(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 849 623 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
31.10.2007 Bulletin 2007/44

(51) Int Cl.:
B44D 3/12 *(2006.01)*

(21) Application number: **06008903.4**

(22) Date of filing: **28.04.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(71) Applicant: **Zenda Technology Limited**
Hong kong (HK)

(72) Inventors:
- **Streber, Stéphane**
  2037 NSW (AU)
- **Prigent, Alex**
  75011 Paris (FR)

(74) Representative: **Bredema**
38, avenue de l'Opéra
75002 Paris (FR)

(54) Hand-held vessel

(57) A hand-held vessel that is comprised of a bottom (2) with four side walls attached to the bottom, with the whole forming a cavity. The back wall (3) has a lip (7) extending outwards. The front wall (6) of the vessel is sloped outwards from the cavity and has a flat surface as opposed to the back wall and the two side walls of the vessel that are curved. The lip extends the long the top of the back wall and has an elliptical hole (8) that is positioned in the middle with the axis of that elliptical hole following the axis of the lip. The elliptical hole accepts the thumb or either the left or the right hand and the curved outer surface of the vessel provides a natural position for the fingers to curve around the vessel.

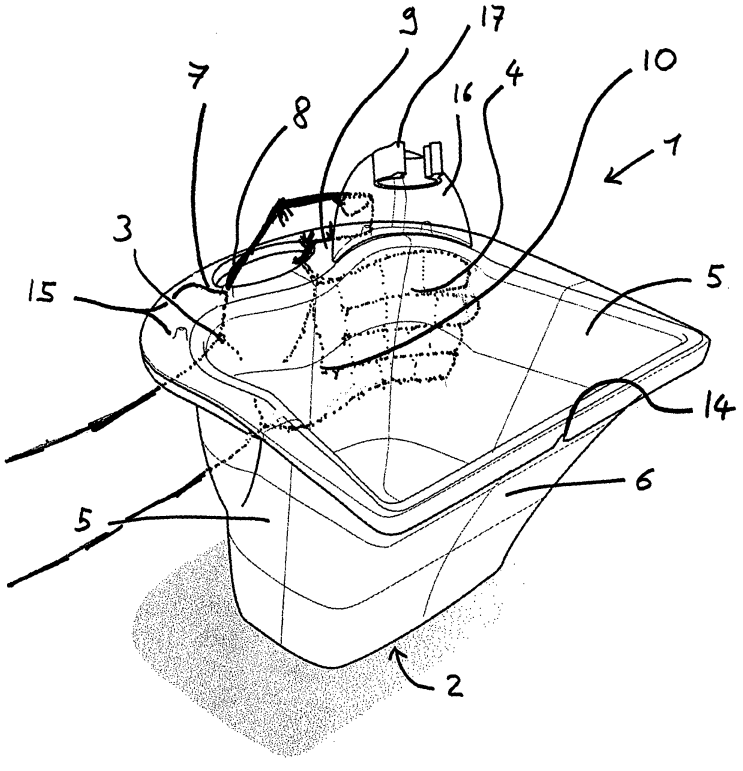


Fig. 1

EP 1 849 623 A1

Description

TECHNICAL FIELD OF THE INVENTION

[0001] This invention relates to vessels that are to be held in a hand to contain a substance such as a liquid, a paste, a gel, a cream, a granulated substance, or any combinations thereof.

BACKGROUND ART

[0002] The current art describes a large number of devices and vessels that typically employ a handle, a sling or a strap to assist in holding a vessel of paint.

[0003] US Pat No. 4,927,046 and US pat No. 6,138,963 describe containers that are to be gripped in the hand with a handle formed vertically. However the action of gripping such a container has a potential to cause fatigue and discomfort. In fact the grasping is made by the strength of fingers only. In other words, the user is obliged to actively hold the vessel.

[0004] Taking a different approach, the device described in US Pat No. 6,006,966 seeks to attach a can of paint to a belt worn by the painter such that hand fatigue can be avoided. While this may be useful to avoid fatigue, other shortcomings relating to the ease of movement and use while on a ladder or elsewhere.

[0005] An analogous approach is described in US Design Pat No. D 499,553 which uses a body harness to suspend a paint container as a means of avoiding hand fatigue.

[0006] The approach in US Pat No. 6,708,838 and US Pat No. 6,991,829 seeks to use an adjustable strap to urge the hand onto the vessel as a means to reduce the active holding action of the hand that holds the vessel in order to reduce fatigue and discomfort.

[0007] The current art therefore seeks either to provide a means of holding the vessel or to suspend the vessel containing a liquid or other material. The existing devices that are to be held in the hand either oblige the user to actively hold a device in the hand or to use a strap to attach the vessel to the hand to reduce the effort required to hold the vessel.

[0008] The present invention improves on the current art by overcoming the need to actively hold a vessel. The present invention proposes to use the form of the hand as naturally held when the forearm is extended and exploits that natural position to permit the vessel to be held passively in the hand with the thumb in its natural position.

SUMMARY OF THE INVENTION

[0009] It is a an object of the invention to provide a hand-held vessel that is ergonomically designed to contain a liquid, paste, gel or a granular material or other substance, or more specifically paint or another liquid to be applied to a surface, and which can be held with one hand while the other hand is free and can be used to hold an instrument or an implement for applying the substance contained in the vessel.

[0010] According to the invention, there is provided a hand-held vessel comprising:

- a bottom wall ;
- upstanding walls projecting upwardly from the bottom wall and defining a cavity with the bottom wall;
- a lip protruding outwardly from the upper end of at least one of the upstanding walls;
- a through hole formed in the lip, wherein the upstanding walls and the hole are shaped so that a user can insert a thumb of one hand through the hole and apply pressure with the palm of the hand on a curved portion of the upstanding walls to hold the vessel.

[0011] Preferably, to provide an optimum ergonomic shape, the bottom wall, upstanding walls, and the lip are connected without sharp edges. The connections between bottom wall, upstanding walls, and the lip are rounded. The edges of the hole are parallel with edges of the cavity. The curved portion comprises a convex surface to fit the fingers of the user. The upstanding walls comprise a concave surface adjacent to the curved portion to fit the hand and the wrist of the user. The lip curves down such that it provides an ergonomic shape against which the weight of the container may urge against the index finger. The lip extends at an angle in relation to the upstanding walls. The lip extends in a plane substantially parallel to the bottom wall.

[0012] The edges of the hole are coplanar with edges of the cavity.

[0013] According to one embodiment, the edges of the hole are open in a direction parallel to the nearest edge portion of the cavity in such a manner that the hole forms a hook.

[0014] According to an alternative and preferred embodiment, the hole is oval.

[0015] According to one embodiment, the upstanding walls include a front wall portion angled to protrude outwardly with a flat surface.

[0016] According to one embodiment, the inside surface of the front wall portion is textured with lines and/or bumps. In a further embodiment, the front wall portion has a notch to hold a paint roller, a paint brush, a trowel, a spatula, a spoon, or other implement.

[0017] According to one embodiment, the lip can be provided with upwardly protruding pins to attach implements such as a bracket provided with a clip 17 for holding a tool such as a paint brush, paint roller, a trowel, a spatula, a spoon, or other implement.

[0018] According to another embodiment, the lip can be provided with holes to receive pins of a bracket provided with a clip 17 for holding a tool such as a paint brush or paint roller.

[0019] Advantageously, the shape of the vessel allows the stacking of one vessel inside another vessel.

[0020] Advantageously, in another embodiment, the

vessel can receive in the cavity a removable lightweight insert made of thermoformed plastic.

[0021] According to another embodiment, a cover of flexible plastic can be positioned over the open part of the device.

[0022] Various sizes of the vessel can be made ranging from one half a litre to more than three litres. Preferably, the cavity has a volume of approximately one litre.

[0023] According to one embodiment, a second through hole is formed in the lip so that each hole is located on each rounded corners of the lip where the back wall meets each of the side walls.

[0024] According to one embodiment, two strap eyelets are formed on the lip and wherein two other eyelets are formed on the junction between the bottom wall and the back wall.

[0025] Preferably, the vessel has a geometrical plane of symmetry, so that it can be equally used by right-handed and left-handed persons.

[0026] In this embodiment with two holes located on each rounded corner, the preferred volume of the vessel is more than one litre.

BRIEF DESCRIPTION OF THE FIGURES

[0027] Other advantages and features of the invention will become more clearly apparent from the following description of specific embodiments of the invention given as non-restrictive examples only and represented in the accompanying drawings in which:

- Figure 1 represents a first embodiment of an hand-held vessel equipped with an accessory.
- Figure 2 represents a rear-view of a second embodiment of an hand-held vessel with a lip having two through holes.
- Figure 3 represents a front-view of the second embodiment.

DETAILED DESCRIPTION

[0028] Referring to figure 1, a vessel 1 according to a first embodiment of the invention is made of moulded plastic having a useful volume that could vary of approximately one half to more than three litres. The vessel comprises a bottom wall 2 that is connected to a back wall 3. The back wall 3 has curved portions 4 where it is attached on each or its two side edges to two side walls 5 and which are also attached to the bottom wall 2. Each of the distal edges of the side walls are attached to a front wall 6 that is also attached to the bottom wall 2. The ensemble of the front wall 6 and the two side walls 5 and the back wall 3 and the bottom wall 2 forms a container that can be placed on a horizontal surface such that it is open at the top.

[0029] Further, the back wall 3 has a lip 7 that protrudes outwardly and at an angle from the edge of the back wall such that the lip is in a plane parallel to the bottom wall of the vessel, for approximately the posterior third of each of the side walls 5. The back wall 3 and the lip 7 form a continuum. The lip 7 extends backwards from the back wall 3 and is provided with an oval shaped hole 8 that is positioned in the centre of the lip 7 where the major axis of the oval hole 8 is at a right angle to the back-to-front axis of the vessel 1.

[0030] Advantageously, the lip 7 extends around corners where the back wall 3 joins each of the side walls 5. The lip 7 demonstrates a slight curving down 13 such that it provides a comfortable shape against which the weight of the vessel may urge against the index finger.

[0031] The vessel 1 so formed permits a thumb to pass through the oval shaped hole 8 from below the lip 7 of the back wall 3 and allows the palm and wrist to naturally rest on the back wall which is provided with an ergonomic concave curvature 10 while the fingers rest on a convex part of the outer surface of the back wall where the back wall meets a side wall 5.

[0032] Advantageously, the form of the front wall 6 extends outwards at an acute angle from the vertical plane such that it provides a flat surface which may have indentations of different forms against which different implements such as a paint brush, a paint roller, a trowel, a spatula, a spoon, or other implement can be urged to enhance the loading of the liquid, paste, gel, or granulate or other substance contained in the vessel onto such an implement.

[0033] As shown in figure 1, the front wall 6 is provided with a notch 14 to hold a paint roller. The upper corner edges of the vessel are provided with one or two or more sets of pins 15 for securing a bracket 16 provided with a clip 17 for holding a tool such as a paint brush, paint roller a trowel, a spatula, a spoon, or other implement or accessory.

[0034] In a further embodiment (not shown), the upper surface of the corner edges of the lip provide for one, two or more sets of holes into which pins can be inserted such that a clip 17 for holding implements or tools such as paint brush, paint roller a trowel, a spatula, a spoon, or other implement or accessory.

[0035] Referring to figures 2 and 3, a vessel according to a second embodiment of the invention is made of moulded plastic having a useful volume of approximately three litres that is comprised of a bottom wall 2 connected to a back wall 3. The back wall 3 has curved portions where it is attached on each or its two side edges to two side walls 5 which are also attached to the bottom wall 2. Each of the distal edges of the side walls 5 are attached to the front wall 6 that is also attached to the bottom wall 2. The front wall 6, the two side walls 5, the back wall 3 and the bottom wall form a container that can be placed on a horizontal surface such that it is open at the top. The back wall has a lip 7 including a portion that protrudes outwardly and perpendicularly from the back wall 3 and portions that extend outwardly from each of the side walls

5 for approximately the posterior third of each of the side walls 5.

[0036] In this embodiment, the lip 7 has two oval shaped holes 8 that are positioned in an area where the curvature of the junction of the back wall 3 with the side wall 5 takes place. The major axis of each oval hole 8 follows the curvature of the junction between the back wall 3 and the corresponding side wall 5. Two strap eyelets 11A, 11B are formed on the lip 7 and positioned on each side of the through holes 8. Two other eyelets 12A, 12B are formed on the junction between the bottom wall 2 and the back wall 3, so that a strap can be attached to the vessel.

[0037] Advantageously, the lip is positioned around that curvature and demonstrates a slight downward curving 13 that provides a comfortable form against which the index finger may be urged. That curving down 13 is also comfortable for the forearm against which the lip 7 will be urged to take the weight of the vessel 1.

[0038] In both embodiments, the vessel has a geometrical plane of symmetry, which means that it can be equally used by right-handed and left-handed persons. The walls of the vessel are so shaped that one vessel can be stacked inside another vessel. An insert can be sat exactly inside the vessel 1 and can be placed inside the vessel 1 and removed with the liquid or other material contained in that insert. A cover comprised of a plastic film with elastic can be sewed or otherwise located on the circumference that can permit the cover to be stretched over the open portion of the insert or the vessel.

[0039] The hand-held vessel's cavity may have a volume ranging from one half a litre to more than two litres.

[0040] The holes may be cushioned by the addition of a material of a softer density that the vessel itself.

[0041] The hand-held vessel may be made of metal.

Claims

1. A hand-held vessel (1) comprising:

i. a bottom wall (2);
ii. upstanding walls (5, 3, 6) projecting upwardly from the bottom wall (2) and defining a cavity with the bottom wall;
iii. a lip (7) protruding outwardly from the upper end of at least one of the upstanding walls;
iv. a through hole (8) formed in the lip (7), wherein the upstanding walls and the hole are shaped so that a user can insert a thumb of one hand in the through hole and apply pressure with the palm of the hand on a curved portion (9, 10) of the upstanding walls to hold the vessel.

2. The hand-held vessel of claim 1 wherein the bottom wall (2), upstanding walls (5, 3, 6), and the lip (7) are connected without sharp edges.

3. The hand-held vessel of claim 2 wherein connections between bottom wall (2), upstanding walls (5, 3, 6), and the lip (7) are rounded.

4. The hand-held vessel of any one of the foregoing claims, wherein the edges of the hole (8) are parallel with edges of the cavity.

5. The hand-held vessel of any one of the foregoing claims, wherein the curved portion (9) comprises a convex surface.

6. The hand-held vessel of claim 5, wherein the upstanding walls (5, 3, 8) comprise a concave (10) surface adjacent to the curved portion (9) to fit the wrist of the user.

7. The hand-held vessel of any one of the foregoing claims, wherein the lips 7 curves down such that it provide an ergonomic shape (13) against which the vessel may urge against the index finger.

8. The hand-held vessel of any one of the foregoing claims, wherein the lip (7) extends at an angle in relation to the upstanding walls.

9. The hand-held vessel of any one of the foregoing claims, wherein the lip (7) extends in a plane substantially parallel to the bottom wall (2).

10. The hand-held vessel of any one of the foregoing claims, wherein edges of the hole (8) are coplanar with edges of the cavity.

11. The hand-held vessel of any one of the foregoing claims wherein edges of the hole (8) are open in a direction parallel to the nearest edge portion of the cavity in such a manner that the hole forms a hook.

12. The hand-held vessel of any one of the claims 1 to 10 wherein the hole (8) is oval.

13. The hand-held vessel of any one of the foregoing claims wherein the upstanding walls (5, 3, 6) include a front wall (6) portion angled to protrude outwardly with a flat surface.

14. The hand-held vessel of claim 13 wherein the inside surface of the front wall portion is textured with lines.

15. The hand-held vessel of claim 13 wherein the inside surface of the front wall (6) portion is textured with bumps.

16. The hand-held vessel of claim 13 wherein where the front wall (6) portion has a notch (14) to hold a paint roller.

17. The hand-held vessel of any one of the foregoing claims, wherein the lip (7) is provided with upwardly protruding pins (15).

18. The hand-held vessel any one of the foregoing claims, wherein the shape of the walls allows to stack several said vessel on each other.

19. The hand-held vessel of any one of the foregoing claims, wherein the hand-held vessel can receive in the cavity a removable lightweight insert.

20. The hand-held vessel of claim 19 wherein said insert is made of thermoformed plastic.

21. The hand-held vessel of any one of the foregoing claims, wherein a cover of flexible plastic can be positioned over the open part of the device.

22. The hand-held vessel of any one of the foregoing claims, wherein the cavity has a volume of approximately 1 litre.

23. The hand-held vessel of any one of the foregoing claims, wherein a second through hole (8) is formed in the lip so that each hole is located on each rounded corners of the lip where the back wall (3) meets each of the side walls (5).

24. The hand-held vessel of any one of the foregoing claims, wherein two strap eyelets (11A, 11B) are formed on the lip (7) and wherein two other eyelets (12A, 12B) are formed on the junction between the bottom wall (2) and the back wall (3).

25. The hand-held vessel of any one of the forgoing claims, wherein the vessel has a geometrical plane of symmetry.

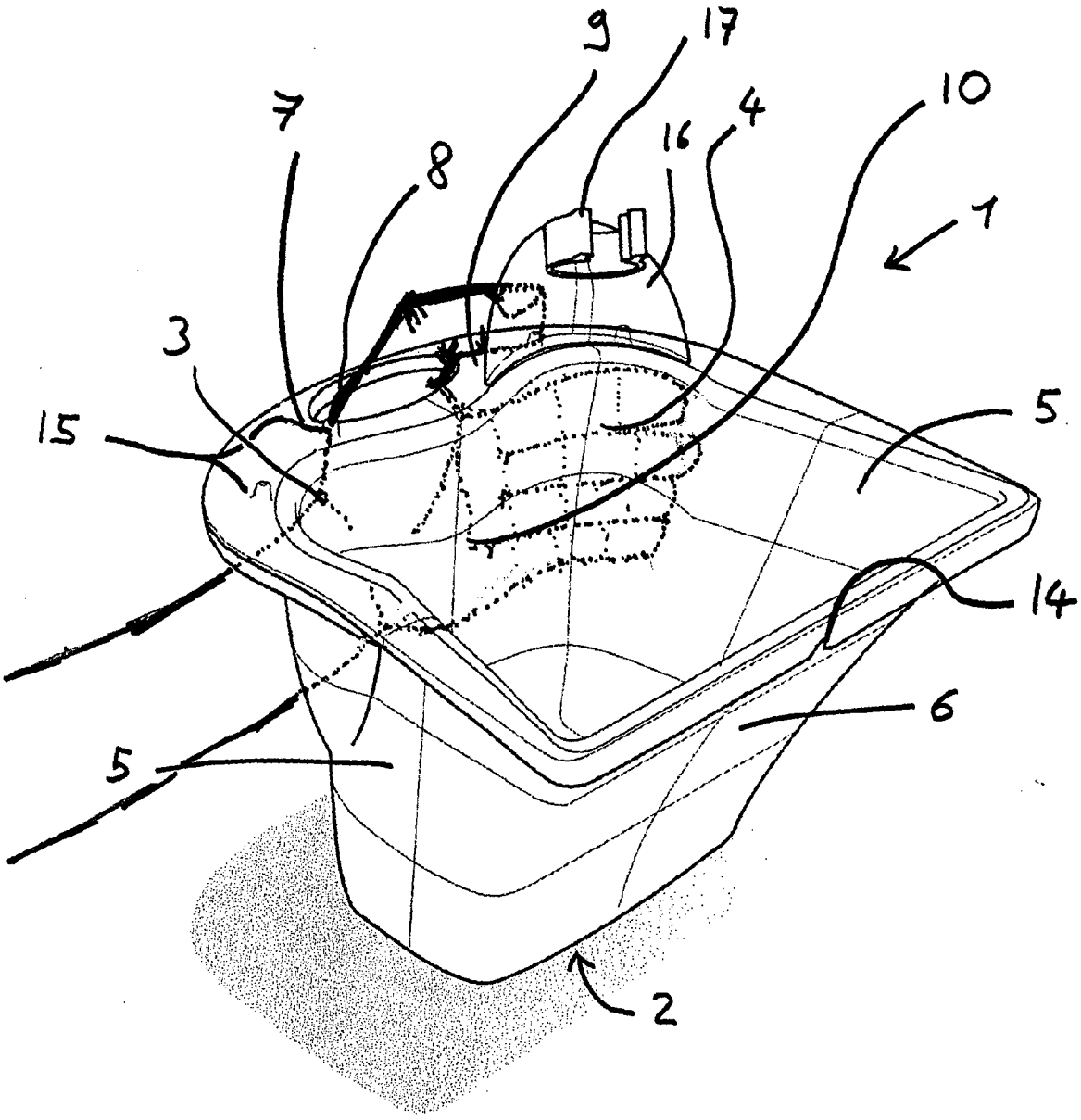


Fig. 1

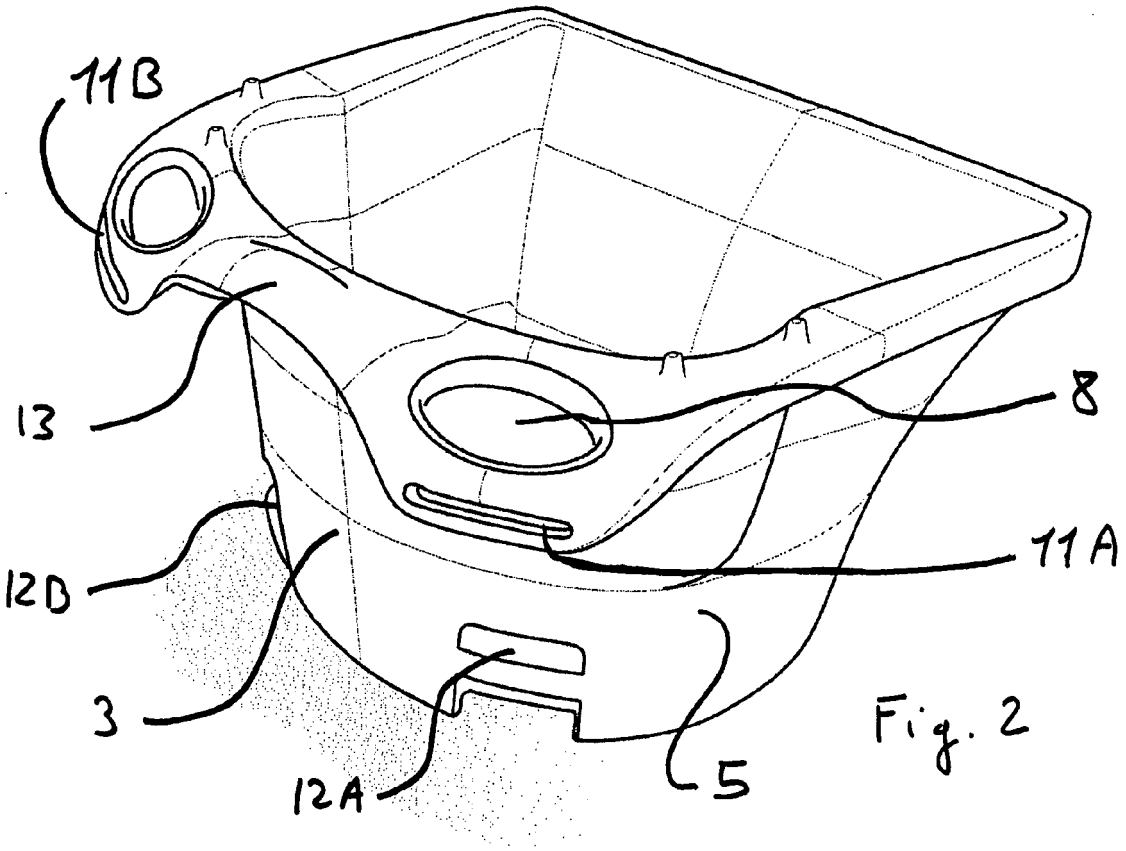


Fig. 2

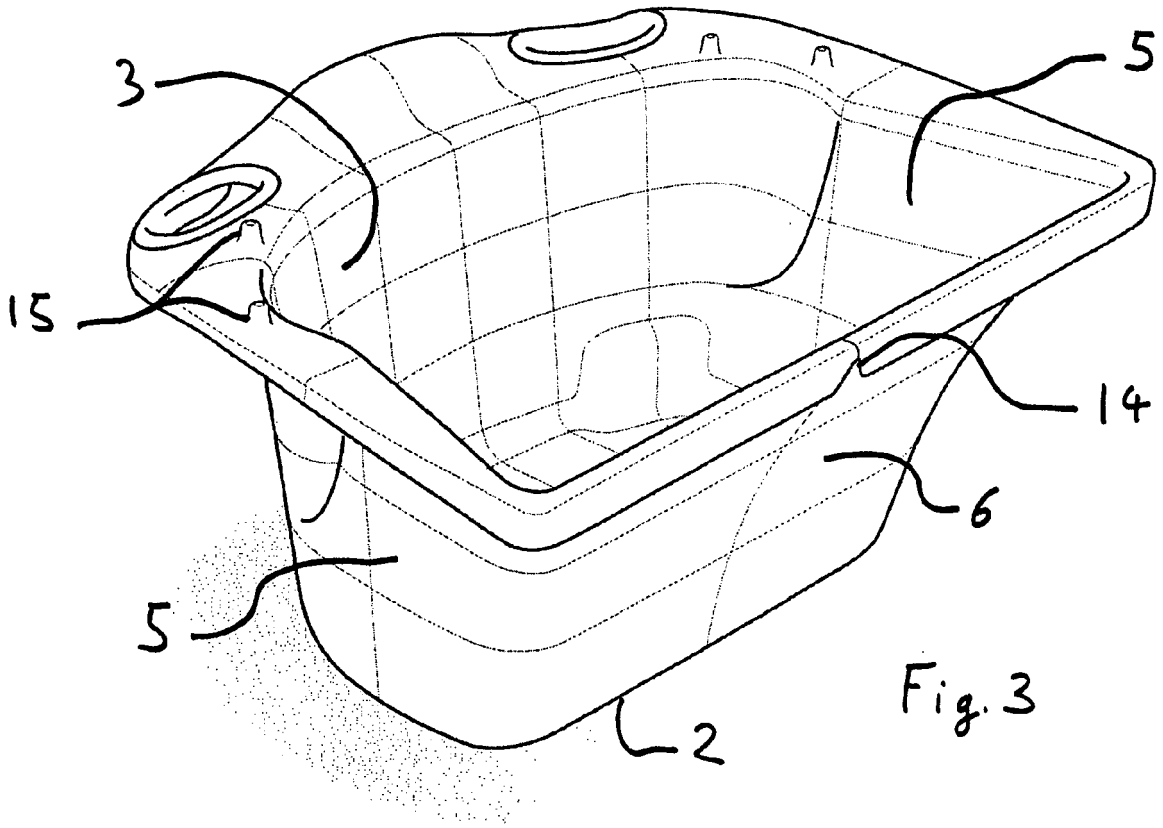


Fig. 3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 00 8903

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 634 568 A (WAWRZYNIAK GREG [US]) 3 June 1997 (1997-06-03) * column 2, line 14 - line 54; figures 1,2 * -----	1-3,8,9, 12-15, 19,21,25	INV. B44D3/12
Y		16,18,24	
Y	US 2005/161462 A1 (BERGMAN MARK W [US]) 28 July 2005 (2005-07-28) * paragraph [0041] * -----	16,24	
Y	US 2002/096527 A1 (ARENAS LOUIS C [US] ET AL) 25 July 2002 (2002-07-25) * abstract * -----	18	
A	WO 2006/008186 A2 (DIERICKX PATRICK [BE]) 26 January 2006 (2006-01-26) * the whole document * -----	1-25	

TECHNICAL FIELDS SEARCHED (IPC)

B44D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	8 December 2006	Daintith, Nichola

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

1 EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 06 00 8903

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

08-12-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5634568 A	03-06-1997	NONE	
US 2005161462 A1	28-07-2005	NONE	
US 2002096527 A1	25-07-2002	NONE	
WO 2006008186 A2	26-01-2006	BE 1016127 A3	07-03-2006

EPO FORM P0459

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

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 4927046 A **[0003]**
- US 6138963 A **[0003]**
- US 6006966 A **[0004]**
- US D499553 S **[0005]**
- US 6708838 B **[0006]**
- US 6991829 B **[0006]**