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

(11) Publication number: **0 116 202**
A1

(12) EUROPEAN PATENT APPLICATION

(21) Application number: 83306994.1

(51) Int. Cl.³: A 47 L 25/08

(22) Date of filing: 16.11.83

(30) Priority: 19.11.82 US 442878

(43) Date of publication of application:
22.08.84 Bulletin 84/34

(84) Designated Contracting States:
DE FR GB IT

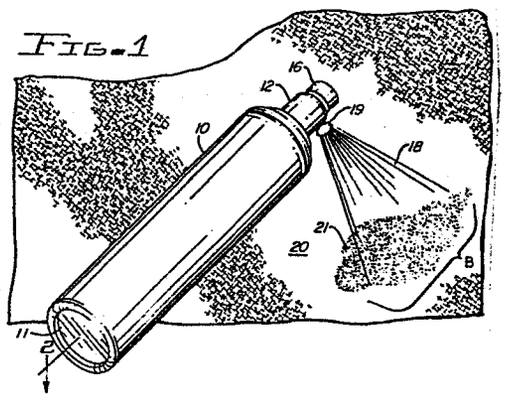
(71) Applicant: Burns, Wm. Robert
110 West Camelback Suite 200
Phoenix Arizona 85013(US)

(72) Inventor: Burns, Wm. Robert
110 West Camelback Suite 200
Phoenix Arizona 85013(US)

(74) Representative: MacGregor, Gordon et al,
ERIC POTTER & CLARKSON 14 Oxford Street
Nottingham, NG1 5BP(GB)

(54) Device for assisting in removal of garment stains.

(57) A device for use in effecting removal of stains from garments which consists of a pressurized reservoir (10) having an application valve-nozzle (12) and containing a supersaturated aqueous solution (13) of carbon dioxide. The reservoir is shaped and dimensioned to be concealed on the person, such as in a pocket or a purse, for ready use in a restaurant to remove food or beverage stains by applying a portion of the solution to the stained portion of the garment, followed by blotting.



EP 0 116 202 A1

DEVICE FOR USE IN EFFECTING REMOVAL OF GARMENT STAINS

This invention pertains to a device for use in effecting removal of garment stains.

An object of the invention is to provide means for use in effecting removal of garment stains, e.g. in a restaurant or similar establishment, before the material causing the stain has had a chance to dry and "set".

It is well known that commercially available supersaturated solutions of carbon dioxide, commonly called "carbonated water", have remarkable abilities as stain-removal agents when applied to a fresh food or beverage stain. Such solutions are also known to be effective stain-removal agents for a variety of other stains, such as dust, cigarette ashes, animal stains, regurgitation, etc. Commonly available sources of such solutions include club soda, various naturally occurring sparkling waters, etc.

Heretofore, however, the use of such a cleaning agent has been limited by the fact that it is normally unavailable to be used immediately after a garment or other textile material is stained. In the typical case, a customer in a restaurant does not have this simple, yet effective, stain-removal agent available at the time the staining occurs and must wait for a considerable period of time such as his return to his residence or some other location where such cleaning agents are available in bulk containers. This length of time usually is sufficient to enable the stain to "set" by drying and by impregnation of the fibres of the garment.

Furthermore, since the stain-removal action of the agent depends on the effervescent action caused by the release of carbon dioxide bubbles, opening of a large container of the carbonated water usually results in

wastage of all but the initial portion removed from the container, as the remainder of the carbonated water goes "flat".

Finally, even when applied by dabbing or pouring portions of the carbonated water upon the stained portion of a garment, there is a tendency for the effervescent action to take place only at the surface of the textile, rather than in the interstices of the fabric, which limits the stain-removal capability of the agent.

The present invention seeks to avoid these problems and provides a device for use in assisting removal of garment stains comprising a reservoir containing a supply of a supersaturated aqueous solution of carbon dioxide, characterised in that the reservoir is shaped and dimensioned so as to be capable of being concealed on the person, and by valve-nozzle means openable to deliver a portion of said solution under pressure from the reservoir for applying the solution to a stained portion of a garment.

The shape and dimensions of the reservoir are not critical, so long as the device can be carried on the person, e.g., concealed in a pocket or a purse. Thus, conveniently, the reservoir can be shaped and dimensioned to the approximate proportions of a conventional tube of lipstick, perfume atomizer, breath freshener cartridge or the like. The materials of construction of the reservoir are not critical and need only have the requisite strength and chemical stability to maintain the slightly acidic solution of carbon dioxide superatmospheric pressure, so as to maintain the carbon dioxide in the aqueous solution until it is released through the valve-nozzle. According to one embodiment of the invention, the substantially incompressible carbon dioxide solution fills only a

portion of the reservoir and is ejected therefrom by the pressure of a compressible gas phase filling the remaining portion of the reservoir, whereas, in another embodiment, the supersaturated carbon dioxide solution substantially fills the entire reservoir and is either pumped therefrom under pressure or ejected therefrom by deforming the reservoir in the manner of the familiar "squeeze bottle".

If desired, the supersaturated carbon dioxide solution can be specially prepared by simply dissolving carbon dioxide under pressure with the water carrier as is commonly carried out in drugstore soda fountains. Alternatively, the solution can be commercially obtained as ordinary club soda or the like, which optionally may contain additional beneficial ingredients such as sodium bicarbonate and citric acid.

Reference is made to the accompanying drawings, in which:

Figure 1 is a perspective view of a device embodying the present invention, showing application of a carbonated water stain-removal agent to a stained portion of a fabric substrate;

Figure 2 is a sectional view of the device of Figure 1, taken along section line 2-2 thereof;

Figure 3 is a sectional view of a device of the present invention constructed in accordance with an alternative embodiment thereof; and

Figure 4 is a sectional view of a device of the present invention constructed in accordance with yet another alternative embodiment thereof.

Figures 1 and 2 depict a device constructed in accordance with the presently preferred embodiment of the invention, which consists of a generally cylindrical reservoir 10 having a closed end 11 and a dispensing valve-nozzle 12 carried on the opposite end.

A supply of carbonated water 13 partially fills the interior of the reservoir 10 and a compressible gas, e.g., CO_2, 14 fills the remaining interior of the reservoir 10, providing a motive force which ejects the carbonated water 13 under pressure through the dip tube 15 when the plunger portion 16 of the valve 12 is depressed in the direction of the arrow A against the action of the spring 17. The supersaturated carbon dioxide solution, indicated by the dashed lines 18, is ejected through a flared nozzle 19 and is directed against the stained portion B of a fabric substrate 20 which carries food stain material 21.

After application of the carbonated water solution 18 under pressure from the nozzle 19, the wetted portion of the fabric substrate 20 is dabbed and lightly rubbed with any suitable absorbent material, such as a cloth or paper napkin, to remove the water and the food stain material 21 which is separated from the fabric 20. This procedure can be repeated if necessary to effect the complete removal of the staining material.

As shown in Figure 3, the reservoir 31, in accordance with another embodiment of the invention, may be completely filled with the carbonated water solution 32 which is ejected under pressure through the dip tube 33 by means of a pump 34 actuated by a plunger 35.

Alternatively, as indicated in Figure 4, the carbonated water solution 41 can be ejected from a collapsible reservoir 42 by squeezing to eject the solution 41 through the dip tube 43, overcoming the pressure of the spring 44 on a flapper valve 45.

CLAIMS

1. A device for use in effecting the removal of stains from garments comprising a reservoir (10) containing a supply of a supersaturated aqueous solution (13) of carbon dioxide, characterised in that the reservoir is shaped and dimensioned so as to be capable of being concealed on the person, and by valve-nozzle means (12) openable to deliver a portion of said solution under pressure from the reservoir for applying the solution to a stained portion of a garment.

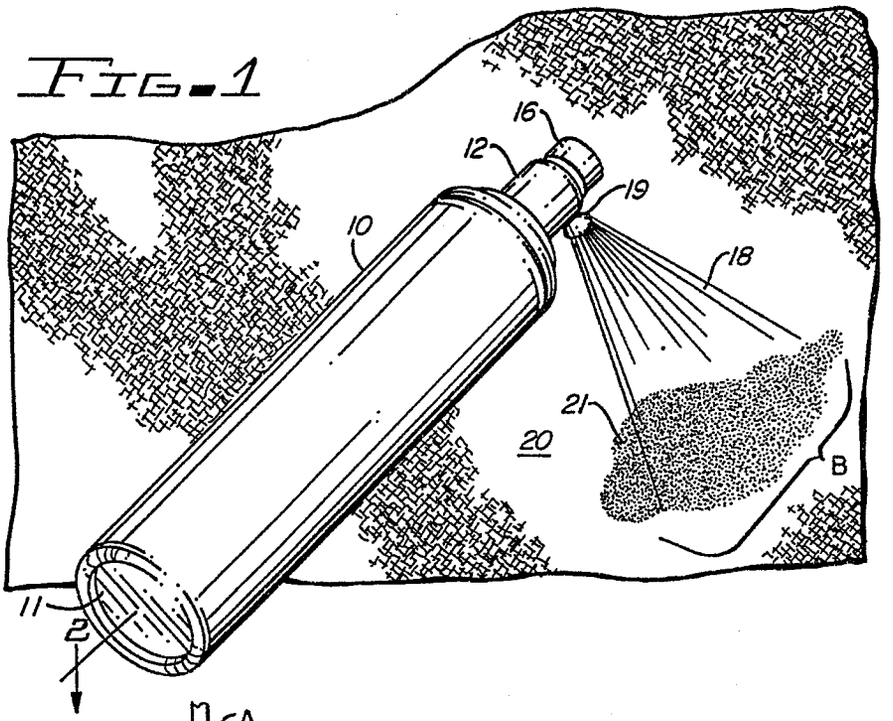
2. A device in accordance with Claim 1 further characterised in that the solution (13) is released by the action of a pressurizing gas when the valve-nozzle means (12) is open.

3. A device in accordance with Claim 1 further characterised by a pump means (34, 42) for ejecting the solution (13) when the valve-nozzle means (12) is open.

4. A device in accordance with Claim 3 further characterised in that the pump means is a plunger-type pump (34).

5. A device in accordance with Claim 3 further characterised in that the reservoir (42) is resiliently deformable and defines the pump means.

FIG-1



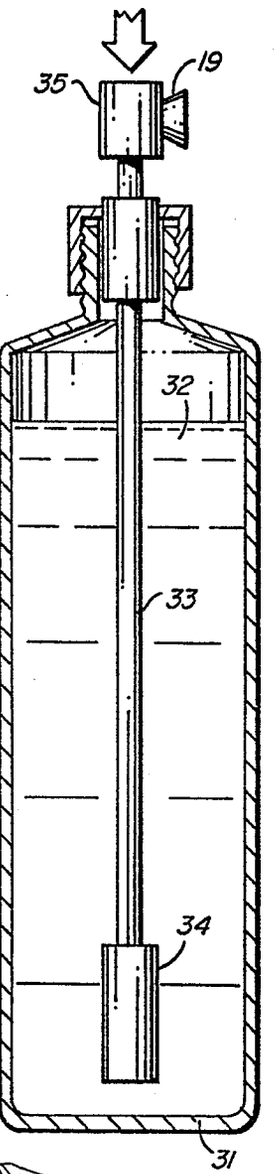


FIG-3

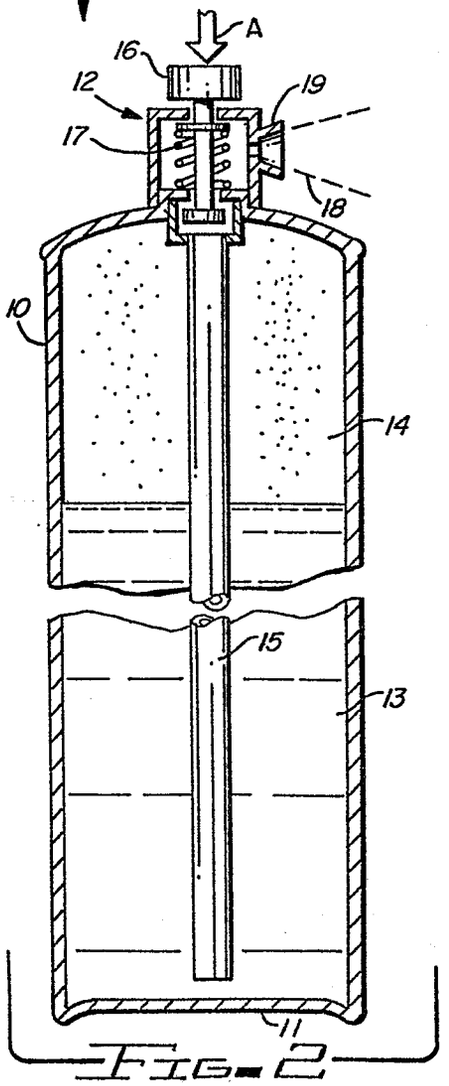


FIG-2

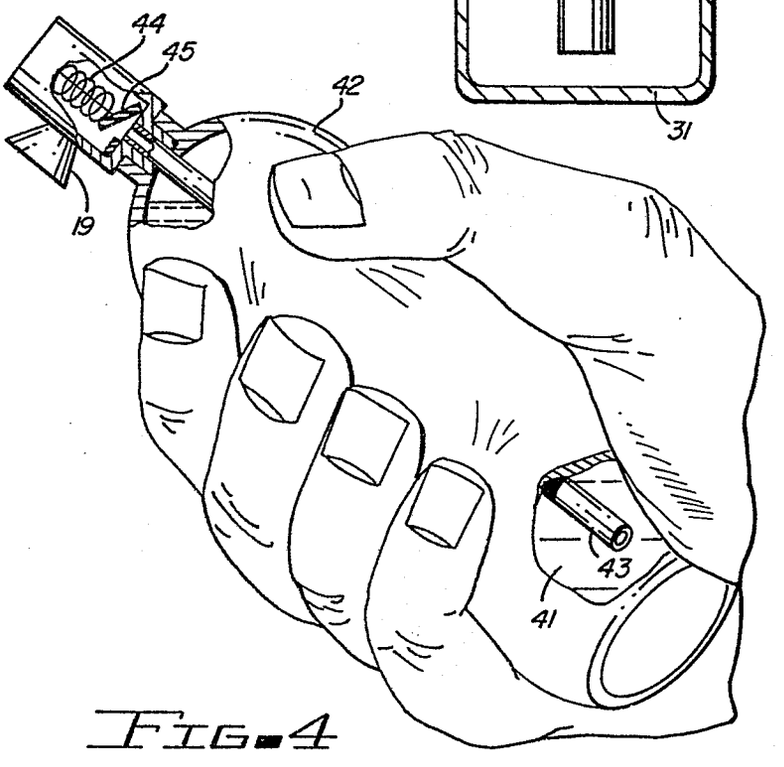


FIG-4

European Patent Office

EUROPEAN SEARCH REPORT

0116202
Application number

EP 83 30 6994

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
X	EP-A-0 063 668 (M. EICHENBERGER) * Whole document *	1,2	A 47 L 25/08
A	FR-A-2 252 140 (KORES HOLDING ZUG AG) * Page 1; figure 2 *	5	
A	DE-C-1 166 424 (H. KAMBERSKY, GEB. VIERTHALER)		

TECHNICAL FIELDS SEARCHED (Int. Cl. ³)

A 47 L

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	14-03-1984	MUNZER E.

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

EPO Form 1503. 03.82