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(54) **Spillage containment**

(57) Transportation of goods such as flowers requires a container including a liquid. Unfortunately, such liquids can contaminate other goods in a consignment so by provision of a vessel (2) which includes a spillage prevention member (1) it is possible to reduce the amount of contamination. The spillage prevention member (1) sits within the vessel (2) and present a tubular part (4) such that any liquid remains within the cavity created between the spillage prevention member (1) and the body of the container in which the goods are transported.

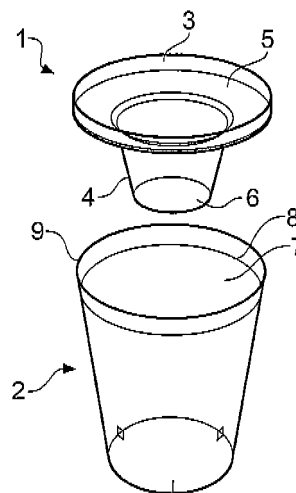


Fig. 1

Description

[0001] The present invention relates to spillage containment and assemblies for spillage containment and particularly to assemblies utilised to act as tubs, buckets and vases for transportation of cut flowers and other products incorporating or needing fluids.

[0002] Some products such as cut flowers require water or another liquid in order to maintain and preserve their quality during transportation. Furthermore, home delivery of such products through postal and courier services is increasingly popular in view of purchase via the Internet, telephone ordering or simple desire to facilitate delivery to an individual at their home address or office, etc. The use of water in such circumstances as indicated it is necessary for preservation of the quality of the goods but can create problems. It will be understood that with respect to fragile and delicate flowers these flowers cannot be overly constricted or confined whilst inherently open buckets if they fall over will release water contained within the bucket.

[0003] The potential for such release of water has significant problems with respect to courier and postal services in that an individual delivery van or other transportation may carry a wide range of goods including high value electronic and other goods which can be damaged by spilt water. In such circumstances, increasingly courier and postal services are either refusing to carry cut flowers in vessels such as buckets with water or add a significant delivery premium to such goods, so adding to the costs of delivery. Such additional costs may be a deterrent to customers accepting delivery by courier and postal services. It will also be understood that private purchasers of flowers at a shop will also consider the effects of spilt water and will tend to take cut flowers home without water, possibly causing degradation in the quality of the flowers during transportation.

[0004] In view of the above, as indicated, it is necessary that the goods if fragile or delicate are not overly confined whilst ensuring that the liquid is confined to avoid spillages in the normal course of events. It will also be understood that ease of assembly and transportation of a spillage container member, vessel and other parts, are also important.

[0005] In accordance with a first aspect of the present invention there is provided a vessel assembly for transport of a product including a liquid, the assembly comprising a vessel and spillage container member including a tubular part and a flange part to engage the vessel to form a seal against a wall of the vessel and to confine in use liquid to a cavity between the containment member and the vessel.

[0006] In accordance with a second aspect of the present invention there is provided a spillage prevention member for a vessel, the member comprising a tubular part and a flange part arranged in use to engage a vessel to locate the spillage member.

[0007] Generally, the flange part is arranged to secure

the containment member to a vessel.

[0008] Typically, the flange part is upstanding to engage a surface of a vessel in use. Normally, the flange part engages the vessel in compressive abutment.

[0009] Typically, the flange extends at a peripheral edge of the containment member. Possibly, the flange is contiguous about a peripheral edge of the containment member.

[0010] Possibly, a shoulder part is provided between the tubular part and the flange part. Preferably, the shoulder part is flatter than the tubular part or the flange part.

[0011] Typically, the tubular part is flared or tapered. Typically, the tubular part has a truncated conical shape with an aperture at its bottom end.

[0012] Possibly, the vessel has ribs to engage the containment member. Typically, there is an interference engagement between the containment member and the vessel to secure association. Advantageously, the vessel has spaced ribs to secure the containment member through the flange part between the spaced ribs. Generally, the ribs are about an inner peripheral surface of the vessel. Advantageously, the ribs are contiguous about a peripheral surface of the vessel. Possibly, the ribs facilitate provision of a seal between the flange part and the vessel. Advantageously, the ribs maintain a partial gap between surfaces of a vessel and other vessels when stacked.

[0013] Typically, the containment member incorporates reinforced and/or spacer tabs or ribs.

[0014] An embodiment of the present invention will now be described by way of example only with reference to the accompanying drawings in which:

Fig. 1 is an exploded view of a spillage containment member and vessel in accordance with aspects of the present invention;

Fig. 2 is a side cross-section of an assembled vessel assembly in accordance with aspects of the present invention;

Fig. 3 is a plan view of the assembly depicted in Fig 2; Fig. 4 is an illustration of an assembly in accordance with aspects of the present invention in an upright and in a toppled state;

Fig. 5 is a side view of a spillage containment member in accordance with aspects of the present invention; and,

Fig. 6 is a cross-section of a vessel in accordance with aspects of the present invention.

[0015] As indicated above, provision of an assembly to allow transportation of products which require or need liquids such as water presents a number of challenges. Generally, a product such as cut flowers will be delicate and therefore cannot be overly constrained whilst it is necessary to ensure that if the assembly is toppled liquid is not released. Fig. 1 provides a schematic exploded illustration of the two principal components of an assembly in accordance with aspects of the present invention.

Thus, a containment member 1 will be combined with a vessel 2 in order to create a resilient assembly to constrain and contain a liquid in use.

[0016] The spillage prevention member 1 generally comprises a flange edge part 3 with a generally tubular middle part 4. A shoulder part 5 is typically provided between the flange part 3 and the tubular part 4.

[0017] The flange part 3 is generally contiguous about a peripheral edge of the member 1. The flange is also generally upstanding to provide an abutment surface against which part of the vessel 2 will engage to locate the member in use. The width of the flange 3 as well as its orientation and sizing in terms of thickness will be sufficient to ensure good robust location within the vessel 2 in use.

[0018] The tubular part 4 will typically be flared or tapered towards an aperture 6. In such circumstances cut flowers will generally be arranged to extend through the tubular part 4 into a volume of water located within the vessel 2. The shoulder 5 ensures central location of the aperture 6 and tubular part 4 for good presentation of such products to be transported such as cut flowers. It will also be understood that the combination of the tubular part 4, shoulder 5 and the vessel 2 creates a cavity within which the volume of liquid is retained.

[0019] The vessel 2 generally takes the form of a bucket or vase-type container. An inner surface 7 of the vessel 2 incorporates ribs 8, 9 in a spaced relationship. The ribs 8, 9 are spaced to accommodate the flange 3 in order to provide secure location for the containment member 1 within the vessel 2. It will be appreciated through an interference fit between opposed surfaces of the flange part 3 and surface 7 between the ribs 8, 9 as well as the ribs themselves a seal is created in order to at least inhibit and generally prevent fluid leakage. The ribs 8, 9 as illustrated are generally contiguous about the inner surface 7 of the vessel 2. However, if a sufficient seal is created by simple compressive abutment engagement between opposed surfaces of the flange 3 and the surface 7 these ribs 8, 9 may not be contiguous and simply act to retain the necessary compression for a seal as well as location of the flange 3 with the vessel 2.

[0020] Fig. 2 and Fig. 3 illustrate an assembly in accordance with aspects of the present invention in an assembled state. The same reference nomenclature with regard to Fig. 1 is utilised in Figs. 2 and 3.

[0021] As can be seen, the spillage prevention member 1 is located and secured within the vessel 2 such that the flange part 3 engages with parts of the inner surface 7 between ribs 8, 9 to ensure in the region 10 a seal is created. In terms of assembly, the spillage prevention member 1 is simply generally located above the vessel 2 and through a compressive force in the direction of arrowhead A, the flange part 3 clicks into interference association between the ribs 8, 9. Generally, the flange part 3 will be configured and shaped for substantial consistency with the angle and presentation of the inner surface 7 between the ribs 8, 9 but possibly with sufficient

over-sizing or otherwise to ensure a good compressive seal is provided.

[0022] Typically, the ribs 8, 9 will be arranged to appropriately capture the flange part 3 in order to provide location for engagement of the spillage prevention member 1 within the vessel 2. In such circumstances, the bottom rib 8 may include a flat inwardly projecting surface against which the bottom edge of the flange part 3 can latch for engagement. The upper rib 9 may have a more rounded nature at least on its upper side to enable the flange part 3 to move past this rib 9 until the lower part of the flange part 3 engages the rib 8. The flange part 3 is then captured between the ribs 8, 9.

[0023] As indicated above, assemblies in accordance with aspects of the present invention are designed in order to ensure that when an assembly is toppled a volume of liquid such as water will not be released. Fig. 4 illustrates in Fig. 4a an assembly 41 in accordance with aspects of the present invention in an upstanding state whilst in Fig. 4b an assembly 41 has toppled into a horizontal state. In such circumstances a volume of water 42 located within the vessel part of the assembly 41 is at the bottom of that vessel and so there will be no spillage. However, in Fig. 4b it will be noted that the assembly 41 has toppled to one side so that the volume of water 42 now resides along one side of the assembly 41 but is contained by the spillage prevention member 43 creating a seal in engagement with upper parts of the assembly 41. The liquid 42 is then held within a cavity created between tubular part 44 and a vessel. In particular, it will be noted that an aperture 46 in the spillage prevention member 43 is above the level of the fluid 42 and therefore fluid cannot escape through that aperture 46.

[0024] It will be understood that the spillage prevention member 44 will be shaped such that the aperture 46 is centrally located with a shoulder as described previously and the size of the aperture 46, its relative position and other configurational dispositions arranged such that even normal in use splashing of the fluid 42 will not result in significant volumes of liquid 42 escaping through the aperture 46. It will also be understood that generally in use the aperture 46 will be partially blocked with such objects as the stems of cut flowers. It will also be understood that where deemed necessary or possible the shoulder part of the spillage prevention member may be associated with an absorbent material such as foam to further reduce the depth of the fluid 42 should the assembly 41 topple.

[0025] Fig. 5 provides a cross-section of a spillage prevention member in accordance with aspects of the present invention. Similar reference nomenclature has been utilised to that used in Figs. 1 to 3 for consistency.

[0026] In Fig. 5 a spillage containment or prevention member 1 is illustrated inside a cross-section. Thus, as can be seen, the member 1 substantially defines a funnel shape with a flange part 3 extending through a shoulder portion 5 to a tubular part 4 opening into an aperture 6. In use cut flowers will extend through the aperture 6 and

so will be located for appropriate presentation. Through use of the tubular part 4 and shoulder 5 it will be understood that there is an off-set between overlaying parts, that is to say the shoulder 5 and the tubular part 4 to wall parts (shown in broken line 12) results in a cavity 13. This off-set and so cavity 13 acts to receive a fluid in use and so prevent that fluid exiting through the aperture 6 when a vessel incorporating the member 1 topples from an upright position.

[0027] The actual sizing and configuration of the spillage prevention member 1 will be dictated by actual in use requirements such as the size of a vessel or bucket that the member 1 will be secured to, the volume of water to be contained and its depth, the size of the aperture 6 and other factors.

[0028] Fig. 6 illustrates a cross-section of a vessel 2. This vessel 2 as indicated previously generally takes the form of a bucket or vase with an inner surface 7 by which ribs or grooves 8, 9 are provided to capture and engage the flange part 3 of a spillage prevention member in accordance with aspects of the present invention. The ribs 8, 9 have a spacing width 40, to capture the flange part 3 and retain it in compressive engagement to provide a seal. Typically, as indicated previously, an interference association between the flange 3 and the surface 7a between the ribs 8, 9 will be provided possibly by over-sizing of the flange 3. It will also be understood that the surface nature as well as material from which the flange 3 and at least the surface 7a may be such that a seal is facilitated. In such circumstances these surfaces may have an elastomeric or sticky nature to further facilitate creation of an appropriate seal.

[0029] It will be understood in use as assembly as depicted in Figs. 2 and 3 will be provided. However, transportation of assemblies and containment members in accordance with aspects of the present invention prior to such assembly may be facilitated by stacking. Such stacking itself may be aided through provision of tubular ribs 15, 16 to ensure that the vessel 2 and insert spillage prevention members 1 appropriately stack with a space between them and so do not become jammed.

[0030] As indicated above, easy assembly is achieved through having generally surface to surface engagement between the flanges 3 and part 7a of the vessel 2. Clearly, one option is to provide flat to flat surface engagement with simple compression to provide a seal. Alternatively, one or both of the flange 3 and surface part 7a may be slightly curved in order to create compression to achieve an appropriate seal. Furthermore, the ribs 8, 9 may be made from an appropriate material to provide a seal in association with the flange.

[0031] It will be understood that generally the insert spillage prevention member 1 and vessel 2 will be formed from a plastics material. In such circumstances, in order to achieve thinner walled members 1 and vessels 2 reinforcing ribs can be provided. These ribs may also double up as indicated previously as spacer tabs or ribs 15, 16 to prevent jamming of the vessels 2 and members 1

when stacked.

[0032] Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

Claims

1. A vessel assembly for transport of a product including a liquid, the assembly comprising a vessel and spillage container member including a tubular part and a flange part to engage the vessel to form a seal against a wall of the vessel and to confine in use liquid to a cavity between the containment member and the vessel.
2. A spillage prevention member for a vessel, the member comprising a tubular part and a flange part arranged in use to engage a vessel to locate the spillage member.
3. An assembly or member as claimed in claim 1 or claim 2 wherein the flange part is upstanding to engage a surface of a vessel in use.
4. An arrangement or member as claimed in any of claims 1, 2 or 3 wherein the flange part engages the vessel in compressive abutment.
5. An assembly or member as claimed in any preceding claim wherein a shoulder part is provided between the tubular part and the flange part.
6. An assembly or member as claimed in any preceding claim wherein the tubular part is flared or tapered.
7. An assembly or member as claimed in any preceding claim wherein the tubular part has a truncated conical shape with an aperture at its bottom end.
8. An assembly or member as claimed in any preceding claim wherein the vessel has spaced ribs to secure the containment member through the flange part between the spaced ribs.
9. An assembly or member as claimed in any preceding claim wherein the ribs facilitate provision of a seal between the flange part and the vessel.
10. An assembly or member as claimed in any preceding claim wherein the ribs maintain a partial gap between surfaces of a vessel and other vessels when stacked.
11. An assembly or member as claimed in any preceding

claim wherein the flange part is arranged to secure the containment to a vessel.

- 12.** An assembly or member as claimed in any of preceding claim wherein there is an interference engagement between the containment member and the vessel to secure association.

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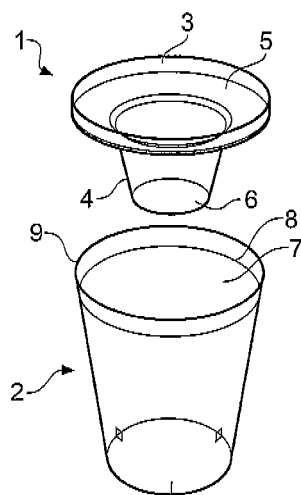


Fig. 1

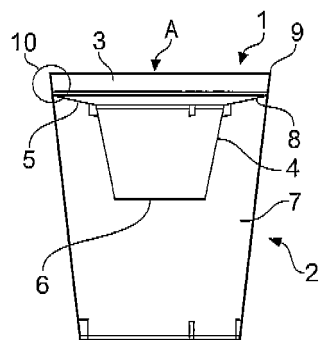


Fig. 2

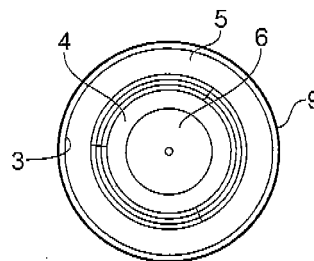


Fig. 3

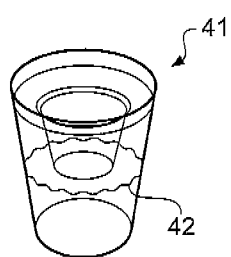


Fig. 4(a)

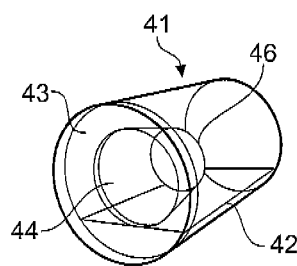


Fig. 4(b)

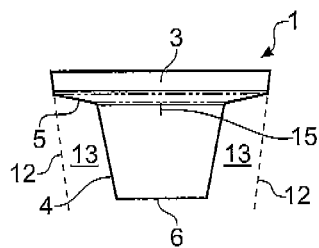


Fig. 5

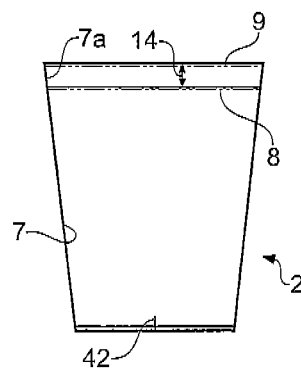


Fig. 6



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 25 1483

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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X	WO 96/10906 A (PEACOCK RICHARD S [US]; PEACOCK JOE L [US]) 18 April 1996 (1996-04-18) * page 7, line 14 - page 12, line 26; figures 1-7 *	1,2	<div>TECHNICAL FIELDS SEARCHED (IPC)</div> A01G A47G B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 25 June 2007	Examiner Grondin, David
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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 07 25 1483

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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