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(72) Inventor: **Pizzolotto, Vittorio**
36061 Bassano del Grappa Vicenza (IT)

(74) Representative: **Reniero, Cirillo Silvano**
c/o Dr.Reniero & Associati S.r.l.
Via D. Manin, 5
37122 Verona (IT)

(71) Applicant: **Pizzolotto Spa**
31010 Fonte (Treviso) (IT)

(54) Interdependent capacity container assembly

(57) An assembly of containers connected to each other, comprising at least three containers (1, 2 and 3) each being designed to contain a different liquid, granular or powder material, and having a capacity that is

related to the capacity of the remaining containers in the assembly, thereby making it possible to execute a pre-determined number of specific operations or treatments involving the use of a dose of at least some of the materials contained in said containers.

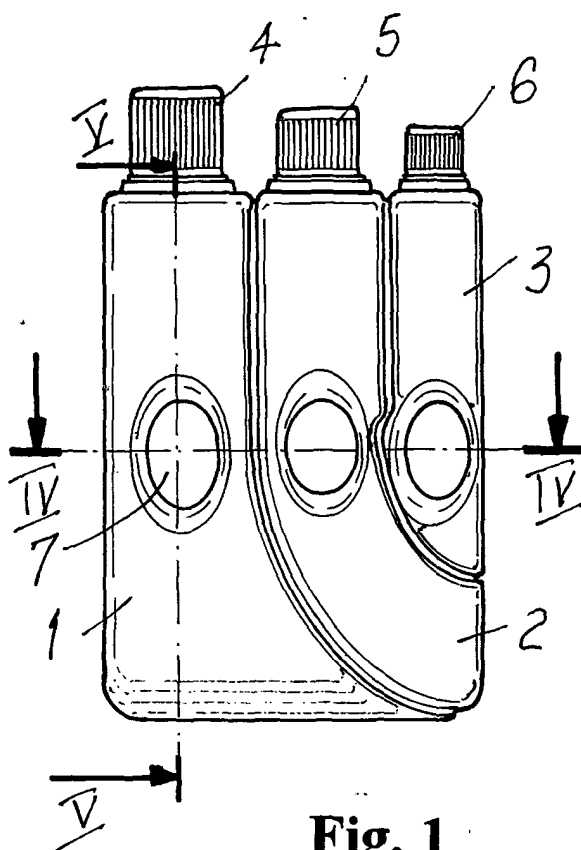


Fig. 1

Description

[0001] The present invention relates to an assembly of containers having interdependent capacity one with respect to the other.

[0002] It has already been suggested - see European Patent Application no. 03008748.0 filed on April 4, 2003 and relating to a multiple bottle container - to provide multiple containers for different liquids and/or granular materials or powders, particularly for materials in everyday domestic use, which are often difficult to handle and use and, above all, do not allow for an accurate dosage of a first material contained in one of them in relation to the dosage of a second or a third material contained in the remaining containers, and thus it often happens that a material in a first container runs out, while another material is still available in substantial amount in a second container. This obviously can result in waste of product and is an indication of poor efficiency.

[0003] The main aim of the present invention is to provide an assembly of containers suitable for eliminating the above-mentioned disadvantages with reference to multiple containers known in the state of the art.

[0004] Another aim of the present invention is to provide an assembly of containers with interdependent capacity suitable for enabling accurately measured packaging of several products designed to be used simultaneously in a number of operations such as washing or disinfecting, or the like.

[0005] A further aim of the present invention is to reduce the amount of plastics material required for packaging several different products usually products of wide consumption, which results in a reduced impact on the environment due to smaller amounts of plastics material to be recycled or destroyed.

[0006] These and other aims which will be better appear below are achieved by an assembly of containers, characterised in that it comprise at least three containers each being designed to contain a different liquid, granular or powder material, and having a capacity that is related to the capacity of the remaining containers in the assembly, thereby making it possible to execute a predetermined number of specific operations or treatments involving the use of a dose of at least some of the materials contained in said containers.

[0007] Further aspects and advantages of the present invention will appear from the following detailed description set out below of the currently preferred embodiment of the invention, given as an example only and not limited to this, with reference to the attached drawings in which:

Figure 1 is a perspective front elevation view of an assembly of three integral containers each having a different capacity but related to the capacity of the other two containers in the assembly;

Figure 2 is a side view from the left of the assembly of containers shown in Fig. 1;

Figure 3 shows a top view of the assembly of containers shown in Fig. 1;

Figure 4 shows a cross-section view taken along line IV - IV of Fig. 1;

Figure 5 is a longitudinal cross-section view taken along line V - V of Fig. 1, and

Figure 6 shows a longitudinal cross-section view taken along line VI - VI of Fig. 3.

[0008] With reference to the above listed Figures, it will be noted that an assembly of three bottle-shaped containers 1, 2 and 3 in accordance with the present invention constitutes a single integral unit and is preferably obtained by any suitable moulding or blowing method of a suitable plastics material, e. g. polyethylene, PET, polypropylene and the like. The capacity of one container or bottle 1, 2 and 3 is interdependent, i. e. depending upon the capacity of the other two bottles according to a predetermined specific dosage, as explained below.

[0009] Each container or bottle 1, 2 and 3 is designed to contain a different liquid, granular or powder material. The capacity of each container is such as to ensure supply of a predetermined number of doses from all the containers in the container assembly, the number of doses corresponding to the number of treatments requiring the use of material contained in more than one or in each container. Advantageously, correct dosage of each product contained in its respective container 1, 2 and 3 can be determined by using a respective bottle cap 4, 5 and 6 as a dose measuring beaker.

[0010] A typical example of use of an assembly of containers 1, 2 and 3 integral with one another is that of containing products either in liquid or powder form for use in a washing machine, i. e. a detergent, a fabric softener and a bleaching product and/or a stain remover. Packages of one single product for washing machines are generally available on the market in separate plastics containers. Just before use, the user determines the amount of each product to be used for each washing operation in an empirical and rough way, which results in products being used in excess with respect to the optimum amount required most of the time or else the user finds himself unwary unprovided with, or short of, one or more washing products.

[0011] Typically, the user finds the following washing products on the Italian market:

- 3000 ml packages of detergent for washing machines, which is an amount usually required for 25 washings, the weight of the plastics container (bottle) being equal to about 140 g. The market price ranges from 6.80 to 7.20€;
- 1750 ml packages of bleaching product, that is an amount sufficient for about 17.5 washings, the weight of the plastics bottle being about 95 g. The market price is about 2.30 €;
- 2000 ml packages of fabric softener which is an

amount usually required for carrying out 20 washings with the weight of the bottle being about 105 g.

[0012] This means that the user-consumer has to purchase 6750 ml of products and 340 g of bottle weight (processed plastics material) and spend between 11.80 and 12.00 € for an unspecified number of washes that, in any case, depends on his/her ability to calculate or determine a suitable dose of each of the three purchased washing products.

[0013] An integral assembly of bottle containers in accordance with the present invention enables both the user and the supplier to know in advance the number of washings that can be carried out with an optimum amount or dose of each washing ingredient without waste and always with satisfactory results in so far as quality of the washing operations is concerned.

[0014] By way of example, the assembly of containers 1, 2 and 3 in accordance with the present invention has an overall capacity of 3500 ml (against 6750 ml currently available on the market), a weight of plastics material for the bottles ranging from 160 and 170 g (against 340 g currently available on the market) for a guaranteed 25 washings as against approximately 20 washings currently obtainable with washing products available on the market, and at a cost of about 6-7.00 € against 11.80-12.00 €. Saving on plastics material is around 50%, which also means less environmental pollution, lower production and lower transport costs due to much lower weight and, above all, smaller transport and stocking space required, and improved practicality and convenience of use.

[0015] The invention described above is susceptible to numerous modifications and variations within the scope as defined by the claims.

[0016] Thus, for example, bottles 1, 2 and 3 can be connected to one another by gluing or any other suitable constraining system.

[0017] The same bottles 1, 2 and 3 can be connected by means of suitable wrapping or bandage, e.g. with bandage material bearing information on the contents, instructions for use, etc. of the products contained in each bottle.

[0018] If desired, a handle or another suitable means for hand gripping can be provided for one or for each container 1, 2 and 3, such as for example a respective hole, 7, 8 and 9 (Figures 1, 4, 5 and 6) for easy handling of the whole assembly.

by making it possible to execute a predetermined number of specific operations or treatments involving the use of a dose of at least some of the materials contained in said containers.

2. An assembly according to claim 1, **characterised in that** said containers (1, 2 and 3) form an integral unit.

3. An assembly according to claim 1, **characterised in that** said containers (1, 2 and 3) are secured to one another by gluing.

4. An assembly according to claim 1, **characterised in that** said containers (1, 2 and 3) are held together by being wrapped by a bandage.

5. An assembly according to any claim 1 to 4, **characterised in that** said containers (1, 2 and 3) each comprise a respective measuring beaker cap (4, 5, 6).

6. An assembly according to previous claim, **characterised in that** at least one of said containers (1, 2 and 3) comprises a handle.

7. An assembly according to claim 6, **characterised in that** said handle comprises a through aperture (7, 8 and 9) in at least one of said containers (1, 2 and 3).

Claims

1. An assembly of containers connected to each other, **characterised in that** it comprise at least three containers (1, 2 and 3) each being designed to contain a different liquid, granular or powder material, and having a capacity that is related to the capacity of the remaining containers in the assembly, there-

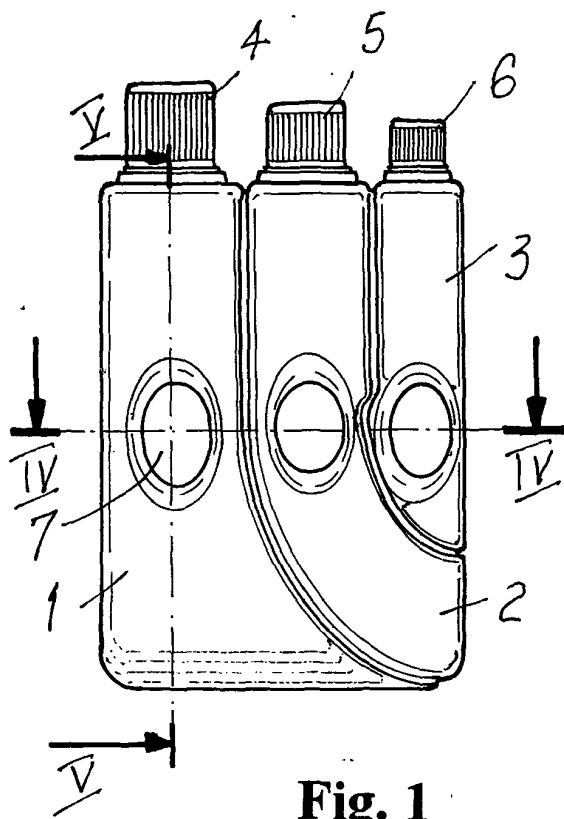


Fig. 1

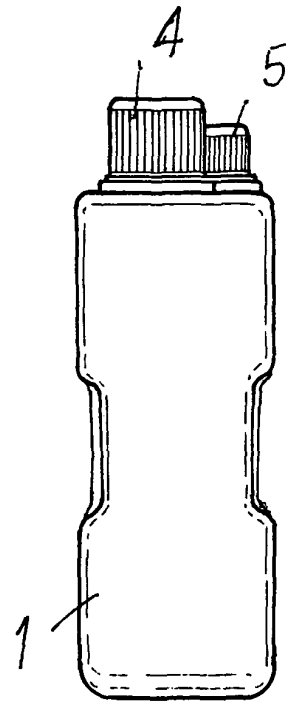


Fig. 2

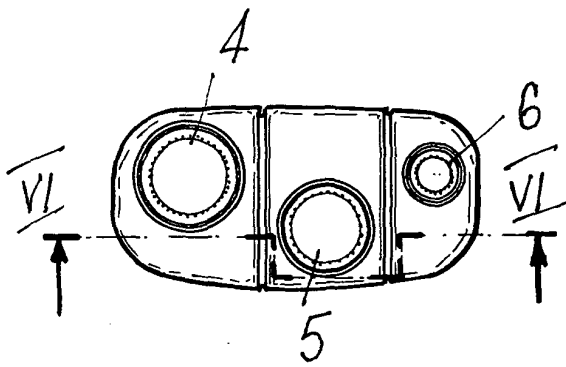
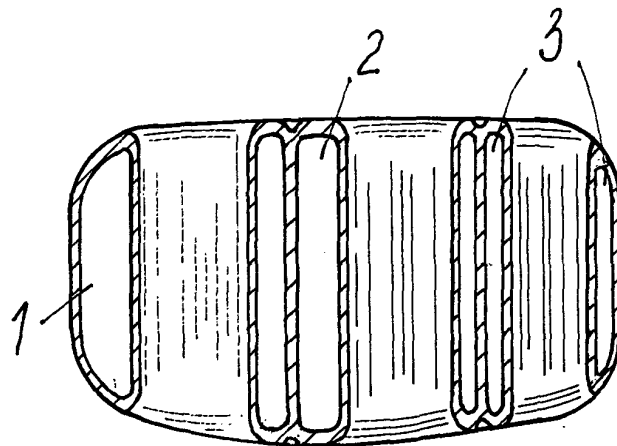


Fig. 3

Fig. 4



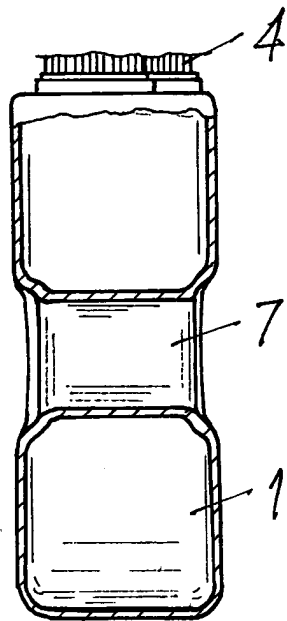


Fig. 5

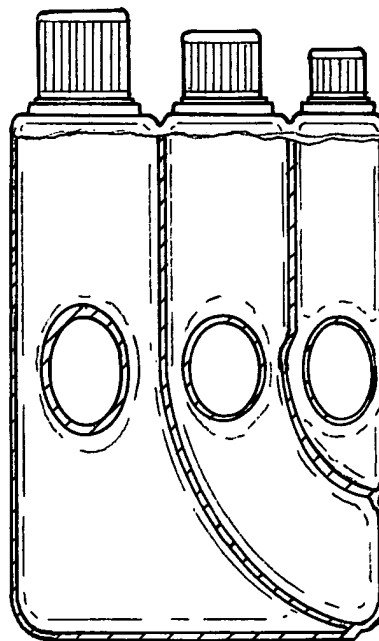


Fig. 6



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Application Number
EP 03 02 1147

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 19 February 2004	Examiner Bridault, A
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			

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EPO FORM 1503 03.82 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 03 02 1147

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