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(54) **LIQUID CONTAINER SYSTEM**

FLÜSSIGKEITSBEHÄLTERSYSTEM

SYSTÈME DE CONTENEUR POUR LIQUIDE

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(56) References cited:
EP-A- 1 529 742 WO-A-02/36446
DE-U1-202004 000 517

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Description

[0001] The present invention departs from needs which have been recognized in context with beverage containers, especially beverage bottles, which may be refilled. Nevertheless, the following considerations are mutadis mutandis valid for containers other than for beverages.

[0002] Bottles for beverages with a removable sealing cap and which may be refilled are widely known and used, especially in sport activities. Thereby, the container - the bottle - is customarily made of a plastic material as from PET or of a metal as especially of aluminum or is possibly made of a compound material. Such beverage bottles have a sealing and removable cap which may be removed or opened so as to refill the container. Especially for the use in sport activities as for cycling, jogging etc., the cap is customarily provided with a drinking valve arrangement which prevents liquid from pouring out when the container with its cap is not in drinking use.

[0003] Such beverage containers are often refilled during the sport activities. E.g. when cycling, mountaineering, jogging etc. such containers are refilled underway, e.g. at fountains. Thereby, it would often be desirable to add to the refilled liquid, especially to water, a taste or another substance as e.g. substances to make an isotonic beverage. Nevertheless, once the container has been emptied and underway it is either not possible to refill such container with a desired liquid/substance mixture or it is necessary to interrupt the activity, as e.g. to stop cycling, for preparing the liquid/substance mixture.

[0004] The WO 02/36446 teaches a liquid container with a cap. Integral to the cap there are provided cylindrical mini-receptacles for additives. By means of plungers the respective additives are discharged into the container, whereby a sealing foil interposed between the cap and the container opening is broken open.

[0005] It is an object of the present invention to provide a container system whereat the above need is practically resolved in an improved manner.

[0006] This is achieved by a liquid container system according to the present invention which comprises a container with a sealing cap to refill the container with a liquid. The system further comprises at least two, preferably more than two mini-receptacles provided at the cap and/or at the container. The mini-receptacles are respectively filled with a substance. Each or a predetermined number of the mini-receptacles may selectively be opened into the container by a man manipulation from the external of the container and/or cap. Thereby, the substance contained in the selected mini-receptacle is freed into the liquid.

[0007] The mini-receptacles are part of a magazine device, removably applied to the container and/or cap.

[0008] Thus, whenever there is a need to add a substance from one of the mini-receptacles to the liquid within the container, the respective mini-receptacle is broken open and its substance is admixed to the liquid. Clearly,

this allows to replace a consumed liquid/substance mixture of beverage with water, whereat, by opening a respective mini-receptacle, there is admixed the desired substance.

5 **[0009]** Thus the mini-receptacles are part of an exchangeable magazine device which is removably applied to the container and/or to the cap. Thereby, whenever the content of the mini-receptacles is consumed, a new set or magazine of such mini-receptacle is mounted to the container or the cap.

10 **[0010]** In a further embodiment at least a part of the mini-receptacle contain different substances. Still in a further embodiment and with an eye on the above described bottles for beverages, the mini-receptacles contain foodstuff substances. Further and in a further embodiment the addressed mini-receptacles contain concentrated foodstuff substances, so that with a small amount of such substance in the addressed mini-receptacles a desired taste or mixing ratio may be reached in the liquid of the container.

20 **[0011]** Still in a further embodiment at least a part of the mini-receptacles contain liquid and/or powderous substances, whereby some of the mini-receptacles may contain a liquid and some other may contain a powderous substance. It has to be mentioned that it is absolutely possible to admix to the liquid in the container substances which are present in two or more than two of the mini-receptacles, so as to realize a more complex substance mixture or so as to increase the concentration of one substance in the respective liquid.

25 **[0012]** Still in a further embodiment the cap has a drink valve which is especially suited when the system according to the present invention is a bottle system for beverages as used for outdoor- or sport-activities.

35 **[0013]** Still in a further embodiment the addressed container is of a plastic material as of PET, is of a metal, thereby especially of aluminum or is of a compound or laminated material.

40 **[0014]** The invention shall further be exemplified by the following detailed description of examples, explained with the help of figures.

Fig. 1 in a perspective view a first embodiment of the system according to the present invention, whereat mini-receptacles are magazine-applied to a bottle body;

45 Fig. 2 schematically a cross-sectional representation through a part of the embodiment of fig. 1;

50 Fig. 3 in a simplified and perspective view, a part of a further embodiment of the system according to the present invention, whereat mini-receptacles are applied in the cap area;

55 Fig. 4 schematically and simplified, a cross-sectional representation of the embodiment as of fig. 3 with mini-receptacles integrated in the cap, and

thus not according to the present invention, but as a basis to understand the embodiment of fig. 5;

Fig. 5 in a representation in analogy to that of fig. 4, an embodiment, wherein the mini-receptacles are carried by a separate exchangeable magazine according to the present invention.

[0015] Fig. 1 shows a beverage bottle system according to the present invention, whereat a magazine of mini-receptacles is applied to the container itself. The container 1 or bottle, which may be of plastic material, of a metal as of aluminum or of a compound material, may thereby be of a laminated material, has, as shown in fig. 2, a number of openings 3 distributed along the wall 5 of the container. There is applied around the area of the container 1, whereat the openings 3 are provided, a magazine band 7 which has a number of mini-receptacle blisters 9, each sealingly closed and filled with a substance 11. The magazine band which may comprise e.g. thermally shrinkable or elastic plastic material is tightly applied to and around the external surface of the container 1 with the blisters 9 registering with the openings 3 in the wall 5 of the container 1.

[0016] By pressing with a finger upon the exterior wall 13 of a blister 9, the internal wall 15 which is freely exposed to the interior of container 1 once the magazine band is applied, is broken open, so that the substance 11 is dispatched into a liquid within container 1. The outer wall 13 is thereby not damaged by such pressurizing. Whereas the outer wall 13 may be made of rather elastic material, the inner wall 15 of the blisters and thus of magazine band 7 may be of a rather stiff material, e.g. of a metalized foil possibly with a weakened area to facilitate controlled breaking up upon pressurizing outer wall 13.

[0017] Whenever all the mini-receptacles or blisters 9 which are provided at a magazine band 7 are consumed, the band 7 may easily be cut e.g. with a knife as shown in dashed line in fig. 1 at 17 and a replacement magazine band 7 may be applied and, for sealing closure, may e.g. be shrunk upon the container's external surface by applying moderate heat e.g. by a hair dryer.

[0018] As shown in fig. 1, the beverage container 1 is closed with a removable cap 19, which is e.g. screwed upon the respective end of container 1 and which is provided with a drinking valve 21.

[0019] In fig. 3 there is schematically shown a part of a beverage container according to the present invention, whereat the mini-receptacles are provided as a removable magazine in the area of a cap 30 and whereat selectively one or more than one of these mini-receptacles may be opened towards and into the interior of the container by a manipulation at the cap.

[0020] Fig. 4 schematically shows in a simplified manner a cross-section through cap 30, whereby the mini-receptacles are integral to the cap and the cap per se acts as a mini-receptacle magazine. Because the mini-

receptacles are integral to the cap, this embodiment does not accord to the present invention, but merely forms the basis to understand the embodiment of fig. 6.

[0021] The cap 30 comprises a basis 32 which is mountable to the container 1 as by a screw mount, a bayonet mount, etc. To fill up the container 1 the cap 30 as in the example shown in fig. 3 is removed.

[0022] Within the basis part 32 of the cap 30 there is mounted an annular member 34 comprising a multitude of mini-receptacles 36 which thus are arranged coaxial to axis A of container 1 along the inner side of the basis part 32. In the upper part of basis part 32 there is provided a coaxial guiding opening 38, wherein a manipulator part 40 is slideably guided. The manipulator part 40 may on one hand be linearly moved according to L, parallel to axis A of the cap 30 up and down and may, additionally, be rotated as also shown with double-arrow R in fig. 3. At one or possibly more than one distinct area along the periphery of manipulator part 40 and pointing towards the annular member 34 carrying the mini-receptacles 36, there is provided a breaking-up-finger 42. Thus, by rotating the manipulator part 40 according to R in a specific selected position and then urging part 40 with finger 42 into and through a respective mini-receptacle 36 as shown in fig. 4 in dashed lines, the mini-receptacle 36 is broken open and its content is admixed to the liquid in container 1. Homogeneous mixture is achieved by respective shaking of the container. In analogy to fig. 3 the positions of the receptacles 36 may be marked at the rim of basis part 32 as shown at 44.

[0023] Opening 38 is sealed nevertheless allowing the respective linear and rotational movement of manipulator part 40, which may e.g. be realized with respective O-ring seals between basic part 30 and manipulator part 40 (not shown). Further, a spring action member may be provided biasing the manipulator part 40 outwards with respect to the basis part 32.

[0024] As further shown in analogy to fig. 3 there is mounted on the manipulator part 40 the customary drinking valve 46.

[0025] In fig. 5 there is shown in a representation in analogy to that of fig. 4 a part of the cap 30 for removably and exchangeably receiving a ring magazine 34 with mini-receptacles 36' according to the present invention.

[0026] As may be seen such a magazine 34' is residing on a ring-shoulder 48 at the basic part 32 and is removably squeezed between the top end of container 1 and such shoulder 48. Thus, when removing cap 30 the magazine 34' with the mini-receptacle 36' may be removed.

[0027] The embodiments which have been exemplified open a large range of constructional possibilities for the skilled artisan.

[0028] The substances which are contained in the receptacles may be equal for all mini-receptacles or may be different. The mini-receptacles for beverage appliances contain concentrated isotonic substances, taste substances, etc. In some applications a desired mixture, be it for drinking or for other purposes, may be realized by

opening more than one of the mini-receptacles towards and into the interior of the container and admixing their content to the basic liquid content in container. The principal of the present invention may be applied to other appliances than to beverage preparation.

Claims

1. A liquid container system comprising a container (1) with a sealing cap (19; 30) to refill said container (1) with a liquid, at least two mini-receptacles (9; 36') filled with a substance at at least one of said cap (19; 30) and of said container (1), whereby a predetermined number of said mini-receptacles may selectively be opened into said container by a manipulation from the external of said container (1) and/or cap (19; 30) so as to have its substance freed into said liquid and **characterised in that** said mini-receptacles are part of a magazine device (7; 34') removably applied to said container (1) and/or cap (19,30). 10
2. The system of claim 1, wherein said mini-receptacles contain different substances. 15
3. The system of claim 1, wherein said mini-receptacles contain foodstuff substances. 20
4. The system of claim 1, wherein said mini-receptacles contain concentrated foodstuff substances. 25
5. The system of claim 1, wherein said mini-receptacles contain liquid or powderous substances. 30
6. The system of claim 4, wherein said cap has a drink valve (21; 46). 35
7. The system of claim 1, wherein said container is of plastic or of metal or is of a laminated material. 40
8. The system of claim 1, wherein said container is a beverage bottle. 45
9. The system of claim 1, wherein said magazine is a band (7), preferably of a thermically shrinkable or of elastic plastic material, the mini-receptacles (9) are blisters and the container has openings (3) in its wall which register with the blisters (9) at said band (7). 50
10. The system of claim 1, wherein said magazine is a ring magazine (34') residing squeezed between a ring shoulder (48) of a part (32) of said cap (30) and a top end of said container (1). 55

Patentansprüche

1. Flüssigkeitsbehältersystem aufweisend einen Behälter (1) mit einer Abdichtungskappe (19; 30) zum Auffüllen des Behälters (1) mit einer Flüssigkeit, mindestens zwei mit einer Substanz gefüllten Mini-Behältnisse (9; 36') an mindestens einer der Kappe (19; 30) und dem Behälter (1), wobei eine bestimmte Anzahl der Mini-Behältnisse (9; 36') selektiv in den Behälter und/oder Kappe (19; 30) hinein geöffnet werden kann durch Handhabung durch einen Menschen von der Aussenseite des Behälters (1) her, sodass seine Substanz in die Flüssigkeit freigegeben wird, **dadurch gekennzeichnet, dass** die Mini-Behältnisse Teil einer Speichervorrichtung (7; 34') sind lösbar am Behälter (1) und/oder Kappe (19; 30) angebracht. 5
2. System nach Anspruch 1, wobei die Mini-Behältnisse verschiedene Substanzen enthalten. 10
3. System nach Anspruch 1, wobei die Mini-Behältnisse lebensmittelartige Substanzen enthalten. 15
4. System nach Anspruch 1, wobei die Mini-Behältnisse konzentrierte lebensmittelartige Substanzen enthalten. 20
5. System nach Anspruch 1, wobei die Mini-Behältnisse flüssigkeitsartige oder pulverartige Substanzen enthalten. 25
6. System nach Anspruch 4, wobei die Kappe ein Trinkventil (21; 46) aufweist. 30
7. System nach Anspruch 1, wobei der Behälter aus Plastik oder aus Metall oder aus laminiertem Material ist. 35
8. System nach Anspruch 1, wobei der Behälter eine Trinkflasche ist. 40
9. System nach Anspruch 1, wobei die Speichervorrichtung ein Band (7) ist, vorzugsweise aus einem thermisch schrumpfbaren Material oder elastischem Plastik-Material, die Mini-Behältnisse (9) sind Blister und der Behälter weist Öffnungen (3) in seiner Wand auf, welche sich mit den Blistern (9) und dem Band (7) decken. 45
10. System nach Anspruch 1, wobei die Speichervorrichtung eine Ring-Speichervorrichtung (34') ist, welche sich eingequetscht zwischen einer Ringschulter (48) eines Teiles (32) der Kappe (30) und einem Koppfende des Behälters (1) befindet. 50

Revendications

1. Système de conteneur pour liquide comprenant un conteneur (1) avec un bouchon d'étanchement (19; 30) pour remplir ledit conteneur (1) avec un liquide, au moins deux mini-récipients (9; 36') remplis avec une substance à au moins un dudit bouchon (19; 30) et dudit conteneur (1), un nombre prédéterminé desdits mini-récipients pouvant être ouvert de manière sélective dans ledit conteneur (1) par manipulation d'un être humain par l'extérieur dudit conteneur (1) et/ou bouchon (19; 30) en sorte de faire libérer sa substance dans ledit liquide et **caractérisé en ce que** lesdits mini-récipients font partie d'un dispositif de magasin (7; 34') appliqué de manière éliminable audit conteneur (1) et/ou bouchon (19; 30). 5
2. Le système selon la revendication 1, lesdits mini-récipients contenant des substances différents. 10
3. Le système selon la revendication 1, lesdits mini-récipients contenant des substances de denrées alimentaires. 15
4. Le système selon la revendication 1, lesdits mini-récipients contenant des substances de denrées alimentaires concentrées. 20
5. Le système selon la revendication 1, lesdits mini-récipients contenant des substances liquides ou en poudre. 25
6. Le système selon la revendication 4, ledit bouchon ayant une soupape à boire (21; 46). 30
7. Le système selon la revendication 1, ledit conteneur étant en matière plastique ou en métal ou en matière laminé. 35
8. Le système selon la revendication 1, ledit conteneur étant un bidon de boisson. 40
9. Le système selon la revendication 1, ledit magasin étant une bande (7), préférablement en matière contractable ou en matière plastique élastique, les mini-récipients (9) sont des blisters et le conteneur (1) a des ouvertures (3) dans sa face qui sont en ligne avec les blisters (9) et ladite bande (7). 45
10. Le système selon la revendication 1, le magasin étant un magasin d'anneau (34') étant situé de manière coincée entre une épaule d'anneau (48) et une partie (32) dudit bouchon (32) et d'une tête dudit conteneur (1). 50

55

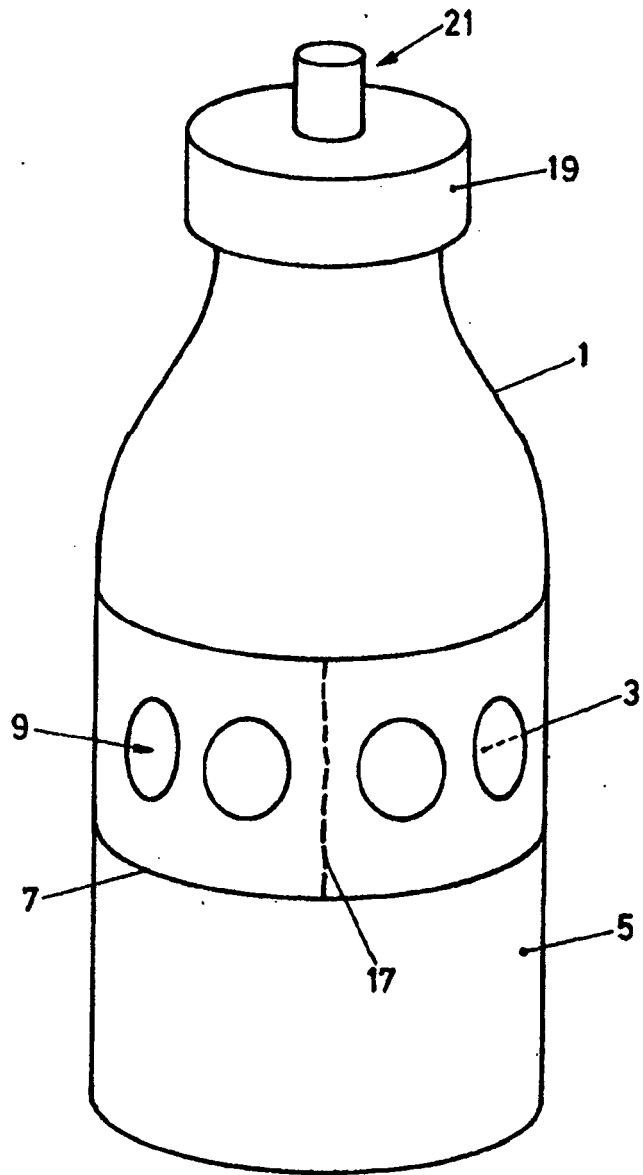


FIG.1

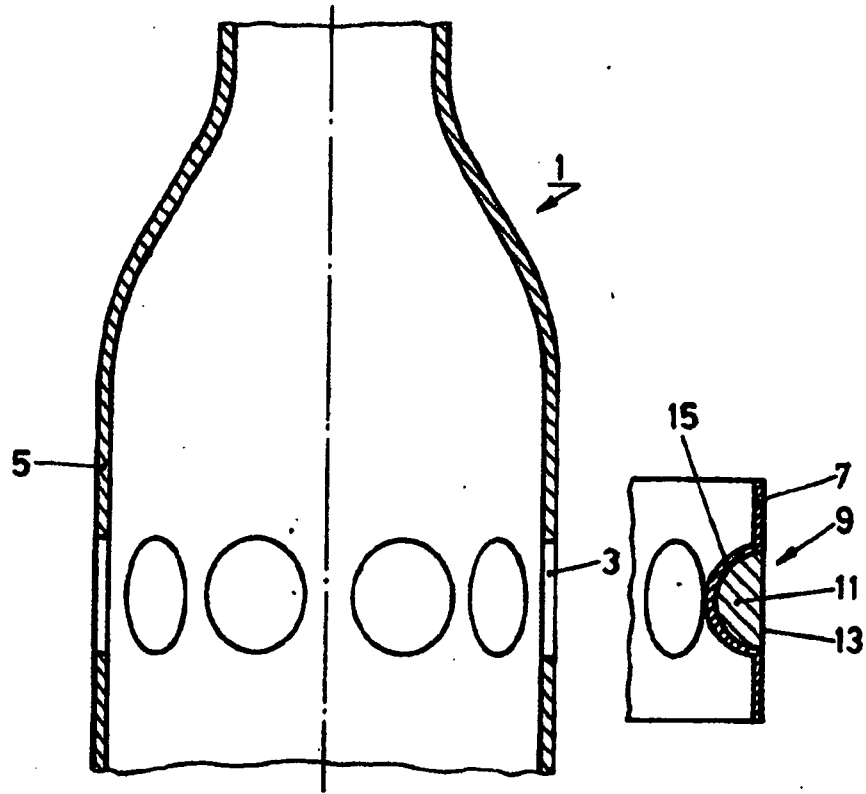


FIG. 2

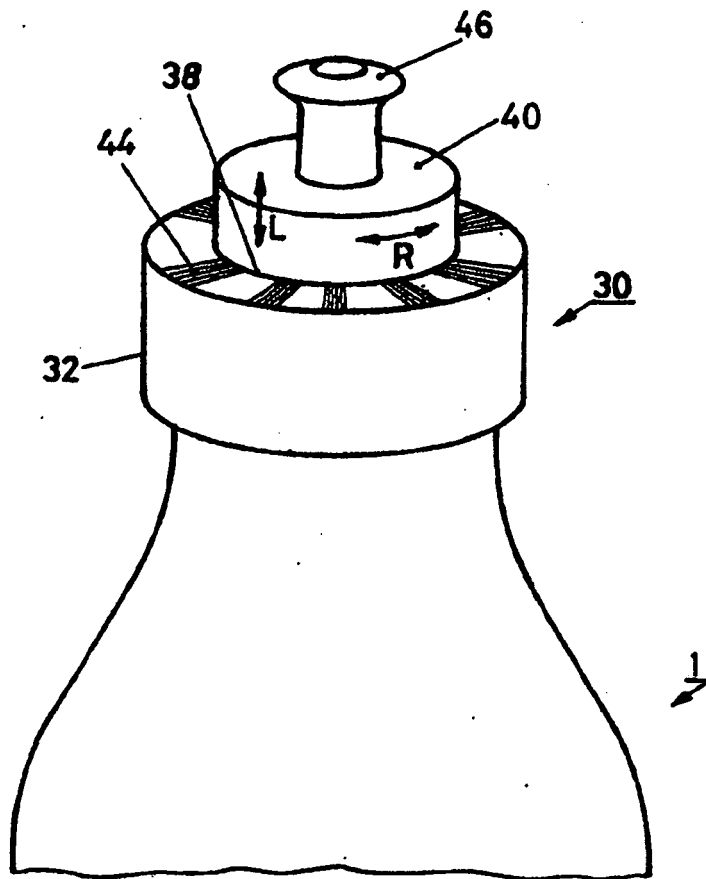


FIG. 3

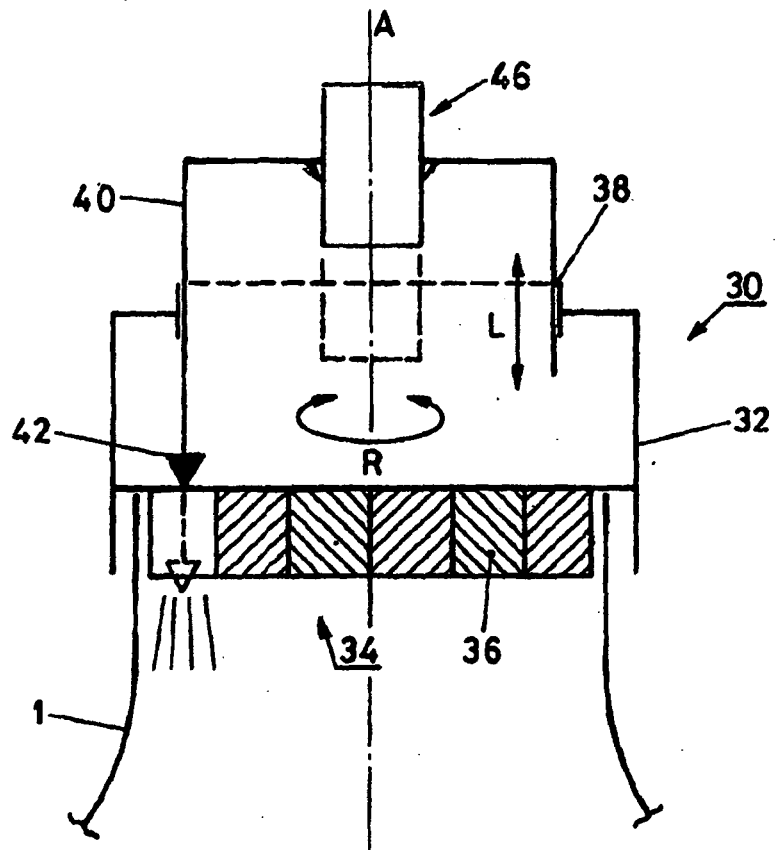


FIG. 4

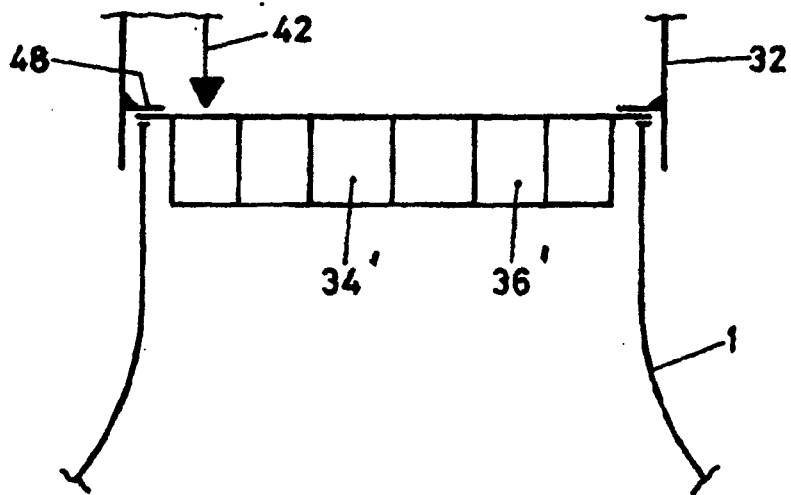


FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 0236446 A [0004]