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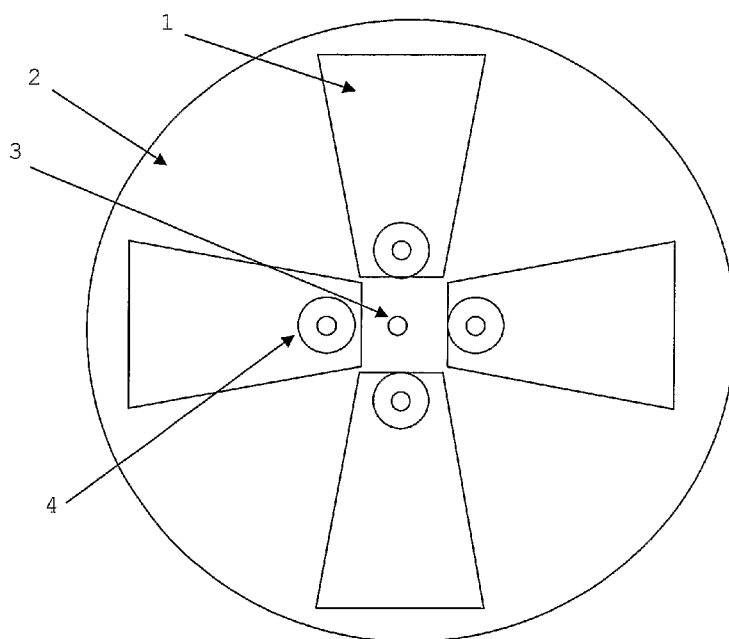
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[Continued on next page]

(54) Title: PERSONAL CARE FLUID DISPENSER

Fig. 1



(57) Abstract: A personal care fluid dispensing device comprising a dispensing head (5), a plurality of reservoirs (1) each containing a different fluid, each reservoir comprising a release valve (4) that can be moved into fluid-releasing engagement with the dispensing head, there being associated with each reservoir stored timing data and release means therefor, the data relating to the optimum time for the application and usage of the product in the reservoir, and the release means being so configured that it causes the timing data to be displayed on a timing display when the reservoir is brought into fluid-releasing engagement with the dispensing head and fluid is dispensed. The device allows the accurate timing of use of a plurality of personal care products, where such timing is necessary, e.g. hair colouring compositions.



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PERSONAL CARE FLUID DISPENSER

This disclosure relates to a dispenser for the delivery of personal care fluids, with a time indicator associated with each fluid delivered.

There are numerous products which are generally described as personal care products that are designed to treat or clean the skin and hair. Such products include body wash products, shampoos, skin cream, exfoliating cream, massage oil, conditioner, etc. These products are fluids (which term is considered to include liquids, fluid pastes and foams) and are provided in containers such as bottles, pump-packs, aerosols, sachets and flexible tubes. In some situations, for example, in the shower, a person may desire to use more than one such product, for example a body wash for the skin skin, a shampoo for the hair, followed by a hair conditioner. This means the need for multiple products. In addition, many of these specialist products require a specific application time for optimum effect and the user has to judge this time often without access to a clock or other time indicator device.

Attempts to reduce the number of products needed have generally revolved trying to combine the desired functions in one product, for example, a shampoo and conditioner or a body wash that may also act as a shampoo. However, these often involve compromises that mean that the performance of such a combined product in any given function is not as good as that of a dedicated product. Another approach has been multiple chamber bottles, but these tend to be bulky, and are often difficult to use.

It has now been found that these problems can be overcome by means of a device that can not only accommodate multiple products, but also indicate the optimum application time. There is therefore provided a personal care fluid dispensing device comprising a dispensing head, a plurality of reservoirs each containing a different fluid, each reservoir comprising a release valve that can be moved into fluid-releasing engagement with the dispensing head, there being associated with each reservoir stored timing data and release means therefor, the data relating to the optimum time for the application and usage of the product in the reservoir, and the release means being so configured that it causes the timing data to be displayed on a timing

display when the reservoir is brought into fluid-releasing engagement with the dispensing head and fluid is dispensed.

There is additionally provided a method for the dispensing of a plurality of personal care fluids with a concomitant indication of the optimum time for application or usage of individual
5 fluids, comprising

- (a) the provision of a plurality of reservoirs each containing a different fluid, each reservoir comprising a release valve that can be moved into fluid-releasing engagement with a single dispensing head, there being associated with each reservoir stored timing data and release means therefor, the data relating to the optimum time for the
10 application and usage of the product in the reservoir, and the release means being so configured that it causes the timing data to be displayed on a timing display when the reservoir is brought into fluid-releasing engagement with the dispensing head; and
- (b) bringing a reservoir into fluid-releasing engagement with the dispensing head and dispensing fluid, thereby causing the timing data for that product to be displayed on a
15 timing display.

The personal care products used in conjunction with the device of this disclosure are fluids, which term covers liquids (solutions, emulsions and suspensions), pastes and foams. The reservoirs involved may be any kind of reservoir that may be used to hold desired personal care products and that permit their dispensing. These include, but are not limited to, bottles
20 and flasks of any suitable material, such as glass, metals and plastics materials, collapsible plastics or laminate pouches and aerosol containers. The bottles or flasks may be sufficiently flexible that release of fluid may be brought about by their being squeezed in some manner, or they may be rigid and have associated therewith a suitable pumping mechanism. These embodiments are purely exemplary, and the skilled person will easily be able to conceive of
25 many others that are within the ordinary skill of the art and that lie within the scope of this disclosure.

It is possible and permissible to have more than one type of reservoir on a single device, for example, an aerosol, a collapsible pouch and a rigid bottle. Again, the provision of a suitable arrangement is within the skill of the art.

The reservoirs are configured such that their contents are dispensed through a single
5 dispensing head. This requires that the reservoirs be movable into registry with this dispensing head. This in turn involves mounting the reservoirs on a suitable single movable entity, and this may be achieved by any convenient means. For example, the reservoirs may be mounted on a sliding rail, and movable linearly or substantially linearly (e.g. slightly arcuate movement), such that the desired reservoir may be brought into registry with the dispensing
10 head. In a particular example, the linear movement is horizontal, but with suitable modifications, any angle up to vertical may be accommodated. Another possible arrangement is a carousel arrangement, in which reservoirs are mounted on a rotatable member, the rotation bringing the individual reservoirs in and out of registry with the dispensing head. Other arrangements may be achieved by the exercise of the ordinary skill of the art.

15 The reservoirs may be permanently mounted on the movable entity, such that the entity and reservoirs may be replaced as a whole. Alternatively, the individual reservoirs may be replaceable, such that only refills need be purchased to replace reservoirs whose contents have been exhausted.

The nature of the dispensing head will depend on the nature of the reservoir. For example, in
20 the case of a reservoir that is a squeeze bottle or a collapsible pouch, it may be a simple orifice into fluid-tight contact with which the reservoir is brought, that is, contact such that fluid is dispenses only through the orifice and thus the dispensing head. A simple squeeze then dispenses fluid. In the case of an aerosol container, a member that actuates the aerosol valve is needed. This will typically have the form of a spring-loaded button, depression of which will
25 open the aerosol valve. In one embodiment, the spring-loaded button may also comprise a channel, which is closed when the button is in its rest position, but which opens to allow the passage of fluid when it is pressed. The reservoir may also be equipped with a ball and spring-type pump of the type commonly found in liquid soap dispensers, suitably modified to allow dispensing through a single dispensing head, for example, by the equipping of the dispensing

head with a spring-loaded button that allows the pump to be operated. Many different arrangements are possible, and all are within the ordinary skill of the art.

Central to the device is a single timing display, which displays timing data relevant for the product being used. For example, it may display the time that a product, such as a hair
5 colouring preparation, should remain on the hair, prior to rinsing, and may do a countdown with a suitable visual or audible signal at the end of the time. The timing display receives the necessary data from a timing data store associated with each reservoir and acts accordingly. The timing display is electrically powered by any suitable means, such as mains electricity, batteries and solar energy. In the case of batteries, the power source may be provided as part
10 of the reservoir, and in the case of replaceable reservoirs, may be replaced with the reservoir.

The timing display may comprise an analogue clock or digital display. Alternatively, it may be a visual or audible signal, such as the illumination of a LED or the emission of a tone. One example of this would be the emission of a light or a tone, the ending of which indicates the end of the timing period. In a variation of this, the approach of the end of the timing period
15 may be indicated by a short period of pulsed light or tone.

The device comprises switching means that commences the operation of the timing display. This is activated by the act of dispensing fluid. This may be achieved by any convenient means. In a particular embodiment, in the case of a reservoir that is a collapsible bottle or bladder, pressure on the bladder to release fluid can cause a switch-activating member on the
20 bladder to contact a switch, which will start the timing. In a further embodiment, the device may comprise a number of switches, each adapted to receive contact from one, and only one, of a series of switch activating members, so that timing data relevant only to that particular reservoir will be displayed. This may be achieved, for example, by giving the activating members different profiles, or staggering the positions of the relevant switches.

25 In a further embodiment, there may be fewer switches than switch-activating members, the device being configured such that the activation of two switches simultaneously triggers the transmission of timing data different from than triggered by the activation of either individual switch.

Typically, the switch-activating means will comprise a solid protrusion extending from the vicinity of the valve and dimensioned so that it contacts the desired switch or switches in appropriate circumstances. However, the skilled person will readily be able to envisage other possible arrangements. Indeed, such a skilled person will be able to envisage many different
5 switching means not mentioned in this description, but which fall within the scope thereof.

The storage of the data and its transmission to the timing display may be achieved by any convenient means. It may be already stored in the timing display and its ancillaries, such that the activation of one of a series of switches as hereinabove described will activate the timing data for only the particular fluid.

10 In a further embodiment, the data may be held on the container by means of a chip or a bar code label, these being read by suitable readers associated with the dispensing head when the particular reservoir is brought into registry with the dispensing head. In such a case, a single switch and identical switch activating means for all reservoirs may be sufficient for all fluids.

The devices hereinabove described are cheap and easy to manufacture and are effective in use.
15 They may be used, for example, in a bathroom or even in a shower, to make available a number of personal care products. It is well within the skill of the art to make such devices completely waterproof.

The device is further described with reference to the drawings, which depict particular embodiments, and which are not intended to be in any way limiting.

20 Figure 1 is a schematic representation of one part of a device.

Figure 2 is a schematic vertical cross-section of the embodiment of Figure 1.

In Figure 1, four compressible plastics pouches 1, each containing a different fluid, are mounted on a circular mounting plate 2, which is rotatable about the centre point 3. Each pouch has a release valve 4, located close to the centre point 4, such that the rotation of the
25 plate will bring the valves 4 sequentially into register with a dispensing nozzle 5 (in Figure 2).

The dispensing head 5 is positioned at the bottom of a non-rotating pressure plate 6, which is hinged at 7, so that it can be depressed towards the mounting plate 2. Pressure causes a

pressure pad 8 located on the pouch side of the pressure plate to depress the pouch currently in registry with the dispensing nozzle, thus causing fluid to be dispensed. The pressure plate is spring-loaded (not shown), so that its rest position is away from the pouches, which are thus free to rotate.

- 5 In association with each valve 4, there is a projection 9, which is adapted to contact a micro-switch 10. This switch activates the time indicator. Each pouch has a different configuration of projection, such that the projection for each reservoir contacts a different switch.

The timing indicator is not shown, but it comprises a battery-operated LED display with a light that comes on continuously and pulses for several minutes prior to the end of the set time.

- 10 The timing data is stored on a chip which forms part of the timing display.

In operation, the mounting plate is rotated until the valve of the reservoir comes into registry. Depression of the pressure plate 6 causes the simultaneous dispensing of liquid and the activation of the timing, which then illuminates the LED display and the timing circuit begins the count-down. The activation will be in relation to a particular switch-projection

- 15 combination, which means that only the data related to that switch, and to that reservoir and its product, will be seen on the timing display.

The skilled person will readily be able to conceive of other embodiments that are achievable by the exercise of the ordinary skill of the art, and which will fall within the scope of this disclosure.

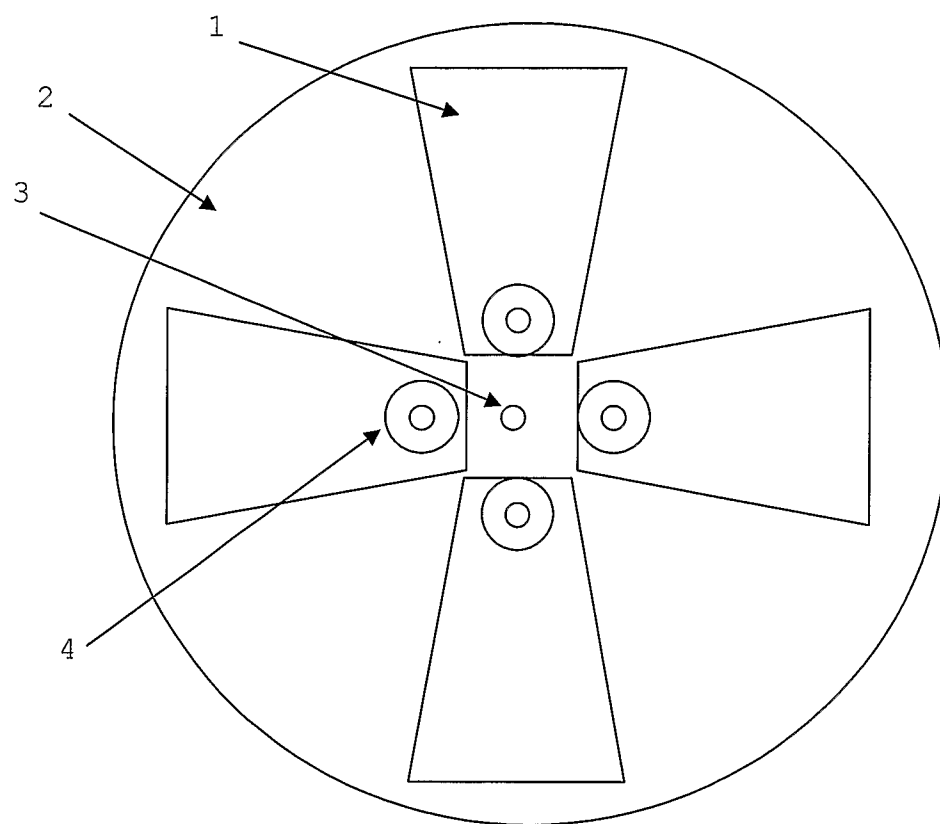
Claims:

1. A personal care fluid dispensing device comprising a dispensing head (5), a plurality of reservoirs (1) each containing a different fluid, each reservoir comprising a release valve (4) that can be moved into a fluid-releasing engagement with the dispensing head, there being associated with each reservoir stored timing data and release means therefor, the timing data relating to an optimum time for the application and usage of the fluid in the associated reservoir, and the release means being so configured that it causes the timing data to be displayed on a timing display when the associated reservoir is brought into the fluid-releasing engagement with the dispensing head and the fluid is dispensed.
2. A device according to claim 1 in which the reservoirs are mounted on a sliding rail, and movable linearly into registry with the dispensing head.
3. A device according to claim 2 in which the linear movement is horizontal.
4. A device according to claim 1, in which reservoirs are mounted on a rotatable member, the rotation bringing the individual reservoirs in and out of registry with the dispensing head.
5. A device according to claim 1, in which the reservoir is a collapsible pouch the squeezing of which dispenses fluid.
6. A device according to claim 1, in which the reservoirs are in the form of individually replaceable reservoirs.
7. A device according to claim 1, in which the timing data is incorporated into the individual reservoirs.
8. A device according to claim 1, in which transmission of timing data to the timing display is caused by the operation of switching means associated with the device and activated by the dispensing of fluid.

9. A device according to claim 8, in which the switching means comprises one switch per reservoir, activated by a switch-activating member associated with the reservoir, such that timing data relevant only to that reservoir is displayed.
10. A device according to claim 8, in which there are fewer switches than switch-activating members, the device being configured such that the activation of two switches simultaneously triggers the transmission of timing data different from than triggered by the activation of either individual switch.
11. A method for the dispensing of a plurality of personal care fluids with a concomitant indication of an optimum time for application or usage of individual fluids, comprising
- 10 (a) the provision of a plurality of reservoirs (1) each containing a different fluid, each reservoir comprising a release valve (4) that can be moved into a fluid-releasing engagement with a single dispensing head (5), there being associated with each reservoir stored timing data and release means therefor, the timing data relating to the optimum time for the application and usage of the fluid in the associated reservoir, and
- 15 the release means being so configured that it causes the timing data to be displayed on a timing display when the associated reservoir is brought into the fluid-releasing engagement with the dispensing head; and
- (b) bringing a reservoir into the fluid-releasing engagement with the dispensing head and dispensing the fluid, thereby causing the timing data for that fluid to be displayed on
- 20 the timing display.

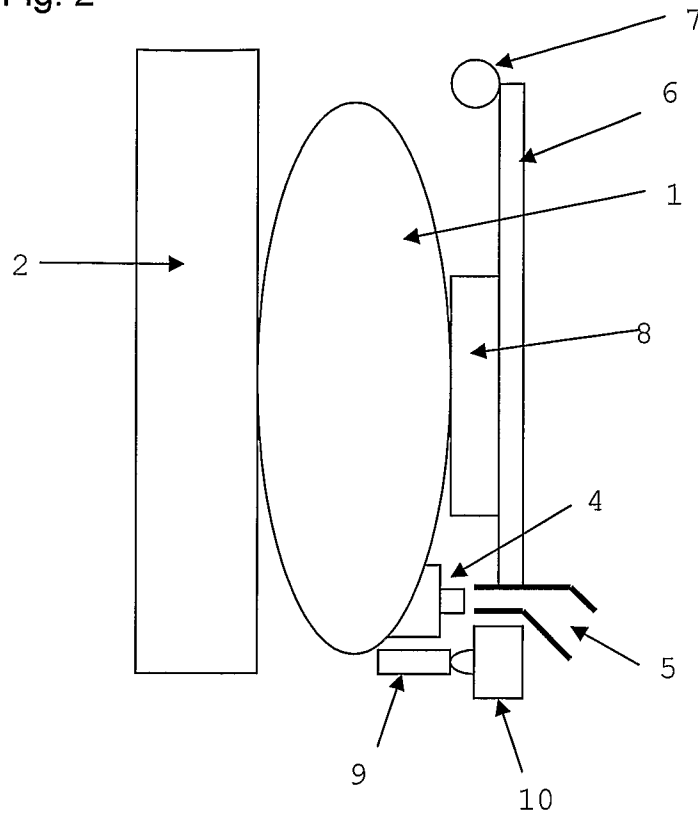
1/2

Fig. 1



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Fig. 2



INTERNATIONAL SEARCH REPORT

International application No
PCT/CH2009/000353

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47K5/12 A47K5/122

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)
A47K

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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 720 352 A (KOZLOWSKI R) 13 March 1973 (1973-03-13) claims; figures -----	1,11
A	GB 2 398 289 A (FAJOBI ABAYOMI ADETUNJI [GB]) 18 August 2004 (2004-08-18) page 1, paragraph 1 page 2, paragraph 1 - paragraph 3; figures -----	1,11
A	GB 2 322 117 A (SLOAN VALVE CO [US]) 19 August 1998 (1998-08-19) claims 1-3 -----	1,11
A	US 5 042 691 A (MALDONADO JOHN E [US]) 27 August 1991 (1991-08-27) column 2, last paragraph - column 3, paragraph 1; figures -----	1,11

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/CH2009/000353

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3720352	A	13-03-1973	NONE	
GB 2398289	A	18-08-2004	NONE	
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