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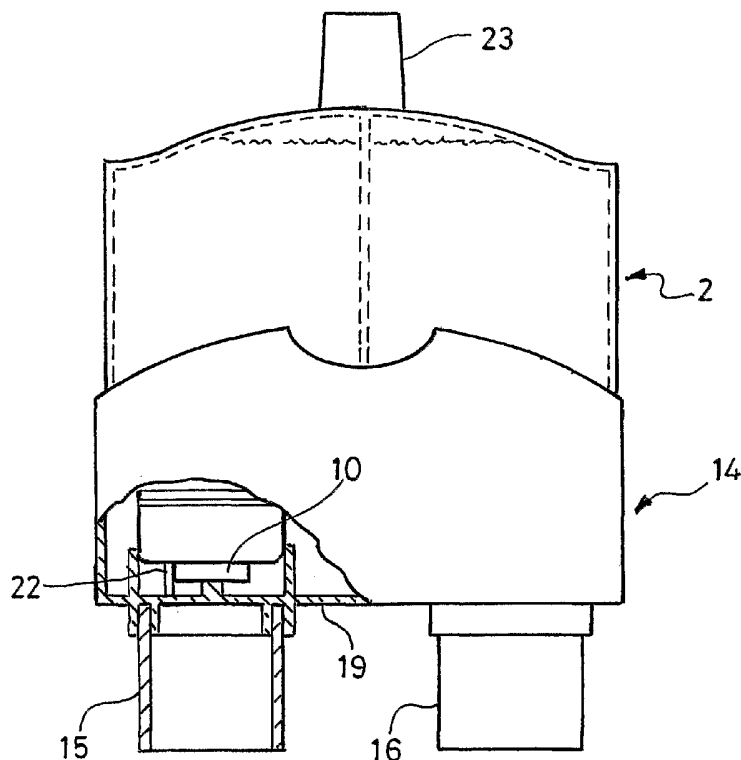
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(54) Title: DISPENSING MEANS FOR A LIQUID



(57) Abstract: A dispensing means for delivering a dose of a first liquid into a second liquid is provided, the dispensing means comprising an enclosure (2, 3, 4) for accommodating the first liquid (12, 13), and dispersion means (15, 16), the dispersion means being adapted to receive a dose of the first liquid from the enclosure, and to deliver a dose of the first liquid into the second liquid when subjected to a flow of the second liquid. The dispersion means comprises a structure (15, 16) along which the first liquid is transportable and, in use, substantially all of the surface area of the dispersion means is exposed to the atmosphere. A surface of the dispersion means is curved such that the flow of the liquid when incident upon the surface is drawn over at least a portion of the surface.

WO 2006/010946 A1

TITLE: DISPENSING MEANS FOR A LIQUID

Field of the Invention

This invention relates to dispensing means for a liquid, in particular to dispensing means for delivering a dose of a liquid product into a lavatory bowl.

Background to the Invention

Toilet bowls require care to prevent the buildup of unsightly deposits, to reduce malodour and prevent the growth of bacteria. There are in existence many forms of toilet bowl cleaning products. One type of product comprises a solid block of cleansing and freshening agents that is suspended from the rim of a toilet bowl in a container placed in the path of the flushing water. U.S. Pat. No. 3,529,309 shows an example of this type of toilet bowl cleaning product. Unfortunately, solid cleaning blocks have a short lifetime and the release of cleansing and freshening agents varies as the block deteriorates.

Toilet cleaning systems that use liquid cleaning agents have also been developed. For example, European Patent Application EP-0538957 discloses a cleansing and/or freshening unit capable of being suspended from the rim of a toilet bowl for the purpose of introducing liquid active substances from a bottle into flushing water. Unfortunately, one problem with liquid dispensing devices such as disclosed in EP-0538957 is that as the liquid level in the dispensing bottle falls, the rate at which liquid is dispensed also falls.

European Patent Application EP-0785315 describes a dispenser that attempts to overcome the problem associated with devices such as described in EP-0538957. This dispenser includes a dispensing bottle that allows liquid to flow from it while permitting air from outside the bottle to flow into it. Unfortunately, the device described in EP-0785315 requires the use of a porous, liquid-absorbing mass that is in continuous contact with the cleaning liquid contained in the dispensing bottle. Apart from being expensive to

manufacture, this dispensing device is unable to provide precise control over the volume of liquids dispensed in the flushing water.

In addition to problems associated with rate of delivery of liquid active substances, they also have problems associated with the difficulty of incorporating certain actives, such as bleaches and various hypochlorites, as these materials may affect properties of the components of the liquid active substance. For example, bleaches and hypochlorites will typically fade the color of a dye and destroy a fragrance upon extended contact. Also, certain incompatible cleaning actives may not be stable when mixed and through the resulting chemical interaction, the efficacy of the individual cleaning actives may be decreased. In particular, the inability to incorporate bleaches and hypochlorites into a liquid active substance is especially detrimental as bleaches and hypochlorites are particularly effective in destroying bacteria and preventing biofilm formation.

These limitations in liquid dispensing cleaning systems have prevented their optimization.

There is a need for an improved device that can dispense precisely controlled quantities of cleaning and freshening liquids from under the rim of a toilet bowl, and that can deliver a greater variety of cleaning actives to a toilet bowl, including incompatible liquid active compositions.

Summary of the Invention

According to a first aspect of the invention there is provided dispensing means for delivering a dose of a first liquid into a second liquid, the dispensing means comprising an enclosure for accommodating the first liquid, and dispersion means, the dispersion means being adapted to receive a dose of the first liquid from the enclosure, and to deliver a dose of the first liquid into the second liquid when subjected to a flow of the second liquid, wherein the dispersion means comprises a structure along which the first liquid is transportable and, in use, substantially all of the surface area of the dispersion means is exposed to the atmosphere.

The invention therefore provides dispensing means that, for a given volume of the dispensing means, has a greater surface area from which evaporation of the first liquid can take place than known dispensing means.

Preferably the dispensing means is adapted to dispense a plurality of individual doses of a first liquid product in succession, one dose being delivered each time the dispersion means is subjected to a flow of the second liquid.

In a preferred embodiment of the invention the dispensing means is for suspension below a rim of a lavatory bowl, the first liquid product then being a suitable additive to the water (forming the second liquid) being flushed into the lavatory bowl. Suitable additives include fragrances, surfactants, bleaches, dyes, disinfectants, insecticides, deodorants and cleaning agents.

Where the first liquid product includes a fragrance, the invention provides a dispensing means, which, when suspended below a rim of a lavatory bowl, enables the fragrance to be released from the dispensing means between flushes of the lavatory more effectively than by known dispensing means.

The invention therefore further provides a dispensing means that can deliver cleaning and/or freshening lavatory bowl treatment preparations from under the rim of a toilet bowl before, during and after flushing of the lavatory.

The structure along which the first liquid is transportable may advantageously be provided with at least one internal channel, which, in use, is exposed to the atmosphere so as to increase the surface area of the structure available for evaporation of the first liquid.

The structure may be provided in a range of shapes, e.g. a cube, plate, ring, oval, sphere, rod, or any decorative shape or mixture of shapes.

In the preferred embodiment of the invention, however, the structure is a tube and, in use, an internal surface of the tube is exposed to the atmosphere.

The structure may advantageously be formed with at least one capillary channel for transporting the first liquid along the structure by capillary action.

Alternatively, or in addition, the structure may advantageously be formed from a porous material, preferably a porous non-water-soluble plastics material, capable of transporting the first liquid along the structure by capillary action. Suitable non-water-soluble plastics materials include polypropylene and polyethylene.

In use at least 65% of the surface area of the dispersion means may advantageously be exposed to the atmosphere, and preferably at least 75% of the surface area. In preferred embodiments of the invention, in use, at least 85% of the surface area of the dispersion means is exposed to the atmosphere.

According to a second aspect of the invention there is provided dispensing means for delivering a dose of a liquid product into a liquid, the dispensing means comprising an enclosure for accommodating the liquid product, and dispersion means adapted to receive a dose of the liquid product from the enclosure, and to deliver a dose of the liquid product into the liquid when subjected to a flow of the liquid, wherein a surface of the dispersion means is curved such that the flow of the liquid, when incident upon the surface, is drawn over at least a portion of the surface.

The term "liquid product" is intended to encompass solutions, suspensions and gels.

The invention therefore further provides dispensing means that can dispense a larger dose of a given liquid product into a given flow of liquid than known dispensing means, because the flow of liquid not only comes into contact with that part of the dispersion means on which it is incident, but also comes into contact with at least a portion of the dispersion means over which it is drawn.

The dispersion means is preferably elongate and may, for example, be oval in cross-section, or be shaped like an aerofoil. Preferably, however, the dispersion means is cylindrical.

The preferred embodiment of the invention is a liquid rim dispenser adapted to be suspended below a rim of a lavatory bowl, the dispersion means being subjected to a flow of water upon flushing the lavatory.

Where the dispersion means is elongate, the dispersion means is preferably arranged such that when the dispensing means is suspended below a rim of a lavatory bowl, the dispersion means is substantially vertical, i.e. substantially perpendicular to the flow of water.

Preferably the enclosure is divided into two separate enclosures, each with a respective dispersion means, and the surface of at least one of the dispersion means is curved such that when the dispersion means is subjected to the flow of water, the water incident on the surface is drawn over at least a portion of the surface and directed onto a surface of the other dispersion means.

The arrangement whereby the enclosure is divided into two separate enclosures allows the dispensing means to deliver a greater variety of liquid products into the lavatory bowl than known dispensing means. In particular, this arrangement allows the dispensing means to deliver two different liquid products into the lavatory bowl and is useful where it is undesirable for the two liquid products to be mixed before they are delivered into the lavatory bowl, for example where one liquid product is a bleach solution and the other is a fragrance, since the fragrance would be broken down by the bleach solution, and the bleach solution would be neutralised in breaking down the fragrance.

In this way most (or all) of the undesirable chemical interaction between the two liquid products is pre-empted and a user of the dispensing means will benefit from the superior

properties of each of the incompatible liquid products through a single delivery of each of the liquid products.

Moreover, the arrangement whereby flush water incident upon one of the dispersion means is directed onto the other dispersion means results in relatively even delivery of the liquid product from the two enclosures, rather than greater delivery of the liquid product from the enclosure the dispersion means of which is upstream in the flow of flush water, provided that the dispensing means is suspended in the lavatory bowl with the correct dispersion means upstream in the flow of flush water.

In the preferred embodiment the surfaces of both the dispersion means are curved such that when either dispersion means is subjected to the flow of water, the water incident on the surface of the dispersion means is drawn over at least a portion of the surface and directed onto a surface of the other dispersion means.

With this arrangement it is immaterial which dispersion means is upstream in the flow of the flush water, making the dispensing means simple to install in the lavatory bowl.

Preferably the liquid product comprises at least one fragrance ingredient having a ClogP of 3 or more and a boiling point of 250 °C or lower. This has been found to be particularly effective at providing an odour counteracting and freshening effect when used with the liquid rim dispenser of this invention.

By way of explanation, the logP of many fragrance ingredients have been reported. For example, the Pomona92 database (available from Daylight Chemical Information Systems, Inc. (Daylight CIS), Irvine, Calif.) contains many logP values, along with citations to the original literature. However, the logP values are most conveniently calculated by the "CLOGP" program, also available from Daylight CIS. This program lists experimental logP values when they are available in the Pomona92 database. The "calculated logP" (ClogP) is determined by the fragment approach of Hansch and Leo (cf., A. Leo, in Comprehensive Medicinal Chemistry, Vol. 4, C. Hansch, P. G. Sammens, J. B. Taylor

and C. A. Ramsden, Eds., p. 295, Pergamon Press, 1990, incorporated herein by reference). The fragment approach is based on the chemical structure of each fragrance ingredient, and takes into account the numbers and types of atoms, the atom connectivity, and chemical bonding. The ClogP values, which are the most reliable and widely used estimates for this physicochemical property, are used instead of the experimental logP values in the selection of fragrance ingredients which are useful in the present invention.

In the fragrance composition art, some materials having no odour or very faint odour are used in addition to fragrance ingredients proper (those fragrance ingredients that give the fragrance composition its fragrance) as diluents or extenders to form a fragrance composition. Non-limiting examples of these materials are dipropylene glycol, diethyl phthalate, triethyl citrate, isopropyl myristate, and benzyl benzoate. These materials are used, for example, for diluting and stabilising the fragrance ingredients in fragrance compositions. For the purposes of this specification, these materials are not counted in the weight percentages of fragrance ingredients in fragrance compositions.

Where the liquid product includes a fragrance composition, the fragrance composition preferably comprises at least 30% by weight of at least one fragrance ingredient having a ClogP of 3 or more and a boiling point of 250°C or lower; even more preferably at least 40% by weight; and more preferably still at least 50% by weight.

According to a third aspect of the invention there is provided a liquid rim dispenser intended for suspension from a rim of a toilet bowl adjacent a wall thereof, in the path of flushing water during a flushing operation, said liquid rim dispenser comprising a container for holding at least one liquid active composition, a base for holding the container, at least one hollow porous substrate supported by the base and means for suspending the base from the rim of a toilet bowl, and wherein the internal surface of the hollow porous substrate is open to the surrounding atmosphere.

Brief Description of the Drawings

The invention will now be described, by way of example, with reference to the attached drawing figures, in which:

Figure 1 is a front view of an enclosure of dispensing means in accordance with the invention;

Figure 2 is a partial cross-sectional front view of dispersion means of dispensing means in accordance with the invention;

Figure 3 is a partial cross-sectional front view of the enclosure of Figure 1 and dispersion means of Figure 2 assembled to form dispensing means in accordance with the invention;

Figure 4 is a top plan view of the dispersion means of Figures 2 and 3;

Figure 5 is a front view of the dispersion means of Figures 2 to 4;

Figure 6 is a bottom plan view of the dispersion means of Figures 2 to 5, showing the dispersion means being subjected to a flow of liquid; and

Figure 7 is a graph of decrease in mass of a dispensing means in accordance with the invention against number of times the display means is subjected to a flow of liquid.

Detailed Description of an Embodiment

The enclosure of Figure 1 is in the form of a container 2 that has two compartments 3 and 4 divided by a partition 5 separating liquid active compositions 12 and 13. Two outlets 6 and 7 are fitted with sealing components 8 and 9. Each sealing component 8 and 9 has a respective outlet tube 10 and 11.

The container 2 may be made from any suitable material, such as a plastics material (for instance polyethylene). Preferably the container 2 is made from a transparent material to allow the level of liquid active compositions to be viewed. The container 2 may be manufactured by any suitable method, and may be a complete moulding or separate units that may be joined together by any suitable means such as by adhesive.

The liquid active compositions 12 and 13 may be the same or different compositions. Additionally, they may be the same colour or they may be differently coloured to differentiate them from each other.

The dispersion means of Figure 2 is in the form of a holder 14, to which two hollow porous cylindrical substrates 15 and 16 are attached as shown. The holder 14 provides a receptacle for receiving and supporting the container 2, and may be manufactured by any suitable method, such as by injection moulding. The holder 14 has a strap 23 for suspending the holder 14 from a rim of a toilet bowl.

The holder 14 allows for the two cylindrical substrates 15 and 16 to be alongside one another in a symmetrical arrangement. The bottom surface 19 of the holder 14 has two annular receptacles 26A and 26B formed by two outer cylindrical walls 17 and two inner cylindrical walls 18 arranged concentrically. The annular receptacles 26A and 26B receive the hollow porous cylindrical substrates 15 and 16.

Upstanding from the bottom surface 19 of the holder 14 are two piercing elements 20. A vertical cylindrical wall 21 surrounds each piercing element 20. The inside wall of each vertical cylindrical wall 21 has a series of vertical grooves 22 that function as air ducts.

Turning to Figure 3, this shows container 2 fitted into the holder 14 to make dispensing means in the form of a liquid rim dispenser intended for suspension from a rim of a lavatory bowl adjacent a wall thereof, in the path of flushing water during a flushing operation.

The piercing element 20 of the holder 14 has entered and broken the interior of sealing component 8 to allow a portion of liquid active composition 12 to flow out of outlet tube 10. The portion of the liquid active composition 12 is contained within the vertical cylindrical wall 21. The height of the bottom of the outlet tube 10 relative to bottom surface 19 limits the portion of liquid active composition 12 contained within vertical cylindrical wall 21 to a shallow depth of a few millimetres and this level is maintained

automatically in a manner not unlike that of a "chicken feeder". The air ducts provided by the vertical grooves 22 maintain atmospheric pressure above the liquid within the vertical cylindrical wall 21.

Turning to Figure 4, a series of slots 24 are spaced equidistantly and adjacent to the inside surface of the vertical cylindrical wall 21. Radial channels 25 formed into the upper surface of bottom surface 19 radiate outwards from piercing element 20. The radial channels 25 provide a conduit to slots 24 and allow liquid active compositions 12 and 13 to pass through bottom surface 19. The slots 24 are aligned to communicate the liquid active compositions 12 and 13 between the two concentrically arranged cylindrical walls 17 and 18 of the two annular receptacles 26A and 26B that support the hollow porous cylindrical substrates 15 and 16. It is essential that there are no gaps between the hollow porous cylindrical substrates 15 and 16 and the two annular receptacles 26A and 26B supporting them as this could lead to liquid active compositions 12 and 13 becoming liberated on the outer and/or inner surface of the hollow porous cylindrical substrates 15 and 16 resulting in uncontrolled release of the liquid active compositions 12 and 13. If required, the hollow porous cylindrical substrates 15 and 16 may be fixed to annular receptacles 26A and 26B through the use of any suitable adhesive, but care must be taken not to block the pores of the hollow porous cylindrical substrates 15 and 16.

Figure 5 simply corresponds to Figure 2 without the cut away portion.

The hollow porous cylindrical substrates 15 and 16 become loaded with liquid active compositions 12 and 13 from the top downwards because liquid active compositions 12 and 13 pass down through slots 24 and into the top of the hollow porous cylindrical substrates 15 and 16. Capillary action plus gravity act to exert a downward pull on the liquid active compositions 12 and 13 so that the hollow porous cylindrical substrates 15 and 16 become charged quickly with liquid active compositions 12 and 13. Once the hollow porous cylindrical substrates 15 and 16 are loaded with liquid active compositions 12 and 13 they retain them against the force of gravity.

The liquid rim dispenser is intended to operate when mounted on the rim of a toilet bowl and flush water is washed over the hollow porous substrates 15 and 16. The liquid rim dispenser dispenses amounts of the liquid active compositions 12 and 13 onto the hollow porous substrates 15 and 16. The large surface area of the hollow porous substrates, in comparison with prior art dispensing devices, allows for increased evaporation of fragrance and thus improved continuous air freshening as both the external and internal surfaces of the substrates are exposed to the atmosphere. When the toilet is flushed, water is directed over the hollow porous substrate or substrates to mix liquid active compositions with flush water and deliver them to the toilet bowl. The mixing of flush water to any surfactant emanating from the substrate is extremely efficient in generating large amounts of foam.

After each flush, gravity pulls downwards any water deposited onto the hollow porous cylindrical substrates 15 and 16 while at the same time pulling liquid active compositions 12 and 13 through the hollow porous cylindrical substrates 15 and 16 to reload them.

It is believed that the liquid rim dispenser of the invention is better able than known liquid rim dispensers to prevent flush water from entering the dispenser to dilute the liquid active compositions in the container compartments 3 and 4.

The liquid rim dispenser therefore can convey the liquid active compositions from the container to the cylindrical substrates in a controlled and consistent manner, resulting in a controlled, consistent amount of the liquid active compositions being delivered into the lavatory bowl with each flush.

The ability of the curved surfaces of the hollow porous cylindrical substrates 15 and 16 to pull the tangential supply of flush water around these surfaces is due to the Coanda effect and allows whichever of the hollow porous cylindrical substrates 15 and 16 that is situated "upstream" to the flow of flush water to deflect it onto whichever of the hollow porous cylindrical substrates 15 and 16 that is situated downstream. This results in liquid active compositions 12 and 13 being liberated at approximately the same rate due to the flush

water being distributed fairly evenly across both substrates. Figure 6 shows the base of holder 14, with flush water F superimposed upon it. This illustrates how flush water F is deflected from whichever of the hollow porous cylindrical substrates 15 and 16 that is upstream to the flow of flush water F onto whichever of the hollow porous cylindrical substrates 15 and 16 that is downstream to the flow of flush water F.

Figure 7 shows the decrease in mass of a dispensing means in the form of a liquid rim dispenser with a single compartment and a single porous cylinder when repeatedly subjected to flush water in a lavatory bowl. The straight-line characteristic of the graph illustrates the controlled and consistent manner of delivery of a liquid active composition by the liquid rim dispenser.

It will be appreciated by those skilled in the art that the liquid rim dispenser of the present invention can be readily adapted for use with a wide variety of liquid active compositions to meet different criteria in terms of colour, foam forming, odour release, cleaning, disinfection, desired number of flushing operations per dispenser, and other considerations.

The rheological behaviour of the active compositions 12 and 13 are selected with regard to the pore size of the porous substrates 15 and 16, to ensure there is no leakage and that the active compositions are drawn through the porous substrates to provide a sufficient dose of the active compositions. Optimum flow-rate of the active compositions through the porous substrates may be established by one skilled in the art through the use of, for example, d'Arcy's Law. The flow rate is reliant on the size and number of pores and fluid viscosity. To ensure that the liquid active compositions 12 and 13 are dispensed at the same rate the viscosities of the liquid active compositions should be similar, and should lie within the range of 50 to 4,000 centipoises at 25 °C.

Examples of the more preferred fragrance ingredients for use in the liquid active compositions include the following:

ALDEHYDE C10 (DECANAL)*
ALDEHYDE C11 (UNDECENAL)
ALDEHYDE C9 (NONANAL)
ALDEHYDE MNA
ALLYL AMYL GLYCOLATE*
ALLYL HEPTANOATE
ALLYL HEXANOATE
AMYL BUTYRATE
AZARBRE (Q)
BORNEOL
CARVACROL
CARYOPHYLLENE
CISTULATE (Q)
CITRAL
CITRAL DIETHYL ACETAL
CITRONELLAL
CITRONELLOL
CITRONELLYL ACETATE
CITRONELLYL NITRILE
PHENYLETHYL BUTYL ETHER
CUMIN NITRILE
CYCLOHEXYLETHYL ACETATE
CYMENE, para-
DAMASCENONE, beta-
DAMASCONE, alpha-
DAMASCONE, beta-
DAMASCONE, delta-
4-trans-DECENAL
DEC-9-ENOL
DIHYDROJASMONE
DIHYDROLINALOL

DIHYDROMYRCENOL*
DIHYDROMYRCENYL ACETATE
DIHYDROTERPINEOL (MENTHANOL)*
DIHYDROTERPINYL ACETATE*
ETHYL HEPTANOATE
ETHYL SAFRANATE
FLORHYDRAL
FRUTONILE (Q)
GERANIOL
GERANYL ACETATE*
GERANYL NITRILE*
HERBANATE
INONYL ACETATE*
ISOBORNYL ACETATE*
ISOPENTYRATE
JASMATONE (Q)
LIMONENE
LINALOL*
LINALYL ACETATE*
MACEAL (Q)
MAYOL
MENTHOL*
MENTHYL ACETATE
METHYL CHAVICOL
METHYL OCTINE CARBONATE
METHYL PAMPLEMOUSSE (G)
MYRCENE
NEO BERGAMATE FORTE
NEOCASPIRENE
NEROL
NOPYL ACETATE

OCTYL ACETATE
ORTHOLATE (Q)*
PARA TERT BUTYL CYCLOHEXANOL
PARA TERT BUTYL CYCLOHEXYL ACETATE*
PELARGENE (Q)
PHENETHYL ISOPROPYL ETHER
PHENYLETHYL ISOBUTYRATE
RHUBAFURAN (Q)
ROSE OXIDE
TERPINOLENE*
TERPINYL ACETATE*
TETRAHYDROGERANIOL
TETRAHYDROLINALOL
TETRAHYDROLINALYL ACETATE
TETRAHYDROMYRCENOL
TONALID
UNDECAVERTOL
VERTENEX
YLANGENE

Of these the more preferred fragrance ingredients are:

ALDEHYDE C10 (DECANAL)
ALLYL AMYL GLYCOLATE
DIHYDROMYRCENOL
DIHYDROTERPINEOL (MENTHANOL)
DIHYDROTERPINYL ACETATE
GERANYL ACETATE
GERANYL NITRILE
INONYL ACETATE
ISOBORNYL ACETATE

LINALOL

LINALYL ACETATE

MENTHOL

ORTHOLATE (Q)

PARA TERT BUTYL CYCLOHEXYL ACETATE

TERPINOLENE

TERPINYL ACETATE

Materials are obtainable from the following suppliers: for those materials labeled "(Q)" - Quest International, and for those materials labeled "(G)" - Givaudan.

It will be apparent that the foregoing description relates only to one embodiment of the invention, and that the invention encompasses other embodiments as defined by the claims set out hereafter. In particular, it is to be understood that this invention also encompasses dispensing means that have less than or more than two dispersion means and the enclosures of which contain less than or more than two liquids or liquid products.

Claims

1. Dispensing means for delivering a dose of a first liquid into a second liquid, the dispensing means comprising an enclosure for accommodating the first liquid, and dispersion means, the dispersion means being adapted to receive a dose of the first liquid from the enclosure, and to deliver a dose of the first liquid into the second liquid when subjected to a flow of the second liquid, wherein the dispersion means comprises a structure along which the first liquid is transportable and, in use, substantially all of the surface area of the dispersion means is exposed to the atmosphere.
2. Dispensing means according to claim 1, wherein the dispensing means is adapted to dispense a plurality of individual doses of a first liquid product in succession, one dose being delivered each time the dispersion means is subjected to a flow of the second liquid.
3. Dispensing means according to claim 2, wherein the dispensing means is for suspension below a rim of a lavatory bowl, the first liquid product being an additive to the water (forming the second liquid) being flushed into the lavatory bowl.
4. Dispensing means according to any preceding claim, wherein the additive includes at least one of fragrances, surfactants, bleaches, dyes, disinfectants, insecticides, deodorants and cleaning agents.
5. Dispensing means according to any preceding claim, wherein the structure along which the first liquid is transportable is provided with at least one internal channel, which, in use, is exposed to the atmosphere.
6. Dispensing means according to claim 5, wherein the structure is a tube and, in use, an internal surface of the tube is exposed to the atmosphere.

7. Dispensing means according to any preceding claim, wherein the structure is formed with at least one capillary channel for transporting the first liquid along the structure by capillary action.
8. Dispensing means according to any preceding claim, wherein the structure is formed from a porous material capable of transporting the first liquid along the structure by capillary action.
9. Dispensing means according to claim 8, wherein the porous material is a porous non-water-soluble plastics material.
10. Dispensing means according to any preceding claim, wherein in use at least 65% of the surface area of the dispersion means is exposed to the atmosphere.
11. Dispensing means for delivering a dose of a liquid product into a liquid, the dispensing means comprising an enclosure for accommodating the liquid product, and dispersion means adapted to receive a dose of the liquid product from the enclosure, and to deliver a dose of the liquid product into the liquid when subjected to a flow of the liquid, wherein a surface of the dispersion means is curved such that the flow of the liquid, when incident upon the surface, is drawn over at least a portion of the surface.
12. Dispensing means according to claim 11, wherein the dispersion means is elongate.
13. Dispensing means according to claim 12, wherein the dispersion means is cylindrical.
14. Dispensing means according to any of claims 11 to 13, wherein the dispensing means is a liquid rim dispenser adapted to be suspended below a rim of a lavatory bowl, such that the dispersion means is subjected to a flow of water upon flushing the lavatory.
15. Dispensing means according to claim 12 or any claim dependent therefrom, wherein the dispersion means is arranged such that when the dispensing means is suspended below a

rim of a lavatory bowl, the dispersion means is substantially vertical, i.e. substantially perpendicular to a flow of water upon flushing the lavatory.

16. Dispensing means according to any of claims 11 to 15, wherein the enclosure is divided into two separate enclosures, each with a respective dispersion means, and the surface of at least one of the dispersion means is curved such that when the dispersion means is subjected to the flow of water, the water incident on the surface is drawn over at least a portion of the surface and directed onto a surface of the other dispersion means.

17. Dispensing means according to claim 16, wherein the surfaces of both the dispersion means are curved such that when either dispersion means is subjected to the flow of water, the water incident on the surface of the dispersion means is drawn over at least a portion of the surface and directed onto a surface of the other dispersion means.

18. Dispensing means according to any preceding claim, wherein the first liquid or liquid product includes a fragrance composition having at least one fragrance ingredient having a ClogP of 3 or more and a boiling point of 250 °C or lower.

19. Dispensing means according to claim 18, wherein the fragrance composition comprises at least 30% by weight of at least one fragrance ingredient having a ClogP of 3 or more and a boiling point of 250°C or lower.

20. Dispensing means according to claim 19, wherein the fragrance composition comprises at least 40% by weight of the at least one fragrance ingredient.

21. Dispensing means according to claim 20, wherein the fragrance composition comprises at least 50% by weight of the at least one fragrance ingredient.

22. A liquid rim dispenser intended for suspension from a rim of a toilet bowl adjacent a wall thereof, in the path of flushing water during a flushing operation, said liquid rim dispenser comprising a container for holding at least one liquid active composition, a base for holding the container, at least one hollow porous substrate supported by the base and

means for suspending the base from the rim of a toilet bowl, and wherein the internal surface of the hollow porous substrate is open to the surrounding atmosphere.

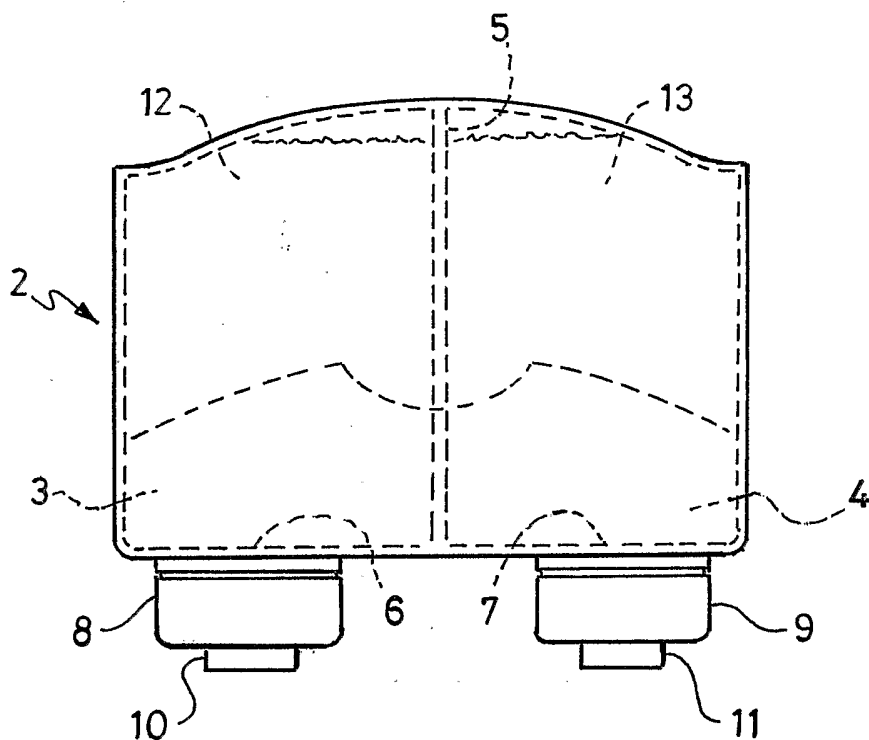


Fig. 1

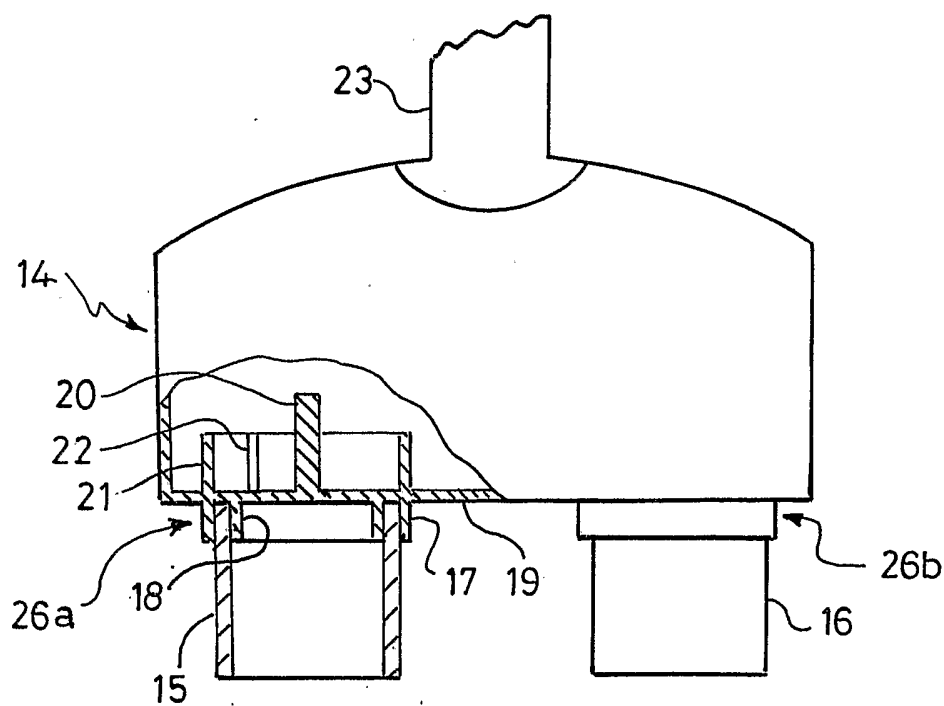


Fig. 2

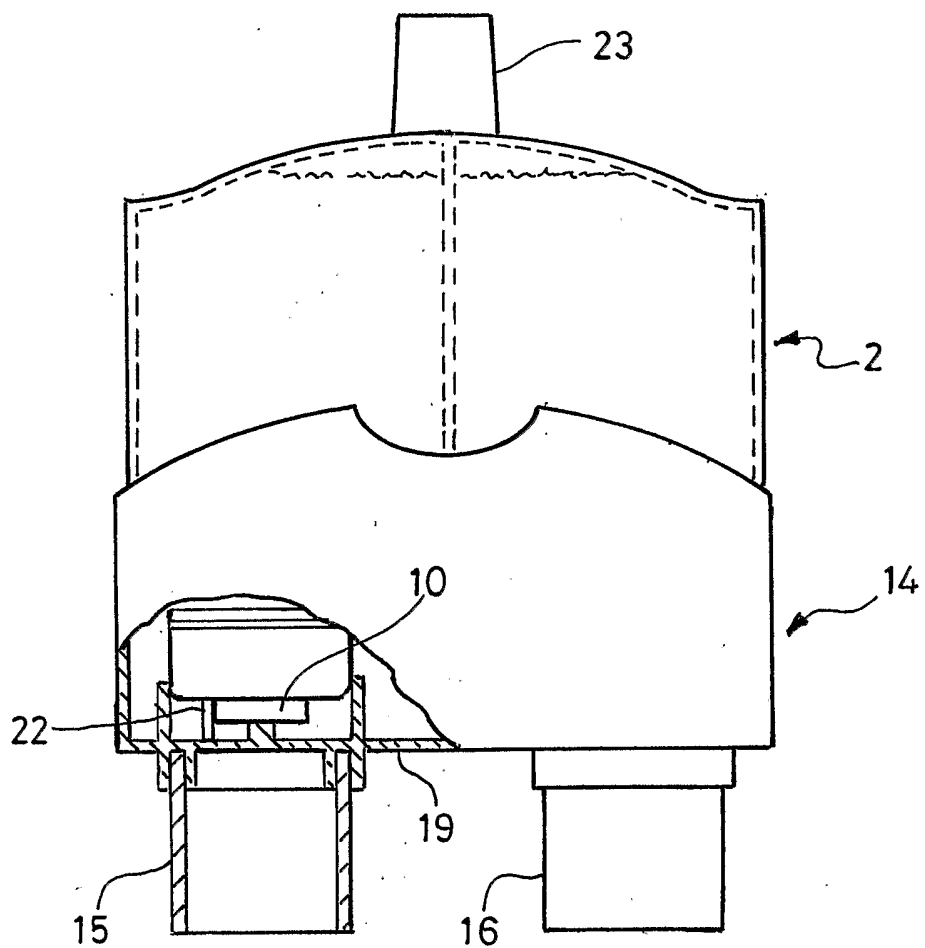


Fig. 3

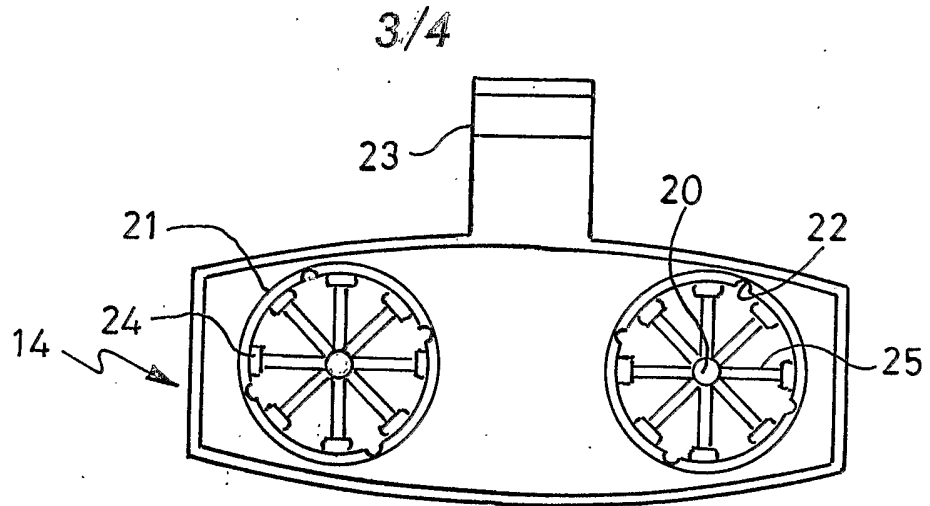


Fig. 4

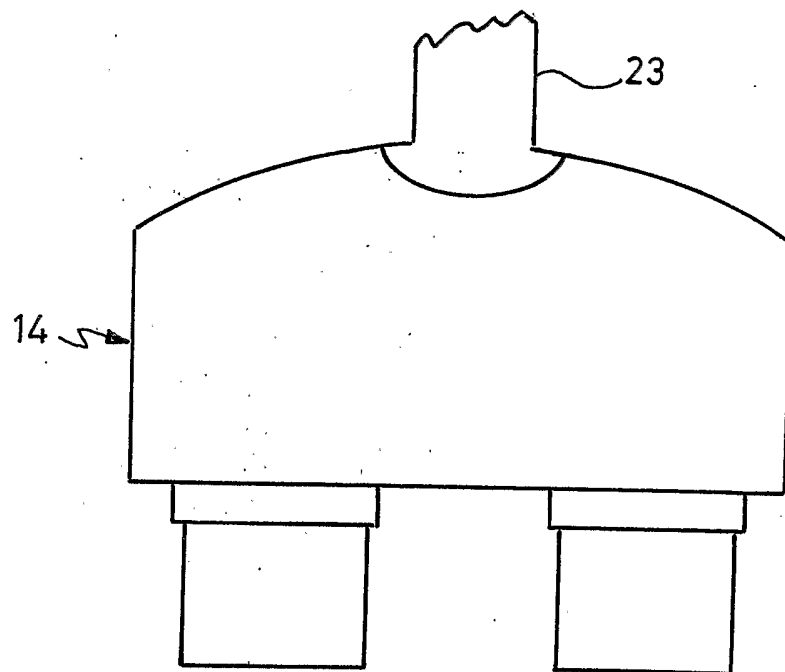


Fig. 5

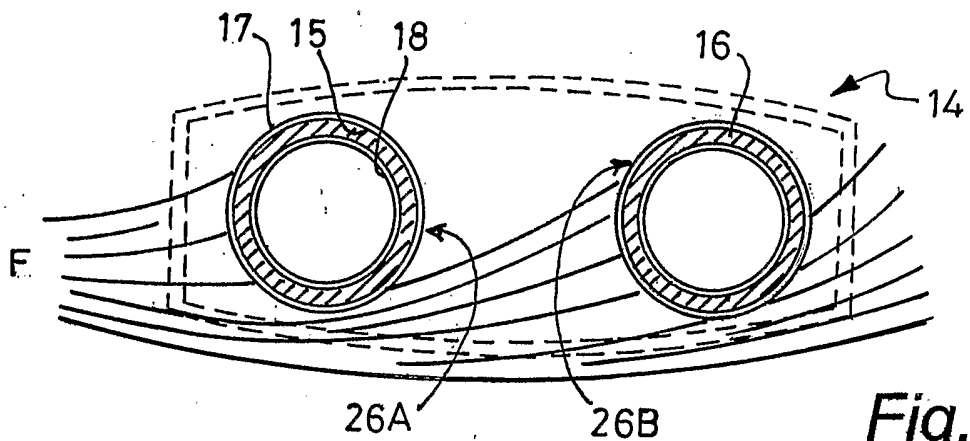


Fig. 6

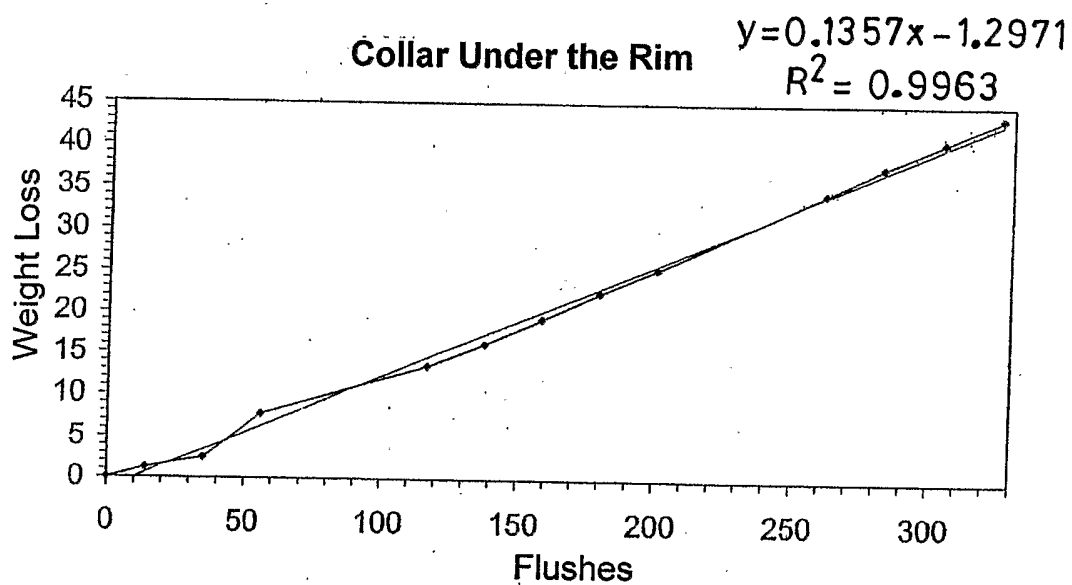


Fig. 7

INTERNATIONAL SEARCH REPORT

Internal Application No
PCT/GB2005/002993

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 E03D9/03				
According to International Patent Classification (IPC) or to both national classification and IPC				
B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols) IPC 7 E03D				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	DE 299 00 759 U1 (GEORG MENSCHEN GMBH & CO KG, 57413 FINNENTROP, DE) 8 April 1999 (1999-04-08) the whole document	1-17,22		
X	DE 102 27 965 B3 (HENKEL KGAA) 1 April 2004 (2004-04-01)	1-4,7-10		
A	paragraph '0020! - paragraph '0029!; figures 1-3	11, 14-17,22		
A	US 5 500 154 A (BACON ET AL) 19 March 1996 (1996-03-19) column 3, line 19 - line 20 column 7, line 38 - line 41	18-21		
<input type="checkbox"/> Further documents are listed in the continuation of box C.				
<input checked="" type="checkbox"/> Patent family members are listed in annex.				
° Special categories of cited documents :				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed </td> <td style="width: 50%; border: none; vertical-align: top;"> *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family </td> </tr> </table>			*A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family
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Date of the actual completion of the international search <p style="text-align: center; font-size: 1.2em;">27 October 2005</p>	Date of mailing of the international search report <p style="text-align: center; font-size: 1.2em;">04/11/2005</p>			
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer <p style="text-align: center; font-size: 1.2em;">Van Bost, S</p>			

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern	Application No
PCT/GB2005/002993	

Patent document cited in search report	Publication date	Publication date	Patent family member(s)	Publication date
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DE 10227965	B3	01-04-2004	AU 2003246433 A1 WO 2004001145 A1	06-01-2004 31-12-2003
US 5500154	A	19-03-1996	BR 9509488 A CA 2202507 A1 CN 1169749 A EP 0787177 A1 JP 10507789 T WO 9612786 A1	14-10-1997 02-05-1996 07-01-1998 06-08-1997 28-07-1998 02-05-1996