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(71) Applicant: **Zaghini, Corrado**

47030 San Mauro Pascoli (FC) (IT)

(72) Inventor: **Zaghini, Corrado**

47030 San Mauro Pascoli (FC) (IT)

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26.02.2001 IT RN010015

(74) Representative: **Provvisionato, Paolo**

**c/o Provvisionato & Co,
Piazza di Porta Mascarella, 7
40126 Bologna (IT)**

(54) Device for the expulsion of bad-smelling odours

(57) A device for the expulsion of bad-smelling odours comprises means (1) for suction of the odours, a duct (2) for disposal of the odours, which can be installed on a pre-existing flushing pipe (3) already used

for the water flow, and a valve (4) able to allow or prevent access to said duct (2). Means (5) for activation of said suction means (1) allow operation of the suction means (1) to be started and stopped.

FIG. 3a

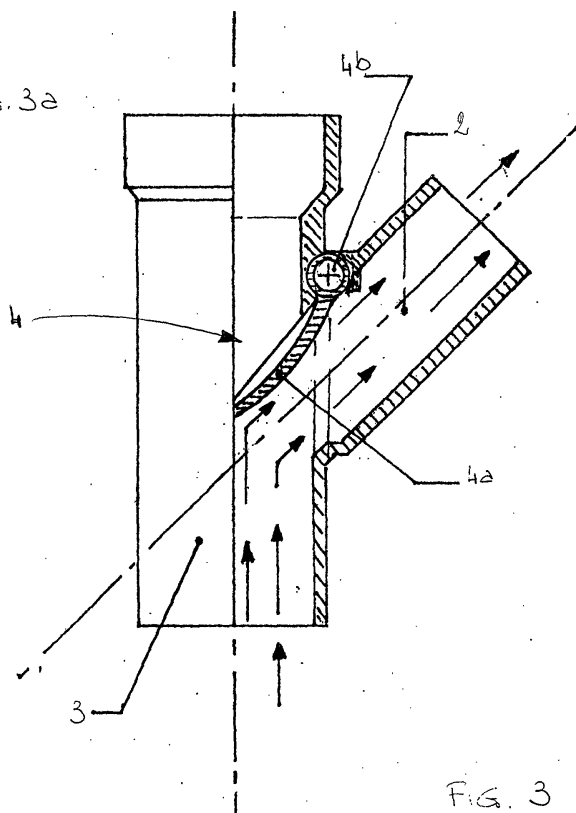
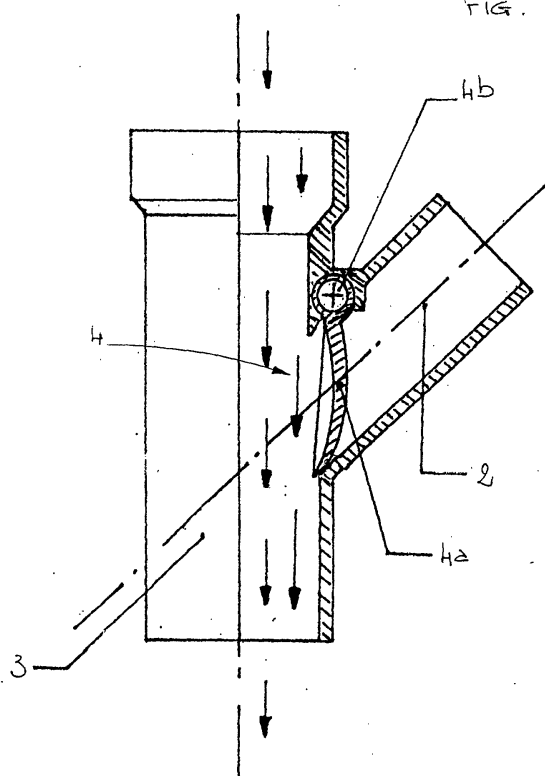


FIG. 3

FIG. 3b



Description

[0001] The present invention relates to a device for the expulsion of bad-smelling odours.

[0002] A problem which frequently arises, both in homes, but more frequently in offices and public premises, consists in the ventilation of bathrooms. It often happens in fact that these rooms are small and narrow and in particular without windows and that renewal of the air is performed by small exhaust fans which are inadequate for the purpose.

[0003] Even in the case where the bathrooms have windows, as occurs in domestic dwellings, in order to prevent the bad odours from spreading to the other rooms in the house, it is required to open the windows and this therefore, in particular during the colder months, results in a considerable loss of the thermal energy used for heating.

[0004] The object of the present invention is therefore that of eliminating the abovementioned drawbacks. This is achieved by means of a device comprising a flap valve which allows an already existing pipe used for discharging the water from the sanitary system ("flushing pipe") to be used also for the evacuation of the odours.

[0005] The main advantage obtained by means of the present invention consists essentially in the fact that the bad-smelling odours are immediately and automatically evacuated, preventing the spread and stagnation thereof.

[0006] As a result it is possible to avoid, or in any case reduce, the loss of thermal energy resulting from prolonged opening of the windows, in particular during the colder periods of the year. Finally, although the optimum solution consists in installation of the device at the time of construction of the building, it is nevertheless possible to install said device, with minor modifications, also in ready built bathrooms.

[0007] Further advantages and characteristics of the invention will emerge more clearly from the detailed description which follows, with reference to the accompanying drawings which show a non-limiting example of embodiment and in which:

- Figure 1 shows an overall perspective view of the invention;
- Figure 2 shows a detail of the invention, with some parts removed so that other parts are more clearly visible;
- Figure 3 shows a half-sectioned view, rotated through 180° with respect to a vertical axis, of the same detail shown in Figure 2, in the two working configurations.

[0008] As can be seen from the Figures, the invention relates to a device for expulsion of bad-smelling odours.

[0009] It comprises means (1) for suction of the odours, a duct (2) for disposal of the odours, which can be installed on a pre-existing flushing pipe (3), and a

valve (4) able to allow or prevent the access to said duct (2). The suction means (1) used and shown here comprise an electric exhaust fan (1a) positioned upstream of the duct (2) and able to draw off the bad-smelling odours through holes (1b) formed on the upper part of a sanitary appliance (7) and expel them outside. The device advantageously makes use of the same flushing pipe (3) and the same holes (1b) normally present in the sanitary appliance and used for admitting the water flow.

[0010] Moreover, in order to avoid the electric exhaust fan (1a) remaining permanently in operation even when not required, the device also comprises means (5) for activation of these suction means (1) such as the electric exhaust fan (1a). The activation means (5) may be constructed in various ways which are equivalent to each other: by way of example those solutions which appear to be most simple and advantageous are described here.

[0011] In general these activation means (5) comprise a device which acts a switch (5a, 5b; 5a; 5c): in order to start operation of the suction means (1) a photoelectric cell (5b) which is activated only by the presence of a user may be used; or a manual switch (5c) able to start operation of the suction means (1) only when required by the user may be used.

[0012] A pulse switch (5a) connected to the valve (4) is instead preferably used in order to interrupt operation of the suction means (1) depending on the position assumed by the valve (4) itself. The valve (4) shown in Figure 3 comprises a spoon-shaped flap (4a) provided with means (4b) for fastening to the duct (2) in such a way as to pass from a first position, where it frees access to the duct (2), into a second position where it obstructs access to the duct (2), and vice versa.

[0013] When the device is not in operation, a spring keeps the flap (4a) in the position shown in Figure 3a so as to allow the odours to pass freely into the duct (2); the flap (4a) is integral with a cam (6) - visible in Figure 2 - which, in this position of the flap (4a), does not interfere with operation of the exhaust fan (1a). When however, the pipe (3) is occupied by the flushing water, the latter exerts on the flap (4a) a thrust which brings it into the position shown in Figure 3b where the cam (6) is displaced acting on the pulse switch (5a) so as to stop operation of the exhaust fan (1a).

[0014] The invention thus conceived may be subject to numerous modifications and variations, all falling within the scope of the inventive idea. Moreover, all the details may be replaced by technically equivalent elements.

[0015] In practice, obviously modifications and/or improvements nevertheless falling within the scope of the following claims are possible.

Claims

1. Device for the expulsion of bad-smelling odours,

characterized in that it comprises means (1) for suction of the odours, a duct (2) for disposal of the odours, which can be installed on a pre-existing flushing pipe (3), and a valve (3) able to allow or prevent access to said duct (2).

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2. Device according to Claim 1, **characterized in that** it comprises means (5) for activation of said suction means (1).

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3. Device according to Claim 1 or 2, **characterized in that** the valve (4) comprises a spoon-shaped flap (4a) provided with means (4b) for fastening to the duct (2) so as to be able to pass from a first position, where it frees access to the duct (2), into a second position, where it obstructs access to the duct (2), and vice versa.

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4. Device according to Claim 2 or 3, **characterized in that** said activation means (5) comprises a pulse switch (5a) able to interrupt operation of the suction means (1).

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5. Device according to Claim 4, **characterized in that** said flap (4a) is integral with a cam (6) able to act on the pulse switch (5a) in the second position of the flap (4a).

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6. Device according to Claim 2, **characterized in that** said activation means (5) comprise a photoelectric cell (5b) able to start operation of the suction means (1) only when a user is present.

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7. Device according to Claim 2, **characterized in that** said activation means (5) comprise a manual switch (5c) able to start operation of the suction means (1) as required by a user.

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8. Device according to Claim 2, **characterized in that** said suction means (1) comprise an electric exhaust fan (1a) which is positioned upstream of the duct (2) and able to draw off the bad-smelling odours through holes (1b) formed on the upper part of a sanitary appliance (7) and expel them outside.

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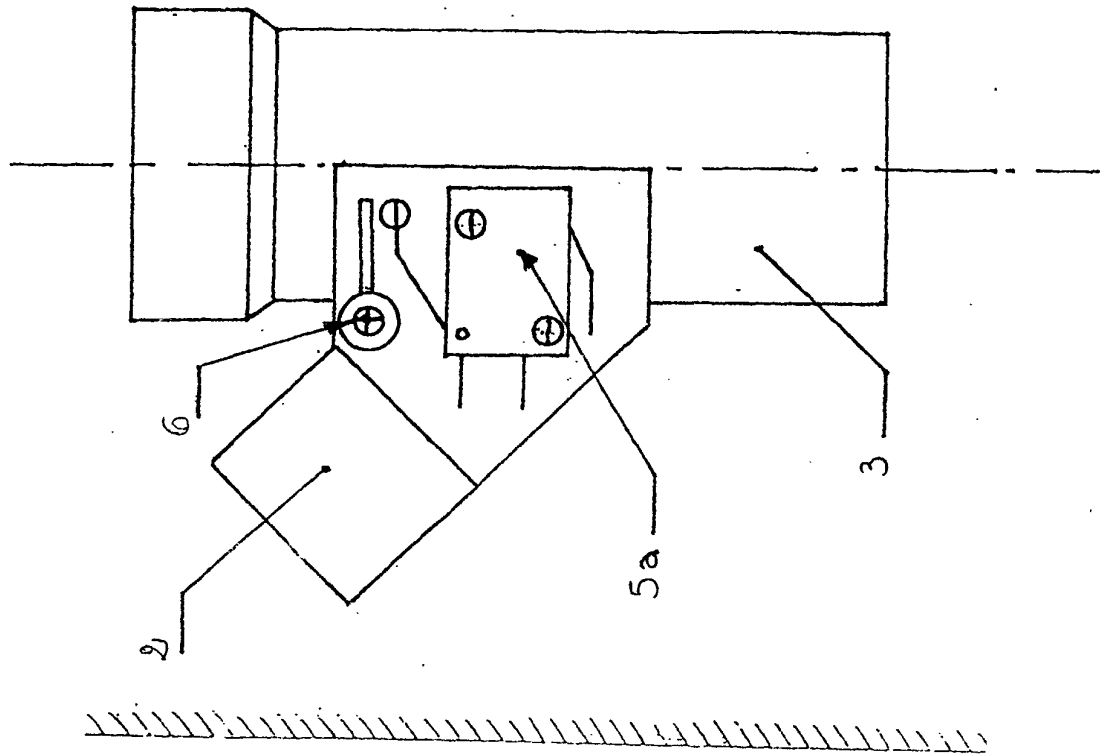


FIG. 1

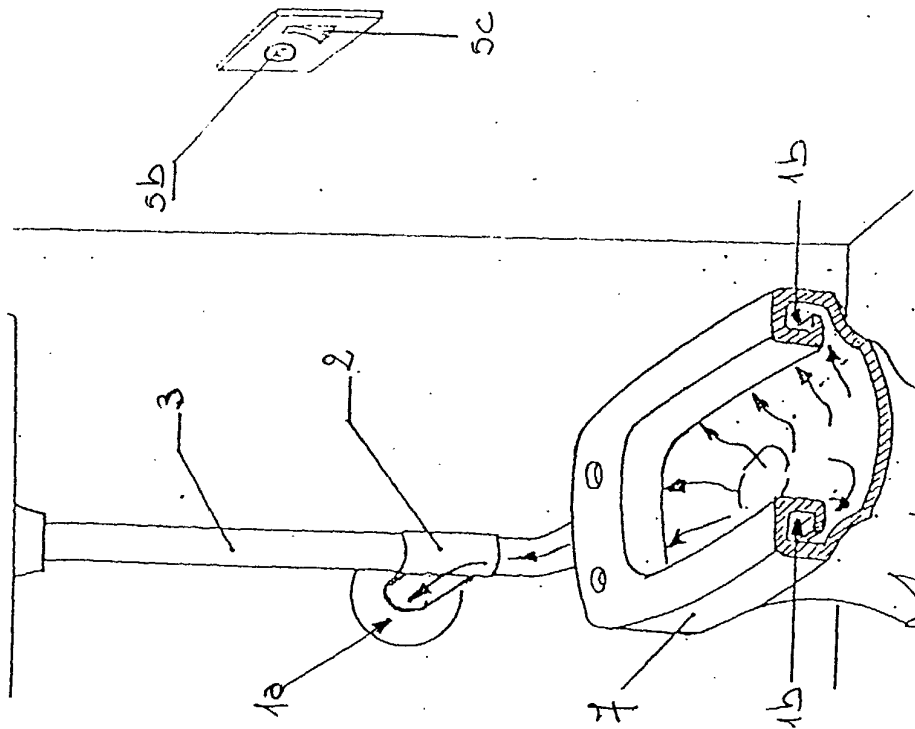


FIG. 2

FIG. 3b

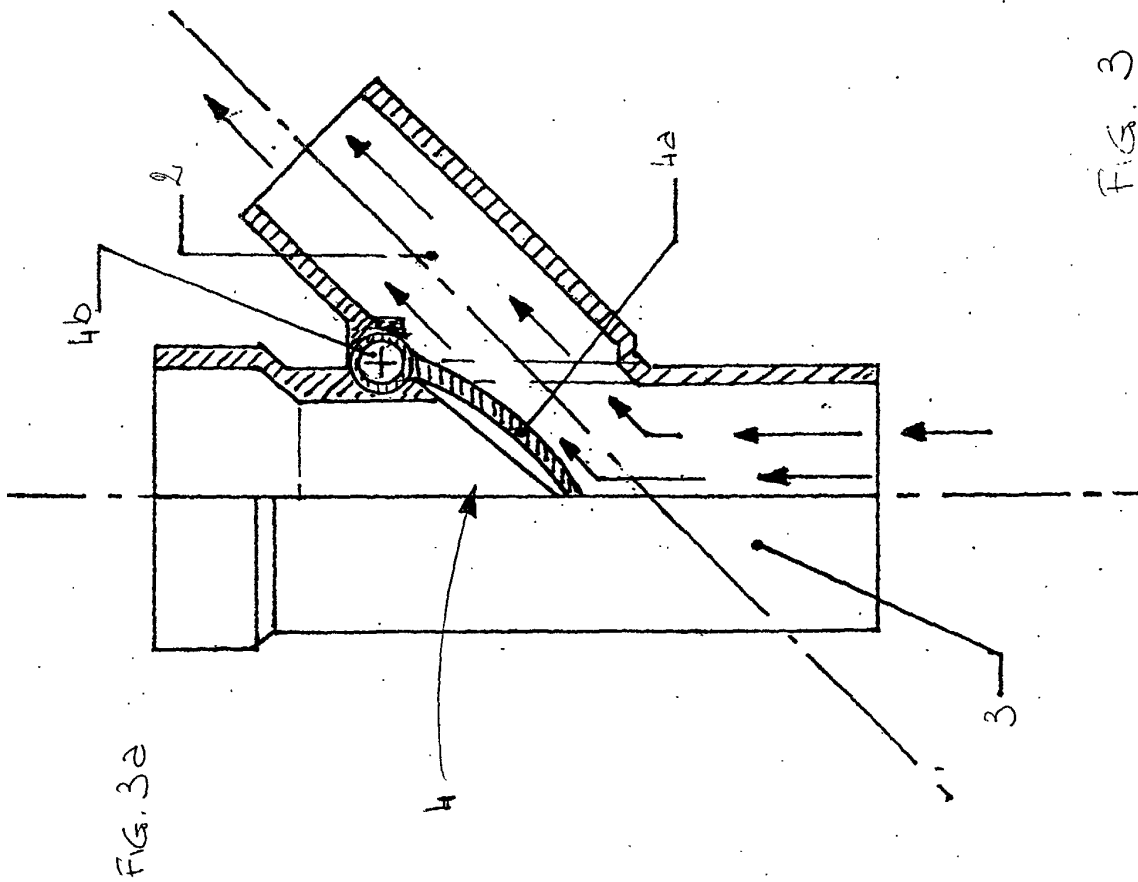
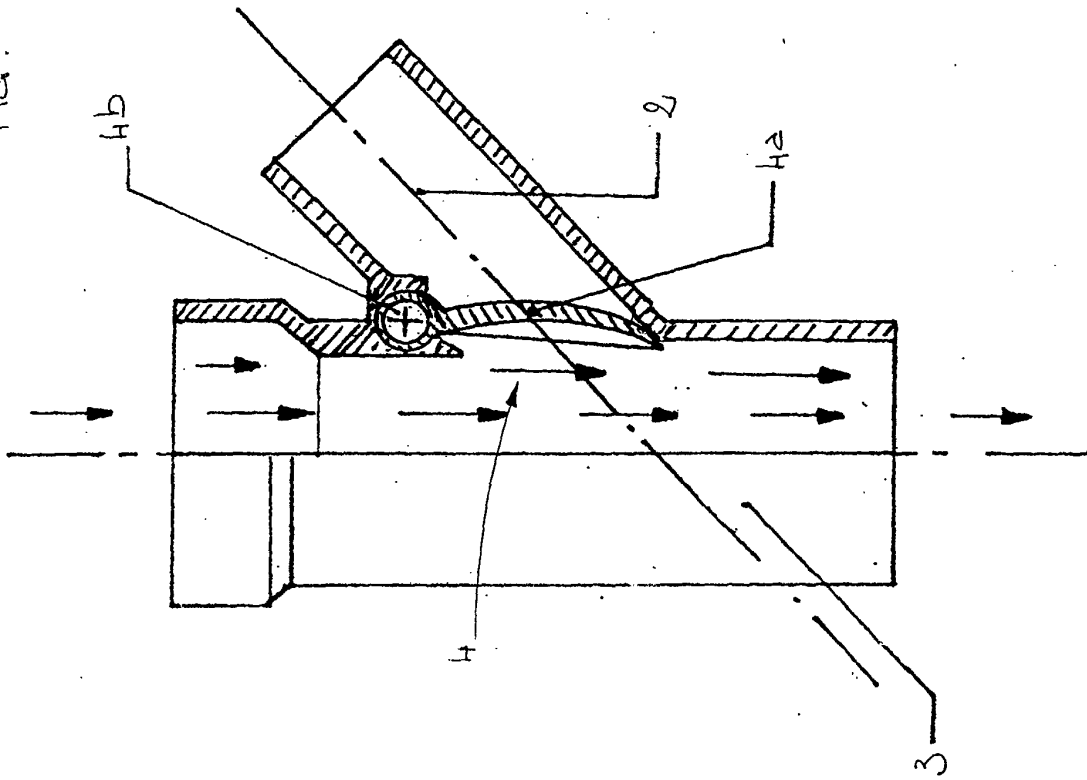


FIG. 3