sleeve with a hollow hot drink lid and cap.

Figure 11 provides a cross-sectional illustration of the foldable air insulating sleeve with a hollow hot drink lid and cap.

Figure 12 provides a cross-sectional illustration of a cup with a hollow food container lid where the air chamber is placed above the lid.

Figure 13 provides a cross-sectional illustration of a cup with a hollow cold drink lid where the air chamber is placed above the lid.

Figure 14 provides a cross-sectional illustration of a cup with a hemispherical hollow cold drink lid.

Figure 15 provides a cross-sectional illustration of a cup with a hollow hot drink lid and cap where the air chamber is placed above the lid.

Figure 16 provides a cross-sectional illustration of a cup with an alternate hollow hot drink lid and cap where the air chamber is placed above the lid.

DETAILED DESCRIPTION OF THE INVENTION

[0033] The present invention relates to insulating devices for beverage containers, and more particularly, to insulating beverages and foods by using air as the insulator.

[0034] In the disclosure and in the claims the term "cup" shall refer to any container used to house consumable liquids and solids. Examples of cups include disposable cups, small soup bowls and any other similarly shaped container from which one drinks or eats that is in need of insulation.

[0035] Figure 1 illustrates a transparent view of a foldable air insulating sleeve 20 that includes a substantially tubular outer shell 30, a rim 32, an inner base 34, an outer base 36, a first base connection strip 38 and a second base connection strip 40. The substantially tubular outer shell 30 has a first longitudinal fold 42 and a second longitudinal fold 44. The first base connection strip 38 has a first base connection strip fold 46 and the second base connection strip 40 has a second base connection strip fold 48. Finally, the inner base 34 has an inner base fold 50.

[0036] Figure 2 illustrates a transparent view of foldable air insulating sleeve 20 with a cup 60, where the cup 60 has a top rim 62, a bottom edge 64 and a supporting wall 66. In the illustrated embodiment, the rim 32 of the foldable air insulating sleeve 20 connects to the top rim 62 of the cup 60. The bottom edge 64 of the cup 60 is supported by the inner base 34 of the foldable air insulating sleeve 20. Once the cup 60 is connected to the foldable air insulating sleeve 20, a first pocket of air 68 is created, which together with a second pocket of air 70, insulates the contents of the cup 60. Once connected, a user can carry the cup 60 by grasping the substantially tubular outer shell 30.

[0037] Figure 3 illustrates a transparent view of a foldable air insulating sleeve in folded position 80. In this embodiment, inner base 34 is folded along inner base fold 50, first base connection strip 38 is folded along first base connection strip fold 46, second base connection strip 40 is folded along second base connection strip fold 48 and substantially tubular outer shell 30 is folded along first longitudinal fold 42 and second longitudinal fold 44 so that foldable air insulating sleeve in folded position 80 is in a substantially flat condition. When folded, the inner

base fold 50 is parallel to the rim 32 and when open, the inner base fold 50 is perpendicular to the rim 32.

[0038] With reference now to Figure 4, another embodiment that is not part of the present invention is illustrated as foldable air insulating sleeve 20 with cup 60, where foldable air insulating sleeve 20 includes inner base 34 but does not include outer base 36. In this embodiment, inner base 34 supports both cup 60 and foldable air insulating sleeve 20. Inner base 34 also folds along inner base fold 50, first base connection strip fold 46 and second base connection strip fold 48.

[0039] Figure 5 shows an alternative illustration of the foldable air insulating sleeve of Fig. 4 in folded position 80 without outer base 36. In this embodiment, inner base 34 is folded along inner base fold 50, first base connection strip 38 is folded along a first base connection strip fold line 52, second base connection strip 40 is folded along a second base connection strip fold line 54 and substantially tubular outer shell 30 is folded along first longitudinal fold 42 and second longitudinal fold 44 so that foldable air insulating sleeve in folded position 80 is in a substantially flat condition. When folded, inner base fold 50 is parallel to the rim 32 and when open, inner base fold 50 is perpendicular to rim 32.

[0040] With reference now to Figure 6, another embodiment that is not part of the present invention is illustrated as foldable air insulating sleeve 20 with cup 60, where foldable air insulating sleeve 20 includes modified inner base 90. Modified inner base 90 comprises a base portion 92 and an opening 94. In this embodiment, cup 60 protrudes through opening 94 until supporting wall 66 of cup 60 prohibits further travel or until bottom edge 64 of cup 60 reaches outer base 36.

[0041] Figure 7 shows the foldable air insulating sleeve 20 with modified inner base 90 of Fig. 6 in folded position. Modified inner base 90 folds along first modified inner base fold 96, second modified inner base fold 98, first base connection strip fold 46 and second base connection strip fold 48. When folded, first modified inner base fold 96 and second modified inner base fold 98 are parallel to rim 32 and when open, first modified inner base fold 96 and second modified inner base fold 98 are perpendicular to rim 32.

[0042] Figure 8 shows foldable air insulating sleeve 20 with a hollow food container lid 100 that attaches to top rim 62 of cup 60 and includes an air insulating chamber 101.

[0043] Figure 9 illustrates foldable air insulating sleeve 20 with a hollow cold drink lid 102 that attaches to top rim 62 of cup 60 and has a straw opening 104 through which a straw 106 is placed. Hollow cold drink lid 102 also includes air insulating chamber 101 that insulates contents of cup 60.

[0044] Figure 10 illustrates foldable air insulating sleeve 20 with a hollow hot drink lid 108, a rounded mouth piece 110, a hollow hot drink lid opening 112 and a cap 114. Hollow hot drink lid 108 attaches to top rim 62 of cup 60. Cap 114 covers hollow hot drink lid opening 112,

insulating the contents of cup 60.

[0045] Figure 11 illustrates a transparent view of foldable air insulating sleeve 20 with hollow hot drink lid 108 where first pocket of air 68, insulating air chamber 101 and a third pocket of air 116 insulate the contents of cup 60. In this illustration, cap 114 is coupled to rounded mouth piece 110, covering hollow hot drink lid opening 112 and further insulating the contents of cup 60.

[0046] Figure 12 illustrates a cup with a hollow food container lid that attaches to top rim of cup and includes an insulating air chamber placed above the lid.

[0047] Figure 13 shows a cup with a hollow cold drink lid that attaches to top rim of cup and has a straw opening through which a straw is placed where the insulating air chamber is placed above the lid.

[0048] Figure 14 illustrates a cup with a hemispherical hollow cold drink lid that attaches to top rim of cup and has a straw opening through which a straw is placed and an insulating air chamber.

[0049] Figure 15 illustrates a cup with a hollow hot drink lid, a rounded mouth piece, and a cap. Hollow hot drink lid attaches to top rim of cup and cap covers hollow hot drink lid opening. The insulating air chamber is placed above the lid.

[0050] Figure 16 shows a cup with an alternate hollow hot drink lid, rounded mouth piece, and a cap. Hot drink lid attaches to top rim of cup and cap covers hollow hot drink lid opening. The insulating air chamber is placed above the lid.

[0051] Thus, as discussed herein, the embodiments of the present invention embrace the field insulating devices for beverage containers. In particular, the present invention relates to insulating disposable cups by using air as the insulator. The present invention may be embodied in other specific forms without departing from its essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description.

Claims

1. An air insulating system, the air insulating system comprising:

a cup (60); and
a foldable air insulating sleeve (20) configured to insulate said cup (60) via at least a continuous circumferential first pocket of air (68), said pocket of air (68) being substantially completely enclosed by said cup (60) and said air insulating sleeve (20), and said foldable air insulating sleeve (20) comprising:

a substantially tubular outer shell (30);
a rim (32);

- an inner base (34); and the system being **characterised in that** the sleeve (20) comprises an outer base (36), wherein said inner base (34) and said outer base (36) are connected by at least one base connection strip (38) and are separated by an air space when the foldable air insulating sleeve (20) is in a unfolded insulating position; and **in that** said substantially tubular outer shell (30) is foldable along at least two longitudinal folds (42, 44) and wherein said inner base (34) and said outer base (36) are foldable so that said inner base (34) and said outer base (36) are parallel to said rim (32) when folded and perpendicular to said rim (32) when open and wherein said substantially tubular outer shell (30) is foldable into a substantially flat condition.
2. An air insulating system as recited in claim 1, wherein said rim (32) of said foldable air insulating sleeve (20) is coupled to a top rim (62) of said cup (60) and said inner base (34) of said foldable insulating sleeve (20) supports a bottom edge (64) of said cup (60).
 3. An air insulating system as recited in claim 1, wherein said foldable air insulating sleeve's inner base (34) has an opening through which said cup (60) enters until said cup (60) is either too wide and is stopped from further passage or until said cup (60) meets said outer base (36) of said foldable air insulating sleeve (20).
 4. An air insulating system as recited in claim 1, wherein said bottom edge (64) of said cup (60) is narrower than said top rim (62), causing, when coupled to said foldable air insulating sleeve (20), the area of said first pocket of air (68) to be greater near said bottom edge (64) of said cup (60) than at said top rim (62).
 5. An air insulating system as recited in claim 1, wherein said first pocket of air (68) exists between said substantially tubular outer shell (30) of said foldable air insulating sleeve (20) and said cup (60).
 6. An air insulating system as recited in claim 1, wherein a second pocket of air (70) exists between said inner base (34) and said outer base (36) of said foldable air insulating sleeve (20).
 7. An air insulating system as recited in claim 1, wherein said foldable air insulating sleeve (20) is made substantially out of at least one of the following materials:
 - i) plastic; and
 - ii) paper.
 8. An air insulating system as recited in claim 1, wherein the inner base (34) has an inner base fold (50).
 9. A method for insulating cup (60), the method comprising:
 - providing a foldable air insulating sleeve (20), the foldable air insulating sleeve (20) configured to insulate said cup (60) via at least a continuous circumferential first pocket of air (68), said pocket of air (68) being substantially completely enclosed by said cup (20) and said air insulating sleeve (20), and said foldable air insulating sleeve (20) comprising:
 - a substantially tubular outer shell (30);
 - a rim (32);
 - an inner base (34); and
 - an outer base (36), wherein said inner base (34) and said outer base (36) are connected by at least one base connection strip (38) and are separated by an air space when the foldable air insulating sleeve (20) is in a unfolded insulating position;
 - wherein said substantially tubular outer shell (30) is foldable along at least two longitudinal folds (42, 44) and wherein said inner base (34) and said outer base (36) are foldable so that said inner base (34) and said outer base (36) are parallel to said rim (32) when folded and perpendicular to said rim (32) when open and wherein said substantially tubular outer shell (30) is foldable into a substantially flat condition;
 - coupling said foldable air insulating sleeve (20) to said cup (60) to form at least said first pocket of air (68); and
 - insulating said cup (60) using at least said first pocket of air (68).
 10. A method as recited in claim 9, wherein said rim (32) of said foldable air insulating sleeve (20) is coupled to a top rim (62) of said cup (60) and said inner base (34) of said foldable insulating sleeve (20) supports a bottom edge (64) of said cup (60).
 11. A method as recited in claim 9, wherein said foldable air insulating sleeve's inner base (34) has an opening through which said cup (60) enters until said cup (60) is either too wide and is stopped from further passage or until said cup (60) meets said outer base (36) of said foldable air insulating sleeve (20).
 12. A method as recited in claim 9, wherein said bottom edge (64) of said cup (60) is narrower than said top rim (62), causing, when coupled to said foldable air insulating sleeve (20), the area of said first pocket of air (68) to be greater near said bottom edge (64) of said cup (60) than at said top rim (62).

13. A method as recited in claim 9, wherein said first pocket of air (68) exists between said substantially tubular outer shell (30) of said foldable air insulating sleeve (20) and said cup (60).
14. A method as recited in claim 9, wherein a second pocket of air (70) exists between said inner base (34) and said outer base (36) of said foldable air insulating sleeve (20).
15. A method as recited in claim 9, wherein said foldable air insulating sleeve (20) is made substantially out of at least one of the following materials:
- i) plastic; and
 - ii) paper.

Patentansprüche

1. Luftisoliersystem, das Folgendes umfasst:

einen Becher (60) und eine faltbare Luftisolierhülse (20), die so konfiguriert ist, dass sie den Becher (60) über mindestens ein durchgehendes peripheres erstes Luftnest (68) isoliert, das im Wesentlichen vollkommen von dem Becher (60) und der Luftisolierhülse (20) eingeschlossen wird, wobei die faltbare Luftisolierhülse (20) Folgendes umfasst:

eine im Wesentlichen rohrförmige äußere Schale (30),

einen Rand (32) und einen inneren Boden (34), wobei das System **dadurch gekennzeichnet ist, dass** die Hülse (20) einen äußeren Boden (36) umfasst, wobei der innere Boden (34) und der äußere Boden (36) über mindestens einen Bodenverbindungsstreifen (38) verbunden und durch einen Luftraum getrennt sind, wenn die faltbare Luftisolierhülse (20) in einer aufgefalteten Isolierposition ist, und dass die im Wesentlichen rohrförmige äußere Schale (30) entlang mindestens zwei Längsfalzen (42, 44) faltbar ist und der innere Boden (34) und der äußere Boden (36) faltbar sind, so dass der innere Boden (34) und der äußere Boden (36) im gefalteten Zustand parallel zum Rand (32) und im offenen Zustand senkrecht zum Rand (32) verlaufen, und dass die im Wesentlichen rohrförmige äußere Schale (30) so gefaltet werden kann, dass sie einen im Wesentlichen flachen Zustand einnimmt.

2. Luftisoliersystem nach Anspruch 1, wobei der Rand (32) der faltbaren Luftisolierhülse (20) an einen oberen Rand (62) des Bechers (60) gekoppelt ist und

der innere Boden (34) der faltbaren Isolierhülse (20) einen unteren Rand (64) des Bechers (60) stützt.

3. Luftisoliersystem nach Anspruch 1, wobei der innere Boden (34) der faltbaren Luftisolierhülse eine Öffnung hat, durch die der Becher (60) eingeschoben wird, bis der Becher (60) entweder zu breit ist und nicht weiter durchgehen kann oder bis der Becher (60) auf den äußeren Boden (36) der faltbaren Luftisolierhülse (20) trifft.
4. Luftisoliersystem nach Anspruch 1, wobei der untere Rand (64) des Bechers (60) schmaler als der obere Rand (62) ist, so dass der Bereich des ersten Luftnests (68) in der Nähe des unteren Rands (64) des Bechers (60) größer ist als am oberen Rand (62), wenn der obere Rand (62) an die faltbare Luftisolierhülse (20) gekoppelt ist.
5. Luftisoliersystem nach Anspruch 1, wobei das erste Luftnest (68) zwischen der im Wesentlichen rohrförmigen äußeren Schale (30) der faltbaren Luftisolierhülse (20) und dem Becher (60) vorliegt.
6. Luftisoliersystem nach Anspruch 1, wobei ein zweites Luftnest (70) zwischen dem inneren Boden (34) und dem äußeren Boden (36) der faltbaren Luftisolierhülse (20) vorliegt.
7. Luftisoliersystem nach Anspruch 1, wobei die faltbare Luftisolierhülse (20) im Wesentlichen aus mindestens einem der folgenden Materialien hergestellt ist:
- i) Kunststoff und
 - ii) Papier.
8. Luftisoliersystem nach Anspruch 1, wobei der innere Boden (34) einen inneren Bodenfalz (50) hat.
9. Verfahren zur Isolierung des Bechers (60), wobei das Verfahren folgende Schritte umfasst:
- Bereitstellen einer faltbaren Luftisolierhülse (20), die so konfiguriert ist, dass sie den Becher (60) über mindestens ein durchgehende peripheres erstes Luftnest (68) isoliert, das im Wesentlichen vollkommen von dem Becher (60) und der Luftisolierhülse (20) eingeschlossen wird, wobei die faltbare Luftisolierhülse (20) Folgendes umfasst:
- eine im Wesentlichen rohrförmige äußere Schale (30),
- einen Rand (32),
- einen inneren Boden (34) und einen äußeren Boden (36), wobei, der innere Boden (34) und der äußere Boden (36) über min-

destens einen Bodenverbindungsstreifen (38) verbunden und durch einen Luftraum getrennt sind, wenn die faltbare Luftisolierhülse (20) in einer aufgefalteten Isolierposition ist,

wobei die im Wesentlichen rohrförmige äußere Schale (30) entlang mindestens zweier Längsfalzen (42, 44) faltbar ist und der innere Boden (34) und der äußere Boden (36) faltbar sind, so dass der innere Boden (34) und der äußere Boden (36) im gefalteten Zustand parallel zum Rand (32) und im offenen Zustand senkrecht zum Rand (32) verlaufen, und wobei die im Wesentlichen rohrförmige äußere Schale (30) so gefaltet werden kann, dass sie einen im Wesentlichen flachen Zustand einnimmt,

Koppeln der faltbaren Luftisolierhülse (20) an den Becher (60), um mindestens das erste Luftnest (68) zu bilden, und Isolieren des Bechers (60) unter Einsatz von mindestens dem ersten Luftnest (68).

10. Verfahren nach Anspruch 9, wobei der Rand (32) der faltbaren Luftisolierhülse (20) an einen oberen Rand (62) des Bechers (60) gekoppelt ist und der innere Boden (34) der faltbaren Isolierhülse (20) einen unteren Rand (64) des Bechers (60) stützt.

11. Verfahren nach Anspruch 9, wobei der innere Boden (34) der faltbaren Luftisolierhülse eine Öffnung hat, durch die der Becher (60) eingeschoben wird, bis der Becher (60) entweder zu breit ist und nicht weiter durchgehen kann oder bis der Becher (60) auf den äußeren Boden (36) der faltbaren Luftisolierhülse (20) trifft.

12. Verfahren nach Anspruch 9, wobei der untere Rand (64) des Bechers (60) schmaler als der obere Rand (62) ist, so dass der Bereich des ersten Luftnests (68) in der Nähe des unteren Rands (64) des Bechers (60) größer ist als am oberen Rand (62), wenn der obere Rand (62) an die faltbare Luftisolierhülse (20) gekoppelt ist.

13. Verfahren nach Anspruch 9, wobei das erste Luftnest (68) zwischen der im Wesentlichen rohrförmigen äußeren Schale (30) der faltbaren Luftisolierhülse (20) und dem Becher (60) vorliegt.

14. Verfahren nach Anspruch 9, wobei ein zweites Luftnest (70) zwischen dem inneren Boden (34) und dem äußeren Boden (36) der faltbaren Luftisolierhülse (20) vorliegt.

15. Verfahren nach Anspruch 9, wobei die faltbare Luftisolierhülse (20) im Wesentlichen aus mindestens

einem der folgenden Materialien hergestellt ist:

- i) Kunststoff und
- ii) Papier.

Revendications

1. Système d'isolation à l'air, le système d'isolation à l'air comprenant :

une coupelle (60) ; et
un manchon pliant d'isolation à l'air (20) configuré pour isoler ladite coupelle (60) par l'intermédiaire d'au moins une première poche d'air (68) continue sur la circonférence, ladite poche d'air (68) étant sensiblement complètement entourée par ladite coupelle (60) et ledit manchon d'isolation à l'air (20), et ledit manchon pliant d'isolation à l'air (20) comprenant :

un corps extérieur sensiblement tubulaire (30) ;
un rebord (32) ;
une base intérieure (34) ; et le système étant **caractérisé en ce que** le manchon (20) comprend

une base extérieure (36), ladite base intérieure (34) et ladite base extérieure (36) étant reliées par au moins une bande de raccordement de base (38) et séparées par une couche d'air lorsque le manchon pliant d'isolation à l'air (20) est dans une position d'isolation dépliée ;

et **en ce que** ledit corps extérieur sensiblement tubulaire (30) peut être plié le long d'au moins deux pliures longitudinales (42, 44) et **en ce que** ladite base intérieure (34) et ladite base extérieure (36) peuvent être pliées de manière que ladite base intérieure (34) et ladite base extérieure (36) soient parallèles audit rebord (32) quand elles sont pliées et perpendiculaires audit rebord (32) quand elles sont ouvertes et **en ce que** ledit corps extérieur sensiblement tubulaire (30) peut être plié dans un état sensiblement plat.

2. Système d'isolation à l'air selon la revendication 1, dans lequel ledit rebord (32) dudit manchon pliant d'isolation à l'air (20) est couplé à un rebord supérieur (62) de ladite coupelle (60) et ladite base intérieure (34) dudit manchon pliant d'isolation à l'air (20) supporte un bord inférieur (64) de ladite coupelle (60).

3. Système d'isolation à l'air selon la revendication 1, dans lequel ladite base intérieure (34) dudit manchon pliant d'isolation à l'air a une ouverture par laquelle ladite coupelle (60) pénètre soit jusqu'à ce que ladite coupelle (60) soit trop large et que son passage soit arrêté ou soit jusqu'à ce que ladite cou-

pelle (60) rencontre ladite base extérieure (36) dudit manchon pliant d'isolation à l'air (20).

4. Système d'isolation à l'air selon la revendication 1, dans lequel ledit bord inférieur (64) de ladite coupelle (60) est plus étroit que ledit rebord supérieur (62), ce qui fait que, quand il est couplé audit manchon pliant d'isolation à l'air (20), la superficie de ladite première poche d'air (68) devient plus grande à proximité dudit bord inférieur (64) de ladite coupelle (60) que sur ledit rebord supérieur (62). 5 10
5. Système d'isolation à l'air selon la revendication 1, dans lequel ladite première poche d'air (68) se trouve entre ledit corps extérieur sensiblement tubulaire (30) dudit manchon pliant d'isolation à l'air (20) et ladite coupelle (60). 15
6. Système d'isolation à l'air selon la revendication 1, dans lequel une deuxième poche d'air (70) se trouve entre ladite base intérieure (34) et ladite base extérieure (36) dudit manchon pliant d'isolation à l'air (20). 20
7. Système d'isolation à l'air selon la revendication 1, dans lequel ledit manchon pliant d'isolation à l'air (20) est constitué sensiblement d'au moins l'un des matériaux suivants : 25
 - i) plastique : et 30
 - ii) papier. 30
8. Système d'isolation à l'air selon la revendication 1, dans lequel ladite base intérieure (34) a une pliure de base intérieure (50). 35
9. Procédé pour isoler une coupelle (60), le procédé comprenant : 40

la fourniture d'un manchon pliant d'isolation à l'air (20), le manchon pliant d'isolation à l'air (20) étant configuré pour isoler ladite coupelle (60) par l'intermédiaire d'au moins une première poche d'air (68) continue sur la circonférence, ladite poche d'air (68) étant sensiblement complètement entourée par ladite coupelle (60) et ledit manchon d'isolation à l'air (20), et ledit manchon pliant d'isolation à l'air (20) comprenant : 45

un corps extérieur sensiblement tubulaire (30) ; 50

un rebord (32) ;

une base intérieure (34) ; et

une base extérieure (36), ladite base intérieure (34) et ladite base extérieure (36) étant reliées par au moins une bande de raccordement de base (38) et séparées par une couche d'air lorsque le manchon pliant d'isolation à l'air (20) est dans une position d'isolation dépliée ; 55

dans lequel ledit corps extérieur sensiblement

tubulaire (30) peut être plié le long d'au moins deux pliures longitudinales (42, 44) et dans lequel ladite base intérieure (34) et ladite base extérieure (36) peuvent être pliées de manière à ce que ladite base intérieure (34) et ladite base extérieure (36) soient parallèles audit rebord (32) quand elles sont pliées et perpendiculaires audit rebord (32) quand elles sont ouvertes et dans lequel ledit corps extérieur sensiblement tubulaire (30) peut être plié dans un état sensiblement plat ;

l'accouplement dudit manchon pliant d'isolation à l'air (20) à ladite coupelle (60) pour former au moins ladite première poche d'air (68) ; et l'isolation de ladite coupelle (60) en utilisant au moins ladite première poche d'air (68).

10. Procédé selon la revendication 9, dans lequel ledit rebord (32) dudit manchon pliant d'isolation à l'air (20) est couplé à un rebord supérieur (62) de ladite coupelle (60) et ladite base intérieure (34) dudit manchon pliant d'isolation à l'air (20) supporte un bord inférieur (64) de ladite coupelle (60).

11. Procédé selon la revendication 9, dans lequel ladite base intérieure (34) dudit manchon pliant d'isolation à l'air a une ouverture par laquelle ladite coupelle (60) pénètre soit jusqu'à ce que ladite coupelle (60) soit trop large et que son passage soit arrêté ou soit jusqu'à ce que ladite coupelle (60) rencontre ladite base extérieure (36) dudit manchon pliant d'isolation à l'air (20).

12. Procédé selon la revendication 9, dans lequel ledit bord inférieur (64) de ladite coupelle (60) est plus étroit que ledit rebord supérieur (62), ce qui fait que, quand il est couplé audit manchon pliant d'isolation à l'air (20), la superficie de ladite première poche d'air (68) devient plus grande à proximité dudit bord inférieur (64) de ladite coupelle (60) que sur ledit rebord supérieur (62).

13. Procédé selon la revendication 9, dans lequel ladite première poche d'air (68) se trouve entre ledit corps extérieur sensiblement tubulaire (30) dudit manchon pliant d'isolation à l'air (20) et ladite coupelle (60).

14. Procédé selon la revendication 9, dans lequel une deuxième poche d'air (70) se trouve entre ladite base intérieure (34) et ladite base extérieure (36) dudit manchon pliant d'isolation à l'air (20).

15. Procédé selon la revendication 9, dans lequel ledit manchon pliant d'isolation à l'air (20) est constitué sensiblement d'au moins l'un des matériaux suivants :

i) plastique : et

ii) papier.

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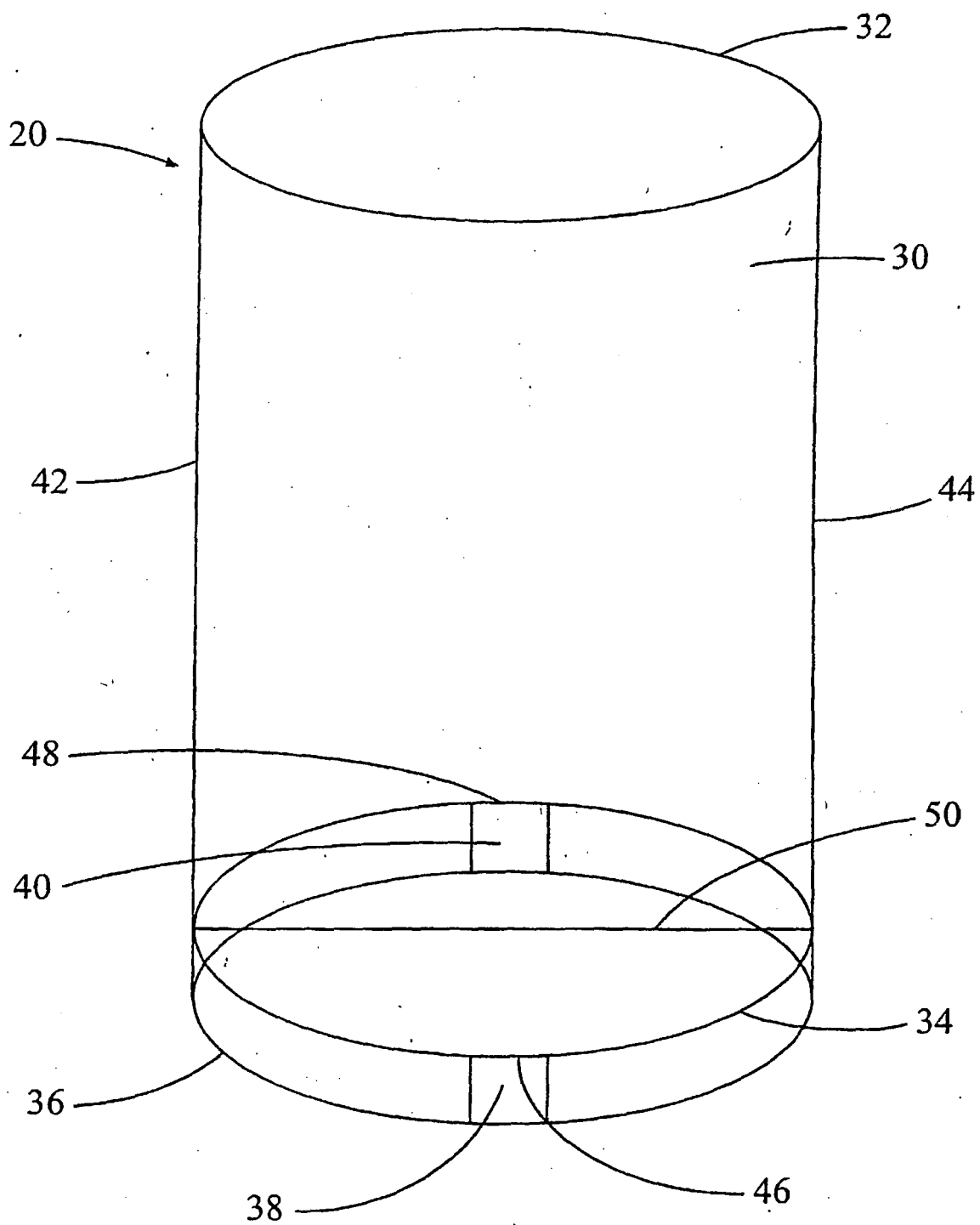


FIG. 1

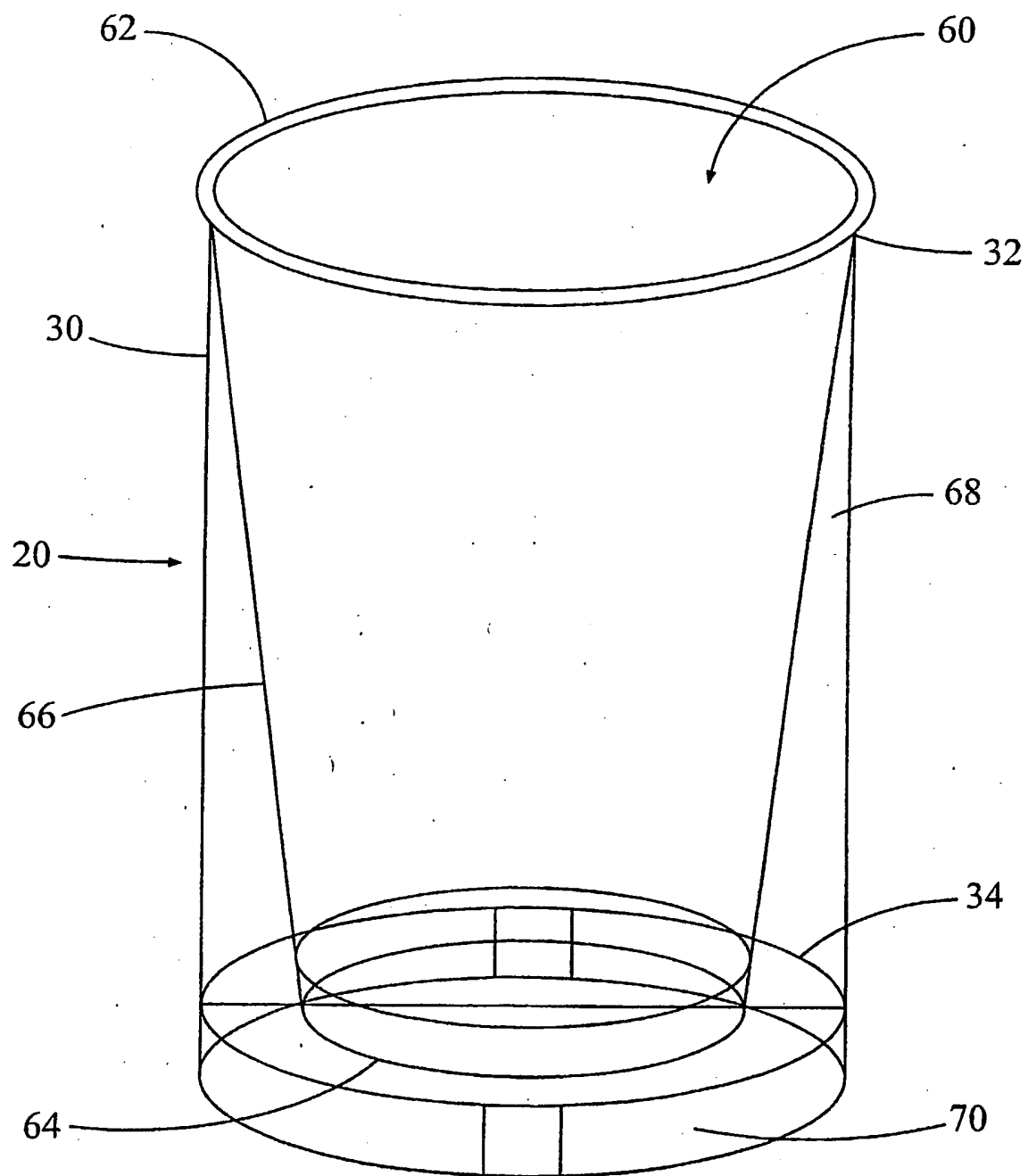


FIG. 2

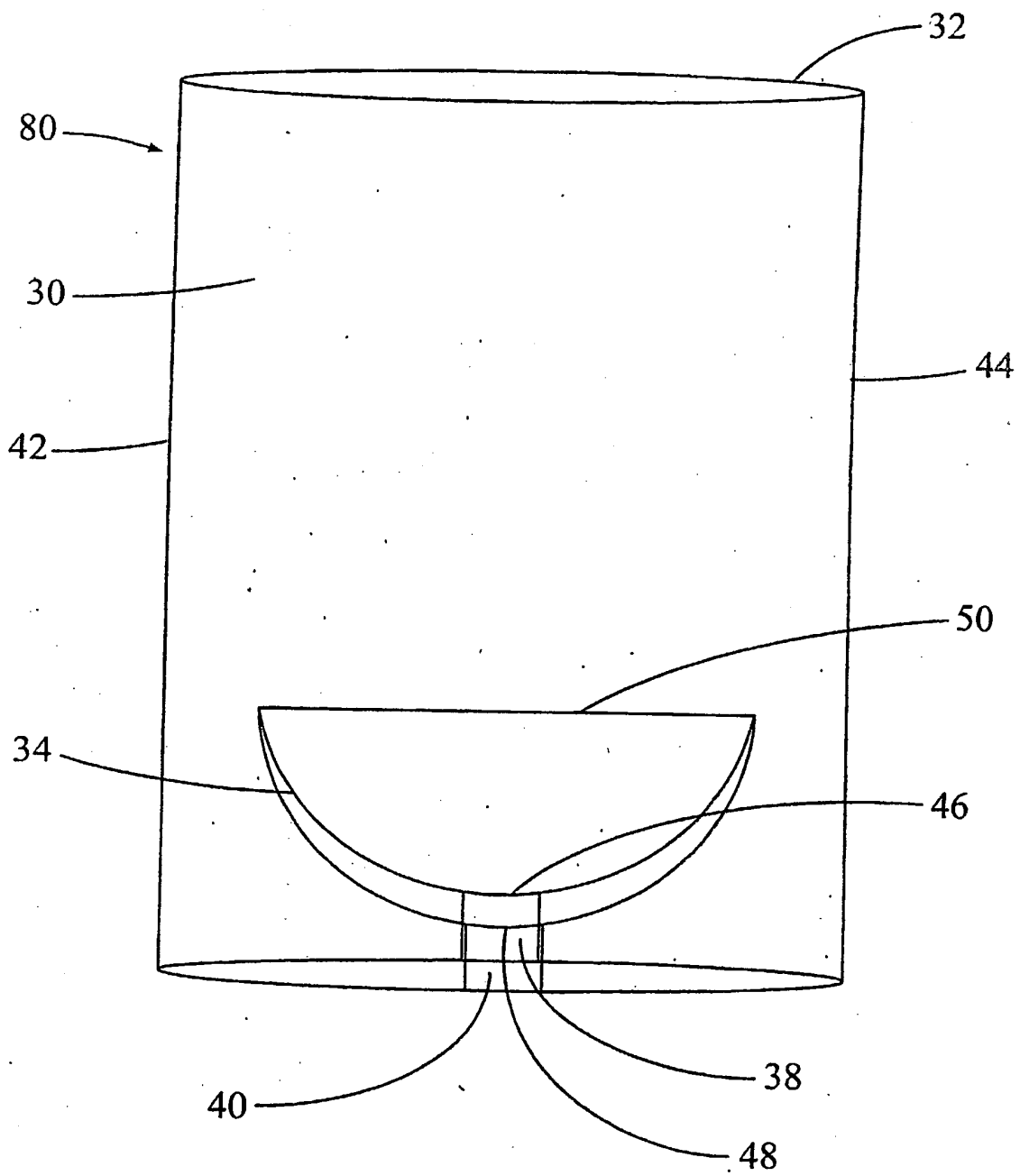
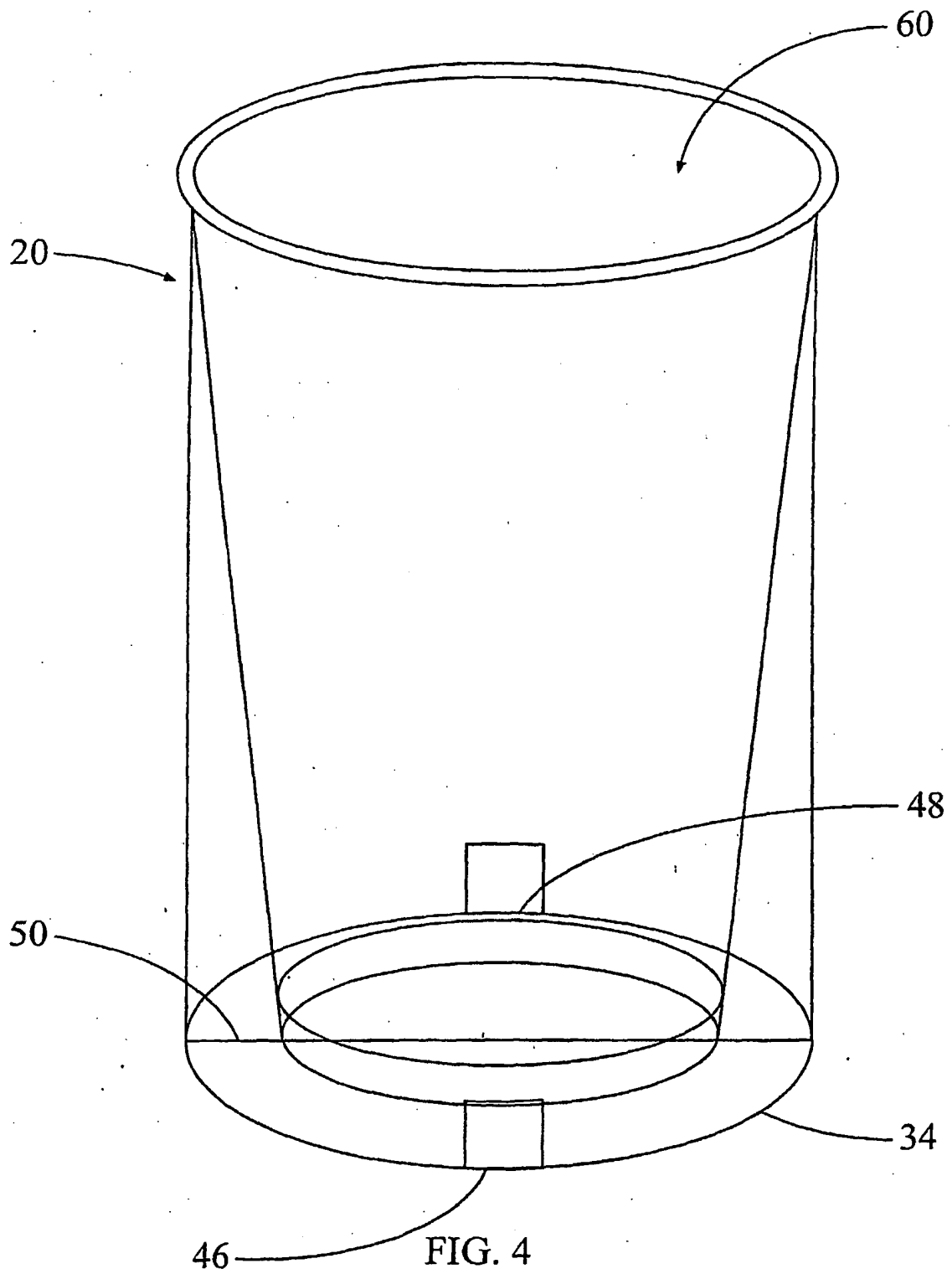


FIG. 3.



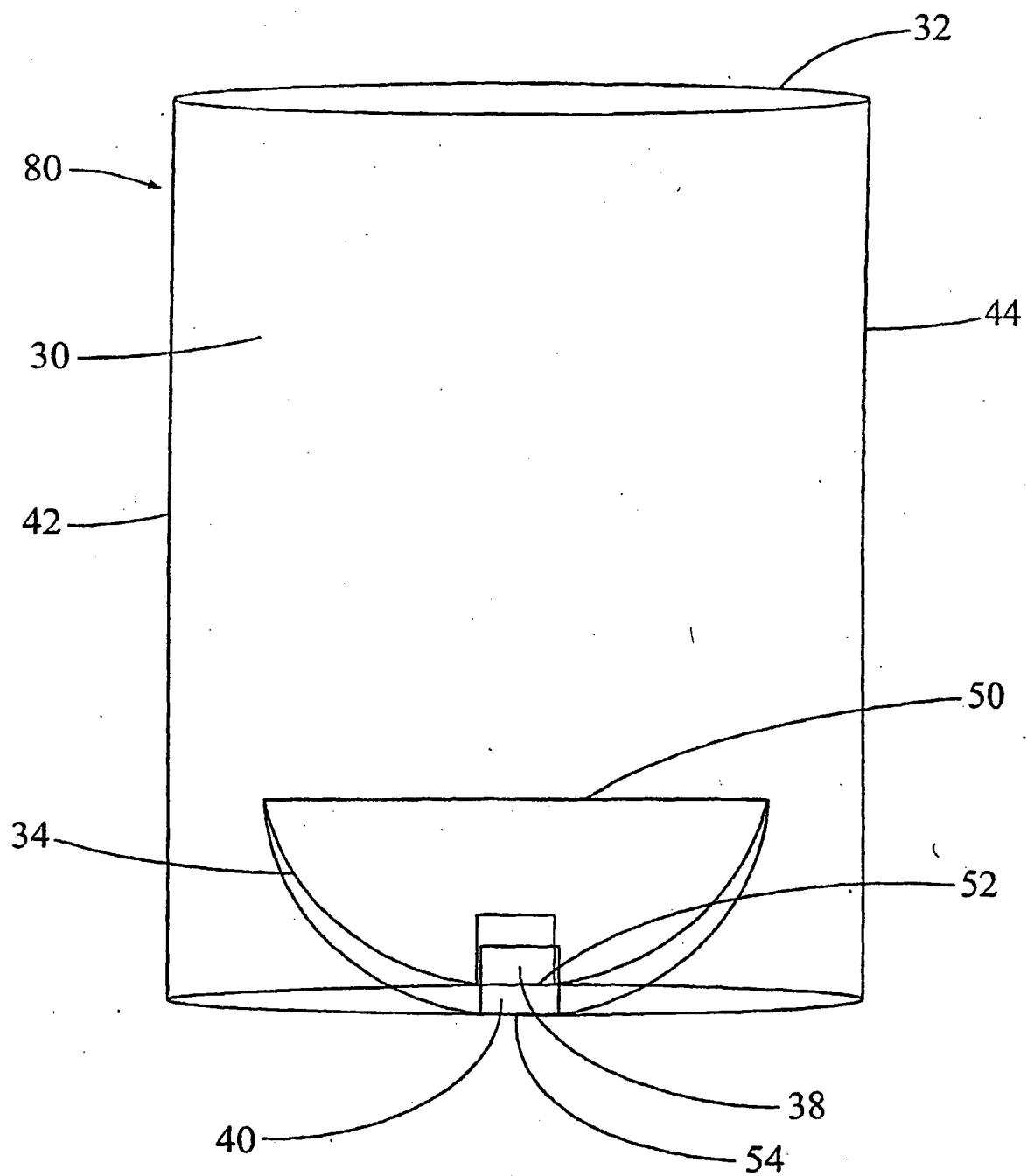


FIG. 5

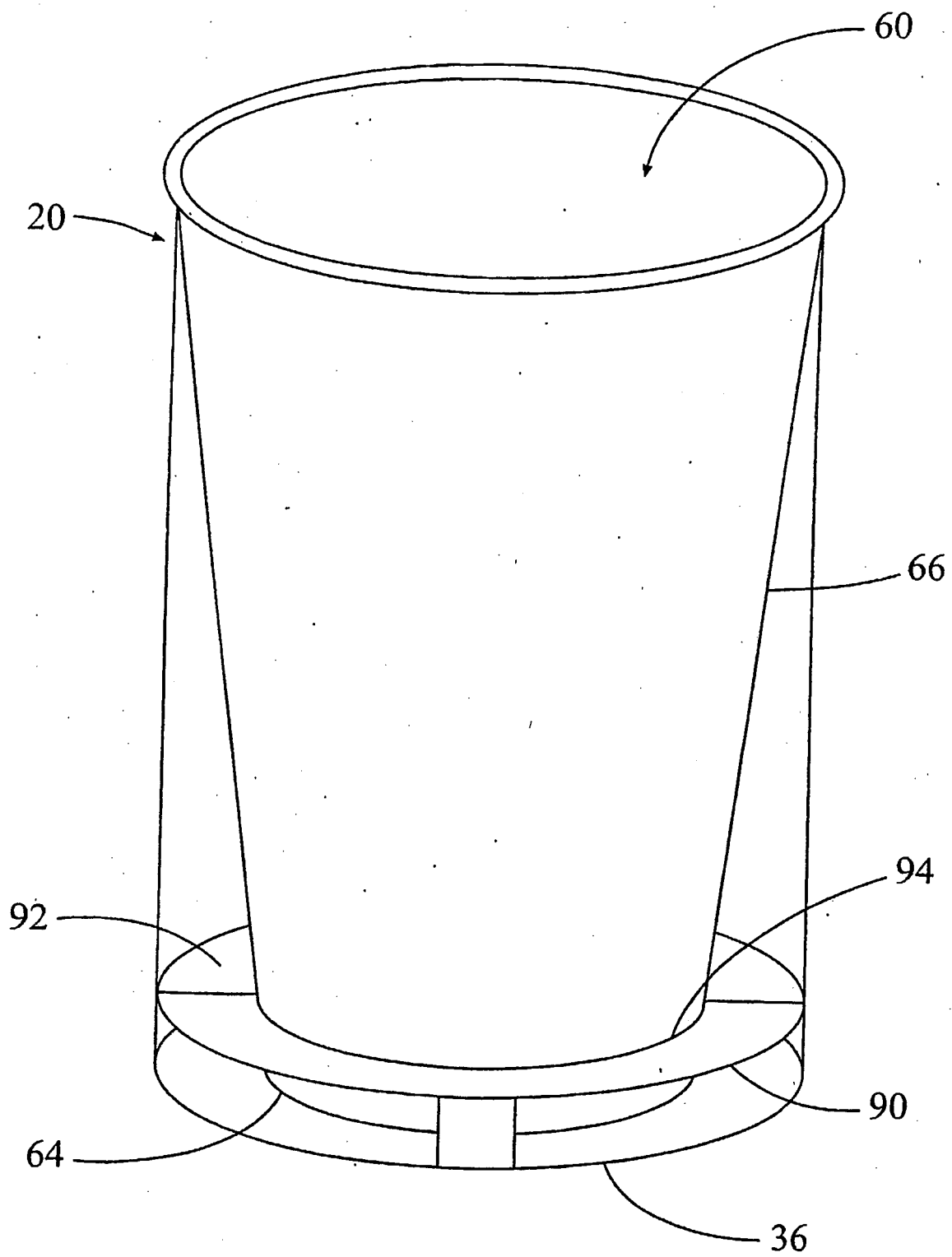


FIG. 6

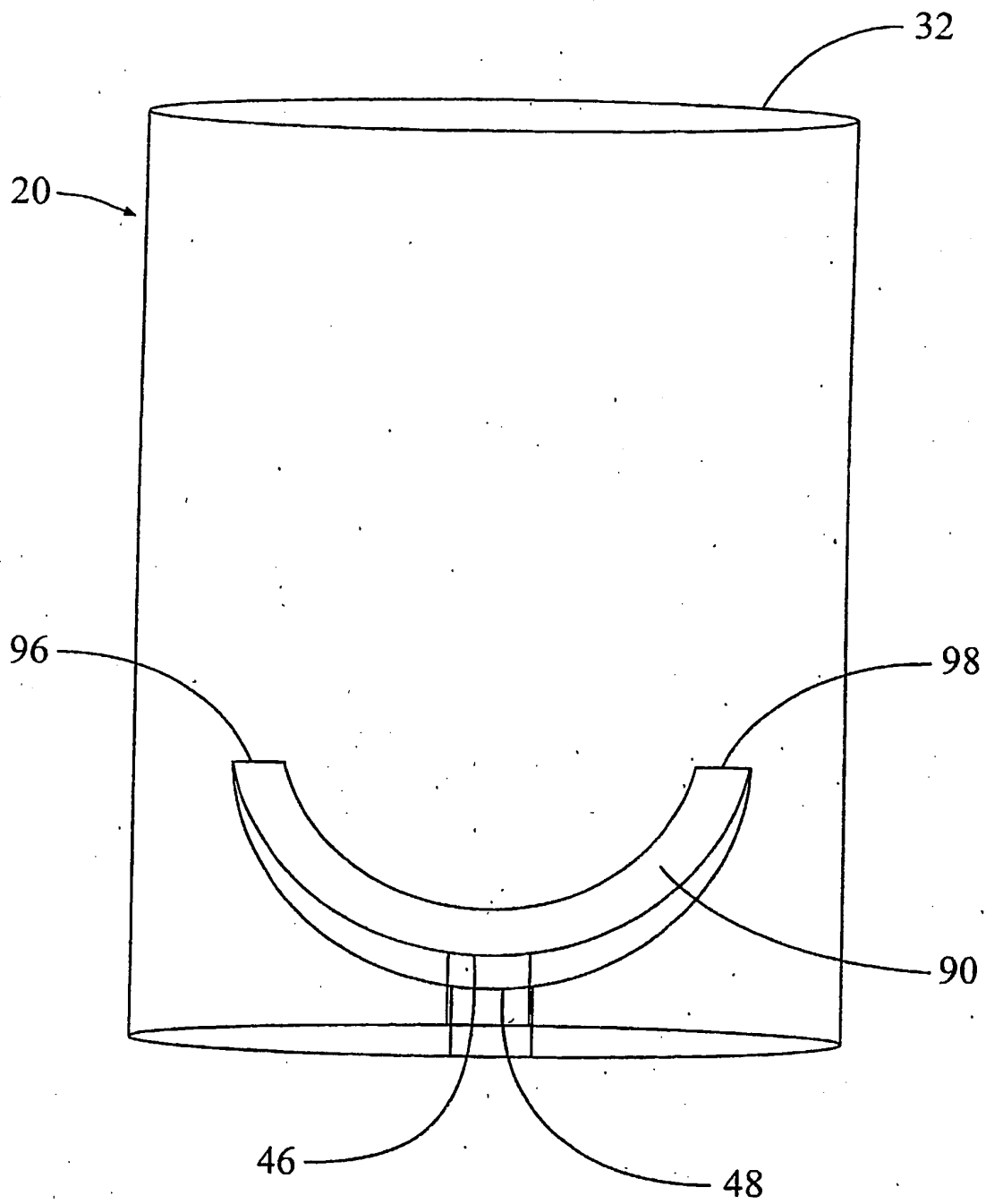


FIG. 7

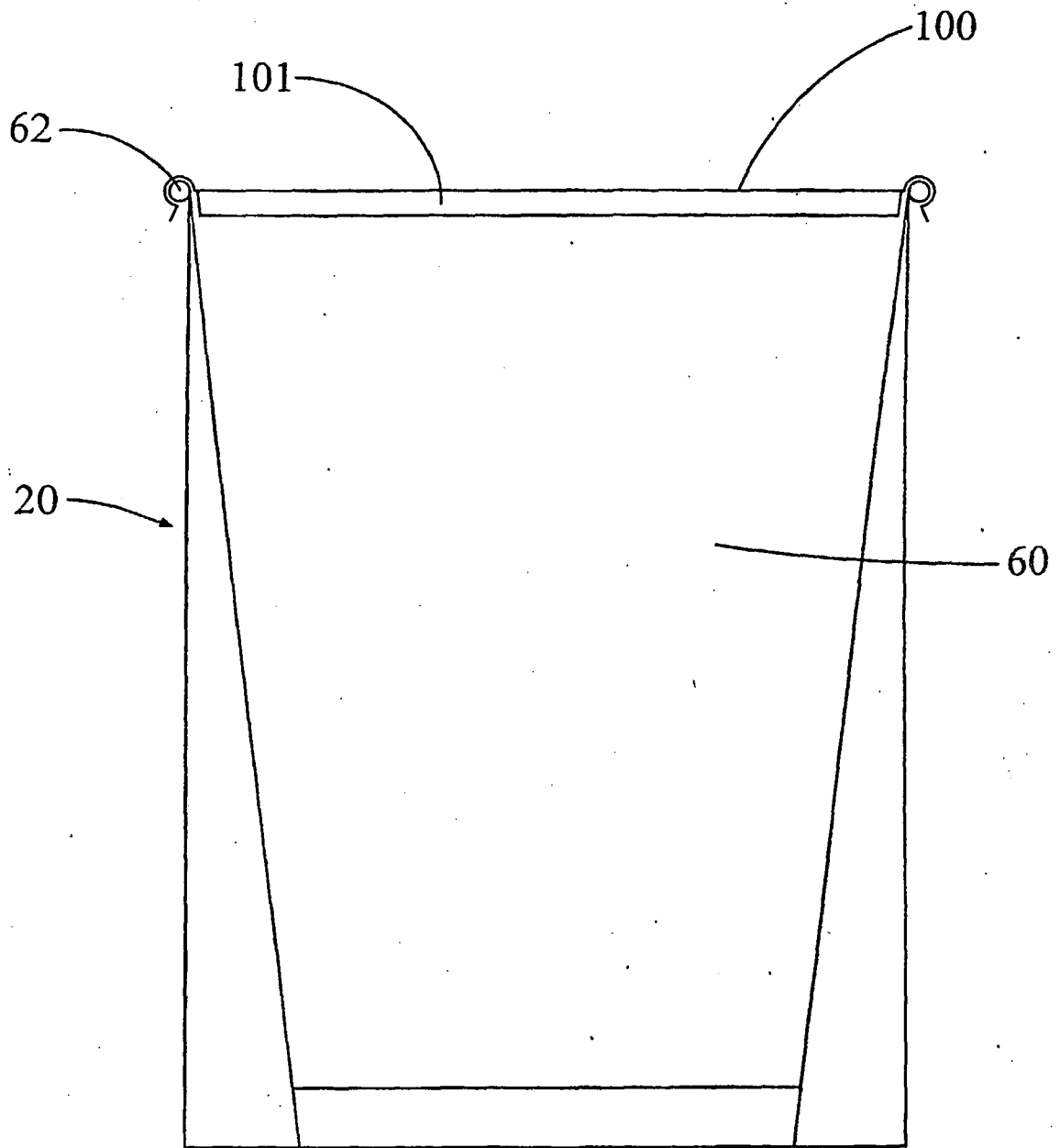


FIG. 8

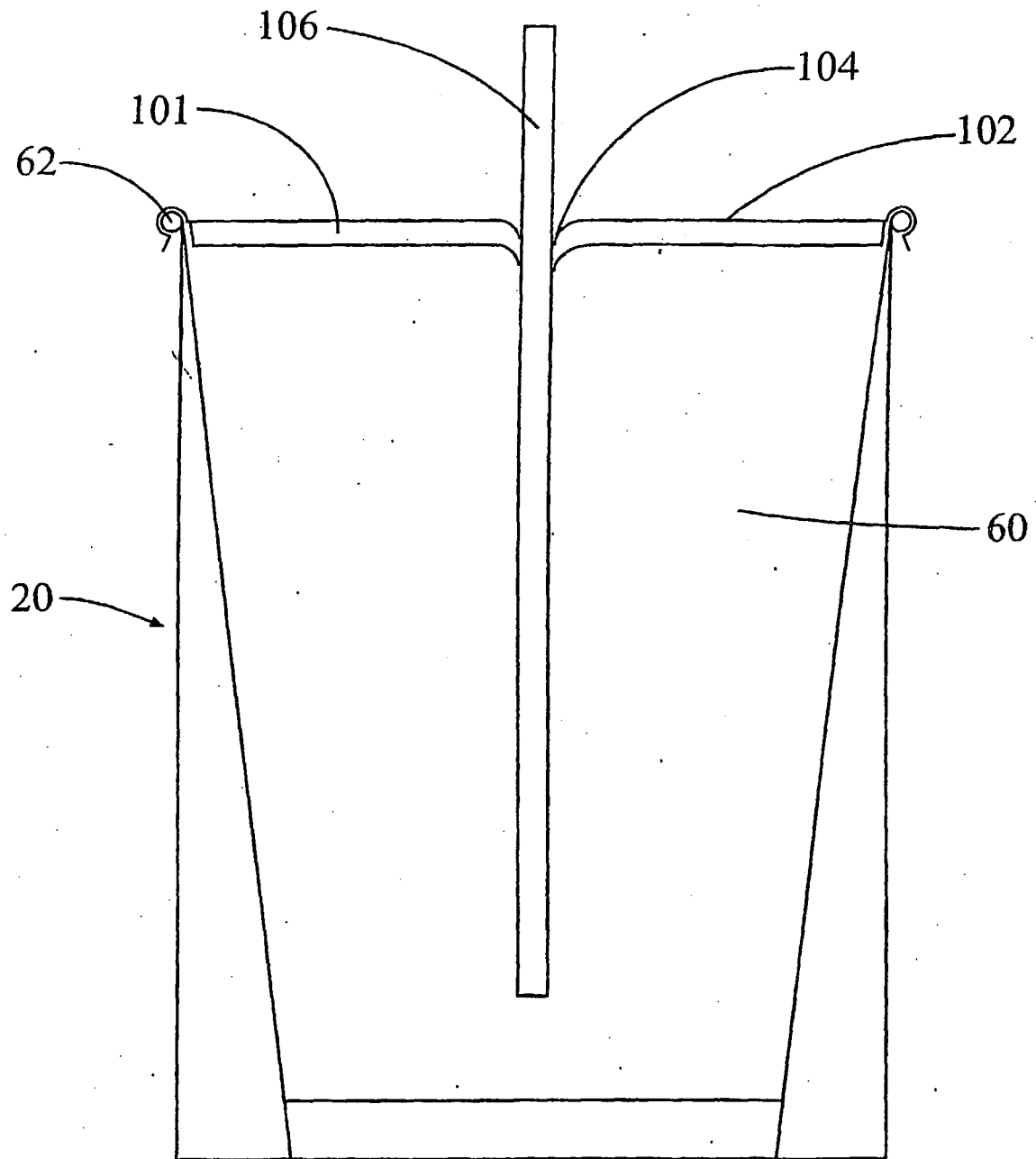


FIG. 9

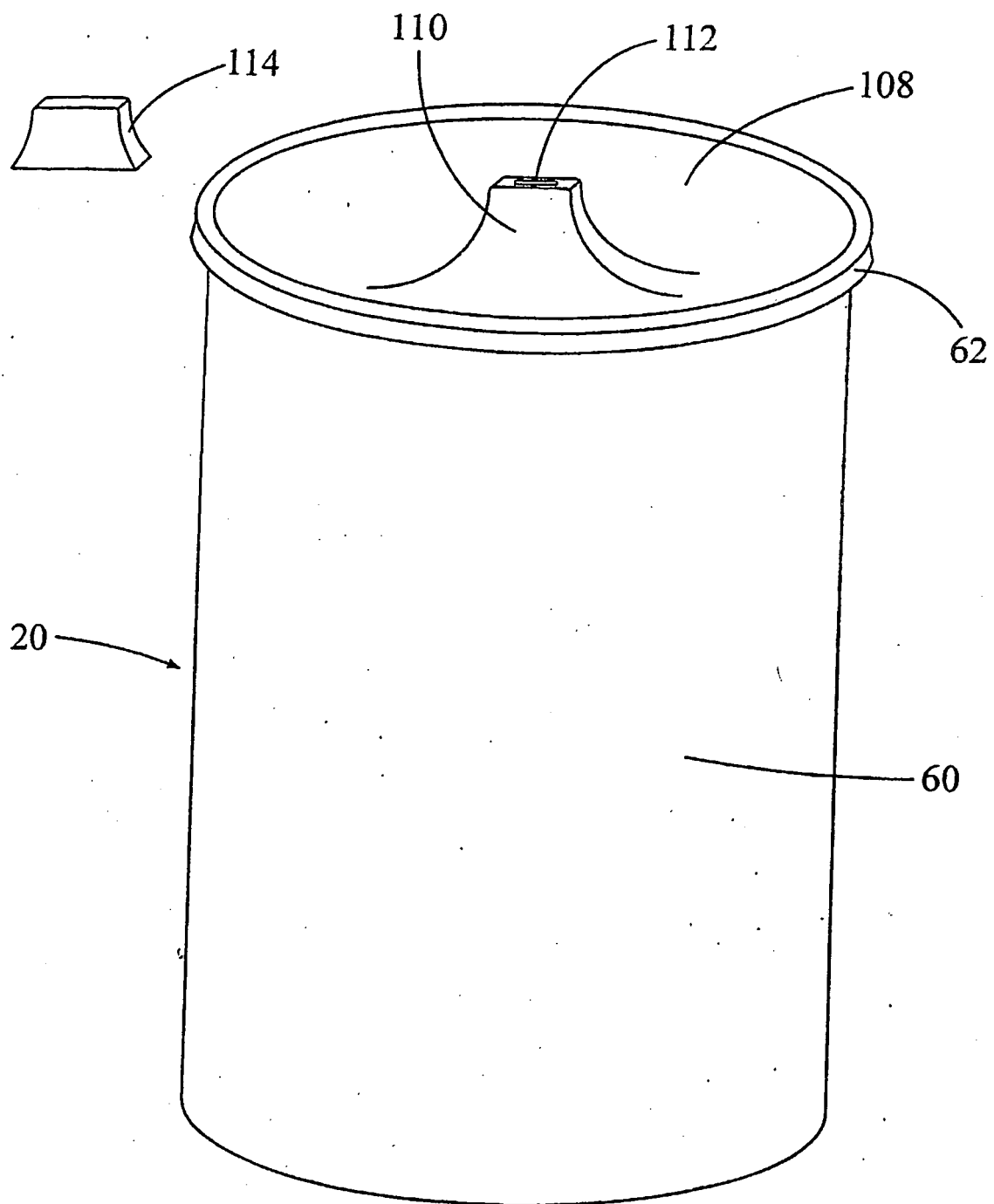


FIG. 10

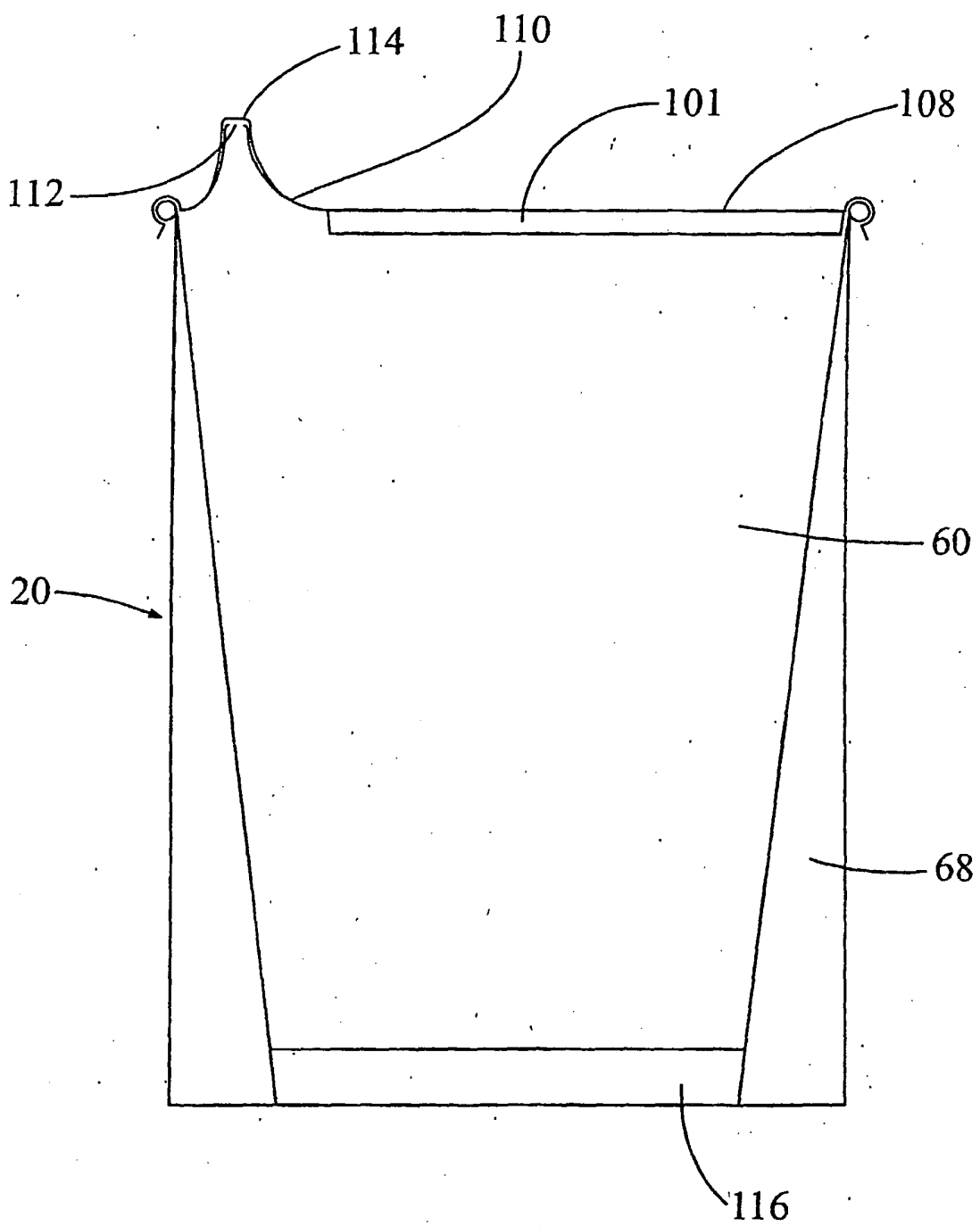


FIG. 11

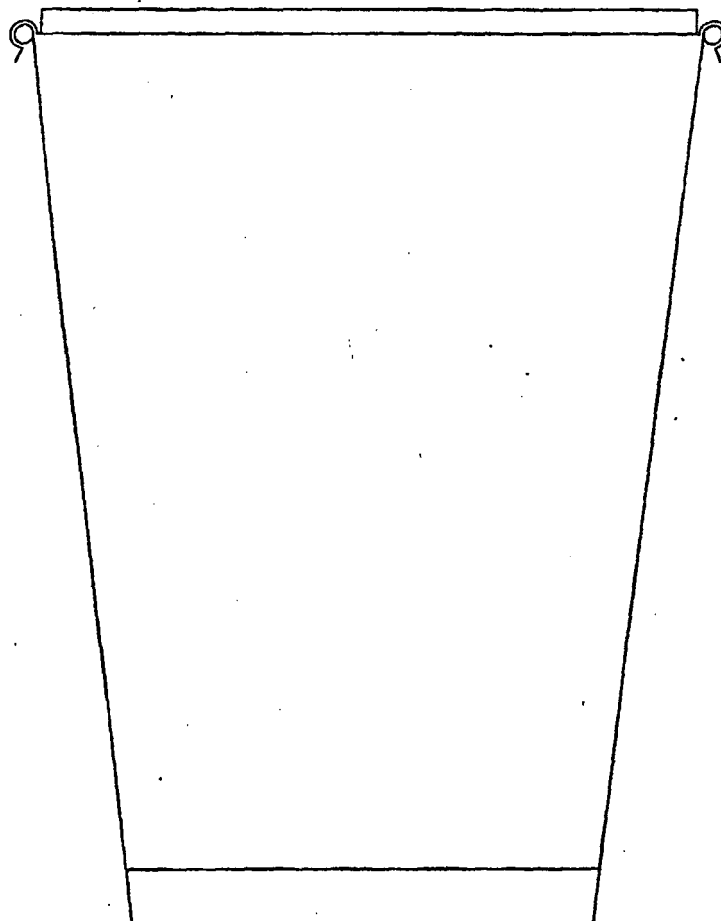


FIG. 12

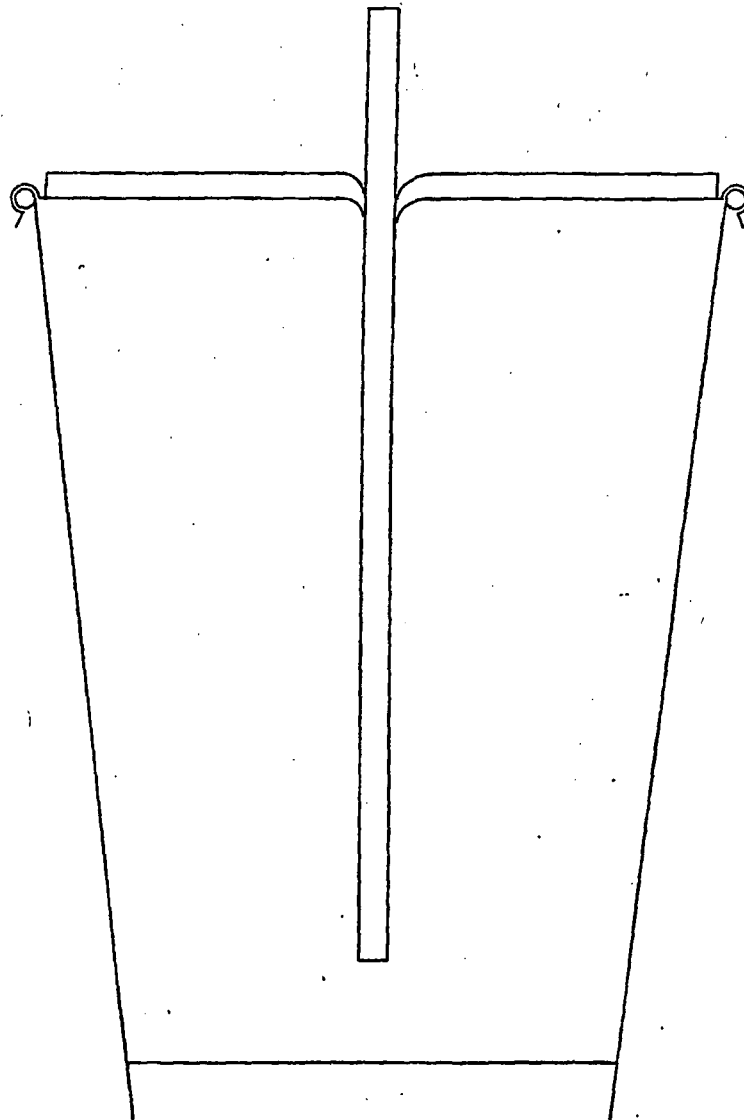


FIG. 13

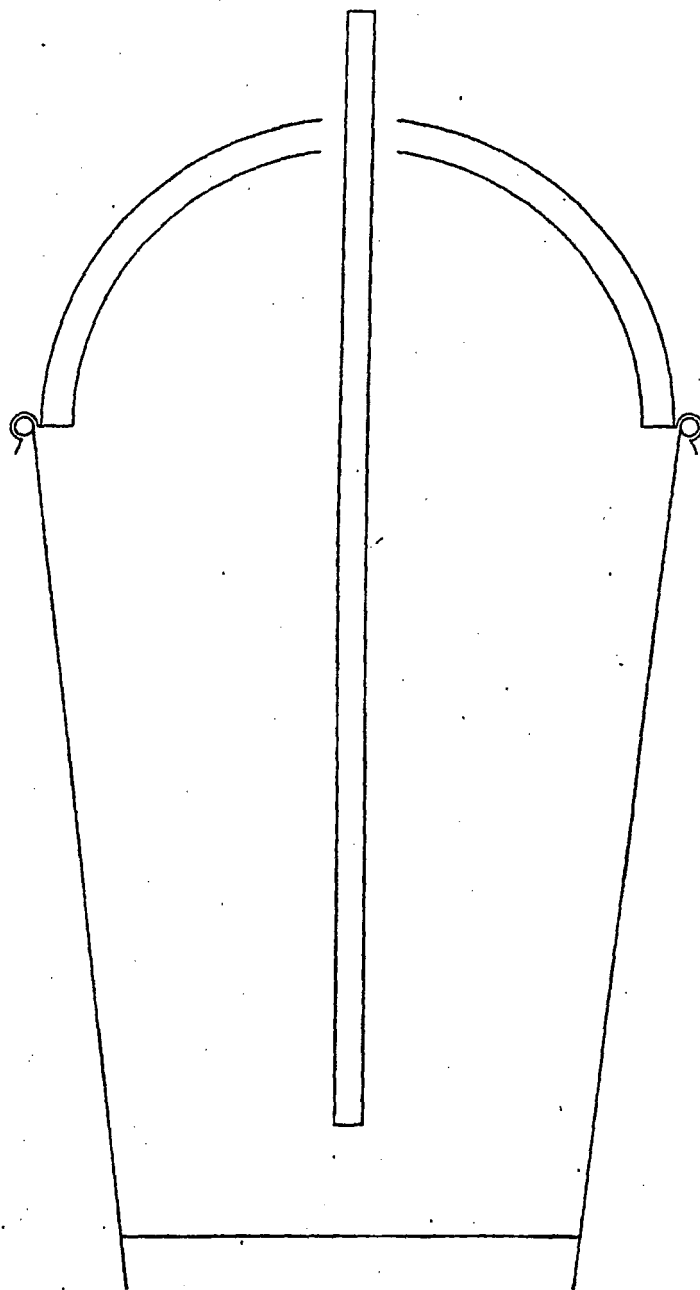


FIG. 14

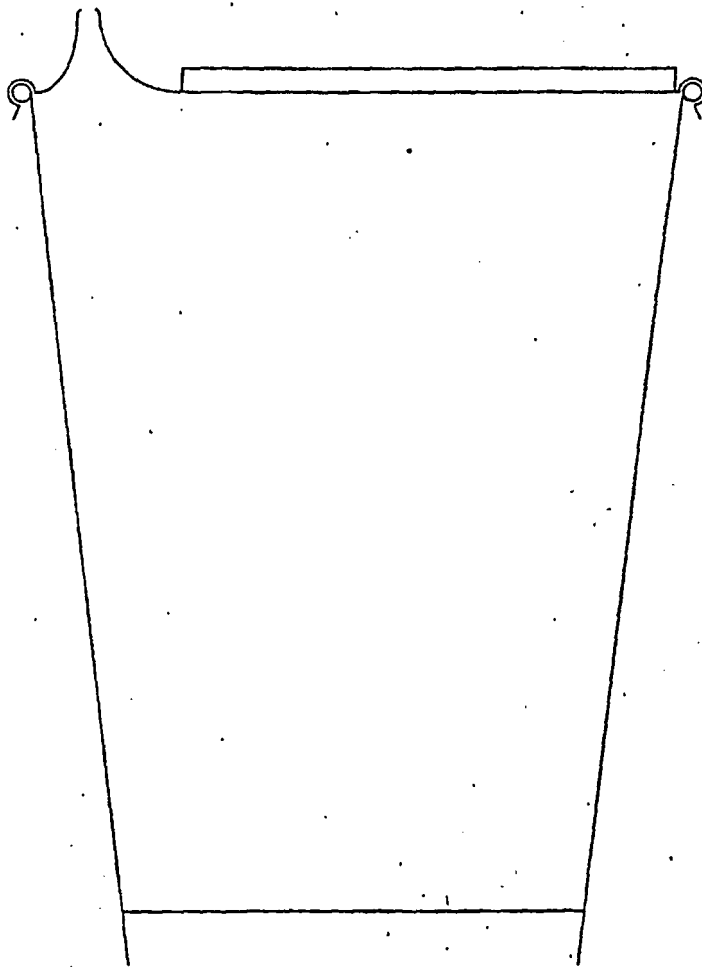


FIG. 15

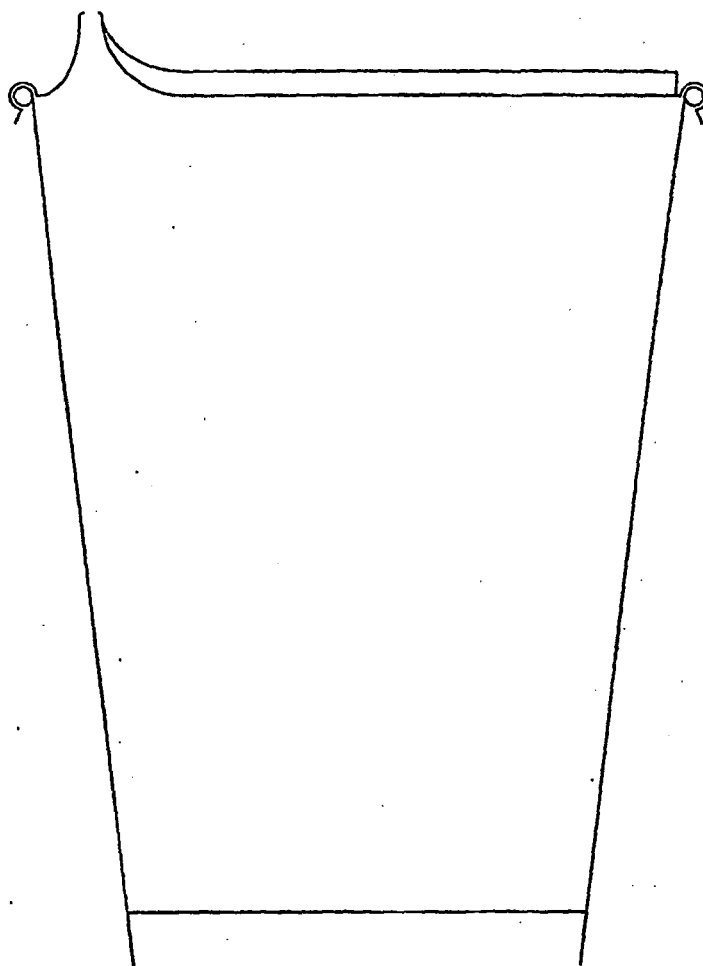


FIG. 16

REFERENCES CITED IN THE DESCRIPTION

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