



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**01.05.2013 Bulletin 2013/18**

(51) Int Cl.:  
**A47L 13/50 (2006.01)**

(21) Application number: **12190382.7**

(22) Date of filing: **29.10.2012**

(84) Designated Contracting States:  
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**  
Designated Extension States:  
**BA ME**

(71) Applicant: **Tina Trolleys**  
**9280 Storvorde (DK)**

(72) Inventor: **Wedel, Søren Lindy**  
**9270 Klarup (DK)**

(74) Representative: **Tellefsen, Jens J.**  
**Patrade A/S**  
**Fredens Torv 3A**  
**8000 Aarhus C (DK)**

(30) Priority: **28.10.2011 DK 201100827**

(54) **Apparatus for moisturising a mop**

(57) An apparatus for moisturising the bottom side of a mop (9) is provided with a holder (12) in which the mop (9) can be held substantially in vertical position. Laterally directed nozzles (6) are arranged such that spraying of cleaning agent can be effected in approximately

horizontal direction against the vertically disposed bottom side of the mop. The spraying is driven by a pump (3) which via a switch (4) and possibly an electronic control system can perform the spraying automatically. By the invention upward spraying of cleaning agent is avoided.

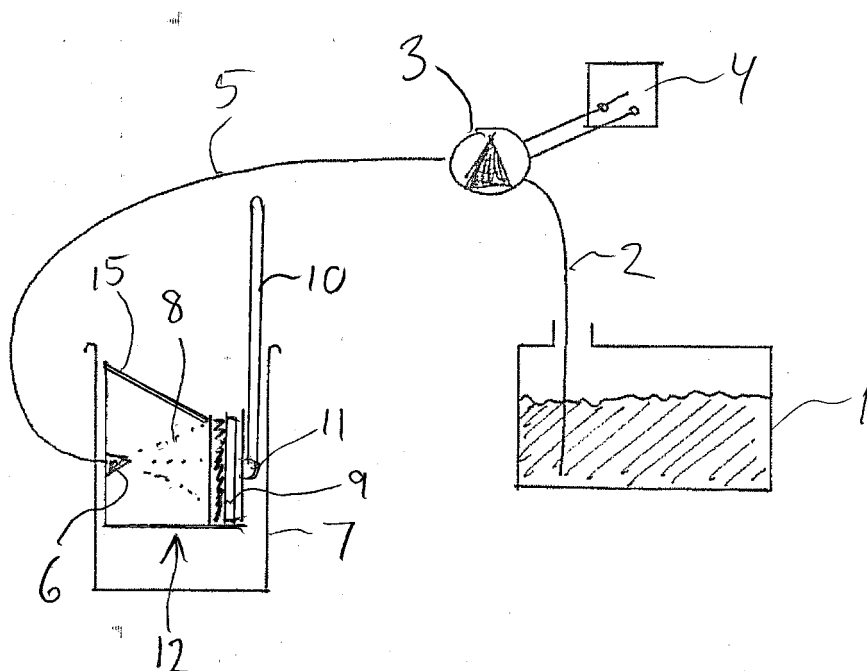


Fig. 1

## Description

### Field of the Invention

[0001] The invention concerns a method and an apparatus for moisturising a mop. The invention typically finds application within the area of cleaning floors in institutions, offices and other commercial connections.

[0002] By professional cleaning a wiping head provided with a handle or shaft is used on which there is a linkage between the head and the shaft. Usually elongated, flat wiping heads are used which at their bottom sides are provided with pile, hair, paper, microfibre or absorbing textile. In the following, the term "mop" covers such flat wiping heads.

### State of the Art

[0003] If the cleaning cannot be done in dry condition, e.g. in case of spots on the floor, the bottom side of the mop is moisturised. Previously it was done manually with a spray bottle. Today there are apparatuses that make this work operation efficient so that it is performed faster and easier.

[0004] EP 1 219 224 A1 describes a moisturising apparatus for a flat mop. The apparatus includes a liquid container, nozzles and moving means for lateral movement of the mop. The mop is drawn laterally into the apparatus by means of motorised rollers with the bottom side of the mop facing downwards. Cleaning agent is sprayed on the bottom side of the mop from nozzles arranged under the mop. The apparatus is relatively complicated due to the moving means for the head of the mop.

[0005] Hygienteknik Sverige AB, S-721 33 Västerås, markets an apparatus under the name "Activa Method Control", cf. [www.hygienteknik.se](http://www.hygienteknik.se). The apparatus is here part of a cleaning trolley wherein an elongated container or bucket has a holder device upon which the mop is placed with the bottom side facing downwards. Down in the container and under the holding device five nozzles are arranged. The mop is provided on the holding device with the head in horizontal position and liquid is pumped to the nozzles by means of a foot pedal. The nozzles apply liquid on the bottom side of the mop by spraying vertically upward against the action of the force of gravity. This entails some disadvantages due to the fact that the liquid is to be sprayed upwards since relatively much sprayed liquid is to be used in order to ensure sufficient coverage at the bottom side of the mop.

### Explanation of the Invention

[0006] It is the object of the invention to eliminate the drawbacks of the prior art methods and apparatuses of the kind indicated in the introduction where the mop is moisturised by liquid from a liquid container in an apparatus by means of nozzles in the apparatus.

[0007] This is achieved by a method according to the

invention wherein the mop is inserted in a holder device in a moisturising apparatus such that the bottom side of the mop is disposed substantially in a vertical plane, whereupon the liquid is sprayed in substantially horizontal direction against the bottom side of the mop.

[0008] The particular feature of the apparatus according to the invention is that the holder device is designed such that the mop by bearing against the holder device is oriented such that the bottom side of the mop is disposed substantially in a vertical plane, and that the nozzles are disposed in relation to the holder devices such that the liquid can be sprayed laterally and about horizontally in against the bottom side of the mop.

[0009] The negative action of the force of gravity on the atomised liquid sprayed on the bottom side of the mop is thereby avoided. A more efficient and more certain moisturising of the mop as compared with the prior art is thereby achieved. The substantially vertical position of the flat bottom side of the mop may vary some degrees, up to 15°, at either side of vertical within the scope of the invention without losing the advantages of the invention.

[0010] In a particularly simple embodiment of the apparatus according to the invention it is preferred that the holder device consists of two horizontally spaced bracket members, each bracket member having a sloping section at the top and a substantially vertical holding section at the bottom in continuation of the sloping section, the holding section designed with a bottom and with upright side members extending from the bottom for supporting the mop at three sides. The mop which as mentioned is pivotably suspended on the shaft may thereby be laid directly on the sloping section of the holder device and then be moved down until the lower side edge of the mop hits the bottom of the holder device as the holder device forces the mop to assume the substantially vertical position.

[0011] The pressure for driving the liquid from the container to the nozzles may, as by the prior art, be effected by a foot pedal or other manual pumping means.

[0012] In an embodiment of the apparatus, the feeding system may include a switch for activating the feeding system, e.g. a battery operated pump in the feeding system so that liquid is sprayed out from the nozzles by actuating the switch.

[0013] In a simple embodiment, the switch may be a switch that functions by manual operation, e.g. wherein the switch is disposed behind a handle on a cleaning trolley in which the apparatus according to the invention is provided.

[0014] Alternatively, the apparatus may include a sensor for detecting the presence of the mop when the mop is correctly disposed in the holder device, and that the sensor is connected with a control circuit for activating the switch and thereby the feeding system. By inserting the mop in the holder device, the sensor detects the presence of the mop and the liquid can be sprayed thereon automatically controlled by the control circuit in the feeding system.

## The Drawing

**[0015]** Example embodiments of the invention will be described with reference to the drawing below, where:

Fig. 1 shows a schematic drawing of an embodiment of an apparatus according to the invention; and

Fig. 2 shows a detail of a part of the apparatus in Fig. 1 in perspective view.

## Description of Example Embodiments

**[0016]** The apparatus according to the invention can be used as a stationary moisturising device as well as built into a cleaning trolley where buckets, cloths, cleaning agents etc. are assembled and which cleaning staff usually brings with them.

**[0017]** Fig. 1 only shows the principle of a simple embodiment of the invention and not the real embodiment in the cases where the apparatus is incorporated in a cleaning trolley. Here is shown a container 1 with liquid which is a cleaning agent or water with cleaning agent, the container 1 connected to a pump 3 by a tube 2. The pump 3 is connected to a switch 4 which is connected to a not shown power supply. The power supply can be a public network or a battery, e.g. a rechargeable battery.

**[0018]** Via a line 5 the liquid can be conducted from the pump 3 to nozzles 6 located in a vessel 7. For the sake of clarity only one nozzle 6 is shown on Fig. 1, but the number may vary, depending on the actual need. The peculiar feature of the apparatus according to the invention is that the nozzles 6 are directed laterally, in this case such that the liquid as shown on Fig. 1 can be sprayed out at a spraying angle 8 which is symmetrical about a horizontal plane. The flat head 9 of a mop is placed opposite the nozzles 6 such that the wiping or cleaning face of the mop, i.e. its bottom side, faces the nozzles 6. The mop 9 is therefore disposed such that its bottom side is located substantially in a vertical plane as lesser deviations, however, may occur within the scope of the invention. In the shown embodiment, the mop 9 is held in the moisturising position by a holder 12 which in its simplest embodiment consists of two brackets of wire material, see Fig. 2. Each bracket includes a horizontal section 13 at the bottom, of which a part is support for the mop 9 when placed in the holder 12. Two parallel sections 14 extend upwardly from the horizontal section 13 in order to keep the mop 9 in the approximately vertical position at which the bottom side is facing the nozzles 6. There is provided a top section 15 which is connected with one of the sections 14 and which is sloping up towards the upper edge of the container 7.

**[0019]** The mop 9 is of the common type wherein a hinge joint 11 connects the mop head with a shaft or handle 10. By an embodiment of the method according to the invention, the bottom side of the mop 9 is placed on the sloping top sections 15, whereupon the mop 9 is

moved down along the sections 14 until the lower edge of the mop bears against the horizontal section 13. Then liquid is sprayed on the bottom side of the mop by activating the switch 4. Activation may be effected manually by a finger or by a foot. In another not shown embodiment, the switch 4 can be provided down in the vessel 7; the switch can then be a mechanical part of the suspension for the holder 12 so that when the mop 9 applies a load on the holder 12, the switch 4 activates an electric circuit, thereby starting the pump 3. Alternatively, a mechanical switch may be established at the side of the holder 12, e.g. between the brackets such that the switch is triggered by moving the mop 9 down, as the presence of the mop 9 is thereby detected and the pump 3 is started.

**[0020]** In a further, not shown embodiment of the invention, the apparatus is equipped with an electronic control circuit in which is provided a touch-free sensor, e.g. a photocell, in the vessel 7 for detecting the presence of the mop 9 and thereby activating the switch 4.

**[0021]** On Fig. 2 four nozzles 6 are shown. Fewer or additional nozzles are possible within the scope of the invention. In this case just one nozzle may be used if capable of spraying the liquid in a shape which substantially corresponds to the shape of the bottom side of the mop.

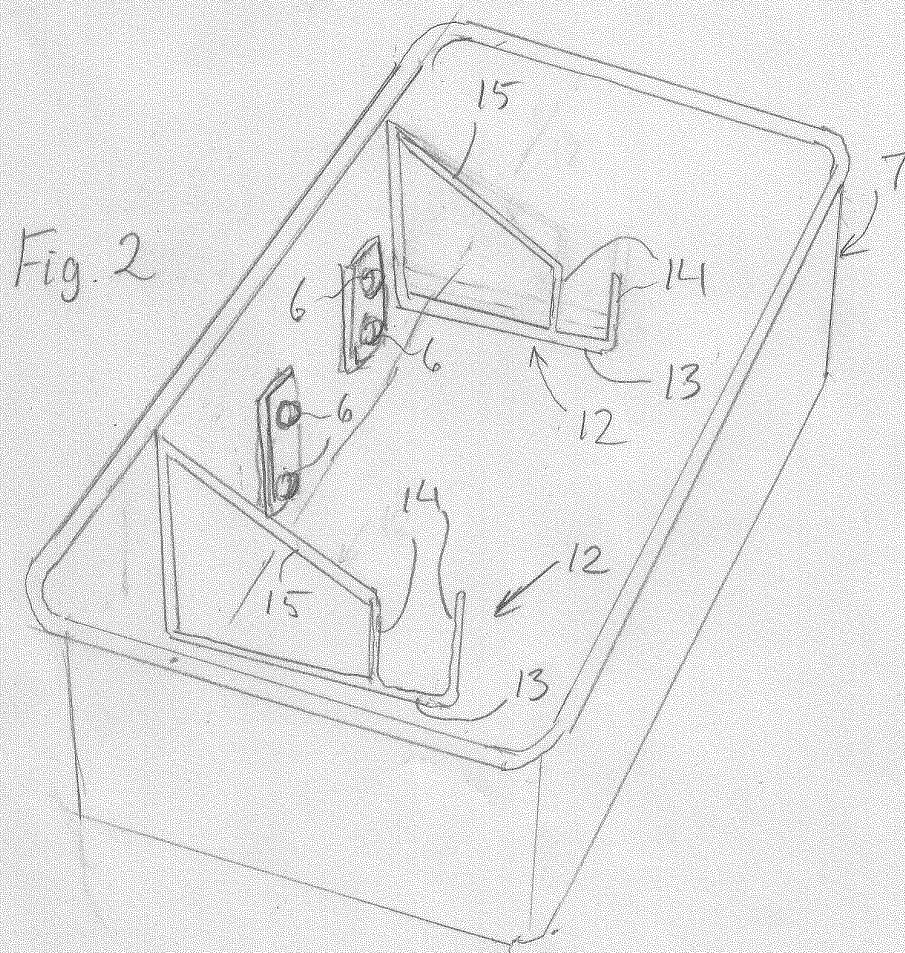
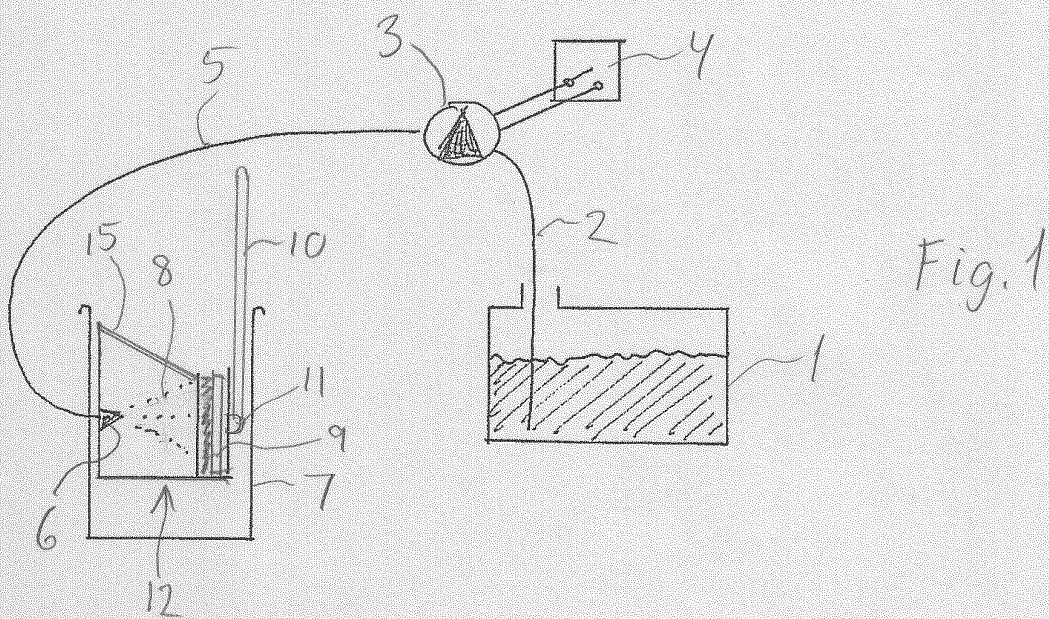
**[0022]** Other embodiments of the apparatus according to the invention are possible. The sloping section 15 on the holder 12 is thus not necessary as the parallel sections 14 may just continue upwards diverging away from each other, or they may form a funnel-like shape in other ways. The holder may furthermore be made of other means than wire-like materials, e.g. narrow plate pieces, or the holder can be designed as a device that support or holds the mop only at its lateral ends or at the back side facing upwards during normal use.

## Claims

1. A method for moisturising a mop, which mop is designed at its bottom side with a substantially plane wiping surface for cleaning floors, wherein the mop is moisturised with liquid from a liquid container in an apparatus by means of nozzles in the apparatus in that the mop is inserted in a holder device in the apparatus such that the bottom side of the mop is disposed substantially in a vertical plane, whereupon the liquid is sprayed in substantially horizontal direction against the bottom side of the mop.
2. An apparatus for moisturising a mop, wherein the apparatus is provided with nozzles, a liquid container for containing liquid, a ducting system for conducting the liquid to the nozzles and a feeding system for feeding the liquid to the nozzles, wherein the apparatus includes a holder device which is designed as support for the mop and for orienting the mop when the bottom side of the mop is to be applied liquid via

the nozzles, and wherein the holder device is designed so that the mop by bearing against the holder device is oriented such that the bottom side is disposed substantially in a vertical plane and such that the nozzles are disposed relative the holder device so that the liquid can be sprayed laterally and about horizontally against the bottom side of the mop, **characterised in that** the holder device consists of two horizontally spaced bracket members, each bracket member having a sloping section at the top and a substantially vertical holding section at the bottom in continuation of the sloping section, the holding section designed with a bottom and side members extending upright from the bottom for supporting the mop at three sides.

3. Apparatus according to claim 2, **characterised in that** the feeding system includes a switch for activating the feeding system, e.g. a pump in the feeding system so that liquid is sprayed out from the nozzles by actuating the switch.
4. Apparatus according to claim 3, **characterised in that** the switch is a switch functioning by manual operation.
5. Apparatus according to claim 3, **characterised in that** the apparatus includes a sensor for detecting the presence of the mop when the mop is correctly disposed in the holder device, and that the sensor is connected with a control circuit for activating the switch and thereby the feeding system.





## EUROPEAN SEARCH REPORT

Application Number  
EP 12 19 0382

| 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                                                                                                                                                                                                                                                      | WO 97/49327 A1 (BOWMAN DAVID ALAN [GB])<br>31 December 1997 (1997-12-31)                                                     | 1,2                                                                                                                                                                                                                                                                          | INV.<br>A47L13/50                       |
| Y                                                                                                                                                                                                                                                      | * page 13, paragraph 6 - page 16,<br>paragraph 6 *                                                                           | 3-5                                                                                                                                                                                                                                                                          |                                         |
| X                                                                                                                                                                                                                                                      | WO 03/099095 A1 (KAERCHER GMBH & CO KG<br>ALFRED [DE]; RUST HENDRIK [DE]; DEMIRTAS<br>YUNUS []) 4 December 2003 (2003-12-04) | 1-5                                                                                                                                                                                                                                                                          |                                         |
| Y                                                                                                                                                                                                                                                      | * page 14, paragraph 3 - page 15,<br>paragraph 1 *                                                                           | 3-5                                                                                                                                                                                                                                                                          |                                         |
| A                                                                                                                                                                                                                                                      | DE 10 2004 044026 A1 (BSH BOSCH SIEMENS<br>HAUSGERÄTE [DE])<br>16 March 2006 (2006-03-16)<br>* paragraph [0039] *            | 1-5                                                                                                                                                                                                                                                                          |                                         |
|                                                                                                                                                                                                                                                        |                                                                                                                              |                                                                                                                                                                                                                                                                              | TECHNICAL FIELDS<br>SEARCHED (IPC)      |
|                                                                                                                                                                                                                                                        |                                                                                                                              |                                                                                                                                                                                                                                                                              | A47L                                    |
| The present search report has been drawn up for all claims                                                                                                                                                                                             |                                                                                                                              |                                                                                                                                                                                                                                                                              |                                         |
| Place of search<br>Munich                                                                                                                                                                                                                              |                                                                                                                              | Date of completion of the search<br>18 February 2013                                                                                                                                                                                                                         | Examiner<br>Eckenschwiller, A           |
| CATEGORY OF CITED DOCUMENTS<br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document |                                                                                                                              | T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : 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 12 19 0382

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.

18-02-2013

| Patent document<br>cited in search report |    | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|-------------------------------------------|----|---------------------|----------------------------|---------------------|
| WO 9749327                                | A1 | 31-12-1997          | AT 200018 T                | 15-04-2001          |
|                                           |    |                     | AU 3341497 A               | 14-01-1998          |
|                                           |    |                     | DE 69704427 D1             | 03-05-2001          |
|                                           |    |                     | DE 69704427 T2             | 06-12-2001          |
|                                           |    |                     | EP 0912133 A1              | 06-05-1999          |
|                                           |    |                     | ES 2157584 T3              | 16-08-2001          |
|                                           |    |                     | WO 9749327 A1              | 31-12-1997          |
| -----                                     |    |                     |                            |                     |
| WO 03099095                               | A1 | 04-12-2003          | AT 347846 T                | 15-01-2007          |
|                                           |    |                     | AU 2003232733 A1           | 12-12-2003          |
|                                           |    |                     | CN 1655715 A               | 17-08-2005          |
|                                           |    |                     | DE 10223074 C1             | 14-08-2003          |
|                                           |    |                     | DK 1507471 T3              | 12-03-2007          |
|                                           |    |                     | EP 1507471 A1              | 23-02-2005          |
|                                           |    |                     | ES 2279151 T3              | 16-08-2007          |
|                                           |    |                     | PT 1507471 E               | 31-01-2007          |
|                                           |    |                     | US 2005115098 A1           | 02-06-2005          |
|                                           |    |                     | WO 03099095 A1             | 04-12-2003          |
| -----                                     |    |                     |                            |                     |
| DE 102004044026                           | A1 | 16-03-2006          | AT 461650 T                | 15-04-2010          |
|                                           |    |                     | CN 101014275 A             | 08-08-2007          |
|                                           |    |                     | DE 102004044026 A1         | 16-03-2006          |
|                                           |    |                     | EA 200700410 A1            | 26-10-2007          |
|                                           |    |                     | EP 1799091 A1              | 27-06-2007          |
|                                           |    |                     | US 2007226942 A1           | 04-10-2007          |
|                                           |    |                     | WO 2006027318 A1           | 16-03-2006          |
| -----                                     |    |                     |                            |                     |

**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**

- EP 1219224 A1 [0004]