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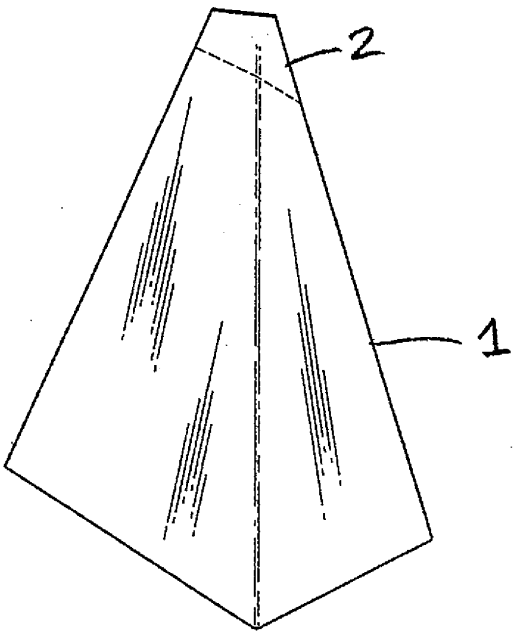
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Remarks:
This application was filed on 30-03-2010 as a divisional application to the application mentioned under INID code 62.

(54) Container

(57) The present invention provides a container (1) which contains regenerating salt for a dishwasher, the container comprising a body having a spout (3) adapted to engage an inner periphery of a mouth of a dishwasher salt tank, the spout having a gate (2) operable by a user to allow the flow of salt, wherein in use the spout (3) engages an inner channel (such as the innermost channel of the mouth of the salt tank).



1.1

Fig 1

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Description

[0001] The present invention relates to a container which contains regenerating salt for dishwashers.

[0002] Most dishwashers are equipped with a tank for regenerating salt. The filling of the salt tank is usually carried out on a regular but infrequent basis and is troublesome for a dishwasher user.

[0003] The filling of the salt tank is generally done with the aid of a funnel. One such device is described in DE-A-42 14 147. However, whilst this device may overcome some of the issues associated with the filling of the salt tank its use is not without problems.

[0004] When using this device the user is required to fill the funnel with salt and then to place the device on the mouth of salt tank of the dishwasher. A gate is then operated to release the salt. Not only is it difficult to fill the funnel without spilling salt but also it is difficult to avoid spilling salt when locating the device on the mouth of the salt tank. Furthermore the user has to gauge how much salt to add to the funnel: if the amount is incorrectly gauged then the funnel must be removed when partially full of salt leading to more spillage or in the case of insufficient filling the entire operation must be repeated, again causing more spillage.

[0005] Indeed users are advised to run the machine whilst empty through a cycle to disperse the spilled salt.

[0006] EP 0 947 157 Al describes a similar device. This device comprises two chambers; a first chamber engages the outer periphery of the mouth of the salt tank and being connected to a second chamber (which contains the salt) via a moveable gate. EP0778223 also describes a container for detergent.

[0007] This device also has some disadvantageous properties, suffering principally as a result of the design of the device with a significant amount of residual salt being left in the first chamber thereof. This residue is spilled when the device is pulled away from the mouth of the salt tank.

[0008] Additionally the device suffers from a poor flow of salt. It is thought that when the salt tank of the dishwasher fills with salt, residual water contained in the salt tank enters the container. This water wets the salt before its entry in the tank makes it adhere to the wall of the first chamber of the device, disturbing the flow. In severe cases the presence of this water can actually block the flow of salt altogether requiring that a user shakes the device with a much greater risk of salt spillage.

[0009] A device described in FR-A 2 807 641 attempts to address some of the problems of this device. However, it still has a two chamber arrangement and thus still suffers from residue deposition. Additionally it still suffers from the problem of water ingress and its effect of the flow of salt.

[0010] It is an object of the present invention to obviate / mitigate the problems outlined above.

[0011] According to a first aspect of the present invention there is provided a container which contains regenerating salt for a dishwasher, the container comprising a body having a spout adapted to engage an inner periphery of a mouth of a dishwasher salt tank, the spout having a gate operable by a user to allow the flow of salt, wherein in use the spout engages an inner channel (such as the innermost channel of the mouth of the salt tank).

[0012] Generally the spout engages the mouth such that the leading edge of the spout projects into the channel. Most preferably the spout is self-supporting, namely the spout is capable of supporting the entire body when engaged with the opening of the salt tank without the need for any other external support.

[0013] The gate may be operated by a user before the container is placed into engagement with the mouth of the salt tank. Alternatively the gate may be operated after the container has been placed into engagement with the mouth of the salt tank (in this case an even greater reduction of spillage can be achieved).

[0014] The container in accordance with the invention has been found to have excellent properties, providing a previously un-enjoyed heightened sense of convenience to the consumer.

[0015] The container allows for spillage free rapid and convenient filling of the salt tank with none of the problems of the devices of the prior art.

[0016] Preferably the container holds a sufficient amount of salt to recharge a typical dishwasher salt tank. Indeed in this regard it is most preferred that the container is a "single use" item in that the consumer uses the container of the present invention to completely recharge the salt tank of the dishwasher when necessary (e.g. as indicated to do so by a warning light / buzzer on the machine or by the height of a floater in the salt tank) and once used the container may be discarded.

[0017] The gate is preferably in the form of a sheet / cap that blocks the spout of the container to prevent salt discharge in storage / transport. Generally the gate is associated with a handle that may be operated by a user. Most preferably the handle comprises a flap and the gate is operated by a pulling motion, wherein the pulling motion tears the gate from the spout thus letting the salt run into the salt tank. Optionally the gate, when in the form of a sheet, may be disrupted / pierced when the container is placed into engagement with the mouth of the salt tank. The piercing means may comprise a cap arranged around the end of the spout, the cap being pushed back into the sheet on engagement with the mouth of the salt tank. Normally the cap has a removable blocking means to prevent unintentional movement before engagement with the mouth.

[0018] Alternatively the gate may comprise a valve which is operated by a user. A preferred form of valve is a multi-component device, wherein the valve has a portion which engages the mouth of the salt tank and a portion which is attached to the spout of the container. The portions of the valve preferably each have a discharge aperture which when aligned allow the discharge of salt. The alignment may be achieved by rotation or other

movement, e.g. translation movement of the container.

[0019] In a further alternative the gate may comprise a plurality of separate components operated / removed in different ways. As an example the gate may comprise a cap which covers the spout and a sheet / block of material underneath the cap. The cap preferably covers the end of the spout and the sheet / block preferably blocks a portion of the spout. The sheet / block is most preferably water soluble / dispersible in water. For this embodiment the user removes the cap before placing the container into engagement with the mouth of the salt tank. The block then dissolves / dissipates by contact with any residual water / moisture present in the salt tank. As the sheet / block dissolves / dissipates the salt is dispensed.

[0020] In a yet further alternative the spout itself may comprise the gate. In this alternative release of salt from the container may be achieved by movement of the spout relative to the container to create a flow passageway.

[0021] Preferably the gate is one which is operated by the mechanical action of the user, to expose the spout and allow the flow of salt. The mechanical action may for example be by an action of tearing or sliding or turning or pulling or pushing or tilting or pivoting.

[0022] The container according to the invention may be made out of one or more of a variety of materials such as paper, reinforced paper / card / cardboard, aluminium, plastics (e.g. PVC, polyethylene or polypropylene). Generally reinforced paper, cardboard, plastics, or an admixture thereof are preferred. It will be appreciated that different parts of the container may comprise different materials, e.g. the body of the container may comprise cardboard and the spout may comprise a plastics material.

[0023] The container preferably comprises a simple geometric shape such as a cone, pyramid or an oblong / cube. Most preferably the shape tapers in the portion terminating in the spout. Clearly shapes such as cones and pyramids include tapering portions. Other shapes such as oblong preferably include an added tapering portion.

[0024] In accordance with a second aspect there is provided a method of recharging the salt tank of a dishwasher, the method utilising a salt-containing container of the invention as defined herein.

[0025] The present invention is further described with reference to the following non-limiting figures in which:-

Figure 1 shows a first embodiment of a container;
Figures 2a and b show a second embodiment of a container;
Figures 3a to d show a third embodiment of a container;
Figures 4a to c show a fourth embodiment of a container;
Figures 5a to c show a fifth embodiment of a container;
Figure 6 shows a sixth embodiment of a container;
Figures 7a to c show a seventh embodiment of a container; and
Figures 8a to c show an eighth embodiment of a container, all in accordance with the present invention.

[0026] Figure 1 shows a container 1 in the form of a pyramid. The container 1 has a removable gate 2 (removable by a tearing /pulling action). The removable gate 2 acts as a seal in storage / transport and is intended to be removed just before use, just before the exposed spout of the container (not shown) is engaged with an inner periphery of a mouth of a dishwasher salt tank.

[0027] Figures 2a and 2b show a container 1. In Figure 2a the container 1 is in the form of a truncated prism and in Figure 2b the container 1 is in the form of an irregular hexagon. In each case the container has a spout 3. The spout 3 is usually sealed in storage / transport (seal not shown) with the seal being intended to be removed just before use. The spout can then be engaged with an inner periphery of a mouth of a dishwasher salt tank.

[0028] Figures 3a to 3d shows a container 1 in the form of a truncated rectangle. The container 1 has a movable spout 3 (movable by a pulling action), which is mounted within the wall of the truncated portion. The wall of the truncated portion has an aperture 4. The spout 3 can be moved such that it is brought into alignment with the aperture 4 to allow discharge of the contents of the container. Alternatively the spout 3 can be moved such that it is brought out of alignment with the aperture 4 so as not to allow discharge of the contents of the container and act a seal on the container.

[0029] Figures 4a to 4c show a container 1 in the form of a rectangle. The container 1 has a movable spout 3 (movable by a pulling action), which is mounted adjacent a wall of the container. The wall of the container has an aperture 4. The spout 3 can be moved such that it is brought into alignment with the aperture 4 to allow discharge of the contents of the container. Alternatively the spout 3 can be moved such that it is brought out of alignment with the aperture 4 so as not to allow discharge of the contents of the container and act a seal on the container.

[0030] Figures 5a to 5c show a container 1 in the form of a bottle. The bottle 1 has a spout 3. Adjacent the spout 3 is a water soluble film (not shown). On insertion of the spout 3 of the container 1 into a mouth of a dishwasher salt tank any water present causes disruption of the water soluble film allowing discharge of the contents of the bottle 1.

[0031] Figure 6 shows a container 1 in the form of a bottle. The bottle 1 has a spout 3. The spout 3 is opened to allow discharge of the contents of the bottle by a twisting motion to align flow channels within different portions of the spout 3.

[0032] Figures 7a to 7c show a container 1 in the form of a bottle. The bottle 1 has a spout 3. Adjacent the spout 3 is a film 5. The film is disrupted to allow discharge of the contents of the container 1. Disruption is performed by moving a piercing member 6 arranged co-axially

around the spout 3 down to the bottom of the bottle. In storage / transport the piercing member 6 is distanced from the film 5 by a removable retaining member 7.

[0033] Figures 8a to 8c show a container 1 in the form of a bottle. The bottle 1 is in two portions 1a and 1b. The container 1 is weakened along the join between portions 1a and 1b to allow easy separation thereof. Portion 1a is in the form of a funnel having a spout 3. In use the portions of the container are separated with the portion 1a being placed into engagement with an inner periphery of a mouth of a dishwasher salt tank. The contents of the container 1 (which may be disposed inside a secondary packaging) can then be discharged through the funnel 1a.

Claims

1. A container (1) which contains regenerating salt for a dishwasher, the container comprising a body having a spout (3) adapted to engage an inner periphery of a mouth of a dishwasher salt tank, the spout having a gate (2) operable by a user to allow the flow of salt, wherein in use the spout (3) engages an inner channel (such as the innermost channel of the mouth of the salt tank).

2. A container (1) according to Claim 1, wherein the gate (2) may be operated by a user before or after the container is placed into engagement with the mouth of the salt tank.

3. A container (1) according to either one of Claims 1 or 2, wherein the container is a single use item.

4. A container (1) according to any one of the preceding claims, wherein the gate (2) is in the form of a sheet/cap that blocks the spout (3) of the container.

5. A container (1) according to Claim 1, wherein the gate (2) is associated with a handle that may be operated by a user.

6. A container (1) according to any one of the preceding claims, wherein the gate (2) comprises a valve.

7. A container (1) according to any one of claims 1 to 3, wherein the spout (3) itself comprises the gate (2), movement of the spout (3) relative to the container creating a salt flow passageway.

8. A container (1) according to any one of the preceding claims, wherein the gate (2) is operated by the mechanical action of the user.

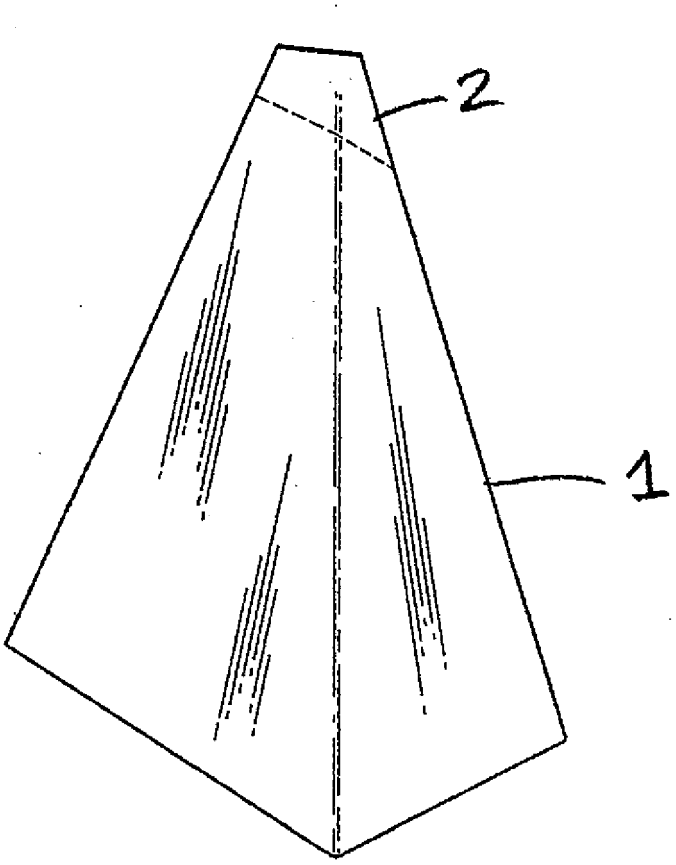
9. A container (1) according to any one of the preceding claims, wherein the gate comprises a valve, **characterised in that** the gate comprises a multi-component device, wherein the valve has a portion which engages the mouth of the salt tank and a portion which is attached to the spout of the container, the portions of the valve each having a discharge aperture which when aligned allow the discharge of salt, the alignment may be achieved by rotation or by translation movement of the container.

10. A container (1) according to any one of the preceding claims, wherein the container is made out of one or more materials selected from paper, reinforced paper, card, cardboard, aluminium and plastics materials.

11. A container (1) according to any one of the preceding claims, wherein the shape tapers in the portion terminating in the spout (3).

12. A container (1) according to claim 11, wherein the container is of conical or pyramidal shape.

13. A method of recharging the salt tank of a dishwasher, the method utilising a salt-containing container (1) according to any one of the preceding claims, the method comprising engaging the spout (3) of the container with the inner periphery of the mouth of the dishwasher salt tank and, before, during or after the engagement step, operating the gate to allow the salt to flow into the salt tank.



1.1

Fig 1

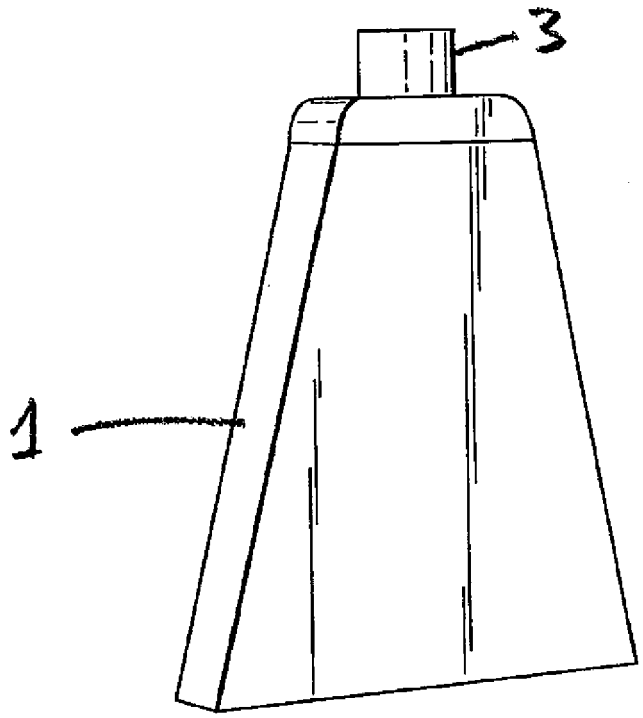


Fig2a

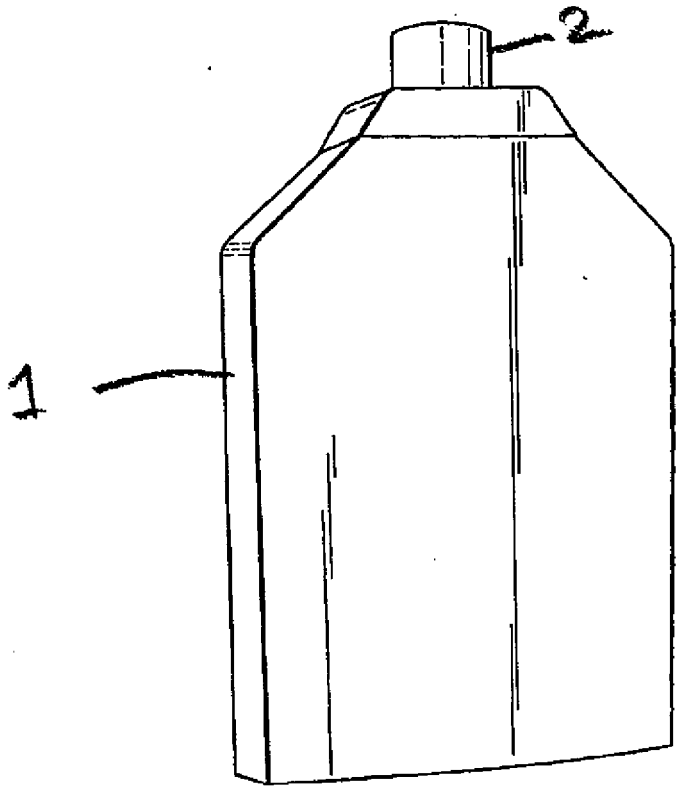


Fig2b.

Fig 3a

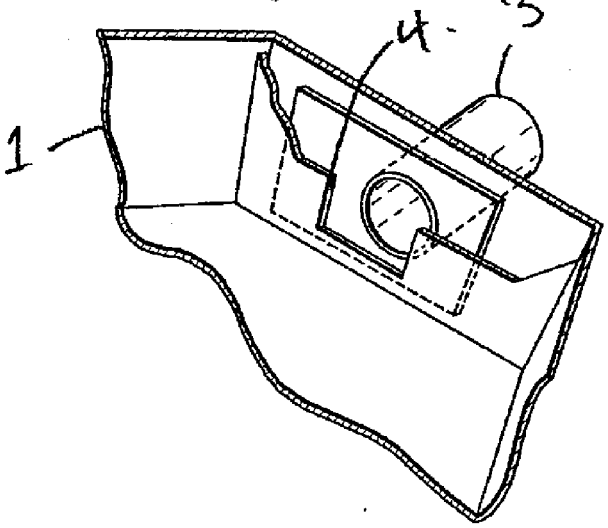


Fig 3c

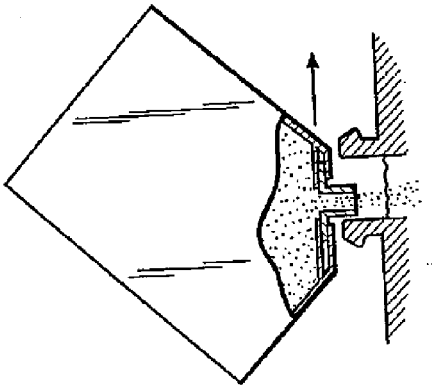
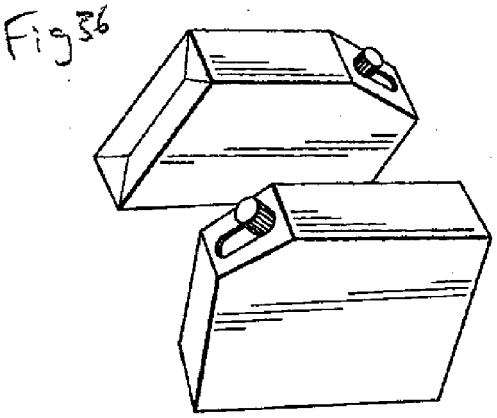


Fig 3b



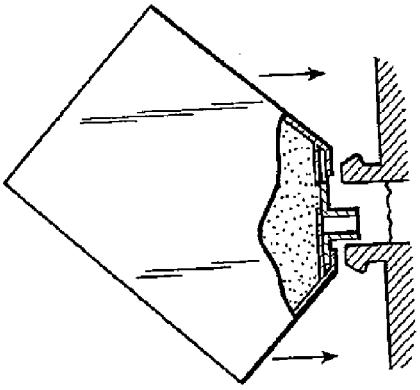


Fig 3d

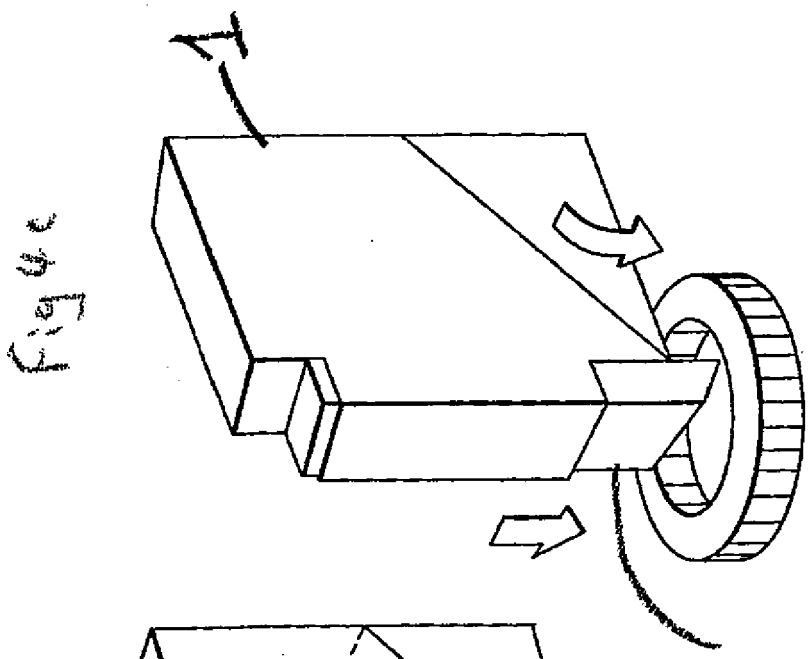


Fig 4c

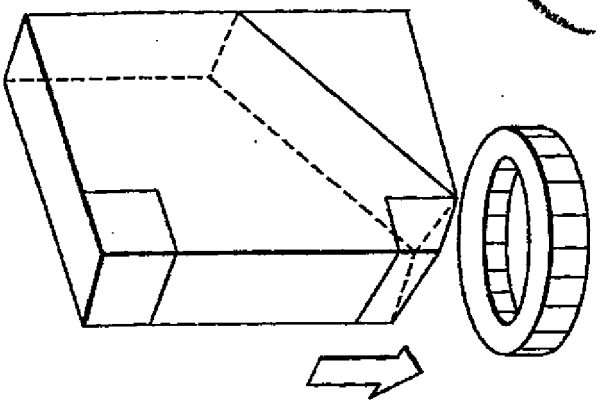


Fig 4b

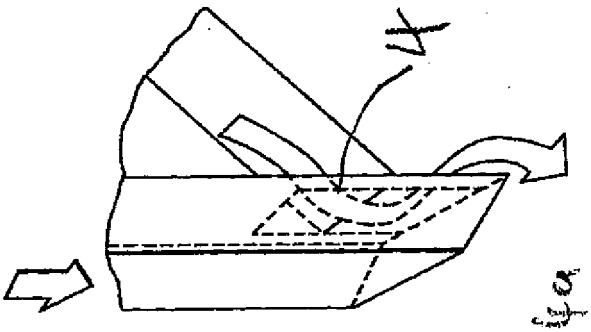


Fig 4a

Fig 5a

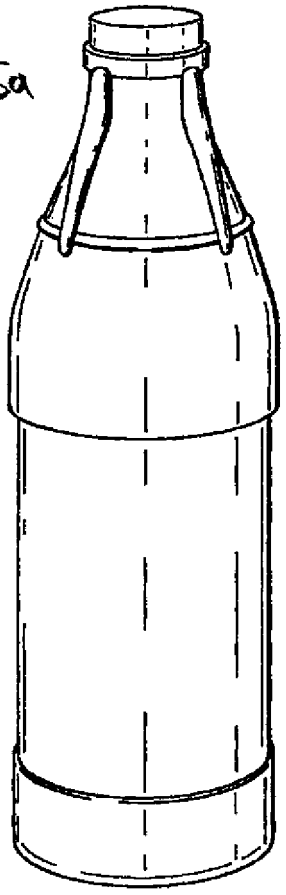


Fig 5b

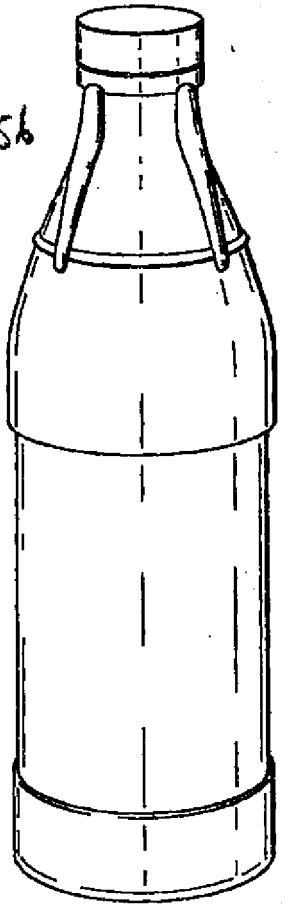
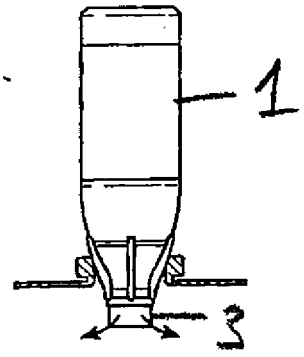


Fig 5c



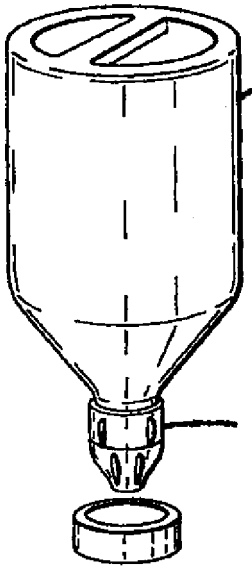


Fig 6

Fig 7a

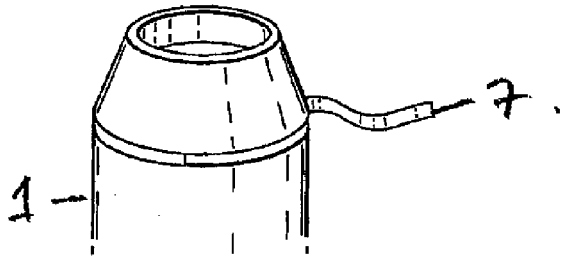


Fig 7b

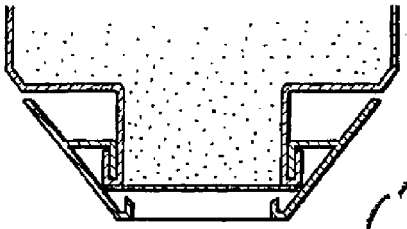


Fig 7c

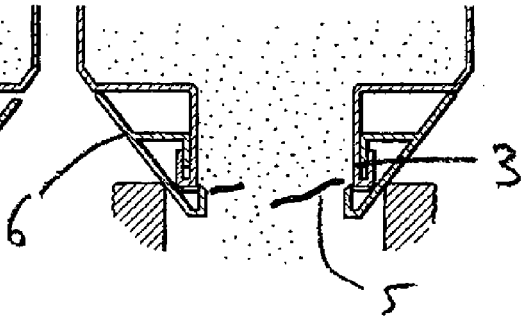


Fig 8a

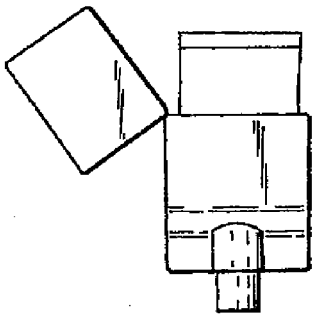


Fig 8b

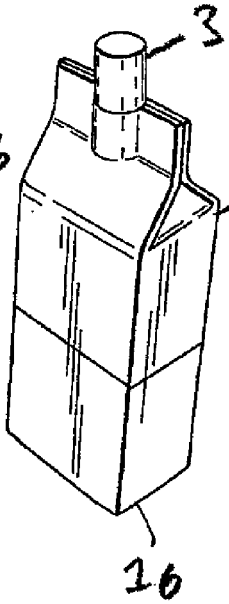
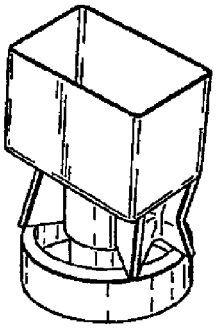


Fig 8c



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EUROPEAN SEARCH REPORT

Application Number
EP 10 15 8295

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	US 2 918 200 A (LIBIT SIDNEY M) 22 December 1959 (1959-12-22) * the whole document *	9	

TECHNICAL FIELDS SEARCHED (IPC)

A47L
B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	21 May 2010	Zanghi, Amedeo

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 10 15 8295

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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21-05-2010

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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