CONTAINER FOR LIQUID, PASTY, AND/OR SOLID MATERIALS

Inventor: Ira Sommer, Köln (DE)

Correspondence Address:
LOCKE LIDDELL & SAPP LLP
600 TRAVIS
3400 CHASE TOWER
HOUSTON, TX 77002-3095 (US)

Publication Classification

Int. Cl. ....................................................... F23Q 1/00
U.S. Cl. ....................................................... 431/267

ABSTRACT

The invention relates to a container for liquid, pasty, and/or solid materials, comprising a base, a ring element, at least one opening, and a membrane which forms an outer surface and is arranged between the base and the ring element. The base and the ring element can be connected to each other. An energy storing device is disposed between the base and the ring element. In order to further develop a container in such a way that said container can be used as a supplementary multifunctional low-weight storage device while being easy to handle, the ring element (3) can be twisted at least in a limited manner relative to the base (2) around the longitudinal axis of the membrane (5) in order to open or close a bayonet-type closure which is disposed on the ring element (3) and the base (2).
CONTAINER FOR LIQUID, PASTY, AND/OR SOLID MATERIALS

[0001] The invention relates to a container for liquidy, pasty and/or solid materials, consisting of a base, a ring element and at least one opening and a membrane which forms an outer surface and is arranged between the base and the ring element. The base and the ring element can be connected to each other, and an energy storing device is disposed between the base and the ring element.

[0002] From prior art various containers are known for the storage and/or transport of liquid, pasty and/or solid materials. Such containers, which are called buckets for example, do however occupy a large storage space due to their outer dimensions and in dependence of their filling capacity. In addition, there are known containers which consist of a base and a membrane forming an outer surface and which have a carrying element, for example a carrying handle in the form of a section of an arc of a circle, attached to the membrane in order to carry said container. But those containers are not suited for storing liquidy, pasty and/or solid materials, because after the container has been put down, the membrane does not have a stability sufficient for holding the hollow space for the liquid, pasty and/or solid material upright. Moreover, containers are known, for example drinking vessels, which consist of a base and ring element as well as additional ring elements provided between the said ring element and the base. The diameter of the ring elements becomes increasingly smaller from the top ring element towards the base, and the ring elements are sealingly nested into each other, so that the container can be slid in a telescope fashion, in order to occupy little storage or transport volume when it is not used. A disadvantage of this known container is that its design with severral ring elements results in a high weight, and that for larger filling volumes and the associated pressures complicated sealings are additionally required between the ring elements, in order to provide a tight container.

[0003] This type of container is known from the document DE 42 43 678 A1 already mentioned above. This document discloses a container for storing liquids and consisting of a lower and an upper border with anuntearable PVC foil as well as a spiral spring arranged between said borders. The upper border includes a screw-type closure that can be opened for filling liquids in or taking liquids out.

[0004] In addition, said preknown device includes a closure means which consists of hook members arranged for pivoting on the lower border and corresponding recesses provided on the upper border. This preknown container for storing liquids can be compressed, and said spiral spring is bent by this compression.

[0005] A disadvantage of this preknown container resides in that the locking of the borders that are moved toward each other by means of pivotable hook members do not offer any sufficient safety against unintentional opening, so that the required connection between these two borders is not sufficiently stable if it is only one hook that is not correctly hooked in.

[0006] A further container is known from the document U.S. Pat. No. 2,886,084 disclosing a foldable, double-walled container. This preknown prior art provides that the connection between the two elements which are made of a synthetic material and which are each arranged on the end side, can be effected by virtue of the flexibility of the synthetic material. Starting from this prior art the invention is based on the problem of further developing a container in such a way that the container can be used as a supplementary multifunctional low-weight storage device which is particularly easy to handle.

[0007] The solution of this problem provides that the ring element can be twisted at least to a limited extent relative to the base around the longitudinal axis of the membrane, in order to open or close a bayonet-type closure which is disposed on the ring element and the base.

[0008] Accordingly, the container according to the invention includes a base, a membrane which forms an outer surface, and a ring element. The membrane which is designed to be flexible is arranged between the ring element and the base and is urged via the linear motor, particularly the energy storing device into a stretched-out position. In this initial position the container is suited not only for the transport of liquid, pasty and/or solid materials but also for storing these materials, since the base and the ring element are kept spaced from each other via the linear motor and the membrane is tensed. A small transport and/or storage volume of this container is obtained by the ring element being urged against the action of the force of the linear motor in the direction of the base and being connected to the base upon reaching the same. Preferably, said ring element can grip over the base, in which case the membrane is arranged within the inner space of the ring element which is then left.

[0009] According to a further feature of the invention it is provided that the energy storing device is formed as spiral spring, helical pressure spring or truncated cone spring, in the following referred to as “the spring” which is preferably arranged externally of the membrane and connected to the base and the ring element. Such a spring can be manufactured easily and at low cost and can be readily connected to the base and the ring element, in order to form an inexpensive container.

[0010] It is further provided that the spring is connected to the ring element in such a way that the ring element can be twisted to a limited extent relative to the spring around the longitudinal axis of the membrane. So configured, the connection between the ring element and the base can be effected easily and safely by a bayonet-type closure in which the protrusions of the base or the ring element are pushed into corresponding recesses of the ring element or the base and thereafter the base is twisted with respect to the ring element, in order to lock the protrusions behind a projecting part adjacent to the recesses.

[0011] In a preferred embodiment it is provided, that the spring is guided by its end facing the ring element in a groove which is formed in the ring element. With this embodiment it is prevented that during the twisting of the ring element with respect to the base the spring builds up a resetting force which subsequently rotates the ring element back to the initial position, whereby the connection between the ring element and the base is released and the container is transferred from its telescoped position to its unfolded position.

[0012] According to a further feature of the invention it is provided that the spring is fixed to the base. However, there
is also an option of guiding the spring on the base in a groove for movement with respect to the base, while the spring is fixed to the ring element. In this case it is merely important that the base can be twisted with respect to the ring element around the longitudinal axis of the container, so that the spring is not subject to any torsional load.

00013] Preferably, the spring which is formed as a spiral spring or helical pressure spring has at least one spiral turn and particularly 1.5 to 2 spiral turns, so that the space required for stowing the spring is very small when the container is folded.

00014] Particularly, the spring consists of a spring steel and can thus be manufactured in a simple and inexpensive way. In case, the use of tempering steel or special steel is recommendable if the container will be used for liquids that lead to a fast corrosion of untreated steel.

00015] Depending on the intended use of the container, the membrane is formed of a heat-resistant, acid-resistant, fluid-tight, permeable untearable foil made of soft plastic. In case of a permeable foil the advantage can be attained that for example material mixtures of solid, pasty and liquid parts can be separated from each other in a simple manner.

00016] According to a further feature of the invention it is provided that the membrane includes an energy storing device which acts at right angles to its longitudinal axis and which constricts the membrane preferably in the middle part. This energy storing device causes the membrane to be pulled into the opening area of the ring element when the base and the ring element are telescoped, so that the membrane, even if it is not handled correctly, won’t be clamped between the base and the ring element, because this could possibly lead to the membrane becoming damaged or destroyed, whereby the container could not be used anymore for its intended purpose. The energy storing device can be configured for example as an elastic. It has shown to be advantageous to arrange the energy storing device in a guide channel which is preferably arranged externally on the membrane. In particular, the guide channel consists of a material matching the membrane material, hence of a soft synthetic material, in order not to negatively influence the flexible properties of the membrane either in the region of the guide channel.

00017] Because of these matching materials of the guide channel and the membrane it is, according to a further feature, particularly advantageous that the fixing of the guide channel to the membrane may be effected by a pasted joint.

00018] According to a further feature of the invention it is provided that the base consists of a ring and a metal core, with the membrane being fixed to the ring. This two-part base has the advantage that through this metal core the container is for example suitable for heating a liquid, particularly water, over an open flame or on a different fire place like one that is electrically operated. The metal core makes it possible that the heat is rapidly transmitted from the fire place to the medium to be heated, while the ring which preferably consists of a synthetic material reduces the weight of the container on one side and allows the membrane to be easily and sealingly fixed to the base on the other side.

00019] Preferably, the metal core includes a cavity wherein a burner element can be inserted. The burner element can also be fixedly installed in the cavity. Preferably, the burner element is operated with gas, alcohol, diesel oil, kerosine and/or any other burning paste on the basis of these fuels. Such a fuel can be arranged in an energy storage element which can be connected to the burner element. To this end, there can be provided for example cartouches which are clamped in a bracket that connects the cartouche to the burner element via a supply line. As an alternative, drop-shaped elements filled with a burning paste can be inserted in the cavity. In this case, the burning paste is first ignited for heating the metal core which conveys the temperature for example to a liquid to be heated in the container.

00020] For this purpose the energy storage element is preferably exchangeably arranged in the cavity. To facilitate the exchange of the energy storage element it is provided that the metal core includes an opening with a sealing plate which closes the cavity. The sealing plate can be formed as a perforated plate in order to guarantee sufficient oxygen supply for the combustion. If the sealing plate is formed as a closed plate the supply of energy will have to be provided in an other way, for example through openings in the metal core which connect the surroundings to the cavity.

00021] According to a further feature of the invention it is provided that the metal core is sealed in a manner such as to be movable with respect to the ring of the base at least in the radial direction. This makes sure that the metal core when heating can slide with respect to the ring, without any leakiness being caused. Preferably, the metal core includes a continuous peripheral, particularly radially open groove having the web-shaped ring arranged therein. Accordingly, the metal core grips over the ring.

00022] The web-shaped ring has inside the groove a sealing ring on one side and a spring element on the opposite side. The spring element is arranged between a wall of the groove of the metal core and the ring and therefore presses the ring in the axial direction of the container against the opposite wall of the groove, with the continuous sealing ring being disposed between this second mentioned wall and the ring. Preferably, the sealing ring is placed in a recess of the ring, in order to avoid a radial displacement of the ring. The spring element is also formed in continuous fashion and is arranged in a recess of the ring.

00023] Furthermore, between the ring and the metal core a thermal insulator is provided which limits or inhibits any conveyance of the temperature generated within the metal core to the ring. Particularly, the thermal insulator is arranged between the metal core and the spring element.

00024] According to a further feature of the invention it is provided that the base includes an outlet valve that can be used for example for dispensing liquid contained in the container at a defined volume.

00025] The membrane and the base or the ring of the base as well as the ring element are preferably made of a heat-resistant synthetic material, so that the same are resistant also in case of being heated over a fire place or by a heated liquid.

00026] The connection between the ring element and the base is preferably effected by the base having at least one and preferably more undercut recesses where at least one corresponding protrusion of the ring element can be locked in.
[0027] Particularly, it is provided that the recesses and/or protrusions are equally spaced around the periphery of the base and/or ring element, so that the base and the ring element are interconnected under equal forces over their whole peripheries.

[0028] According to a further feature of the invention it is provided that the membrane is fixed to the ring element and/or base by one or two clamping rings. Preferably, the clamping ring(s) is/are connected to the ring element and/or base by means of screws, with the membrane being arranged between the clamping ring and the ring member on one side and between the clamping ring and the base on the other side, respectively. When the membrane is correspondingly thick and exhibits properties of flexibility, then the membrane will form its own sealing against the base or the ring element and the clamping rings.

[0029] To make the mounting easier the clamping ring can be formed of at least two parts.

[0030] According to a further feature the ring element is formed with a U- or V-shaped cross-section. Finally, it is provided that the container has a round or oval cross-sectional shape.

[0031] Supplementary, a catching element may be provided which limits the distance between the ring element and the base, for example to protect the membrane against excessively high tensile forces. In this case the distance between the ring element and the base is set such that the membrane is stretched out and does not have any wrinkles transversely to the axial direction of the container. The catching element may consist particularly of ropes, preferably made of a synthetic material which is resistant to extension, such as carbon fibers for example, which are rubber coated. Preferably, the ropes are arranged between the membrane and the spring.

[0032] Further features and advantages of the invention will become apparent from the following description of the attached drawing showing a preferred embodiment of the container according to the present invention. In the drawing it is shown by

[0033] FIG. 1 a first embodiment of the container, in a partly sectional side view;

[0034] FIG. 2 a part of a ring element of the container according to FIG. 1, in a sectional perspective view;

[0035] FIG. 3 a part of a base of the container according to FIG. 1, in a sectional perspective view;

[0036] FIG. 4 a part of a membrane of the container according to FIG. 1, in a sectional side view;

[0037] FIG. 5 an alternative form of the guiding of a spring within the ring element;

[0038] FIG. 6 the container according to FIG. 1 in a sectional side view, with a preferred design of the base;

[0039] FIG. 7 the base according to FIG. 6 in a detailed view; and

[0040] FIG. 8 a second embodiment of the container, in a side view.

[0041] A container 1 for liquid, pasty and/or solid materials as shown in FIG. 1 consists of a base 2, a ring element 3 arranged oppositely to the base 2 and including an opening 4. Between the base 2 and the ring element 3 a membrane 5 is provided that forms an outer surface and that is made of a flexible soft synthetic material.

[0042] The base 2 is formed in two parts and has a core 6 of metal and a ring 7 of a heat-resistant synthetic material. The ring 7 surrounds the core 6.

[0043] In its external rim area the ring 7 has equally spaced protrusions 8 which are separated from each other by recesses 9.

[0044] One end 10 of the membrane 5 rests on the ring 7. The end 10 of the membrane 5 is sealingly fixed to the ring 7 of the ring element 3 by means of a clamping ring 11. The clamping ring 11 is fixed to the ring 7 by means of screws 12.

[0045] The end 10 of the membrane 5 rests exclusively on the ring 7 and is not in any contact with the core 6 of metal, so that at the use of the container 1 for heating a liquid such as water for example on a fire place the membrane 5 will not be heated directly through the core 6.

[0046] The membrane 5 has in the central part thereof an energy storing device 13 formed as an elastic which contracts the membrane 5 in its central part. Depending on the length of the membrane 5 also two or more energy storing devices may be provided, in order to pull the membrane into the interior of the container 1, while the base and the ring element 3 are moved towards each other.

[0047] According to FIG. 4 the energy storing device 13 is arranged within a guide channel 14 externally arranged on the membrane 5 and formed by a plastic strip 15. The plastic strip 15 consists of a material matching the material of the membrane 5 and is glued and/or welded to the membrane 5.

[0048] The ring element 3 consisting of a synthetic material and shown in detail in FIG. 2 is substantially formed with a V-shaped cross-section and has on its outer leg 16 a web 18 aligned with an inner leg 17. To the leg 17 a second end 19 of the membrane 5 is fixed by means of an additional clamping ring 20 that is fixed to the leg 17 of the ring element 3 by means of screws 21.

[0049] The web 18 has on the free edge thereof plural recesses 22 that are equally spaced about the periphery of the ring element 3. The width of a recess 22 substantially corresponds to the width of a protrusion 8 of the base 2, and the distance between two adjacent recesses 22 in the ring element 3 substantially corresponds in turn to the width of the recess 9 in the base 2, so that the protrusions 8 of the base 2 can be passed through the recesses 22 and the parts arranged between the recesses 22 of the ring element 3 through the recesses 9 of the base 2 and so that the protrusions 8, by slightly twisting the ring element 3 with respect to the base 2, coming to rest in the area above the material between two adjacent recesses 22 of the ring element, so that the base 2 is connectible to the ring element 3 in the form of a bayonet-type closure.

[0050] On an inner wall of the leg 16 facing the leg 17 a groove 23 is formed extending at least over a part-portion of the ring element 3, in which groove one end 24 of a spiral spring 25 is guided, so that the ring element 3 is movable with respect to the end 24 of the spiral spring 25.
The spring 25 surrounds the membrane 5 and is supported on and fixed to the base 2 by its second end. Through the spiral spring 5 the membrane is held in its stretched-out position when the base 2 and the ring element 3 are not locked, so that the container 1 is ready for being used to receive liquid, pasty and/or solid materials, according to its intended use. During this the spiral spring 25 develops a force which is orientated in the longitudinal direction of the container 1 and which is larger than the force provided by the energy storing device 13. The ring element 3 is fixed by its end 24 to a sliding ring 26 which is supported in a groove 27 of the ring element 3 so that it can be rotatingly twisted. The groove 27 is arranged between two webs of a profile section of the ring element 3 having a c-shaped cross-section. This profile section is joined by an inwardly drawn part of the ring element 3, to which the membrane 5 is externally and sealingly fixed by its end.

In FIGS. 6 and 7 the container 1 is shown in a telescoped position. The base 2 and the ring element 3 can be seen. The spring and the membrane are not shown for reasons of clarity. The base 2 consists of the ring 7 and the metal core 6 which has a cavity 28 in which a burner element 29 is arranged. The metal core 6 is formed in two parts and consists of a lower part 30 with a pot-shaped seat 31 substantially forming the cavity 28. In addition, the metal core 6 has an upper, plate-shaped part 32 which is connected to the lower part 30 by means of screws 33.

The two parts 30 and 32 are formed in a round shape, and the lower part 30 has a continuous and web-shaped portion 34 which, when the upper part 32 is mounted, is arranged so as to be spaced from the same and together with the same forms a groove 35 for receiving the ring 7.

The burner element 29 can be operated with gas, alcohol, diesel oil, kerosene and/or a burning paste on the basis of any of these fuels, the burner element 29 is arranged in a manner such that it can be connected to an energy storage element (not further shown) such as a gas cartouche or is arranged within the cavity 28 in an exchangeable manner. The metal core 6 is arranged in such a way that it is movable and sealed in the radial direction with respect to the ring 7 of the base 2. To this end, the metal core 6 includes the continuous radially open groove 35 in which the web-shaped ring 7 is arranged. Within the groove 23 the web-shaped ring 7 includes a sealing ring 36 on one side and a spring element 37 on the other side. Moreover, between the ring 7 and the metal core 6 a thermal insulator 38 is provided.

The sealing ring 36 is formed with a round cross-sectional shape and lies within an annular groove having a semi-circular cross-section which is continuously provided in the surface of the ring 7 facing the upper part 32. In the opposite surface of the ring 7 a continuous recess 39 having a rectangular cross-section is formed and serves for receiving the thermal insulator 38 and the spring element 37.

The spring element 37 keeps the portion 34 spaced from the ring and thus the upper part 32 in a sealing condition on the sealing ring 36. By being configured in this way, the base 2 is sealed also in a case where the container 1 is used as cooking pot. At the same time this configuration allows the metal core 6 to be moved with respect to the ring 7, of which the portions engaging in the same groove 35 do not extend right to the bottom of the groove. Therefore, any expansion of the metal core 6 during the operation of the burner element 29 is not impeded by the ring 7. By the arrangement of the sealing ring 36 in the annular groove the sealing ring is fixed in the groove when radial forces occur, so that the container remains tight also when it is heated and cooled several times.

FIG. 5 shows an alternative embodiment of the connection of the spiral spring 25 to the ring element 3. The spiral spring 25 is fixed by its end 24 to a sliding ring 26 which is supported in a groove 27 of the ring element 3 so that it can be rotatingly twisted. The groove 27 is arranged between two webs of a profile section of the ring element 3 having a c-shaped cross-section. This profile section is joined by an inwardly drawn part of the ring element 3, to which the membrane 5 is externally and sealingly fixed by its end.

FIG. 8 finally shows an alternative design of a container 1 in which the spiral spring 25 is replaced by a truncated cone spring 40.
1. Container for liquid, pasty and/or solid materials, which container consists of a base (2), a ring element (3) with at least one opening (4), and a membrane (5) forming an outer surface and arranged between the base (2) and the ring element (3), said base (2) and ring element (3) being interconnectible and an energy storing device being arranged between the base (2) and the ring element (3),
characterized in that said ring element (3) can be twisted at least to a limited extent with respect to the base (2) around the longitudinal axis of the membrane (5) in order to open or close a bayonet-type closure on the ring element (3).

2. Container according to claim 1,
characterized in that said energy storing device is formed as a spiral spring (25), a helical pressure spring or a truncated cone spring (40) and arranged externally of said membrane (5) as well as connected to the base (2) and the ring element (3).

3. Container according to claim 1,
characterized in that said spiral spring (25), helical pressure spring or truncated cone spring (40) is guided within a groove (23) formed in the ring element (3) by its end (24) facing the ring element (3).

4. Container according to claim 1,
characterized in that said spiral spring (25), helical pressure spring or truncated cone spring (40) is fixed with one end (24) to a sliding ring (26) which is supported in a manner such that it can be rotationally twisted with respect to the ring element (3).

5. Container according to claim 1,
characterized in that said spiral spring (25), helical pressure spring or truncated cone spring (40) is fixed to the base (2).

6. Container according to claim 1,
characterized in that said spiral spring (25) or said helical pressure spring (40) has at least one spiral turn, preferably 1.5 to two spiral turns.

7. Container according to claim 1,
characterized in that said spiral spring (25), helical pressure spring or truncated cone spring (40) consists of a spring steel.

8. Container according to claim 1,
characterized in that said spiral spring (25), helical pressure spring or truncated cone spring (40) consists of a non-magnetic material, particularly of an elastical synthetic material.

9. Container according to claim 1,
characterized in that depending on the intended use said membrane (5) consists of a heat-resistant, acid-resistant, fluid-tight, permeable tearable foil of a soft synthetic material.

10. Container according to claim 1,
characterized in that said membrane (5) includes an energy storing device (13) which acts at right angles to the membrane and constricts the membrane (5) preferably in its middle part.

11. Container according to claim 10,
characterized in that said energy storing device (13) is formed as an elastic.

12. Container according to claim 10,
characterized in that said energy storing device (13) is formed as an undersprung motion device made of metal.

13. Container according to claim 10,
characterized in that said energy storing device (13) is disposed in a guide channel (14) which is preferably externally arranged on the membrane (5).

14. Container according to claim 13,
characterized in that said guide channel (14) consists of a material matching the material of the membrane (5).

15. Container according to claim 14,
characterized in that said guide channel (14) is glued to the membrane (5).

16. Container according to claim 1,
characterized in that the base (2) consists of a ring (7) and a metal core (6), with the membrane (5) being fixed to the ring (7).

17. Container according to claim 1,
characterized in that the said base (2) includes an outlet valve.

18. Container according to claim 18,
characterized in that said ring (7) consists of a heat-resistant synthetic material.

19. Container according to claim 16,
characterized in that said metal core (6) includes a cavity (28) into which a burner element (29) can be inserted.

20. Container according to claim 19,
characterized in that said burner element (29) can be operated with gas, alcohol, diesel oil, kerosine and/or any other burning paste on the basis of these fuels.

21. Container according to claim 20,
characterized in that said burner element (29) can be connected to an energy storage element.

22. Container according to claim 21,
characterized in that said energy storage element is arranged within said cavity (28), particularly in an exchangeable fashion.

23. Container according to claim 19,
characterized in that said metal core (6) includes an opening with a sealing plate closing the cavity (28).

24. Container according to claim 16,
characterized in that said metal core (6) is scaled against the ring (7) of the base (2) so as to be movable at least in the radial direction.

25. Container according to claim 16,
characterized in that said metal core (6) includes a continuous radially open groove (35) in which the web-shaped ring (7) is disposed.

26. Container according to claim 25,
characterized in that said web-shaped ring (7) includes within the groove (35) a scaling ring (36) on one side and a spring element (37) on the opposite side.

27. Container according to claim 16,
characterized in that between said ring (7) and the metal core (6) a thermal insulator (38) is disposed.
28. Container according to claim 1, characterized in that said base (2) includes at least one and preferably more undercut recesses (22) in which at least one corresponding protrusion (8) of the ring element (3) can be locked.

29. Container according to claim 28, characterized in that said recesses (22) and/or protrusions (8) are arranged equally spaced about the periphery of the base (2) and/or the ring element (3).

30. Container according to claim 1, characterized in that said ring element (3) is formed of synthetic, metal or similar pressure-resistant materials.

31. Container according to claim 1, characterized in that said membrane (5) is fixed to the ring element (3) and/or base (2) by means of one or two clamping ring(s) (11, 20).

32. Container according to claim 31, characterized in that said clamping ring(s) (11, 20) is(are) screwed two the ring element (3) and/or base (2).

33. Container according to claim 32, characterized in that said clamping ring (11, 20) is formed of at least two parts.

34. Container according to claim 1, characterized in that said ring element (3) is formed with a U- or V-shaped cross-section.

35. Container according to claim 1, characterized by a design with a round, oval or rectangular, particularly square cross-section.

36. Container according to claim 1, characterized in that between said ring element (3) and the base (2) at least one catching element is provided defining the distance between the ring element (3) and the base (2).

37. Container according to claim 1, characterized in that said catching element consists of ropes which are arranged so as to be distributed equally spaced to each other around the membrane.

38. Container according to claim 1, characterized in that for a container having a round cross-section said ropes are arranged so as to be offset by 120° with respect to each other.

39. Container according to claim 1, characterized in that said ropes have a rubber sheathing.

40. Container according to claim 1, characterized in that said ropes are preferably arranged outside the membrane and inside the energy storing device.

41. Container according to claim 1, characterized in that said ropes are disposed inside the membrane.

* * * * *