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(71)(72) Applicant and Inventor: OLLILA, Martti [FI/FI]; Tehtaankatu 12 D 49, SF-00140 Helsinki 14 (FI).

(74) Agents: PELIN, Torolf et al.; Patenttitoimisto Oy Heinänen Ab, Annankatu 31-33 C, SF-00100 Helsinki 10 (FI).

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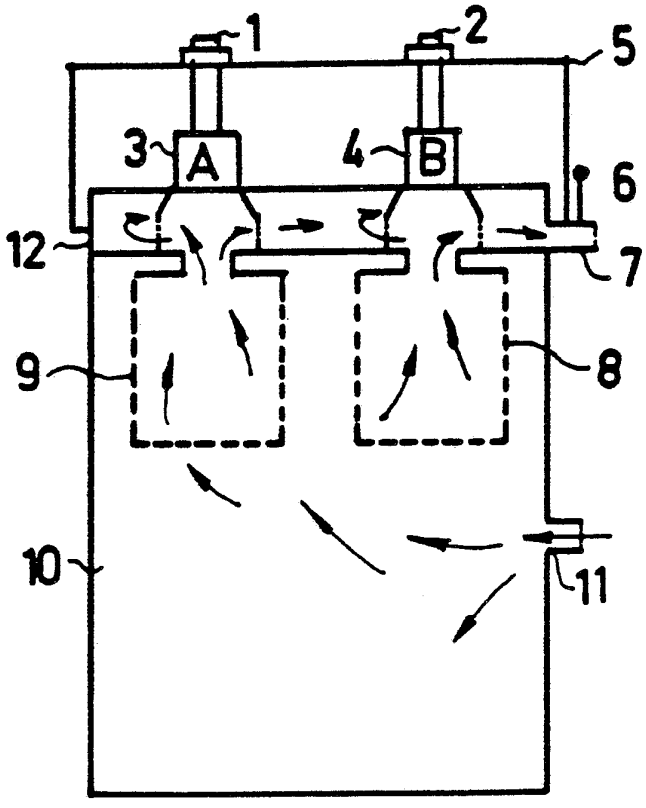
(54) Title: MEANS FOR CLEANING FILTERS IN WET AND DRY VACUUM CLEANERS

(57) Abstract

A means for cleaning the filters (8, 9, 20) in wet and dry vacuum cleaners consisting of at least one motor (3, 4, 27), provided with a filter, in conjunction with the vacuum cleaner and drawing liquid, dust or equivalent substance into the tank (10) of the vacuum cleaner. In the means of the invention, for cleaning purposes a blowing circulation can be produced through the filter (8, 9, 20), which is opposite in direction to the normal direction in which the air passes through, using the own motor (3, 4, 27) of the vacuum cleaner.



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Means for cleaning filters in wet and dry vacuum cleaners

The present invention concerns a means for cleaning filters in wet and dry vacuum cleaners, said means consisting of at least one motor provided with a filter, in conjunction with the vacuum cleaner, and which draws the liquid, dust or equivalent matter into the tank of the vacuum cleaner.

A drawback of this kind of vacuum cleaners of prior art is that cleaning of the filters is carried out either by disposal or by manual cleaning. This is either expensive or unhygienic. The object of the present invention is to provide a new kind of means for cleaning the filters in wet and dry vacuum cleaners. The means of the invention is characterized in that for cleaning purposes a blowing circulation can be produced through the filter, opposite in direction to the normal direction in which the air passes through, using the own motor of the vacuum cleaner. With the aid of the invention, cleaning of the filters is substantially faster, and less handling of dust and refuse is required. The cleaning which takes place faster and with greater ease increases the effectiveness of the means in the working environment.

An advantageous embodiment of the invention, in which the vacuum cleaner has two motors, each provided with a filter, is characterized in that in the suction air exit port of the vacuum cleaner there is a shut-off valve known in itself in the art, by closing which and operating only one motor a cleaning blowing circulation can be produced in the filter associated with the other motor. Since the vacuum cleaner is very often provided with two motors, the cleaning blowing circulation of the invention is therefore easy to accomplish. This is a solution which is not only reliable in operation but also advantageous.

Another embodiment of the invention, wherein the vacuum cleaner has one motor with filter, is characterized in that in the duct between the filter and the motor has been inserted an auxiliary filter, provided with a shut-off valve, and another by-pass duct, provided

with a shut-off valve, leading to the exhaust air space, whereby in the filter can be produced a cleaning blowing circulation by opening the shut-off valves. This is another embodiment, which is likewise reliable in operation and applicable on vacuum cleaner types having one motor of which the direction of blowing cannot be changed.

The invention is described in the following with the aid of examples and referring to the attached drawings, in which

Figs 1-4 present the means according to one embodiment.

Figs 5-6 present the means of another embodiment.

In Fig. 1, a two-motor vacuum cleaner is shown in normal use. In Fig. 2, the filter on motor A is being cleaned and motor B is running, and the shut-off valve 6 is closed to the exhaust air. In Fig. 3, the filter on motor B is being cleaned and motor A is running, and the shut-off valve 6 is closed to the exhaust air. Fig. 4 depicts the cleaning of the filter on motor A, but forced circulation is in use because the intake port 13 is closed and the shut-off valve 6 is closed. The same cleaning system operates even more efficiently when the number of motors is increased.

Fig. 5 shows a single-motor vacuum cleaner in normal use with the valve 22 of the auxiliary filter 19 closed and the valve 21 in the by-pass tube closed. The exhaust valve 16 is open. Fig. 6 depicts the cleaning of the filter of a single-motor vacuum cleaner through an auxiliary filter 19. The shut-off valve 26 of the main filter 20 is closed and the valve 16 in the exhaust pipe is closed. The shut-off valve 22 of the auxiliary filter 19 is open and the shut-off valve 21 is open. By these functions, an efficient forced circulation is achieved. The shut-off valve is controlled by one push rod 17.

It is obvious to a person skilled in the art that the invention is not confined to the examples presented in the foregoing but may vary within the scope of the claims stated below.

Claims

1. A means for cleaning the filters (8,9,20) in wet and dry vacuum cleaners consisting of at least one motor (3,4,27) provided with a filter, associated with the vacuum cleaner and drawing liquid, dust or equivalent substance into the tank (10) of the vacuum cleaner, characterized in that in the filter (8,9,20) can be produced a blowing circulation which is opposite in direction to the normal direction in which the air passes through, using the own motor (3,4,27) of the vacuum cleaner.

2. Means according to claim 1, said vacuum cleaner having two motors (3,4) provided with filter (8,9), characterized in that in the suction air exit port (7) of the vacuum cleaner there is a shut-off valve (6) known in itself in the art, by closing which and using only one motor a cleaning blowing circulation is achievable in the filter associated with the other motor.

3. Means according to claim 1, said vacuum cleaner having one motor (27) provided with filter (20), characterized in that in the duct between the filter (20) and the motor (27) has been inserted an auxiliaray filter (19) provided with a shut-off valve (23) and another by-pass duct (21), provided with a shut-off valve (22), leading into the exit air space (24) of the motor, whereby in the filter (20) a cleaning blowing circulation can be produced by opening the shut-off valves (22,23).

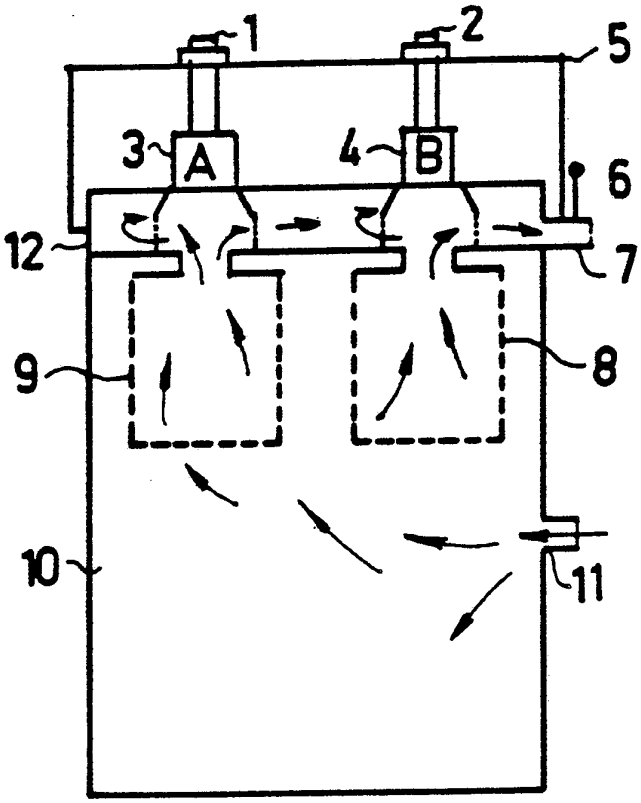

Fig.1

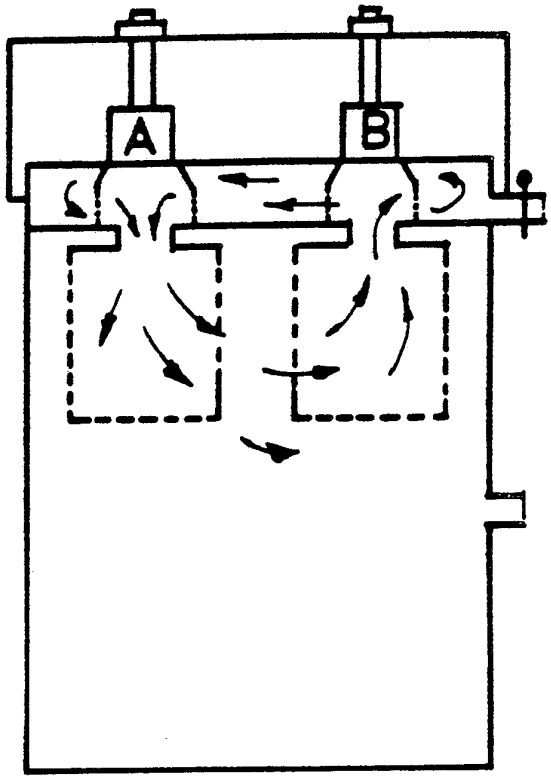

Fig.2

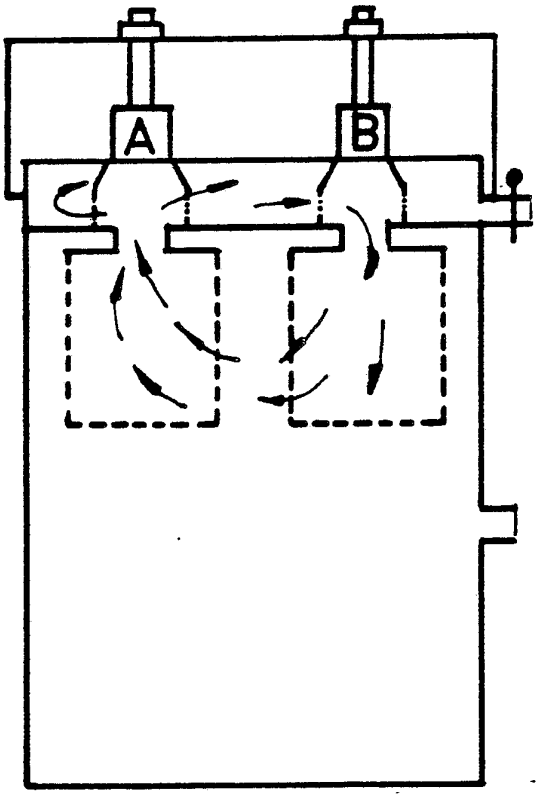

Fig.3

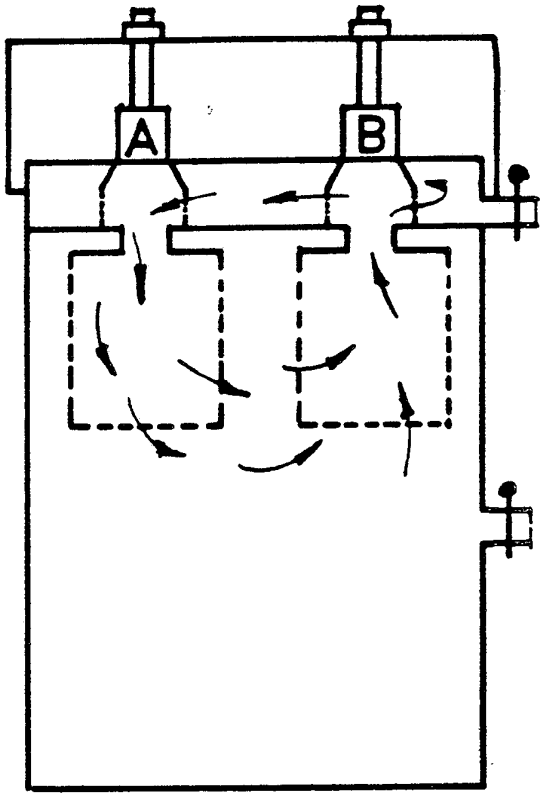

Fig.4

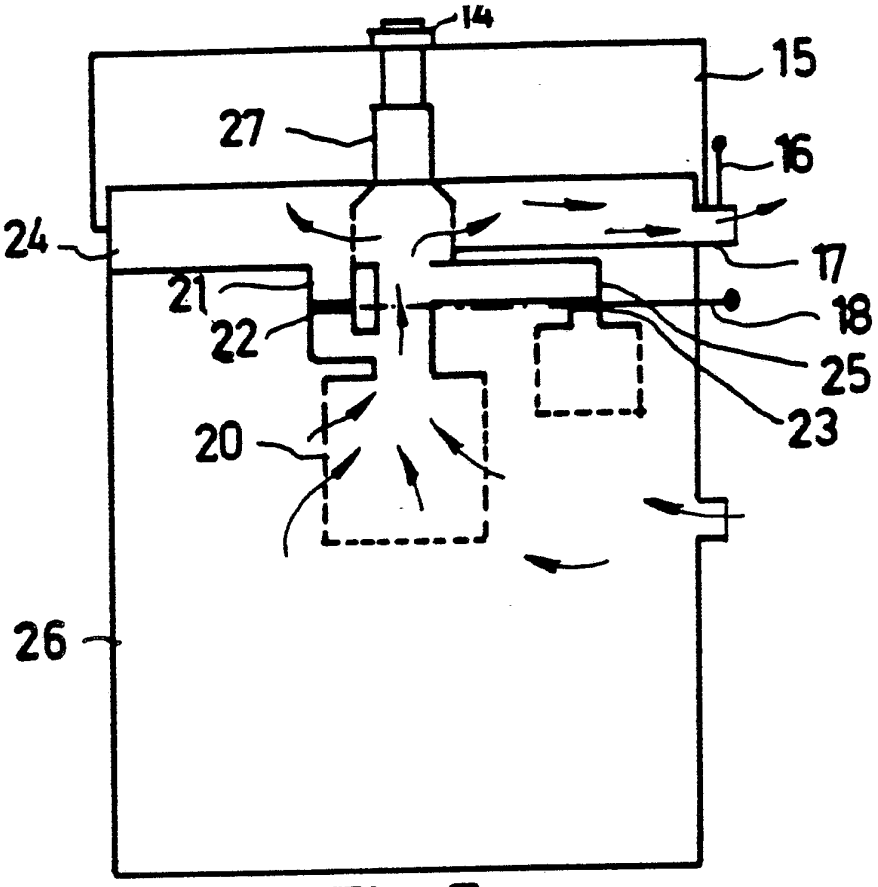

Fig.5

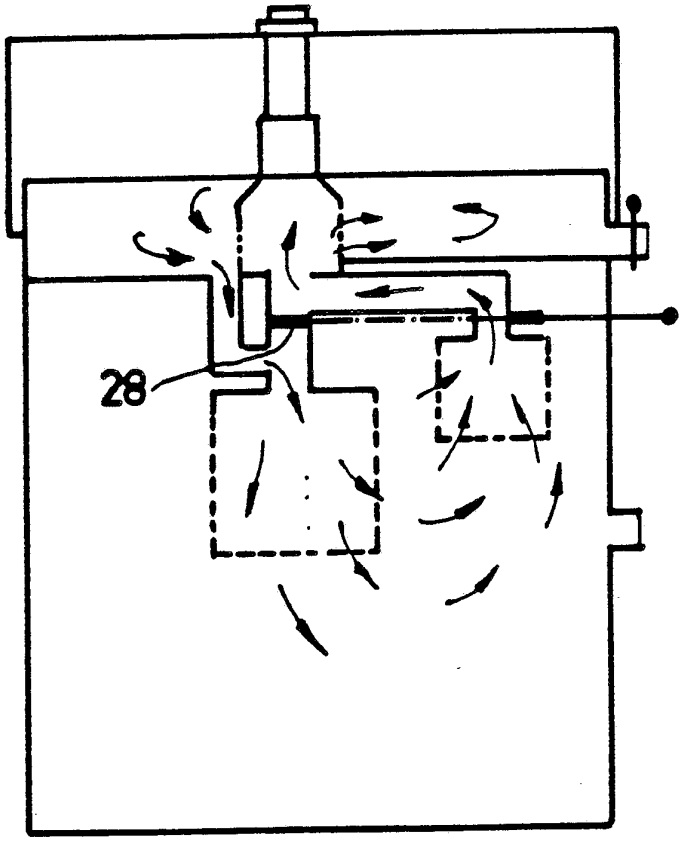

Fig.6

INTERNATIONAL SEARCH REPORT

PCT/FI84/00095

International Application No

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [6]

According to International Patent Classification (IPC) or to both National Classification and IPC 4

A 47 L 9/20

II. FIELDS SEARCHED

Minimum Documentation Searched [7]

Classification System	Classification Symbols
IPC 3	A 47 L 9/10, 9/20
US Cl	15:347, 352

Documentation Searched other than Minimum Documentation to the Extent that such Documents are included in the Fields Searched [8]

SE, NO, DK, FI classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT [9]

Category *	Citation of Document, [11] with indication, where appropriate, of the relevant passages [12]	Relevant to Claim No. [13]
X	DE, C, 595 686 (INVENTIA PATENTVERWERTUNGS-GESELLSCHAFT) 29 March 1934	1
X	DE, C, 600 515 (INVENTIA PATENTVERWERTUNGS-GESELLSCHAFT) 5 July 1934 & GB, 400023	1, 3
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IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
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