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(71) Applicant: **Ghibli S.p.A.**
27020 Dorno, Pavia (IT)

(72) Inventors:
- **Besostri, Massimo c/o Ghibli S.p.A.**
27020 Dorno (PV) (IT)
- **Tarabusi, Virginio c/o Ghibli S.p.A.**
27020 Dorno (PV) (IT)

(74) Representative: **Riccardi, Sergio**
Riccardi & Co.
Via Macedonio Melloni, 32
20129 Milano (IT)

(54) Electric suction and collection household appliance

(57) An electric suction and collection household appliance for waste of small and medium size is disclosed, comprising a body (2) inside assembling suction and filtering means, wherein said suction means are operatively associated to at least an outer suction inlet (5) generally arranged flush with the bottom base of said body (2). Preferably the household appliance is also provided with an upper container to collect and contain other waste that cannot be sucked or of bigger size, said upper container (21) being removable so as to empty it without carrying the whole device.

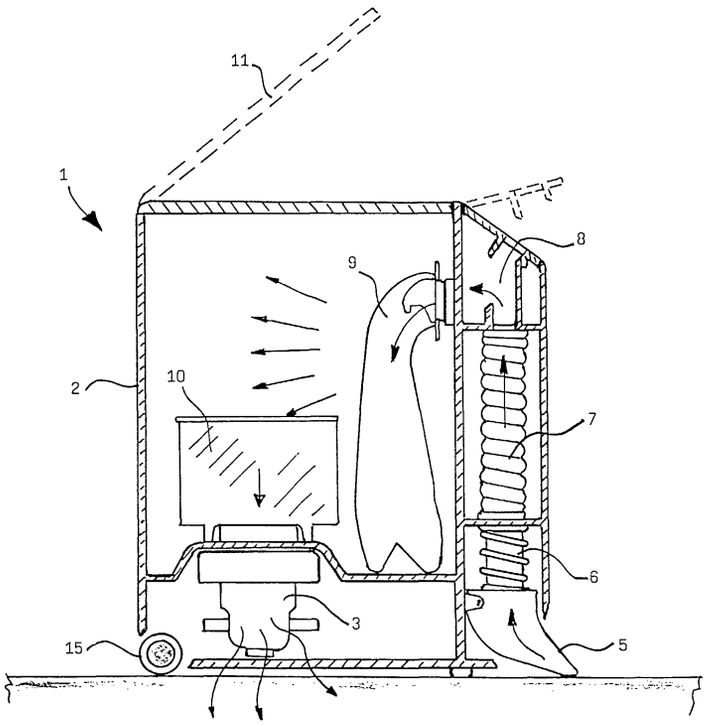

FIG. 1

EP 1 205 141 A2

Description

[0001] The present invention relates to an electric suction and collection household appliance for waste of little and medium size.

[0002] In some circumstances it would be practical and convenient to suck quickly waste of various types that can be produced during several activities. For instance inside any kitchen room there is a steady production of little waste such as crumbs, food rests, leftovers and so on that can accidentally fall on the floor. In such a case just for the kind of waste an immediate cleaning of the floor portion that can be more or less wide, is advisable.

[0003] From the prior art several types of vacuum cleaners are known, both wireless cleaners with rechargeable batteries of little size and traditional more powerful but bigger cleaners.

[0004] Although these devices solve the above mentioned technical problem, they have however some drawbacks.

[0005] The vacuum cleaners of traditional kind with central unit and suction hose generally are not stored near or in the kitchen room, as they are normally stored inside a closet, so that a person must take the device, carry it in the room to be cleaned and then start to operate, said actions diverting the person from the preceding activity for some time.

[0006] The small portable cleaners are indeed handy and can be used immediately, because they are generally arranged in a little rack fixed to the wall, but their use in a dwelling house makes anyway necessary to have at disposal a traditional vacuum cleaner, so that the user is obliged to purchase two appliances.

[0007] The object of the present invention is to remove the drawback of the prior art.

[0008] Therefore object of the invention is to provide a suction and collection household appliance for waste of little and medium size that is practical in use and of limited dimensions, that can be used very easily and as an alternative to the traditional vacuum cleaners as well.

[0009] Briefly the present invention provides for a suction and collection household appliance for waste of little and medium size comprising a body inside assembling suction and filtering means, wherein said suction means are operatively associated to at least an outer suction inlet generally arranged flush with the bottom base of said body.

[0010] However such a device, although very useful and functional, does not remove the need to have a separate container in which bigger waste and/or waste that cannot be sucked, such as waste paper, remains, stones and so on, must be thrown away.

[0011] Therefore in a further embodiment the present invention brilliantly solves this problem by adding a removable collection container to be applied on the housing of said device, so as to obtain a modular combined household appliance allowing to carry out room cleaning in a complete and autonomous way and then carry the waste to the disposal place in view of the removable collection container into which the filtering bag arranged inside the lower suction housing of the device can be emptied.

[0012] Further advantages, details and features of the suction and collection household appliance for waste of little and medium size according to the invention will be better understood by reading the following description with reference to the accompanying drawings in which:

- Fig. 1 is a vertical sectional view of the suction and collection household appliance for waste of little and medium size according to the invention;
- Fig. 2 is a perspective view of the device shown in Fig. 1; and

Fig. 3 is a sectional elevational view of the embodiment with removable collection container.

[0013] With reference now to Figs. 1 and 2 the device 1 for sucking and collecting waste of small and medium size comprises a body 2 of cylindrical or preferably parallelepipedal shape with rounded edges, having inside suction and filtering means operatively associated to each other.

[0014] More particularly said suction means comprise a motor unit 3 fixed to the lower frame of the body 2, said motor unit 3 having at an outer side of the body 2 an outlet grating 4 for the sucked air.

[0015] Moreover fixed to partitions of said body 2 there are a suction inlet 5 generally arranged flush with the bottom base, connected through elastic means such as a spring 6 to a suction tube 7, preferably a hose.

[0016] Said suction tube has its other end connected to a suction chamber 8 having such a shape to allow insertion of an outer suction tube (not shown in the drawings) so as to convert the device into a conventional vacuum cleaner as described hereinbelow.

[0017] Said suction chamber 8 is also associated on one of its walls to an element of said filtering means, more particularly an interchangeable filtering paper bag 9 intended also to collect said waste such as crumbs, food rests or leftovers, dust and so forth.

[0018] Near the upper surface of the motor unit 3 the other filtering elements are arranged, preferably consisting of a microfilter 10 having an interchangeable cartridge.

[0019] The access inside the body 2 for the various maintenance operations such as replacement of the filtering means, occurs through a suitable door 11 preferably arranged at the upper end of said body 2.

[0020] On the outer surface of said body 2 there is also an on off switch 12 provided with one or more warning lights 13 to check the correct operation of the device 1. Moreover on the front side there is a kickstarter 14 electrically associated to the motor unit 3 by known not shown elements so as to switch on and off said motor as it will be better described hereinafter.

[0021] Finally a couple of small wheels 15 is advantageously provided, connected at the rear part of the body 2 near its bottom base so as to allow the little domestic movements.

[0022] The operation of the suction and collection household appliance for waste of small and medium size according to the invention can be easily deduced from the foregoing description.

[0023] After having turned on the switch 12 it is sufficient to bring the mentioned waste near the inlet, for instance by a broom and then press the kickstarter 14. Consequently the motor unit 3 is switched on and causes suction of any matter placed in front of the suction inlet 5 as illustrated by the arrows of the sucked air flow shown in Fig. 1, the paper filter 9 will hold the sucked waste and the microfilter 10 will prevent the smaller dust particles to pass through the motor unit 3 so as to keep it cleaned.

[0024] A further pressure on the kickstarter 14 or its simple release will interrupt operation of the motor unit 3 and consequently also the sucking action at the suction inlet 5.

[0025] Alternatively the suction device 1 for waste of small and medium size according to the invention may be converted into a traditional vacuum cleaner by inserting an outer suction corrugated tube of known type not shown in the drawings, in the suction chamber 8. The shape of the chamber 8 combined with the connection of the outer tube will close the connection with the suction tube 7 so as to disconnect the suction action of the inlet 5.

[0026] In this way the action on the kickstarter 14 will actuate suction at the free end of the outer corrugated tube, on which the conventional accessories of the traditional vacuum cleaners may be connected. The small wheels 15 arranged at the rear side of the device 1 will make easier its movement during the operation as conventional vacuum cleaner.

[0027] With reference now to Fig. 3 of the drawings, on the device previously described with reference to Figs. 1 and 2, the bottom base 28 of the upper collection container 21 is applied preferably by insertion in its upper edge 29, and this container can be easily removed to discharge its contents. Preferably said container 21 will be provided with a cover 27 (shown with broken lines in Fig. 3), which is for instance hinged to the container but could also be connected in another way or simply applied on its mouth.

[0028] Consequently in Fig. 3 only the main elements of the lower suction housing 22 were indicated, that is the filtering cartridge 23, the motor 24, the paper bag 25 and the kick starter 26.

[0029] Obviously the device of the invention may be provided with two or more upper containers 21, so as to place an empty container when the container filled with waste must be taken to disposal. Moreover the upper container 21 could also be divided into two or more compartments to carry out the sorted disposal of waste.

[0030] Clearly the containers or housings of the device may be made of any suitable material and preferably plastic materials, and of any suitable outer shape and size, still complying with the above described features shown in the accompanying drawings.

[0031] From the foregoing it is finally to be noted that the device of the invention overcomes and solves the problems of the known devices in connection with functional capacity and versatility of use.

[0032] Clearly many modifications, adaptations, integrations, variations and substitutions may be made to the foregoing embodiments described only as illustrative and non limiting examples, without falling however outside the scope of the present invention as indicated in the appended claims.

Claims

1. An electric suction and collection household appliance for waste of small and medium size comprising a body (2) inside assembling suction and filtering means, **characterized in that** said suction means are operatively associated to at least an outer suction inlet (5) generally arranged flush with the bottom base of said body (2).

2. The household appliance according to claim 1), **characterized in that** said suction means comprise a motor unit (3) fixed to a lower frame of said body (2), said motor unit (3) having on an outer side of said body (2) an outlet grating (4) for sucked air.

3. The household appliance according to claim 1), **characterized in that** said suction means are associated to said outer suction inlet (5) through elastic means, and a suction tube (7) connected to partitions of said body (2), and a suction chamber (8) connected to an end of said suction tube (7).

4. The household appliance according to claim 3) **characterized in that** said suction chamber (8) can be connected to an outer suction tube closing the connection to said suction tube (7).

5. The household appliance according to claim 1) **characterized in that** said filtering means comprise at least an interchangeable paper filter (9) and at least an interchangeable cartridge microfilter (10).

6. The household appliance according to claims 3) and 5) **characterized in that** said interchangeable paper filter (9) is associated to a wall of said suction chamber (8).

7. The household appliance according to claims 2) and 5) **characterized in that** said microfilter (10) is

arranged near the upper surface of said motor unit (3).

8. The household appliance according to claim 1) **characterized in that** said body (2) is provided with a door (11) for its interior access, an on/off switch (12), warning lights (13) and a kickstarter (14) operatively associated to each other and to said suction means.

9. The household appliance according to claim 1) **characterized in that** said body (2) is provided with small wheels (15) to make easier the movements of said device (1).

10. The household appliance according to any of the preceding claims **characterized by** comprising a removable collection container (21) to be applied on the lower housing (22) so as to contain the waste and take them to the disposal place without carrying the whole device.

11. The household appliance according to claim 10), **characterized in that** the removable collection container (21) is provided with a cover (27).

12. The household appliance according to claim 10) or 11) **characterized by** comprising two or more modular collection containers (21).

13. The household appliance according to any of the preceding claims **characterized by** being made of plastic materials.

14. The household appliance according to any of the preceding **characterized in that** the collection container (21) is divided into compartments for sorted disposal of waste.

15. The household appliance according to any of the preceding claims, **characterized in that** the upper collection container (21) has a bottom base (28) to be inserted into the upper edge (29) of the lower suction housing (22).

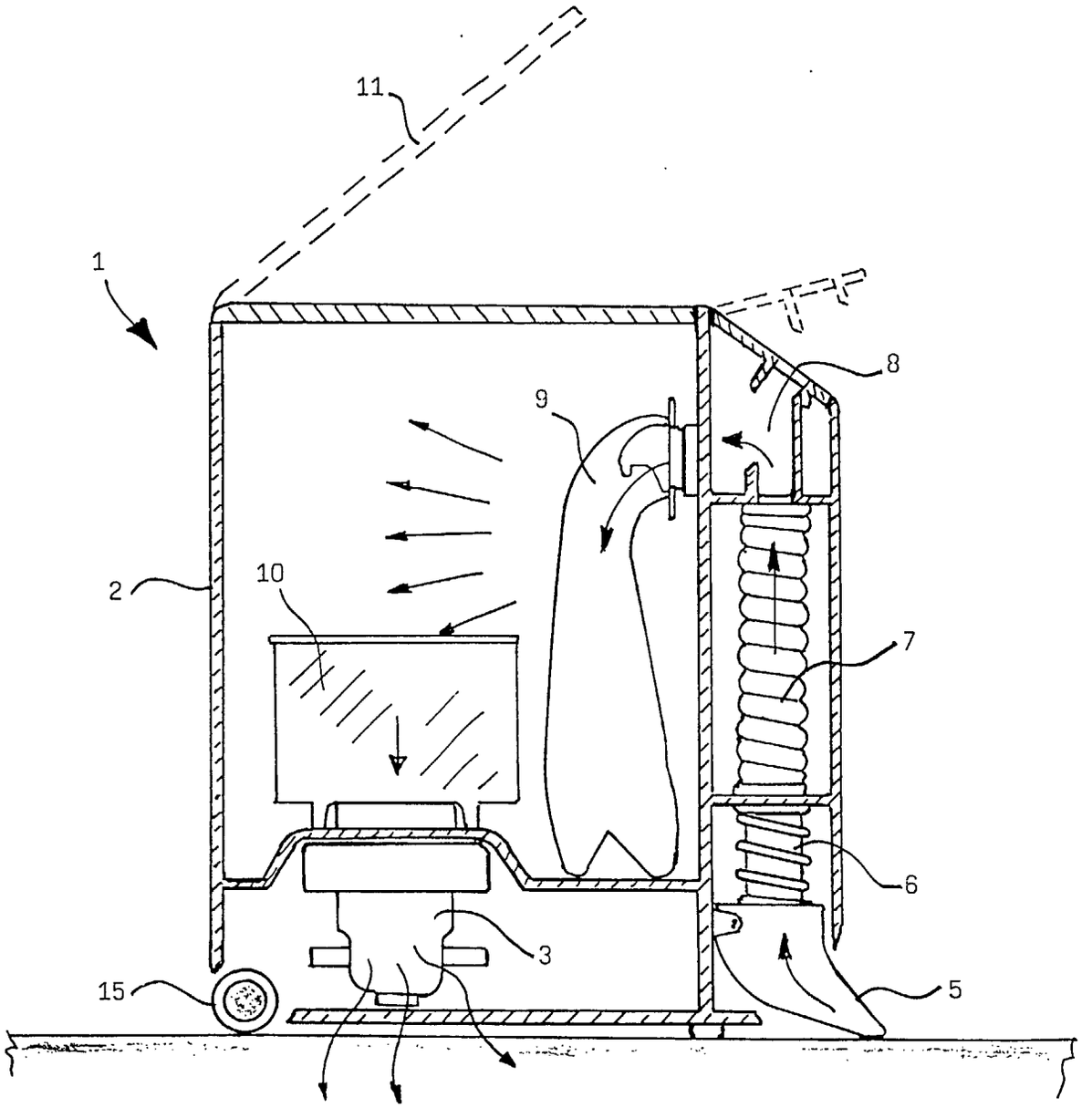

FIG. 1

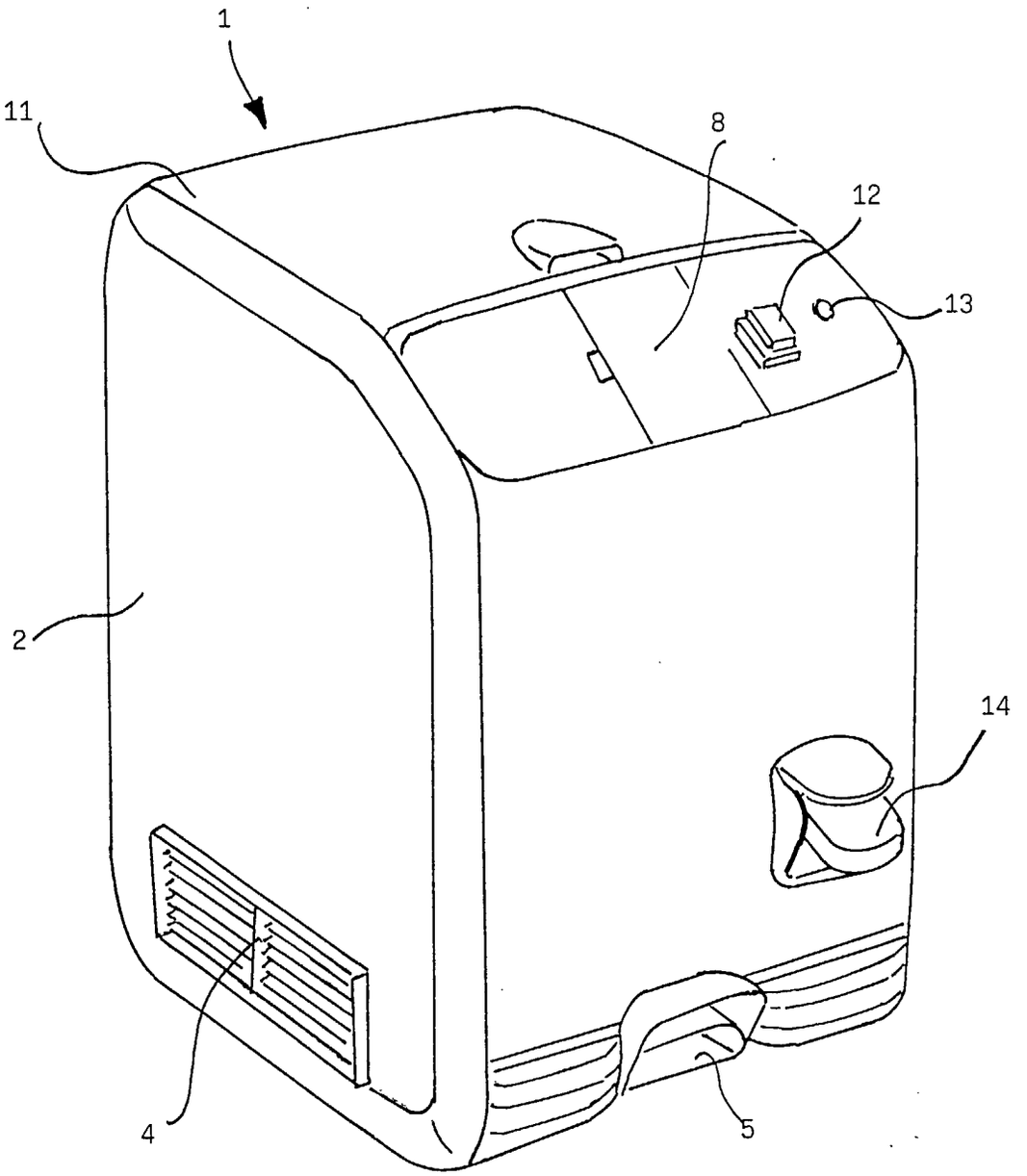

FIG. 2

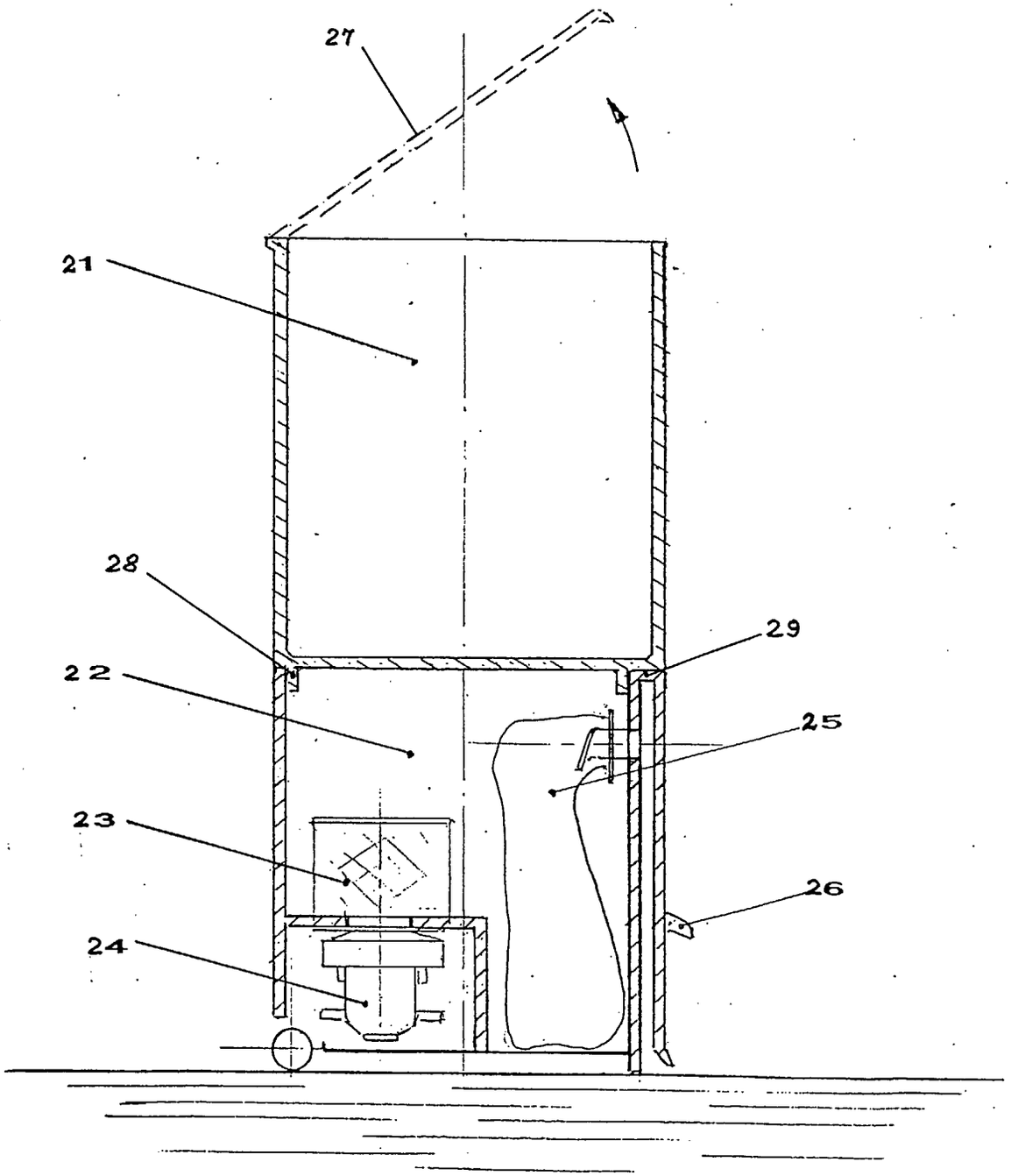

FIG. 3