



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
13.06.2007 Bulletin 2007/24

(51) Int Cl.:
A47L 11/34 (2006.01)

(21) Application number: **06025027.1**

(22) Date of filing: **04.12.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(72) Inventor: **Grove, Philip**
Tipton
West Midlands
DY4 8EZ (GB)

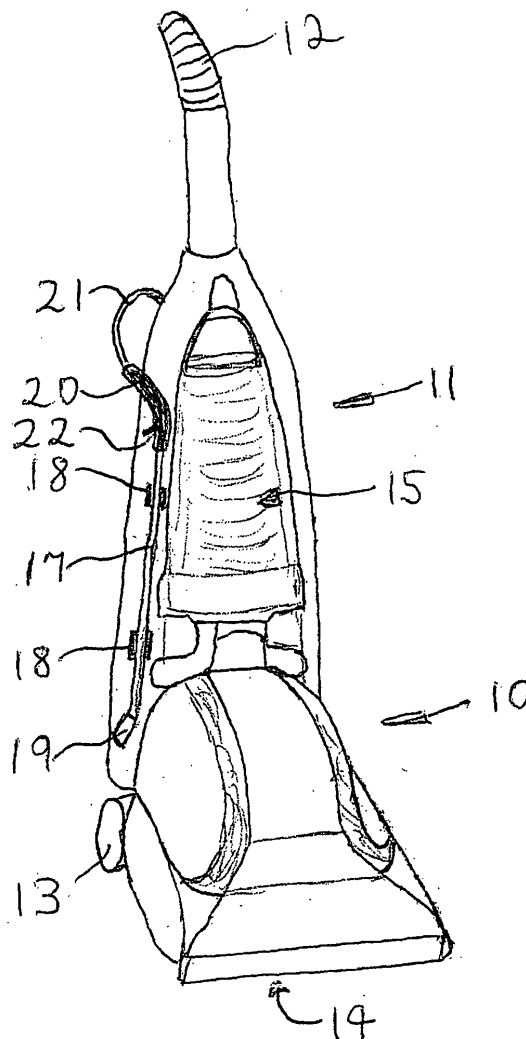
(30) Priority: **06.12.2005 GB 0524855**

(74) Representative: **HOFFMANN EITLE**
Patent- und Rechtsanwälte
Arabellastrasse 4
81925 München (DE)

(71) Applicant: **Vax Limited**
Droitwich, Worcestershire WR9 0QH (GB)

(54) **Machine for cleaning a surface e.g. a floor surface**

(57) A machine (10), for example a carpet cleaning machine, for cleaning a surface by application of a cleaning liquid thereto and removal of the liquid therefrom, is additionally provided with a manually controllable means for applying fluid to the surface. This may comprise a wand (17) with a spray nozzle (19), manually usable to deliver extra cleaning liquid or some other treatment material to the surface.



Description

Description of Invention

[0001] This invention relates to a machine for cleaning a surface, for example a floor surface.

[0002] The invention has been devised in relation to a machine for floor cleaning, particularly carpet cleaning, by application of a cleaning liquid to the floor and removal of the liquid therefrom when it has fulfilled its cleaning function.

[0003] Machines for cleaning carpets in this manner are well known. A typical machine includes a reservoir for containing a cleaning liquid (normally water having a suitable detergent added thereto), and an arrangement for delivering the cleaning liquid to a cleaning head which is moveable over the carpet to be cleaned and distributes the liquid thereon. The machine further comprises a source of suction for extracting the cleaning liquid from the carpet and arranged to deliver such liquid, which is dirty having fulfilled its cleaning function, to a further reservoir. There are special-purpose machines for cleaning in this way, which may be of the "upright" type, having a cleaning head moveable over the carpet surface and a body extending upwardly from the cleaning head, the body being tiltable relative to the head and having a handle by which a user can manoeuvre the machine to move the cleaning head as required over the carpet which is to be cleaned. In such a machine, a motor driving an impeller to create the suction for extracting dirty cleaning liquid from the carpet may be carried by the cleaning head, the motor possibly also driving a brush bar to agitate the carpet with the cleaning liquid thereon to improve the cleaning operation, while the reservoirs for the liquid typically are carried by the body, being removable therefrom for filling the clean liquid reservoir and emptying the dirty liquid reservoir. There are also vacuum cleaners which are able to be adapted for carpet cleaning, having, in the case of a vacuum cleaner of the "canister" or "cylinder" type with a main body containing the cleaner's source of suction and means for separating and collecting dirt which has been sucked up, a special-purpose cleaning head which can be connected at the end of a rigid, possibly telescopic extendible and contractible, wand, so as to be moveable over a carpet surface. Reservoirs for clean and dirty liquid are provided in or associated with the main body of the cleaner.

[0004] It may be the case that carpet cleaning requires the application of a treatment fluid to the carpet in addition to the cleaning liquid applied in normal operation of the machine. Such a treatment fluid may be an extra quantity of the normal cleaning liquid, e.g. to be applied to a particularly dirty part of the carpet prior to or in the course of the normal use of the cleaning machine thereon, or it may be a more concentrated solution of the detergent used in the cleaning solution or some other agent e.g. a special-purpose spot remover or the like.

[0005] Hitherto such application of other fluids to a sur-

face being cleaned has necessitated the use of hand-held sprayers, applicator pads or the like separate from the cleaning machine, and for floor cleaning this has usually involved the person carrying out the cleaning operation in bending to floor level or kneeling down. This is inconvenient.

[0006] It is broadly the object of the present invention to render such application of such an additional treatment fluid to a floor surface less inconvenient.

[0007] According to one aspect of the present invention, we provide a machine for cleaning a surface by application of a cleaning liquid thereto and removal of the liquid therefrom, additionally provided with a manually controllable means for applying a fluid to the surface.

[0008] The manually controllable means for applying a fluid to the surface may comprise a dispensing device, e.g. a spray nozzle, provided on a cleaning head of the machine. A control may be provided, operable by a user of the machine, to determine when the fluid is to be dispensed from the device to be applied to the surface.

[0009] Preferably the manually controllable means is manually directable, so that the fluid may be applied to a required part or region of the surface.

[0010] The manually controllable means may comprise a dispensing device which can be stored on the machine when not in use and removed therefrom to apply the fluid to any required part of the surface relative to the machine.

[0011] The dispensing device may comprise a spray nozzle or the like, and such a nozzle may be provided at the end of an elongate dispensing element of the type commonly referred to as a wand or lance, having a handle at or adjacent its other end by which it may be held by a user. A flow control means may be provided at or in association with the handle, e.g. a trigger-operated valve, so that the user may control the application of fluid by the device.

[0012] The use of an elongate dispensing element enables the fluid to be applied to a floor surface with a degree of accuracy as to the position or region of such application, without necessitating the user's bending or kneeling.

[0013] A reservoir for the fluid which is able to be applied by such a dispensing device may be carried by the machine and connected to the dispensing device by a flexible tube. A pump may be provided for delivering the fluid from the reservoir to the dispensing device.

[0014] The fluid may be the liquid which is used by the cleaning machine in its cleaning operation, with the dispensing device connected to the reservoir provided on the machine for clean such liquid. Alternatively a further reservoir may be provided on the machine for a different liquid, e.g. a special purpose cleaning liquid or a more concentrated solution of the detergent generally used in the cleaning liquid in the machine.

[0015] The machine may be a carpet cleaning machine of the upright type, in which case an elongate dispensing element such a wand or lance may be accommodated,

when not in use, in a suitable retaining formation or formations provided on the upwardly extending body of the machine. It may be easily detached from such a formation or formations and wielded by a user to apply a cleaning fluid to a carpet being cleaned, e.g. for additional spot or small area treatment.

[0016] Although mainly intended for use with, and described hereafter in relation to, a carpet cleaning machine of the upright type, the invention may also find application in relation to a machine of the canister or cylinder type. Thus, a dispensing element such a wand or lance may be held in formations on the body of such a machine which has the reservoirs and source of suction of the machine, or on a wand carrying a cleaning head of such a machine.

[0017] Further it is to be understood that although the invention is described herein in relation to the pre-treatment of a carpet or the like with a cleaning fluid, it may also be applicable to use with other treatment fluids, e.g. a post-cleaning protective (e.g. stain-resistant) and/or fragrancine fluid. Possibly such fluid could be in the form of a powder rather than a liquid.

[0018] The invention will now be described by way of example with reference to the accompanying drawing, which illustrates a carpet cleaning machine of the upright type.

[0019] The machine, as is generally known for machines of this type, comprises a cleaning head part indicated generally at 10 and a body part indicated generally at 11, extending upwardly from a rearmost region of the cleaning head 10. The body 11 is connected to the cleaning head for pivoting movement about a transverse axis, and has a handle 12 at its uppermost end to enable a user to manoeuvre the machine and specifically its cleaning head over a floor surface such as a carpet which is to be cleaned. The cleaning head 10 of the machine has laterally spaced wheels 13 at its rear end, and at a forward end part has in its underside a chamber 14 facing the surface on which the machine stands. Provision is made for the application of cleaning liquid to the surface in the vicinity of such chamber, e.g. at the front boundary thereof, and in the chamber there may be disposed one or more brush bars or other agitators for agitating a carpet being cleaned to improve the cleaning action. Provision is made for extraction by suction of the cleaning liquid from the chamber and the carpet therebeneath, the cleaning head 10 containing an electric motor and impeller to provide suction for this purpose: the motor may also drive the agitator(s).

[0020] The body 11 of the machine houses a reservoir assembly indicated generally at 15, including a reservoir for the cleaning liquid from which it is delivered to the cleaning head, and a further reservoir for dirty such liquid extracted from a carpet being cleaned. The clean liquid may be a detergent pre-mixed with water, or there may be yet a further reservoir for the detergent alone in concentrated form, which is mixed with clean water by the machine prior to its application to a carpet. It would be

appreciated that the machine incorporates suitable ducts, passages, controls, and the like, all of which are generally known in relation to carpet cleaning machines, for enabling and controlling its operation.

[0021] In accordance with the invention, a dispensing element in the form of an elongate wand or lance 17 is provided, and in the drawing it is shown held by retaining formations such as appropriate clips 18 on the body part 11 of the machine. At its lowermost end the dispensing element 17 has a nozzle 19 which may be adjustable to provide a narrow jet or wide spray as required, and at its uppermost end the element 17 has a manually graspable handle 20. A flexible hose 21 provides for the delivery of a treatment fluid to the element 17 from a reservoir provided on the machine possibly in association with the reservoir assembly indicated at 15. Such a liquid may be the clean cleaning liquid or the concentrated detergent therefor, or some other liquid for pre- or post-cleaning treatment of a carpet.

[0022] The dispensing element 17 has its handle 20 provided with a trigger 22 for operating a valve to control the dispensing of the treatment fluid by the element 17. For ensuring delivery of the fluid to the dispensing element, a pump may be provided or alternatively a reservoir for the fluid may be subject to a super-atmospheric pressure to cause delivery of the fluid therefrom.

[0023] In use of the machine as above described, it will be appreciated that it is convenient for the user, if wishing to subject a carpet which is being cleaned to pre- or post-cleaning treatment, either localised or over a larger area, it is easy to dismount the dispensing element 17 from the machine and wield it manually as required to apply the liquid where it is needed. After use, the element 17 can be returned to its stored position on the machine, and the machine used as normal.

[0024] When used in this specification and claims, the terms "comprises" and "comprising" and variations thereof mean that the specified features, steps or integers are included. The terms are not to be interpreted to exclude the presence of other features, steps or components.

[0025] The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, as appropriate, may, separately, or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

Claims

1. A machine for cleaning a surface by application of a cleaning liquid thereto and removal of the liquid therefrom, additionally provided with a manually controllable means for applying fluid to the surface.
2. A machine according to claim 1 wherein the means

for applying a fluid to the surface is manually directable.

3. A machine according to claim 1 or claim 2 wherein the means for applying a fluid to the surface comprises a dispensing device provided on a cleaning head of the machine. 5
4. A machine according to claim 1 or claim 2 wherein the means for applying a fluid to the surface comprises a dispensing device which can be stored on the machine when not in use and removed therefrom to apply the fluid to the surface. 10
5. A machine according to claim 4 wherein the dispensing device comprises a spray nozzle. 15
6. A machine according to claim 5 wherein the spray nozzle is provided at an end of an elongate dispensing element having a handle at or adjacent its other end. 20
7. A machine according to claim 6 wherein a flow control means is provided at or in association with the handle. 25
8. A machine according to claim 7 wherein the flow control means comprises a trigger-operated valve.
9. A machine according to any one of the preceding claims wherein a reservoir for the fluid additionally to be applied to the surface is carried by the machine and connected to the dispensing device by a flexible tube. 30
35
10. A machine according to claim 9 wherein a pump is provided for delivering the fluid from the reservoir to the dispensing device.
11. A machine according to claim 9 or claim 10 wherein the fluid is the liquid which is used by the cleaning machine in its cleaning operation, the dispensing device being connected to a reservoir provided on the machine for clean such liquid. 40
45
12. A machine according to claim 9 or claim 10 wherein the reservoir for fluid to be applied by the dispensing device is an additional reservoir to that provided on the machine for the liquid used in the cleaning operation. 50
13. A machine according to any one of the preceding claims which is a carpet cleaning machine.
14. A machine according to claim 13 as appendant directly or indirectly to claim 6 wherein the elongate dispensing element is accommodated in a retaining formation or formations provided on an upwardly ex-

tending body of the machine.

15. A machine substantially as hereinbefore described with reference to and as shown in the accompanying drawings.
16. Any novel feature or novel combination of features described herein and/or in the accompanying drawings.

