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(54) **System, assembly, device and process for surface care**

(57) The invention relates to a system for actuating the release of chemicals, for example liquid cleaners, from chemical containers such as spray dispenser bottles, said system being fixable to surface care equipment such as rotating disc cleaning machines and vacuum cleaners, the system comprising:

- securing means for releasably securing the chemical container to the surface care equipment;
- effecting means for effecting release of a predetermined amount of chemical from the container; and
- operating means for operating the effecting means.

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Description

Field of the invention

[0001] The present invention relates to a system for actuating the release of chemicals, for example liquid cleaners, detergents and the like from chemical containers such as spray dispenser bottles, which bottles are fixed to surface care equipment, i.e. floor care machines, in particular rotating disc cleaning machines, vacuum cleaners and the like. Furthermore, the invention is concerned with an assembly comprising such a system and a chemical reservoir, in particular a spray dispenser bottle.

In addition, the invention relates to a surface care device and to a process for cleaning surfaces.

Background of the invention

[0002] Systems for actuating the release of chemicals from chemical containers fixed to surface care equipment, are known in the art.

For instance, US-A-4,333,203 discloses a conversion attachment for a wet-dry vacuum cleaner providing for the application of a mixture of water and detergent through a spray assembly mounted adjacent to a vacuum nozzle and cleaning head. The attachment includes a spray nozzle and associated liquid flow lines for connection to a source of water, a detergent container, and a siphon for injecting detergent into the flowing water.

[0003] In addition, US-A-5,555,597 refers to an apparatus for converting a vacuum cleaner into a liquid dispensing and suctioning system for surface cleaning. However, the systems disclosed by these documents are complicated systems. Furthermore, it is not possible to operate these systems with a predetermined amount of chemical. So, the flexibility and efficiency of these systems leaves to be desired.

Surface care equipment, for example rotating disc cleaning machines which are often used in public buildings, factories and the like and vacuum cleaners are specifically designed to carry out their particular functions.

It is an object of the present invention to further increase the flexibility and efficiency of such surface care equipment.

Definition of the invention

[0004] According to a first aspect of the present invention, there is provided a system for actuating the release of chemicals, for example liquid cleaners, from chemical containers such as spray dispenser bottles, said system being fixable to surface care equipment such as rotating disc cleaning machines and vacuum cleaners, the system comprising:

- securing means for releasably securing the chemical container to the surface care equipment;
- effecting means for effecting release of a predetermined amount of chemical from the container; and
- operating means for operating the effecting means.

[0005] According to a second aspect of the present invention, there is provided an assembly comprising a system of the invention, said assembly further comprising a chemical reservoir, in particular this being a spray dispenser bottle arranged within the securing means of the system between the system spray head and the system operating means.

According to a third aspect of the present invention, there is provided a surface care device, such as a rotating disc cleaning machine and a vacuum cleaner, comprising the assembly or the system as referred to above. According to a fourth aspect of the present invention, there is provided a process for cleaning surfaces comprising the steps of:

- operating a surface care device such as a rotating disc cleaning machine and a vacuum cleaner, and
- actuating release of a predetermined amount of chemical from a reservoir, preferably a standard spray bottle, secured to the surface care device by means of the system as referred to above.

Detailed description of the invention

[0006] The system according to the present invention enables a chemical reservoir, in particular a spray dispenser bottle, to be fixed to a surface care device and manually operated by the surface care equipment operator simultaneously while carrying out the normal functioning of the surface care equipment. Accordingly, the operator may dose a required amount of chemical, i.e. detergent or cleaner, simply by manually operating the operating means after which the working of this chemical may be maximized by the rotating disc of a surface care machine for example.

The system preferably further comprises a spray head through which chemicals are sprayable, and a conduit connected at one end to said spray head and at the other end being connectable to a spray nozzle of a spray dispenser bottle.

Accordingly, good control over the positioning of the spray is obtained.

The effecting means may be mechanically and/or electrically operable, by means of a hand lever and/or a knob for example.

The effecting means are preferably displaceable between a first position, wherein a spray bottle trigger of a spray bottle secured to the surface care equipment is depressible and a second position, wherein said spray bottle trigger is releasable. In this way the specific dosage of chemical can be controlled.

The system may further comprise transmission means,

for example in the form of a mechanical or electrical cable, which extend between the operating and effecting means. Accordingly, the operating means are in easy reach of the operator, whilst the chemical reservoir may be secured to the surface care equipment near the surface to be cared for.

The securing means preferably take the form of a tensioned clip which is securable around the neck of a spray dispenser bottle and mountable to a surface care machine. Hence, a chemical reservoir, such as a standard spray dispenser bottle, may be secured to the surface care equipment and operated by the system according to the present invention. If the operator wishes to ensure that no chemical is dosed, he simply needs to rotate the spray dispenser bottle in the tensioned clip, so that the effecting means no longer are able to come into contact with the spray dispenser bottle trigger.

[0007] Furthermore, once the dispenser bottle is empty this may be easily replaced by a new, full bottle. Cleaning and maintenance of the system components is also easy and quick to carry out.

[0008] The invention will now be further clarified by way of the following description which refers to the figures, wherein:

- figure 1 is a perspective view of a rotating disc cleaning machine provided with a system according to the present invention;
- figure 2 shows a partially cut away above view of the spray bottle trigger effecting means according to the present invention; and
- figure 3 shows a side view of figure 2.

[0009] A rotating disc cleaning machine 1 (see figure 1) is provided with a rotating disc cleaner 2, a motor housing 4, a body 6, wheels 8, a hingeable stem 10 extending between said body 6 and a handle section 12 from where the machine is manually operable by a user. A spray bottle dispenser 14 is secured to the body 6 of the machine by means of a locking U-clip 16 mounted on the side of the body 6. A cable 18 extends between a hand operable lever 20 and a hook-like element 22 which extends around a trigger 24 of the spray bottle 14. A tube 26 is releasably attached to a nozzle of the spray bottle 14 and at the other thereof terminates in a tube spray head 28 centrally fixed to the motor housing 4 of the machine.

This spray head 28 can be easily released and refixed to the machine at any desired position thereof by the operator.

[0010] Since a standard spray bottle 14 can be used according to the present invention, this is also hand operable simply by depressing trigger 24 if desired.

The tube 26 is easily removable from the spray bottle 14 and the machine 1 in order to allow replacement thereof or easy cleaning thereof. Removal of the tube 26 is easily carried out, manually by the operator, whereby com-

plicated procedures and the use of tools is obviated.

[0011] Cable 18 is connected to the hook 22 in a casing 25 mounted on the U-clip 16 (see figures 2 and 3). A spring 27 is tensioned around the hook 22 between the casing 25 and a rim 30 secured to the hook 22.

A screw cap 32 is screwed over the nozzle 34 of the spray bottle 14 which screw cap 32 is continuous with the conduit 26.

The casing 25 comprises two compartments 34 and 36, separated by a wall 38 wherethrough the hook 22 extends (figure 3).

A neck piece 40 is mounted around the hook 22 within the first compartment 34.

Cable 18 is connected to the hook 22 by means of a connecting element 42 extending within the first compartment 34.

[0012] During operation of the disc cleaning machine the operator merely pulls in lever 20, whereby cable 18 is tightened in turn pulling the connecting element 42 into a channel 46 of the casing 25 whereby in turn hook 22 is pulled towards the casing 25, whereby the trigger 24 is depressed whereby a determined amount of chemical in the spray bottle 14 is pumped therefrom along tube 26 to be sprayed from the spray head 28.

On release of the lever 20 the connecting element 42 is released back into the casing 25, whereby the neck piece 40 comes to rest against the wall 38 of the casing 25, whereby due to the action of the spring 27, the hook 22 is pushed back into its rest position (see figure 3) in order to release the trigger 24.

As shown in figure 2, the spray bottle 14 can be simply rotated so that the trigger 24 no longer comes into contact with the hook 22 if spray release of the chemical is not required.

[0013] In a further not shown embodiment of the present invention, the hook may be depressed by electrical means, comprising for example an electrically operated remote relay.

[0014] The scope of the invention is not restricted to the above description of the preferred embodiments, but is rather determined by the scope of the accompanying claims.

Claims

1. System for actuating the release of chemicals, for example liquid cleaners, from chemical containers such as spray dispenser bottles, said system being fixable to surface care equipment such as rotating disc cleaning machines and vacuum cleaners, the system comprising:

- securing means for releasably securing the chemical container to the surface care equipment;
- effecting means for effecting release of a pre-determined amount of chemical from the container; and

- operating means for operating the effecting means.
2. System according to claim 1, further comprising a spray head through which chemicals are sprayable, and a conduit connected at one end to said spray head and at the other end being connectable to a spray nozzle of a spray dispenser bottle. 5
 3. System according to claims 1 or 2, wherein the effecting means are mechanically and/or electrically operable. 10
 4. System according to claim 3, wherein the effecting means are displaceable between a first position wherein a spray bottle trigger is depressible, and a second position wherein a spray bottle trigger is releasable. 15
 5. System according to any of the previous claims wherein the effecting means comprise a hook-like element, extendable around a trigger of a spray dispenser bottle. 20
 6. System according to claim 5, wherein the effecting means are spring loaded. 25
 7. System according to any of the previous claims, further comprising transmission means extending between the operating and effecting means. 30
 8. System according to any of the previous claims, wherein the securing means comprise a tensioned clip, securable around the neck of a spray dispenser bottle. 35
 9. Assembly comprising a system according to any of the previous claims, said assembly further comprising a spray dispenser bottle arranged within the securing means, between the system spray head and the system operating means. 40
 10. A surface care device, such as a rotating disc cleaning machine or a vacuum cleaner, comprising an assembly according to claim 9, or a system according to any of the claims 1-8. 45
 11. Process for cleaning surfaces comprising the steps of: 50
 - operating a surface care device such as a rotating disc cleaning machine or a vacuum cleaner, and
 - actuating release of a predetermined amount of chemical from a reservoir, preferably a standard spray bottle, secured to the surface care device by means of the system according to any of the claims 1-8. 55

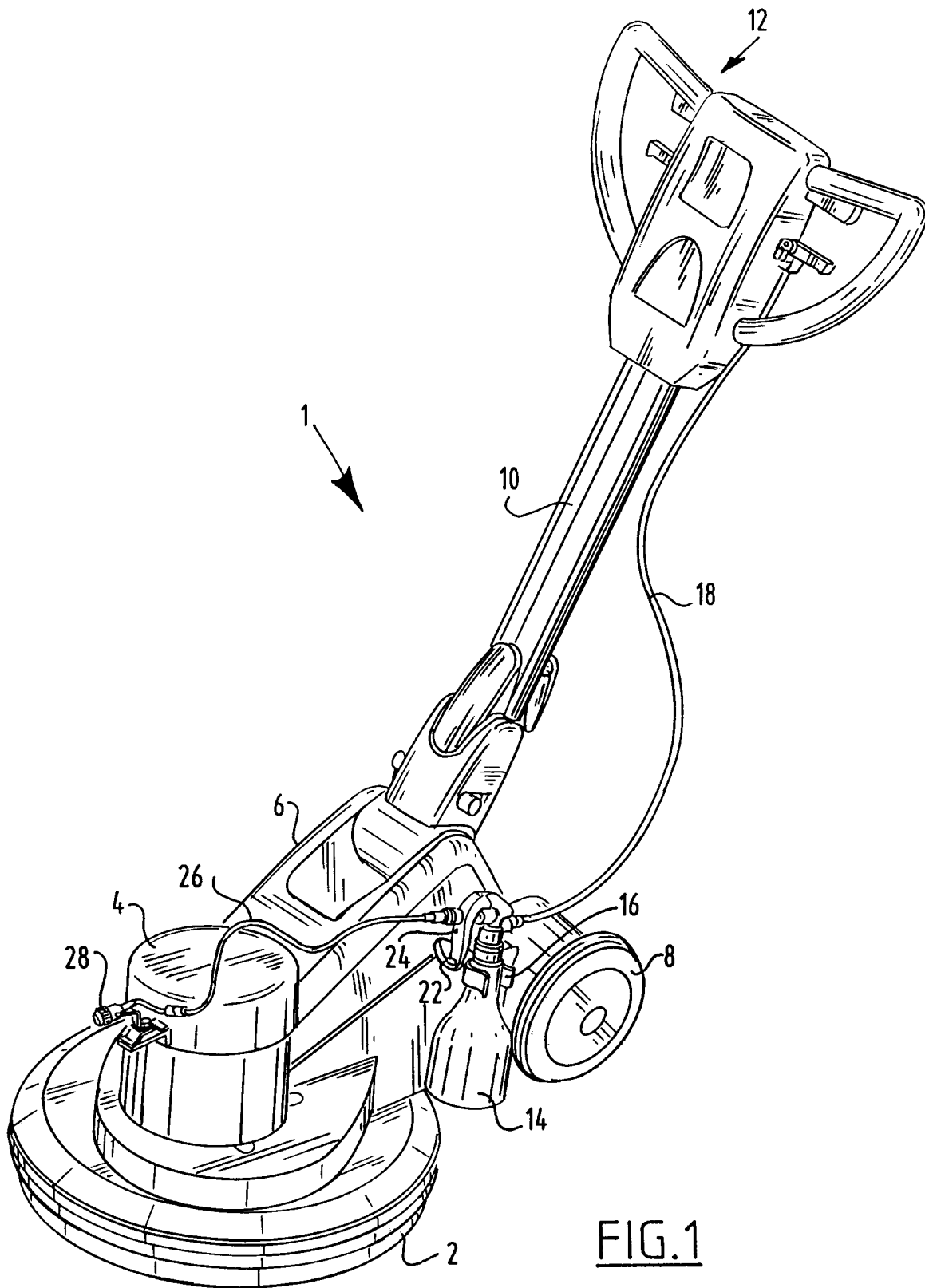
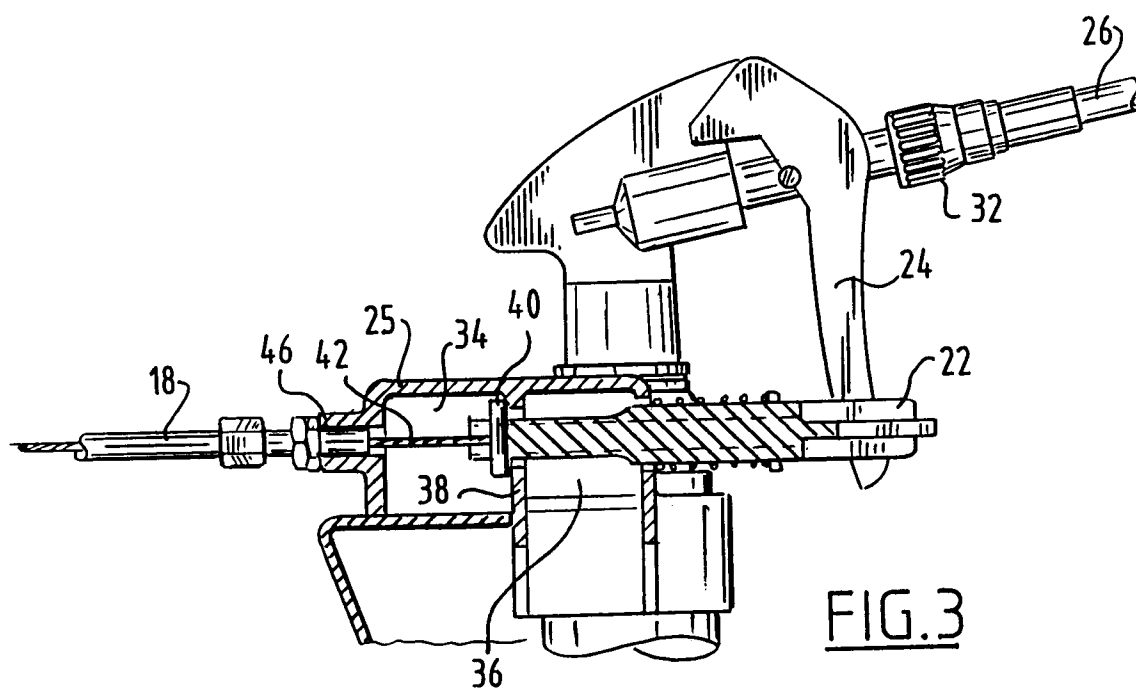
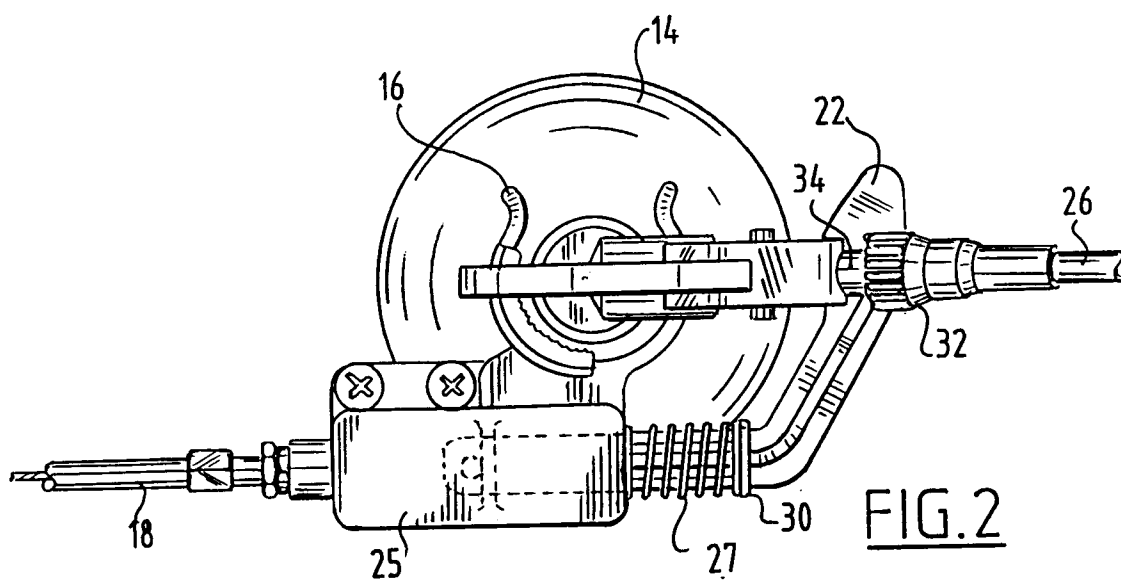


FIG. 1





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EUROPEAN SEARCH REPORT

Application Number
EP 98 20 2557

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.6)
X	US 4 333 203 A (YONKERS ROBERT A) 8 June 1982 * column 3, line 28 - column 6, line 11; figures 1-6 *	1-3,10, 11	A47L11/34
A	EP 0 404 278 A (TRC ACQUISITION CORP) 27 December 1990 * column 4, line 10 - column 5, line 47 *	1-3,7, 9-11	
A	GB 2 064 310 A (STAEHLE GMBH & CO G) 17 June 1981 * page 1, line 78 - page 3, column 16; figure 1 *	1-3,10, 11	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A47L
Place of search		Date of completion of the search	Examiner
MUNICH		16 December 1998	Laue, F
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 20 2557

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
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16-12-1998

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4333203 A	08-06-1982	CA 1206708 A	01-07-1986
		EP 0038724 A	28-10-1981
EP 0404278 A	27-12-1990	US 4570856 A	18-02-1986
		US 4559666 A	24-12-1985
		EP 0404279 A	27-12-1990
		AT 121918 T	15-05-1995
		AT 118324 T	15-03-1995
		AU 3671884 A	24-09-1985
		CA 1269210 A	22-05-1990
		DE 3485060 A	17-10-1991
		DE 3486370 D	23-03-1995
		DE 3486370 T	14-06-1995
		DE 3486386 D	08-06-1995
		DE 3486386 T	25-01-1996
		EP 0174312 A	19-03-1986
		WO 8503853 A	12-09-1985
		CA 1302357 A	02-06-1992
		US 4676287 A	30-06-1987
		JP 61501888 T	04-09-1986
GB 2064310 A	17-06-1981	DE 2946243 A	21-05-1981
		CH 651743 A	15-10-1985