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(54) **Device for pumping and triturating of sewage waters of sanitary fittings composed of two units, one of which is removable**

(57) This invention relates to a device for pumping and triturating, wherein the tank collecting the soil and waste water from the WC and other sanitary fittings is contained inside a unit that is permanently fixed to and connected with the WC and the other sanitary fittings,

while the pumping, triturating and control equipment are housed inside another unit, which may be easily separated from the former unit and removed, and which is fastened to the former unit by means of appropriate fastening means.

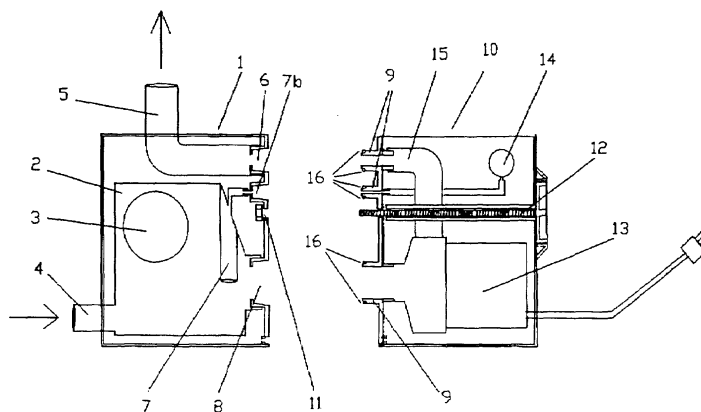


FIG 2

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Description

Technical field

[0001] This invention pertains to a device for pumping and triturating sewage water from sanitary fittings, such as WCs, baths, etc., which device is composed of two units, one of which is fixed to the pipework system, while the other is removable, for repair and maintenance purposes.

State of the art

[0002] It is well known that sanitary fittings equipped with triturating devices and water-pumping systems are increasingly widespread, because they allow the installation of a WC or an entire bathroom or kitchen even far from the discharge pipe.

[0003] The soil and waste waters collected by the pumping and triturating devices largely contain solid organic residues, toilet paper and the like, which frequently determine the clogging or failure of the triturating and pumping devices and thus require periodical maintenance.

[0004] Currently, in order to clean, unclog or perform any other maintenance operation on the devices, it is necessary to remove the WC, disconnecting the soil pipe and the waste water pipes from the other appliances; this operation may be carried out only by a plumber and is an expensive and time-consuming operation.

Description of the invention

[0005] This invention relates to a pumping and triturating device wherein the tank collecting the soil and waste waters from the WC and the other sanitary fittings is housed inside a unit that is permanently fixed to the discharge pipework and the WC, while the other pumping, triturating and control equipment is housed inside another easily removable unit, the two units being fastened by means of an appropriate fastening.

[0006] Practically speaking, in the event of failures or for maintenance purposes, this invention permits the separation of the removable pumping and triturating unit from the fixed water-collection tank, thus preventing the need to disconnect the WC from the soil and waste pipes. This means that it is not necessary to call a plumber, but the owner may personally disconnect the pumping and triturating unit from the water-collection unit and take it to the service centre for the necessary cleaning or maintenance and/or overhauling.

[0007] According to another embodiment of this invention, the pumping and triturating equipment are housed in a special chamber located between the two above mentioned units. By disconnecting the two units it is possible to inspect the inside of the chamber.

[0008] The owner does not need to call a plumber and may personally easily disconnect the removable unit

and remove any residues clogging the sewage pump, or reducing its functionality.

[0009] Also in the event of a mechanical failure other than clogging, the owner may disconnect the removable unit from the fixed one, sending it or taking it personally to the service centre for the necessary repairs.

[0010] Therefore, with this invention, unlike the similar devices on the market, the owner need not call a plumber, for expensive and time-consuming operations, and any problems affecting the pumping and triturating device may be remedied without having to touch the pipework or the sanitary fittings.

Brief description of the drawings

[0011] A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings, in which:

[0012] Figure 1 shows a cross-section of the present invention.

[0013] Figure 2 shows a cross-section of the two separate units composing the invention.

[0014] Figure 3 shows a schematic view of the installed device, with the separate pumping and triturating units.

[0015] Figure 4 shows a cross-section of the two separate units composing the device, according to the embodiment where the pumping and trituration take place in a chamber located between the two units.

[0016] Figure 5 shows a schematic view of the device, according to the embodiment where the pumping and trituration take place in a chamber located between the two units and installed with a separate removable unit.

[0017] Figure 6 shows a schematic view of how the device is connected, according to the embodiment where the pumping and trituration take place in a chamber located between the two units and installed with a separate removable unit.

Detailed description of the preferred embodiment

[0018] Referring to the drawings 1, 2 and 3, the pumping and triturating device for sanitary fittings comprises two units. The fixed unit (1) is composed of: a collection tank (2) for the soil water pipe (3) from the WC and for the waste water pipe (4) from the other sanitary fittings; the discharge pipe (5) and the air-trap for the pressure switch (7); at the inlet (6) of the discharge pipe (5), at the inlet (7b) of the pressure-switch and at the inlet (8) of the motor pump the unit (1) features the female couplings for the corresponding male couplings (9) of the unit equipment (10); the fixed unit (1) is also provided with a stop nut (11), or the like, for the screw (12) for securing the units (1) and (10) together.

[0019] The unit (10), as mentioned above, contains the motor pump (13), the water-level pressure switch of the water tank (14), and the pipe (15) connecting the motor pump (13) and the discharge pipe (5). Electri-

electronic devices connected to audible and visual alarms may be provided for between the units (1) and (10), for signalling any mistakes in the position of the two units or any sealing failures between the two units; these devices may also stop the motor pump in the above mentioned cases.

[0020] Each coupling is provided with a sealing ring (16), and there may also be gaskets between the units (1) and (10).

[0021] As previously mentioned, in the event of the clogging or failure of the device, it shall be possible to remove the unit (10), containing the pump, the triturator and the pressure switch, simply by unscrewing the screw (12) and separating it from the unit (1), to which all the pipes are fastened, it may then be taken to a service centre for the necessary repairs, maintenance or overhauling, saving a lot of time and money, compared to the conventional devices.

[0022] Obviously, the male and female couplings between the devices and the screw fastening the units (1) and (10), as well as the electric/electronic devices for signalling the incorrect position of the two units, may differ from those described and illustrated in this invention, in accordance with the shape or other characteristics of the embodiment.

[0023] Referring to figures 4, 5 and 6, according to the preferred embodiment, the pumping and triturating device comprises two units. The fixed unit (1') is composed of: a collection tank (2') for the soil water pipe (3') from the WC and for the waste water pipe (4') from the other sanitary fittings; the discharge pipe (5') and the air-trap for the pressure switch (7') connected, by means of the coupling (7B'), to the pressure switch (14') housed in the removable unit (10'), the triturating and pumping chamber (17'); the removable unit (10') contains the discharge pump (13'), the triturator with blades, the pressure switch (14') and the screw (12') fastening the two units together.

[0024] Electric/electronic devices connected to audible and visual alarms may be provided for between the units (1') and (10'), for signalling any mistakes in the position of the two units or any sealing failures between the two units; these devices may also stop the motor pump in the above mentioned cases.

[0025] Each coupling shall be provided with a gasket or sealing ring.

[0026] As previously mentioned, in the event of clogging or failure, it shall be possible to clean the chamber and, in particular, as shown in figures 4 and 5, to remove any waste obstructing the trituration and pumping chamber (17') simply by unscrewing the screw (12') and separating the unit (1'), to which all the pipes are fastened, from the unit (10'), containing the pump, the triturator with its blades and the pressure switch; it shall also be possible to take the unit (10') to a service centre for any repairs, maintenance or overhauling and then to put it back in its place.

Claims

1. A device for pumping and triturating sewage water for sanitary fittings basically comprising: (a) a soil and waste water collection tank, a soil water pipe from the WC and a waste water pipe from the other sanitary fittings, a pipe connecting the device with the discharge pipe, an air-trap for the pressure switch; (b) a motor pump and triturator; a pipe connecting the device to the discharge pipe, a pressure switch for controlling the level of water in the collection tank, wherein the components under (a) are housed in the unit (1) and the components under (b) are housed in the unit (10), the unit (1) being permanently fastened to the WC, while the unit (10) is fastened to the unit (1) but may be separated and removed.
2. A device for pumping and triturating sewage water for sanitary fittings as claimed in Claim 1, wherein the units (1) and (10) are connected to each other by mechanical means, such as male (9) and female (6, 7b, 8) couplings and screws (12) engaging with a stop nut (11).
3. A device for pumping and triturating sewage water for sanitary fittings as claimed in the preceding Claims, wherein electric/electronic devices connected to audible or visual alarms may be provided for to signal the incorrect position between the units (1) and (10) and to stop the device from working.
4. A device for pumping and triturating sewage water for sanitary fittings as claimed in the preceding Claims, wherein gaskets or sealing rings added to the male couplings (9) are provided for between the units (1) and (10).
5. A device for pumping and triturating sewage water for sanitary fittings as claimed in Claim 1, basically comprising: (a) a soil and waste water collection tank, a soil water pipe from the WC and a waste water pipe from the other sanitary fittings, a pipe connecting the device with the discharge pipe, an air trap for the pressure switch; (b) a motor pump and triturator with blades; a pressure switch for controlling the level of water in the collection tank, wherein the components under (a) are housed in the unit (1') and the components under (b) are housed in the unit (10'), the unit (1') being permanently fastened to the WC, while the unit (10') is fastened to the unit (1') but may be separated and removed.
6. A device for pumping and triturating sewage water for sanitary fittings as claimed in the preceding Claim, wherein by separating the fixed unit (1') from the mobile one (10') it shall be possible to inspect

and clean the trituration and pumping chamber
(17').

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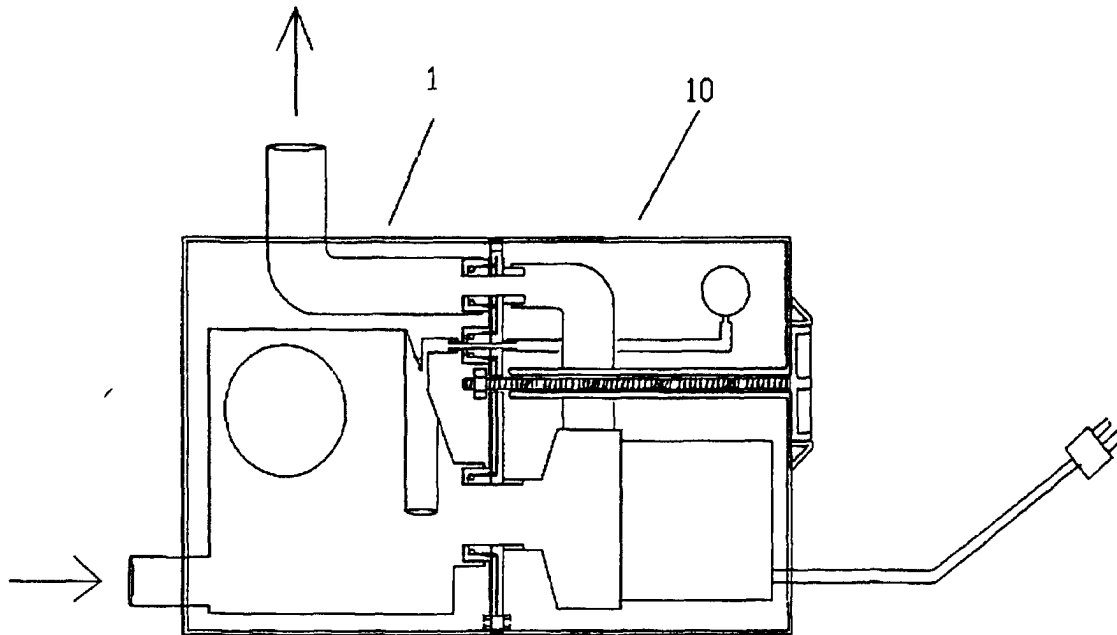


FIG 1

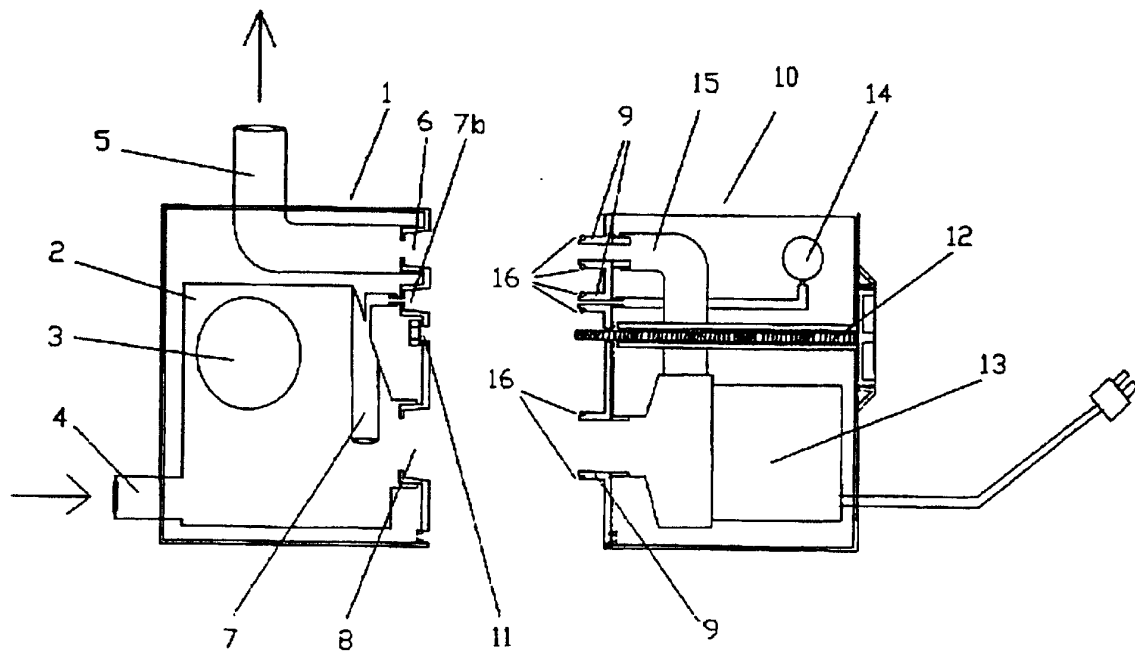


FIG 2

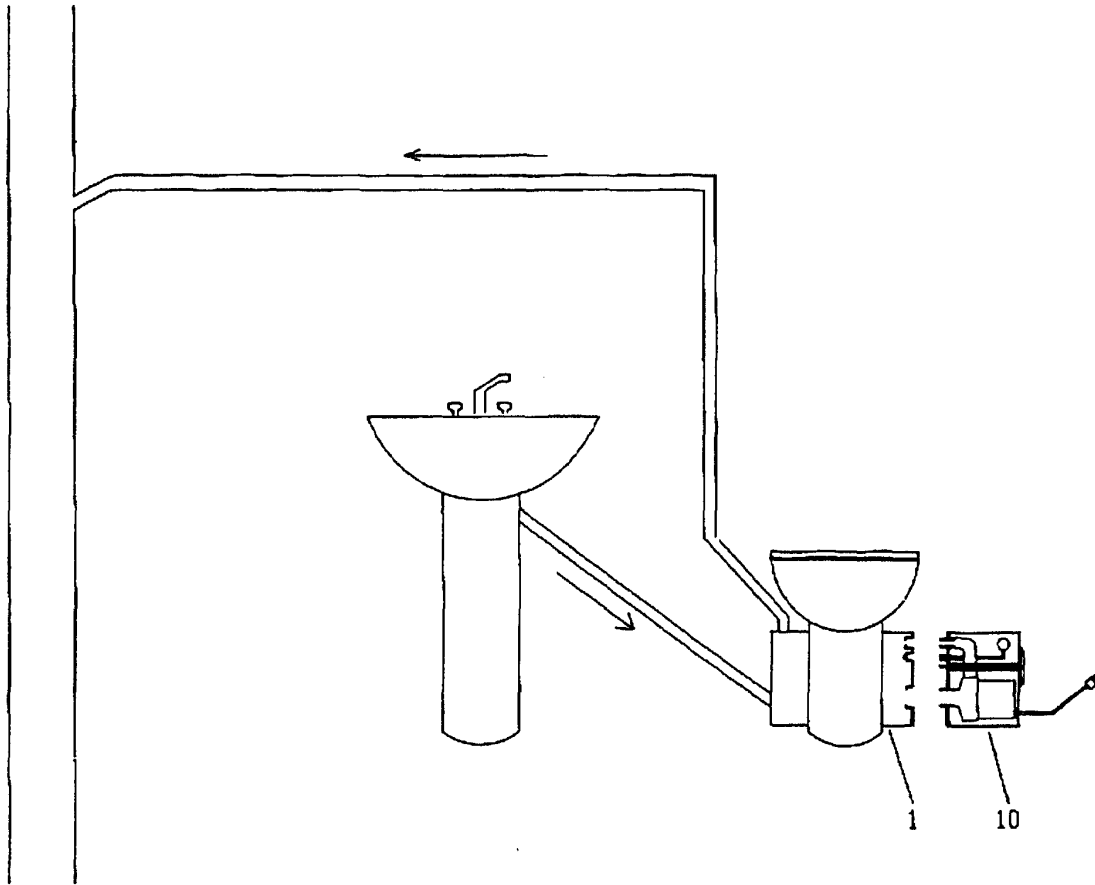


FIG 3

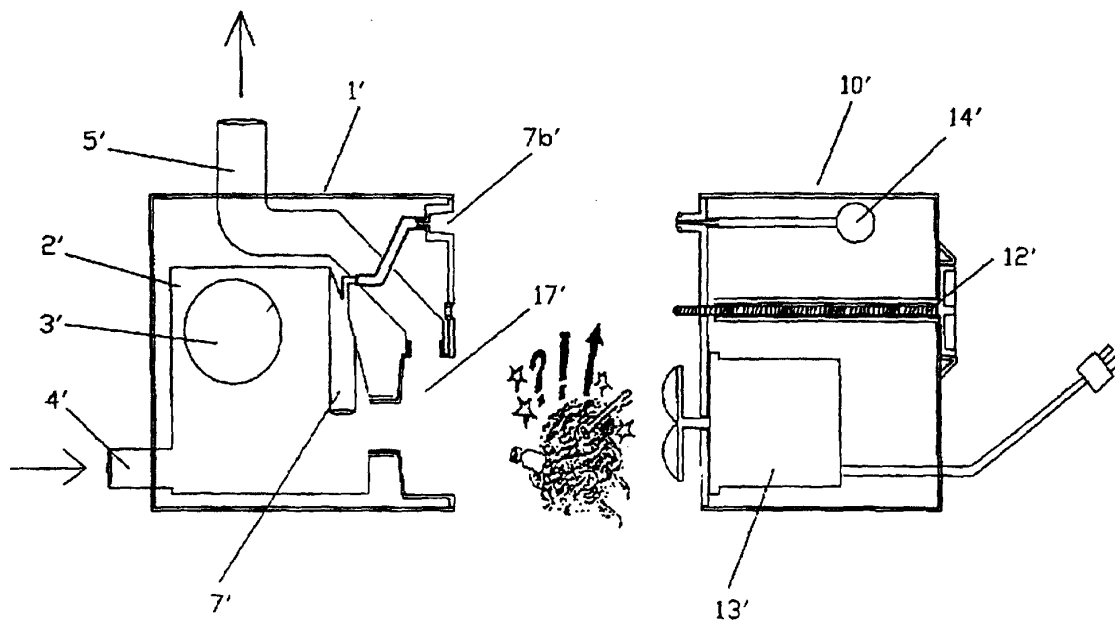


FIG 4

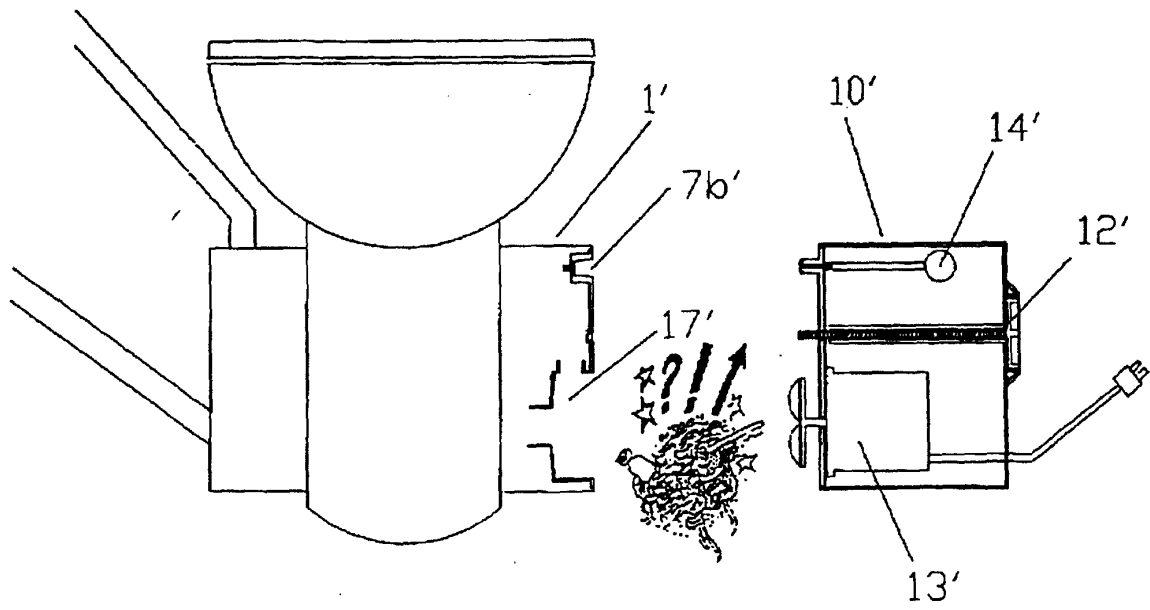


FIG 5

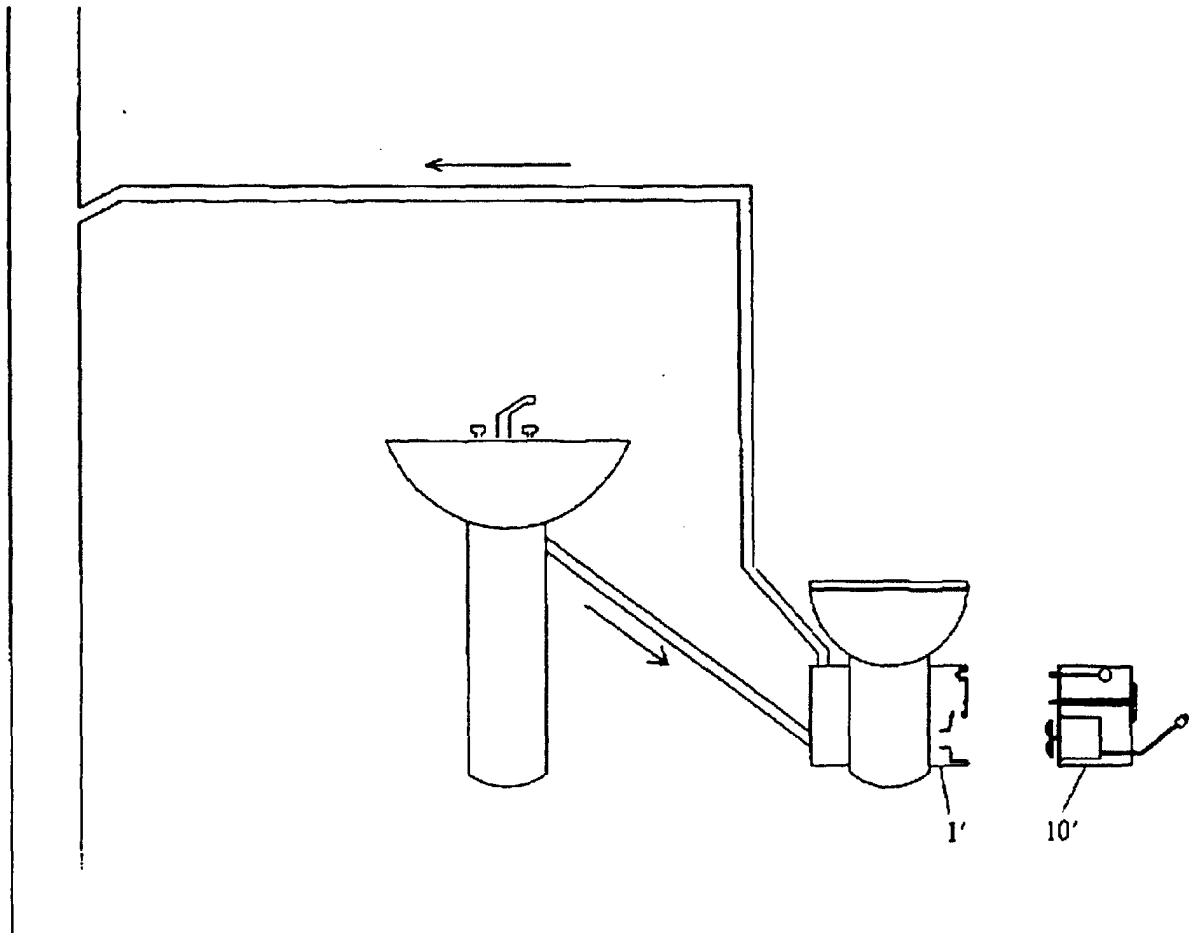


FIG 6