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**London et al.**

[11] **3,874,115**

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[54] **NONSPILL FLEXIBLE PACKAGE FOR SHIPPING AND STORING CUT FLOWERS OR THE LIKE**


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[52] U.S. Cl. ..... **47/34.11,** 47/41, 206/423, 220/90.4, 150/DIG. 1,

[51] **Int. Cl.** ..... **B65d 37/00**

[58] **Field of Search** ..... 128/275, 295; 220/90.4; 4/110; 112; 283; 177,150/.5, 1, DIG. 1, 44, 48; 47/41, 41.11,34.11; 43/55



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*Primary Examiner*—Robert E. Bagwill

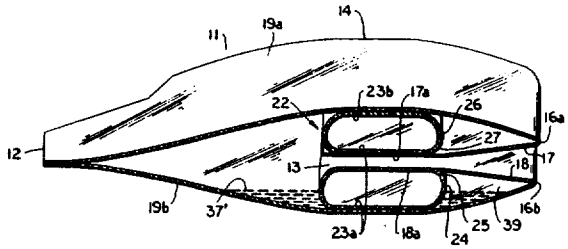
*Attorney, Agent, or Firm*—Jones, Thomas & Askew



[57] **ABSTRACT**

A system for receiving and shipping out flowers or the like in a spill-resistant container including a quantity of liquid. The system includes a bag having an open end folding inwardly of the bag. The open end of the bag is maintained in spaced-apart relation with the surrounding side walls of the bag, and stems of cut flowers or the like can be inserted through the open end to be received within the bag. A quantity of water or other liquid is added to the bag to preserve the flowers. Although the bag and flowers are normally stored in an upright position, the spaced-apart position of the open end relative to the side of the bag prevents liquid spillage if the bag becomes upset or overturned. The system also includes a container box for receiving and shipping a number of flower-containing bags. The box is convertible to display the flower-containing bags.


**4 Claims, 6 Drawing Figures**



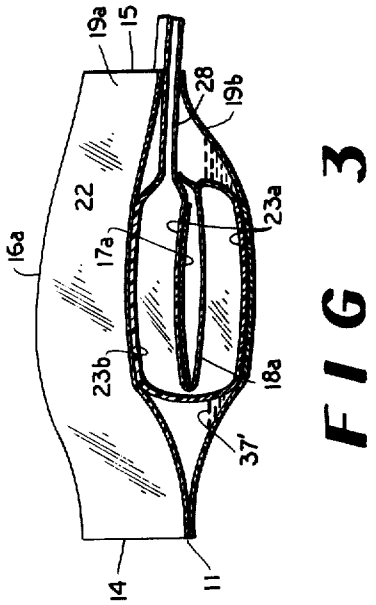



FIG 3

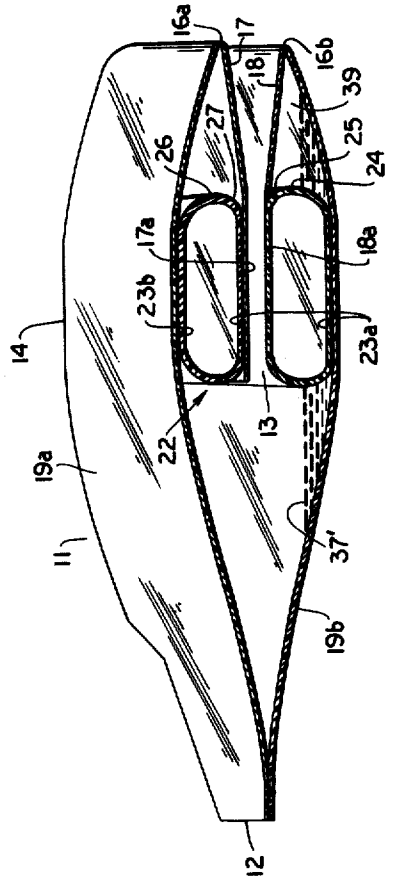



FIG 2

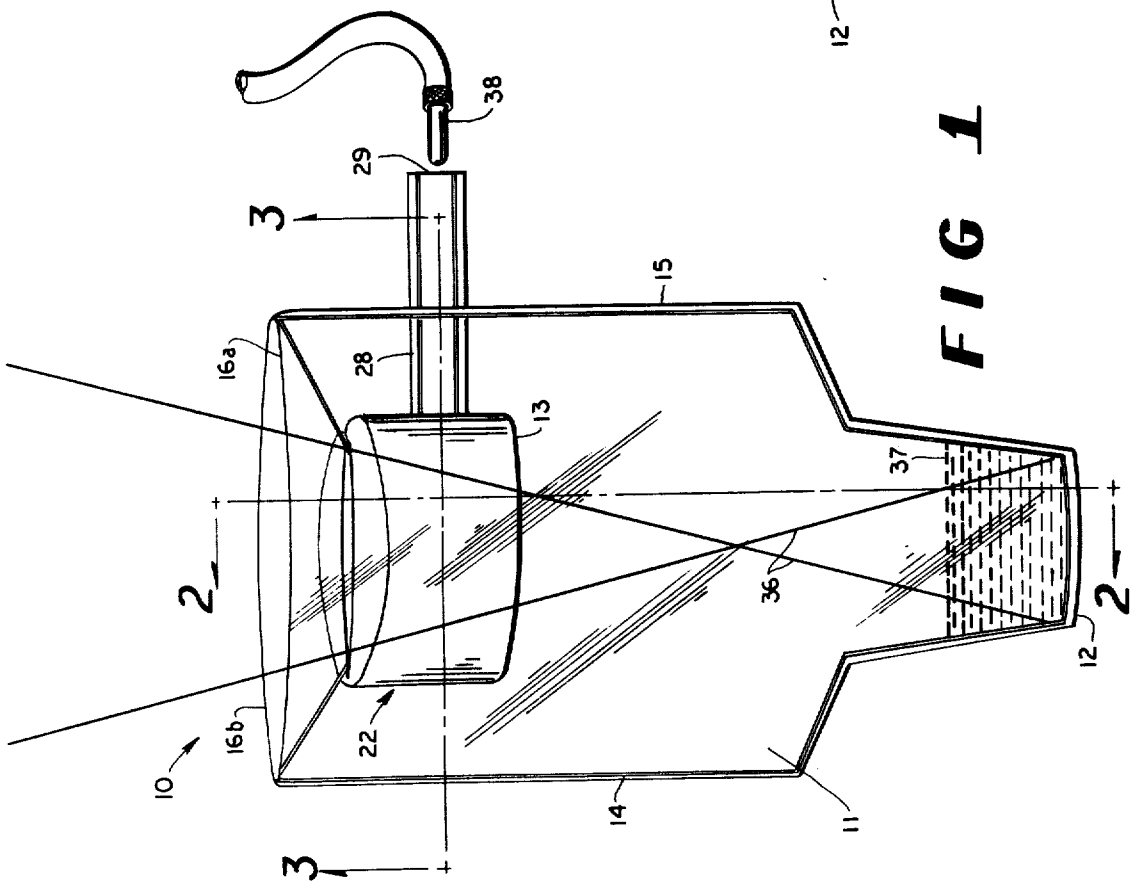



FIG 1

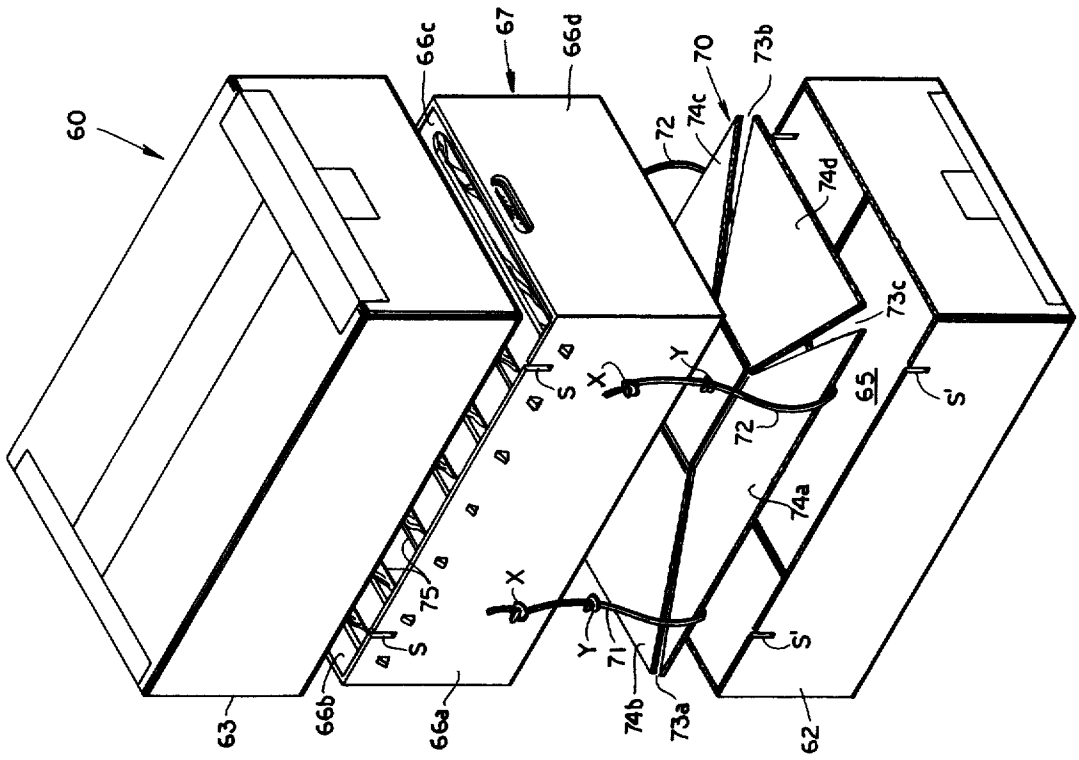



FIG 6

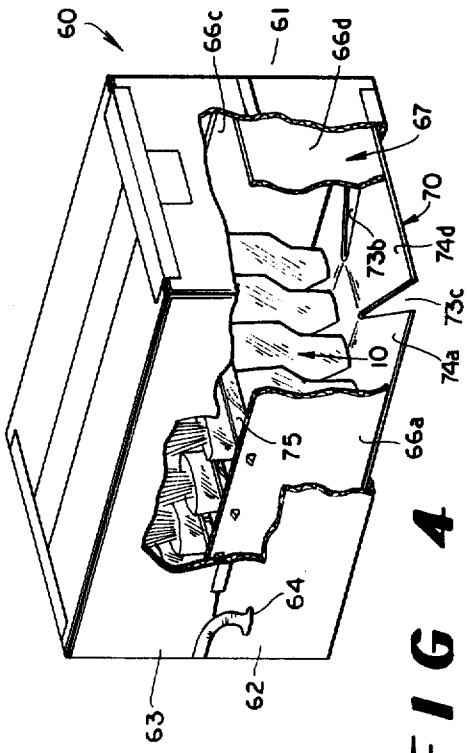



FIG 4

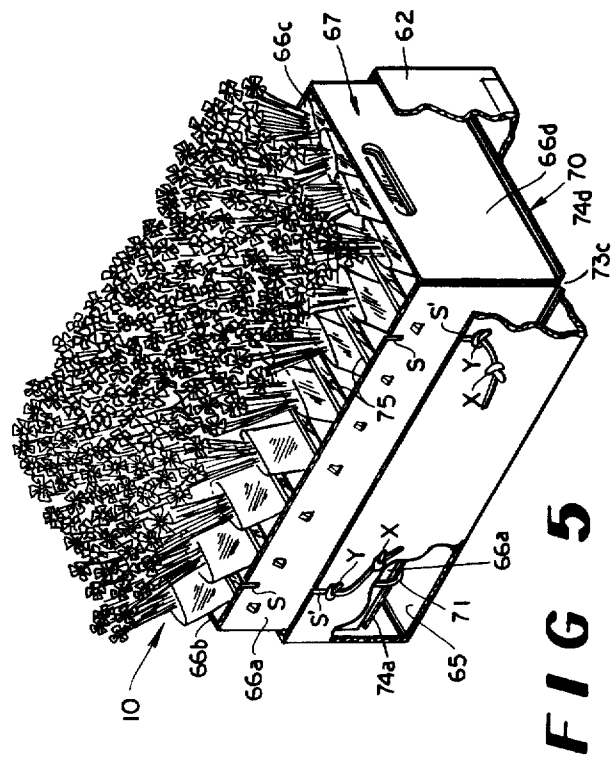



FIG 5

# NONSPILL FLEXIBLE PACKAGE FOR SHIPPING AND STORING CUT FLOWERS OR THE LIKE

This invention relates in general to the storage and shipment of perishable commodities such as flowers, and in particular to a container for cut flowers or the like, as well as a box for such containers.

The shipment of plants such as cut flowers and the like presents numerous difficulties arising from the need to maintain and preserve the freshness and general overall appearance of the flowers during shipment. Although some varieties of flowers can be shipped "dry," that is, without providing a supply of water for the flowers, many varieties of cut flowers simply cannot withstand withdrawal from water for any substantial extent of time without becoming wilted and generally unattractive in appearance. Flowers that cannot withstand dry shipment may be available in many locations only during the growing season for the particular type of flower, since the flowers cannot be economically and satisfactorily shipped substantial distances from locations which have an extensive growing season.

Various types of plant shipping containers have been proposed in the prior art, including containers which attempt to maintain cut flowers in a moist environment. Such prior-art expedients include the provision of a flower-receiving box which is made "water-proof" by coating or impregnation with a suitable water-impervious material. Such containers are waterproof, however, only while remaining in a normal upright position; the water immediately escapes from a box which becomes overturned or upset, conditions which are likely to occur during movement and handling during shipment of the flowers. Another prior-art expedient suggested for the preservable shipment of cut flowers requires a moisture retaining element such as a spongy or cellular material which is impregnated with water or another preservative liquid. The water-retaining material is positioned adjacent or in surrounding relation with the stems of the cut flowers, and is received within a suitable waterproof container. Such containers are nevertheless not truly spillproof, since an overturned or upset container still permits water to flow from the cellular material and escape from the container.

Prior-art attempts to provide a suitable shipping container which preserves cut flowers have, accordingly, not been truly spillproof under conditions incurred in shipment and handling. Many such containers have the additional disadvantage of being prohibitively expensive for large-volume utilization, since the cost of the flower-shipping container may reach or even exceed the cost of the flowers to be shipped therein.

It will be apparent that a commercially successful container for shipping and preserving cut flowers must not only maintain the flower stems in a moist environment without allowing liquid to escape if the container is upset or overturned, but must also be inexpensive to manufacture and easy to use.

Accordingly, it is an object of the present invention to provide improved container apparatus for flowers.

It is another object of the present invention to provide nonspill container apparatus for maintaining cut flowers or the like in liquid.

It is still another object of the present invention to provide a flower shipping system which allows wet shipment of flowers and which is sufficiently inexpensive for commercial utilization.



It is yet another object of the present invention to provide a flower shipping system which provides wet shipment of flowers and which also provides a display for the flowers.

Other objects and advantages of the present invention will become readily apparent from the following description of the disclosed illustrative embodiment thereof, including the drawings in which:

FIG. **1** is a pictorial view showing an example of a flower container apparatus according to a disclosed embodiment of the present invention;

FIG. **2** is a section view taken along line **2—2** of FIG. **1**, showing the container apparatus to be upset and lying on one side;

FIG. **3** is a section view taken along line **3—3** of FIG. **1**, also showing the container upset and lying on a side;

FIG. **4** is a partially broken-away pictorial view of an example of a box for shipping and displaying flower containers or the like, according to the present invention;

FIG. **5** is a partially broken-away pictorial view of the box shown in FIG. **4**, with the box configured for display; and

FIG. **6** is an exploded view of the box in FIGS. **4** and **5**.

Stated in general terms, the present invention comprises a container in the nature of a bag having a closed end and an open end re-entering the bag to face generally toward the closed end. The inwardly directed open end of the bag is maintained in spaced-apart relation to at least a portion of the contiguous bag walls which surround the open end. The stems of a quantity of cut flowers may be inserted through the open end to be received within the bag, and a quantity of water or another liquid can be added to the bag for preserving or maintaining the freshness of the flowers. So long as the quantity of liquid added to the bag does not exceed a certain predetermined amount, the spaced-apart relation of the open end with respect to the sides of the bag prevents liquid from escaping through the open end of a bag which is overturned or upset. A number of the flower-receiving bags can be received in a box for shipping in a compact arrangement. The box can be reconfigured for display of the flower-receiving bags.

Stated more particularly and with reference to a disclosed embodiment of flower container apparatus illustrating the present invention, there is seen in FIG. **1** a nonspill container indicated generally at **10** and including a bag **11** having a closed end **12** and an open end **13** which is folded into the bag to face toward the closed end. The bag **11** is preferably flexible or pliant in nature, and may be made of any suitable flexible and liquid-impermeable material such as vinyl plastic, waterproof paper, or the like. The use of a flexible material made of a suitable plastic which can be heat-sealed is particularly useful to the inexpensive fabrication of the bag, and the use of a transparent or translucent material permits the liquid contents of the bag to be readily ascertained. The bag **11** may be fabricated from separate sheets of material **19***a* and **19***b* which are heat-sealed along the closed end **12** and the two edges **14** and **15**, with the sheets of material being folded along fold lines **16***a* and **16***b* to turn into and re-enter the bag and return on the interior portions **17** and **18** (FIG. **2**) to terminate at the spacing structure **22** surrounding the open end **13**.

The spacing structure **22** at the inwardly-facing open end **13** of the bag must maintain the open end of the bag in spaced-apart relation with adjacent surrounding portions of the material **19***a* and **19***b* which define the adjacent surrounding portions of the bag, for a purpose discussed below. The disclosed embodiment of the spacing structure **22** is provided by an inflatable cuff which is disposed within the bag and which completely surrounds the open end **13** of the bag. The inflatable cuff is fabricated, in the disclosed embodiment, with a first wall **23***a* conveniently formed by an extension of the inwardly-folded interior portion **18**, extending back in a generally parallel relation with the inwardly-folded interior portion **18**, again folded as at **24** to terminate at a location **25** which may be defined by heat-sealing onto the interior portion **18**. The first wall portion **23***a* is preferably formed of sufficient width to wrap around the wall portion **17***a* and **18***a* leading to the open end **13** to provide the second wall **23***b*, on the upper side of the opening **13** as shown in FIGS. **2** and **3**. The second wall **23***b* extends along the sheet **19***a* in a direction toward the fold lines **16***a* and **16***b*, folds inwardly at **26** in a direction toward the interior portion **17**, and is attached to the first wall portion **23***a* along the line **27**. It can be seen that the inflatable cuff of the disclosed embodiment is advantageously formed from a single extension of wall portion **18**a material long enough for folding forwardly from the open end **13** for contact and sealing at the lines **25** and **27**, and which has sufficient breadth to provide a cuff structure which substantially entirely wraps around the two wall portions **17***a* and **18***a*. The aforementioned construction of the cuff advantageously enables the bag as thus far described to be fabricated from no more than two pieces **19***a* and **19***b* of material. It will be understood, however, that the cuff may be provided by alternative modes of fabrication. For example, the cuff can be separately fabricated and subsequently secured to the open end **13**.

Attached to the spacing structure **22** provided by the inflatable cuff is a tongue **28** which extends through an edge **15** of the bag to terminate at an end **29** outside of the bag. The tongue **28** may conveniently be fabricated by a pair of aligned plastic members which are heat-sealed together around their peripheries. The tongue **28**, however constructed, provides a fluid communication conduit extending from the inflatable cuff through the edge **15** of the bag to the end **29** of the tongue.

Considering the application and use of the invention as set forth in the above-described embodiment, the bag **11** as described is preferably manufactured with the cuff spacing structure **22** provided in uninflated, or at least merely partially inflated, configuration. The stems **3** of a quantity of cut flowers, schematically represented by the lines **36** in FIG. **1**, are readily insertable into the bag **11** through the interior portions **17** and **18**, the wall portions **17***a* and **18***a*, and through the open end **13** to be received adjacent the closed end **12** of the bag. A quantity of water or another suitable liquid **37** may also be admitted to the bag in the same manner, either before or after the cut flowers are inserted. It will be seen that the funnel configuration defined by the fold lines **16***a* and **16***b* readily permit liquid to be supplied into the bag. The maximum quantity of liquid **26** in the bag is critical for reasons set forth below.

After the liquid **37** and the flowers have been disposed in the bag, the cuff is inflated by connecting the end **29** of the tongue **28** to a suitable source of pressurized air. Any appropriate structure, such as the hollow injection needle **38** fitted to an end of an air hose, may be used to accomplish the necessary inflation. Once the cuff is suitably inflated, the end **29** of the tongue **28** is suitably sealed to maintain cuff inflation.

The bag **11**, along with a contained quantity of cut flowers and the liquid **37**, is normally stored and shipped in approximately an upright position, as depicted in FIG. **1**, and a number of such bags and associated flowers might conveniently be received in a suitable receptacle, such as the box described below, having means which conveniently hold the bags **11** in approximately upright position. If a bag **11** should become overturned, however, the liquid **37** within the bag will flow to occupy the position **37'** as shown in FIG. **2**. The open end **13** of the bag is maintained by the spacing structure **22** in a spaced-apart relation above the surface of the liquid **37'**, and so none of the liquid is able to enter the open end **13** and escape from the bag. It will be apparent, as aforementioned, that the maximum quantity of liquid **37** supplied to the bag must not exceed that quantity, considering the overall configuration of the bag and the lateral extent of the inflated cuff, which would place the surface level of the liquid **37'** above the open end **13** of the bag while lying on its side as in FIG. **2**.

If the bag **11** becomes completely upset to occupy an upside-down position from the normal position shown in FIG. **1**, the liquid **37** is collected within the interior region **39** adjacent the fold lines **16***a* and **16***b* of the bag; the open end **13** is spaced a sufficient distance from the fold lines **16***a*, **16***b* to be above the level of liquid in a completely overturned bag. It will be understood, accordingly, that the liquid cannot escape from the bag **11** even though the bag becomes upset or completely overturned. Once an overturned or upset bag is righted to reassume the upright position, the liquid **37** returns to the normal position surrounding the ends **36** of the flower stems. The liquid in the bags thus cannot escape and cause damage to other cargo being shipped with the flowers, unless the bag **11** is subjected to forces which utterly destroy the bag.

Although the flower container of the present invention is described above in the context of an inflatable cuff which maintains the open end of the container in spaced-apart relation from possible liquid levels within the container, it will be appreciated that the inflatable cuff is but one possible arrangement of structure which maintains the open end of the bag in a spaced-apart relation so as not to be immersed when the bag is overturned or inverted. An alternative construction of the present container invention, for example, can utilize a rigid spacing element substituted for the inflatable cuff, with the rigid spacing element including an annular sleeve attached to the open end of the bag and further having stiff spacing members extending in a generally radial direction outwardly from the sleeve to maintain the necessary spacing between the open end of the bag and the liquid level in a turned-over bag. Other techniques and structures for maintaining desired spacing of the re-entrant open end **13** and surrounding portions of the bag will suggest themselves to those skilled in the art.

Although wet flower containers of the type made according to the present invention can be shipped in any container or box of appropriate size and configuration to maintain the containers in a normal upright position,

and to afford protection to the flower portions emerging from the containers, the flower-receiving bags of the present invention can be advantageously shipped and subsequently displayed in a box constructed according to the teachings of the present invention. A disclosed embodiment of such a box is shown in FIG. **4–6**, wherein the box is indicated generally at **60** and includes an outer box **61** which is preferably selectively separable into a main box portion **62** and a cover box portion **63** by manipulating a suitable parting device such as a conventional tear-tape **64** disposed around the periphery of the outer box **61** at a predetermined distance above the bottom **65** of the outer box.

Disposed within the outer box **61** is an inner box comprising four walls **66***a*, **66***b*, **66***c*, **66***d* interconnected to form a sheath designated as **67**. The overall dimensions of the sheath **67** are slightly smaller than the overall inner dimensions of the main box portion **62**, so that the sheath **67** is loosely received within the main box portion to be raised or lowered therein. Each of the walls **66***a*–**66***d* are preferably slightly higher than the top of the main box portion **62** as defined by the location of the tear-tape **64**.

The inner box has a false bottom **70** which, in the disclosed embodiment, is entirely severed from the four walls **66***a*–**66***d* defining the sheath **67**. A pair of cords **71** and **72** extend in spaced-apart relation to each other, beneath the false bottom **70**, with the cords resting on the inner surface of the main bottom **65** of the outer box. The cords extend upwardly between the walls **66***a* and **66***c*, and the confronting walls of the outer box **61**, to terminate at enlargements X which may be conveniently provided by knots in the cords. It is preferable that the box **60**, in the shipping configuration depicted in FIG. **4**, present a substantially flat inner floor for receiving the above-described flower shipping bags, and so the cords **71** and **72** may be untensioned to allow the false bottom **70** to rest on the main bottom **65**, with the cords **71** and **72** interposed between bottoms. The ends of the cords pass through retainers such as the slots S in the upper edges of the sheath.

The overall dimensions of the false bottom **70** are preferably somewhat less than the corresponding dimensions of the sheath **67**. The false bottom **70** has cut-away relief portions **73***a*, **73***b*, **73***c*, **73***d* extending approximately diagonally from each corner of the false bottom to terminate at a distance spaced inwardly of the corner. It can be seen in FIG. **6** that these cut-away relief portions define flaps **74***a*, **74***b*, **74***c*, and **74***d*, walls **66***a* and **66***c*, and are retained therein by the enlargements X; the line of joinder of each such flap to the center portion of the false bottom **70** are preferably scored or otherwise weakened so that the flaps are readily bendable with respect to the center portion of the false bottom.

The use and operation of the box **60** is now described. With the box in the shipping configuration as depicted in FIG. **4**, presenting a substantially flat false bottom **70**, a number of containers **10** (or, in the alternative, any other package which may be desired to be disposed within the box) are positioned in a generally upright arrangement across one dimension of the box. The containers **10** are maintained in a row by a divider **75**, which may simply be a stick having pointed ends that are embedded within the walls **65***a* and **65***c*. It will be apparent that two or more rows of packages **10** can be disposed within the box **60**, depending on the size of the box, with each row of packages separated and maintained upright with a corresponding divider. The cover box **63**, which is at this time attached to the main box **62**, is then closed and sealed in a conventional manner, and the box **60** is ready for shipment. Although the exterior of the box **60** is preferably marked with shipping legends such as "this end up" or the like, indicating that the box should be maintained in an upright position as shown in FIGS. **4** and **5**, the use of nonspill containers as described hereinabove prevent leakage of water and consequential weakening or destruction of the box if overturn or upset should occur.

When the box **60** has arrived at a destination where it is desired to display or remove the flowers shipped therein, the cover box **63** is separated from the main box **62**, by way of the tear tape **64**. The exposed sheath **67** is now grasped and lifted upwardly, relative to the main box **62**, causing the cords **71** and **72** to engage the flaps **74***a*–**74***d* formed in the false bottom **70**. Referring now to FIG. **5**, it is seen that elevating the sheath **66** causes the cords **71** and **72** to elevate the flaps **74***a*–**74***d* of the false bottom to a position pivoted upwardly from the main bottom **65**; this upwardly pivoted arrangement of the flaps causes the bottom ends of the several containers **10** to be urged inwardly toward the center of the false bottom, and this inward movement provides a corresponding outward movement of the flowers received in the containers **10**. The enlargements X retain the cords **71** and **72** in the slits S during the step of elevating the sheath **67** to raise the false bottom flaps. After the flaps of the false bottom have been raised by a desired amount, the cord ends are withdrawn from the slits S in the sheath sides and are instead disposed in slits S′ located in the corresponding sides of the main box **62**. It can be seen in FIG. **5** that the ends of the cord **71** and **72** are provided with additional enlargements Y, which may also advantageously be provided by knots in the cords, spaced inwardly from the first-mentioned obstructions X; the obstructions Y function to retain the cords in the slits S′, so that the sheath **67** can be released and lowered back into the main box **62** while the false bottom **70** remains suspended in elevated position by the cords **71** and **72**.

It can be seen from the foregoing that there is described a box which is especially useful for shipping and for displaying flower containers such as described hereinabove. The nonspill flower container and the box of the present invention enable flowers to be shipped from a grower directly to a retail outlet, such as a supermarket or similar retail consumer location, whereupon the box is readily converted to a visually appealing display configuration simply by removing the cover box portion and elevating the false bottom to fan out the containerized flowers. A purchaser can easily select and remove one or several containers of flowers, with the container also functioning as a carrier until the flowers are removed for use.

It will be understood that the foregoing relates only to disclosed embodiments of the present invention, and that numerous alterations and modifications may be made therein without departing from the spirit or the scope of the invention as set forth in the following claims.

What is claimed is:

**1.** Flexible package for receiving cut flowers or the like, comprising:

an elongate bag made of a pliant, liquid-impermeable material;

said elongate bag having sides of substantially a flat configuration extending from a closed bottom end to a top end which is open to admit the stems of a bunch of cut flowers or the like;

an inflatable member secured within said elongate bag in annular surrounding relation with said open top end;

said inflatable member extending within said elongate bag along substantially less than the entire elongate length of said bag so that space remains between said inflatable member and said closed bottom end to receive the cut ends of flower stems and also to receive and retain a quantity of liquid;

said inflatable member when uninflated leaving said open top end substantially unobstructed to the entry of such flower stems or the like;

said inflatable member, when expanded by inflation, snugly surrounding and engaging such flower stems or the like which are extending through said open top end there being an area between the outer surface of said inflatable member and the bag portion adjacent thereto for water passage therebetween when said package is upended; and

means in fluid flow communication with said inflatable member to admit pressurized fluid to said inflatable member.

**2.** The package as in claim **1**, wherein said means for admitting fluid to said inflatable member extends to a location outside of said bag.

**3.** The package as in claim **1**, wherein:

said inflatable member comprises an inflatable cuff secured within said bag and having a first end disposed at and attached to said open top end of said bag and a second end in spaced apart relation to said open top end; and

means providing a liquid impervious connection joining said first end of said cuff to said open top end of said bag, so that the space within said bag between the inflated cuff and the portions of said bag sides contiguous to said cuff provides a reservoir volume to receive liquid which is normally at said closed bottom end of said bag unless said bag is upended.

**4.** The package as in claim **1**, wherein:

said inflatable member, when expanded by inflation, is extended into contact with said flat sides of said bag adjacent said open top end to maintain said bag sides in mutual spaced apart relation; and

said open top end being maintained by said expanded inflatable member at a position intermediate of said mutually spaced apart flat sides, so that said open end may be maintained above the surface of the liquid when said bag is disposed in a proximately horizontal position.

* * * * *