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(71) Applicant(s):
Moshe Buhbut
PO Box 2162, Petah Tikva 49120, Israel

Grigory Beskin
PO Box 2162, Petah Tikva 49120, Israel

(72) Inventor(s):
Moshe Buhbut
Grigory Beskin

(74) Agent and/or Address for Service:
Marc Zuta & Co.
72 New Bond Street, London, W1S 1RR,
United Kingdom

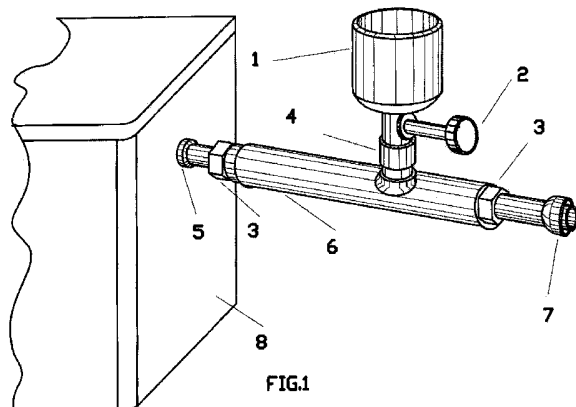
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(56) Documents Cited:
WO 1999/029971 A1 **US 4656676 A**

(58) Field of Search:
INT CL **A47K, E03D**
Other: **EPODOC, WPI**

(54) Abstract Title: **Device for adding cleansing material to a cistern**

(57) The invention relates to a hygienic device for adding a sanitary and cleansing material to the water in a cistern 8. The device comprises a body 6, with water flowing through it, and fittings 5 and 7 which allow the device to be connected to a water supply on one side and to the toilet cistern on the other side. The device further includes a material storing reservoir 1 and a valve 2 for controlling the rate of flow of the material into the water flow. The device preferably comprises a venturi body 6 with a venturi 9 which creates a low pressure allowing the water to mix with the cleansing material. A later embodiment relates to a hygienic device for adding a sanitary and cleansing material to the water in the cistern and is connected to the output of a supply valve in the cistern on one side and to the interior volume of the cistern on the other side.



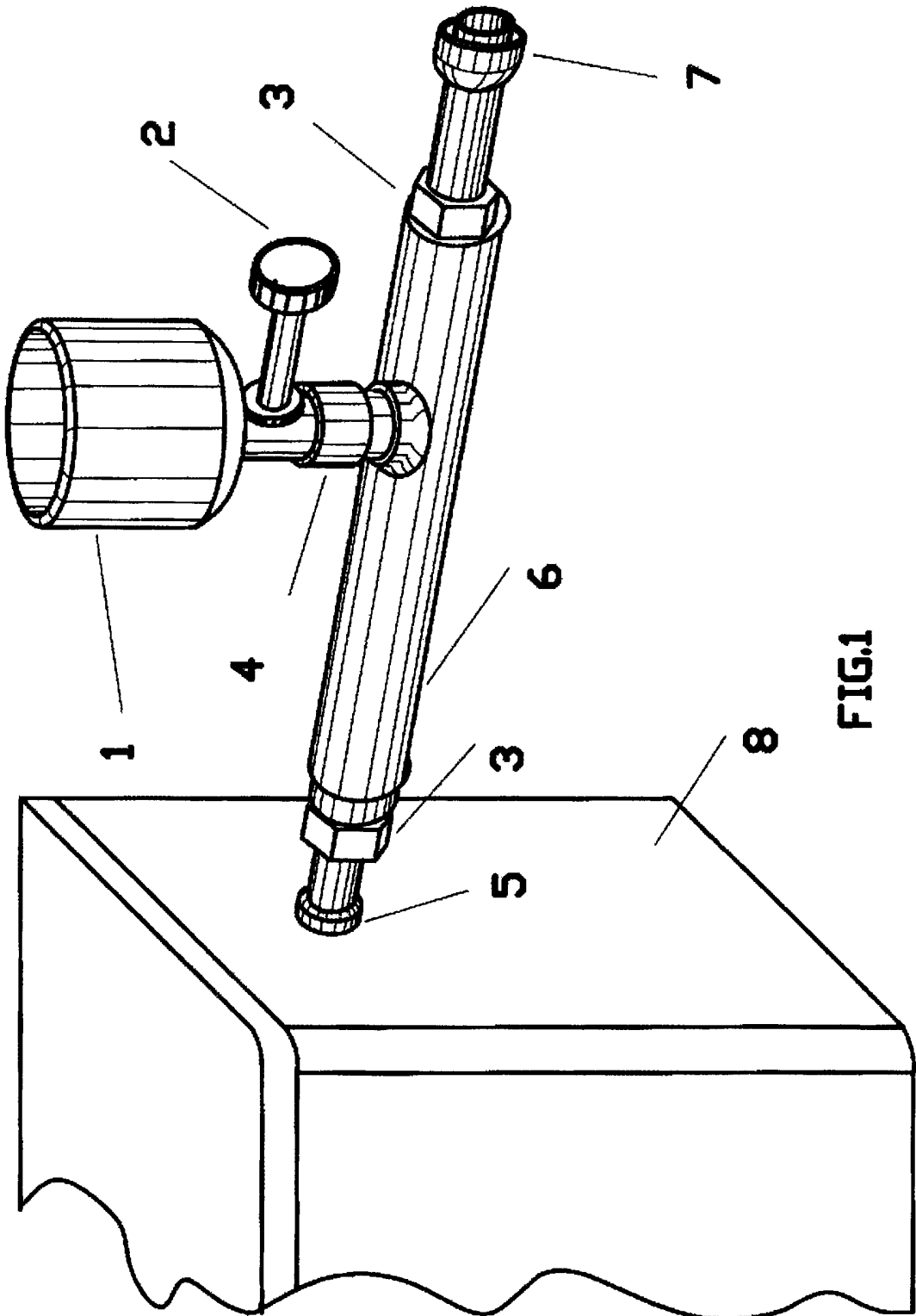


FIG. 1

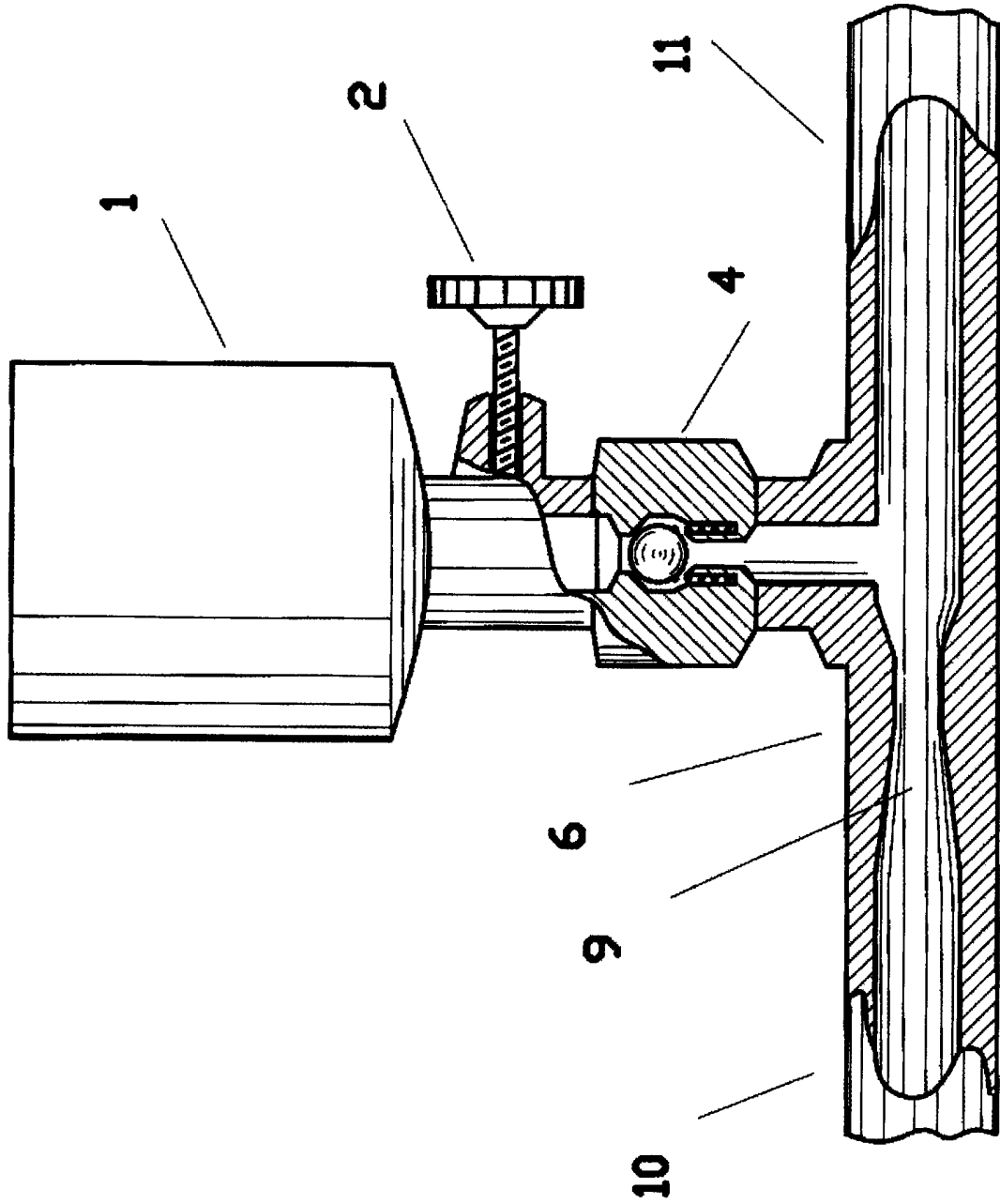


Fig. 2

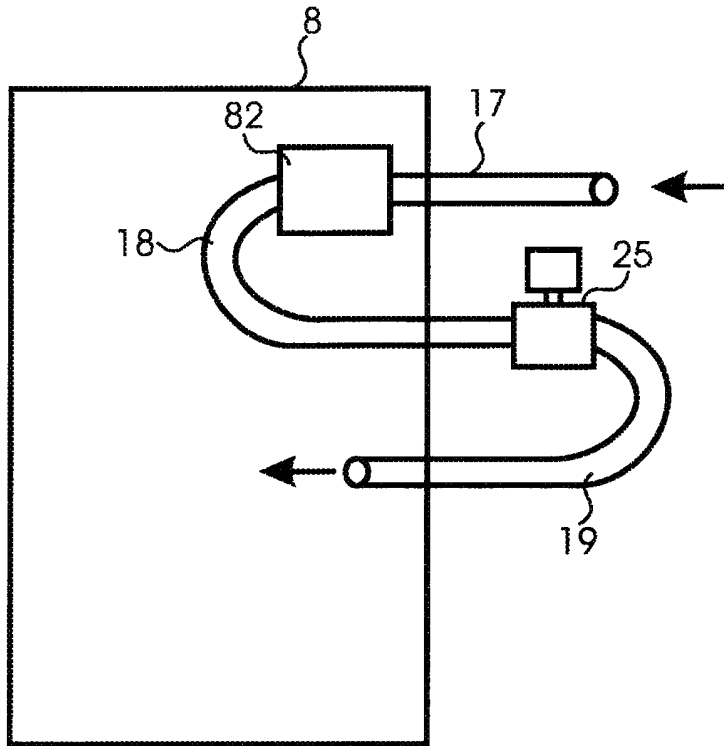


Fig. 3

Toilet Device

The invention relates to a hygienic device for the toilet, and more
5 specifically to a device for adding a sanitary and cleansing material to the
water in the cistern.

At present, the toilet is flushed with ordinary water. For hygienic
purposes, it may be desirable to add a suitable material to the water.

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A prior art device consists of a solid block immersed in the water. It may
be difficult to control the rate of use and efficiency of such a device.

It may not be desirable to place devices in the toilet bowl, as they may
15 become dirty in the process, and thus counter-productive to the goal of
providing a clean, sterile environment.

With prior art devices, the water flow in itself may be insufficient to
clean the toilet.

20

A new device, even improved, may be difficult to adapt if it requires the
replacement of all the presently used toilet water system.

25 SUMMARY OF THE INVENTION

According to the present invention, a new hygienic device for the toilet
includes means for automatically adding a sanitary and cleansing material to
the water in the cistern.

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The new device may be beneficially used to achieve a hygienic and clean toilet.

No foreign device is inserted into the cistern or toilet bowl - the only addition is the new device which is installed between the water supply line and the cistern.

- 5 The installation process is simple - just to attach two pipes.

Moreover, valve control means may be used to control the rate of use of the sanitary material.

- 10 A venturi is used to more efficiently mix the material with the flowing water. The quantity of additive is thus adapted to the rate of flow of water: for a faster rate of water flow, the rate of flow of the additive is commensurately increased.

- 15 A modular design of the device allows to add it to any cistern of an existing toilet.

Optionally, a low pressure version of the device may be installed after the supply valve in the cistern.

20

BRIEF DESCRIPTION OF THE DRAWINGS

- Fig. 1 illustrates a perspective view of a device for inserting an additive
25 into the toilet water

Fig. 2 details a side view of the device for adding to the water

Fig. 3 details a top view of another embodiment of the device

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DETAILED DESCRIPTION OF THE INVENTION

A preferred embodiment of the present invention will now be described by
5 way of example and with reference to the accompanying drawings.

Fig. 1 illustrates a perspective view of a device for inserting an additive
into the toilet water in the cistern 8.

10 The device includes a body 6 with water flowing therethrough and with
fitting 7 means for connecting to a water supply on one side thereof and
fitting 5 means to a toilet cistern 8 on the other side thereof.

The device further includes a reservoir 1 for a sanitary additive, such as a
15 special material for the sterilisation and cleaning of the toilet.

In one embodiment, the reservoir 1 has no top cover, rather it is open to
the ambient air. This makes it easier to check the level of additive in the
reservoir 1 and add more material as is necessary.

20

To prevent water from entering into the reservoir 1, there is a
unidirectional flow valve 4, which only allows the passage of material
downwards into the water flow.

When water flows, there is a vacuum or a decrease in pressure in the water,
25 which causes the valve 4 to open and material to flow down and mix with the
water.

In another embodiment, reservoir 1 has a cover (not shown) and an air
opening for ventilation and to prevent a vacuum as material flows down to
30 mix with the water flow.

In a preferred embodiment, a liquid material is used in reservoir 1.

A control valve 2 controls the amount of additive in the water, allowing the user to set the level of additive/sanitary material in the water.

5

Thus, the new hygienic device for the toilet includes means for adding a sanitary and cleansing material to the water in the cistern. The new device may be used to achieve a hygienic and clean toilet.

10 The device also has inlet and outlet couplings 3, an inlet fitting 7 to a water source and a fitting 5 to the cistern 8.

Using these fittings, the new device can be added to any cistern of an existing toilet, to achieve a modular design, easy to install device.

15 A venturi body 6 includes the venturi.

Fig. 2 details a side view of the device for adding to the water.

The sanitary/cleaning material is stored in the reservoir 1.

20 The control valve 2 controls the rate of flow of material into the water. The unidirectional flow valve 4 allows to control the concentration of sanitary/cleaning material in the water.

25 There are an inlet 10 for water supply and an outlet 11 to toilet water cistern.

The venturi body 6 has a venturi narrowing 9 which creates a low pressure, allowing the mixing of water with the additive from reservoir 1.

30 Fig. 3 details a top view of another embodiment of the device. This low pressure version of the device may be installed after the supply valve 82 in

the cistern 8.

In this embodiment, the connection of the inlet from water supply 17 is left unchanged, to supply water to the valve 82 in the cistern 8.

- 5 The low pressure water outlet 18 connects the output of the supply valve 82 to the additive mixing device 25, which may be implemented with the device illustrated in Fig. 2 for example.

10 The pipe 19 transfers the water with additive to the interior volume of the cistern 8, to be used in the toilet.

It will be recognized that the foregoing is but one example of an apparatus and method within the scope of the present invention and that various modifications will occur to those skilled in the art upon reading the
15 disclosure set forth hereinbefore.

CLAIMS

1. A hygienic device for adding a sanitary and cleansing material to the
5 water in the cistern, comprising a body with water flowing therethrough and
with fitting means for connecting to a water supply on one side thereof and
to a toilet cistern on the other side thereof, a material storing reservoir,
and valve means for controlling the rate of flow of the material into the
water flow.
- 10
2. The hygienic device according to claim 1, further including an
unidirectional valve between the reservoir and the flowing water, for
allowing the passage of material in one direction and preventing the passage
of water in the other direction.
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3. The hygienic device according to claim 1, wherein the material is a liquid.
4. The hygienic device according to claim 1, further including a venturi in
the water flow for creating a vacuum or lower pressure which allows the
20 material to flow into the flowing water.
5. The hygienic device according to claim 1, wherein the material in the
reservoir has sterilisation and cleaning capabilities.
- 25
6. The hygienic device according to claim 1, wherein the reservoir has a
ventilation opening therein.
7. A hygienic device for adding a sanitary and cleansing material to the
water in the cistern, comprising a body with water flowing therethrough and
30 with fitting means for connecting to the output of a supply valve in the
cistern on one side thereof and to the interior volume of the cistern on the

other side thereof, a material storing reservoir, and valve means for controlling the rate of flow of the material into the water flow.

5 8. The hygienic device according to claim 7, further including an unidirectional valve between the reservoir and the flowing water, for allowing the passage of material in one direction and preventing the passage of water in the other direction.

10 9. The hygienic device according to claim 7, wherein the material is a liquid.

10. The hygienic device according to claim 7, further including a venturi in the water flow for creating a vacuum or lower pressure which allows the material to flow into the flowing water.

15 11. The hygienic device according to claim 7, wherein the material in the reservoir has sterilisation and cleaning capabilities.

12. The hygienic device according to claim 7, wherein the reservoir has a ventilation opening therein.

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Examiner: Mr Haydn Gupwell

Claims searched: 1-12

Date of search: 21 August 2008

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X,Y	X: 1-6 Y: 7-12	WO99/29971 A1 (ALONSO FULLOLA FRANCISCO) see abstract and figures noting reservoir 1, valve means 3 for controlling rate of flow of material, unidirectional valve 6, venturi body 5 and cistern 8.
Y	7-12	US4656676 A (DUFU OSCAR R; SIDDIQUI KABIR) see whole document especially the figures noting hygienic device reservoir 56, inlet to reservoir 54 fed from anti-syphon device 52 which is fed from ballcock 38, and outlet from reservoir 58.

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X:

Worldwide search of patent documents classified in the following areas of the IPC'

A47K; E03D

The following online and other databases have been used in the preparation of this search report

EPODOC, WPI

International Classification:

Subclass	Subgroup	Valid From
E03D	0009/03	01/01/2006