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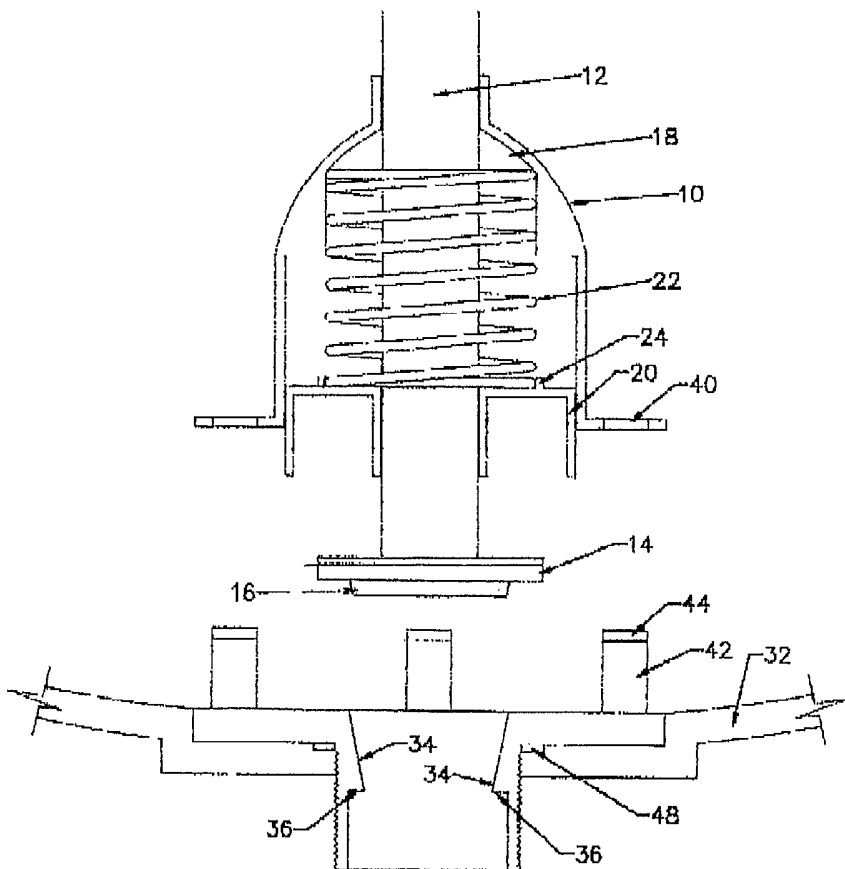
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(54) Title: FLUSHING VALVE FOR CISTERN



(57) Abstract: A flushing cistern (32) has a plug (16) for the outlet (34), the plug being connected to a vertical rod (12) passing through a bell housing and connects with a lever to the handle. The plug (16) is pulled into the bell (10) which has a compression spring (22). Release of the handle causes the spring (22) to urge the plug to its closed position so that the amount of water used for a flushing operation can be chosen simply by releasing the handle.



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FLUSHING VALVE FOR CISTERN

TECHNICAL FIELD OF THE INVENTION

This invention relates to a flushing cistern.

BACKGROUND ART

5 As water becomes scarcer there is a need for arrangements to avoid unnecessary volumes of water for certain purposes. This is particularly so in the case of toilet flushing cisterns where a full flush is used on every occasion despite the fact that on most occasions only a fraction of the full volume is all that is required.

Several arrangements are known, perhaps the best known involving a siphon
10 cistern in which the siphon is able to be broken at one or more locations. Another arrangement involves the use of an expansion spring in association with the handle or the lever arm, the spring biasing the closure to its closed position so that the cistern is closed as soon as the handle is released.

It is an object of the present invention to provide a simpler arrangement which is at
15 least as effective as either of the arrangements discussed above.

DISCLOSURE OF THE INVENTION

According to the invention a flushing cistern arrangement includes a plug which obturates an outlet, the plug having a vertical rod which passes through a cylindrical or bell-like housing and connects with a lever, the cylindrical housing being adapted to
20 receive the plug when the rod is raised for a flushing operation, the housing having means biasing the plug to its closed position.

The biasing means is preferably a compression spring abutting the inside top of the housing and the top of the plug.

When the lever of the cistern is raised by means of a handle, knob or the like the plug is lifted from its position on the outlet and is raised against the action of the compression spring. When the hand is released, the spring urges the plug downwards to its closing position. Thus, any amount of water may be chosen for a flushing operation
5 merely by releasing the handle after a chosen time period.

The outlet should complement the plug for a good fit so that there is no leakage. In addition the outlet may be frustoconical in section for optimum water flow therethrough.

BRIEF DESCRIPTION OF THE DRAWINGS

10 An embodiment of the invention is described below with reference to the accompanying drawings, in which :

Figure 1 is an exploded sectional side view of an arrangement of the present invention;

and

15 Figure 2 is an under view of the bell and piston arrangement.

BEST MODE FOR CARRYING OUT THE INVENTION

In the drawings a cistern flushing arrangement is shown which comprises a bell 10 through which passes a shaft 12 carrying a washer 14 with a plug 16. The washer is made from rubber or a rubber-like material, as is the plug.

20 The bell has a shoulder 18 between which and a skirt 20 is a compression spring 22. The lower end of the spring is held in position by a circular stop 24. The skirt is integral with the shaft.

The outlet 30 of the cistern 32 is frustoconical as shown by the dotted lines 34, thereby creating a venturi effect to accelerate the water outflow. The cistern is curved as shown in the drawing and the outlet is level with the base of the cistern to avoid collection of water in the base of the cistern which is a feature of existing cisterns. The outlet also
5 includes a shoulder 36 for location of the outlet or down pipe.

The bell is held in position by means of bayonet receiving formations 40 and the outlet assembly includes fences 42, the tops 44 thereof having bayonet formations which enter the formations 40 and are turned to effect a joint. Fins 50 are provided on the flange 52 to serve as guides for the fences.

10 A seal 48 is provided at the connection of the cistern to the outlet assembly.

When the shaft is raised by means of the handle which causes the activating rod to raise the shaft, the plug is unseated and water rushes through the outlet. Normally, this rush will continue until the cistern is empty even if the handle is released but in the present invention the release of the handle will cause the compression spring to expand and its
15 force will overcome the flow of water and the plug will reseal in the outlet.

The bell 10 can vary in dimension according to the water mains or other source of pressure being used.

CLAIMS:

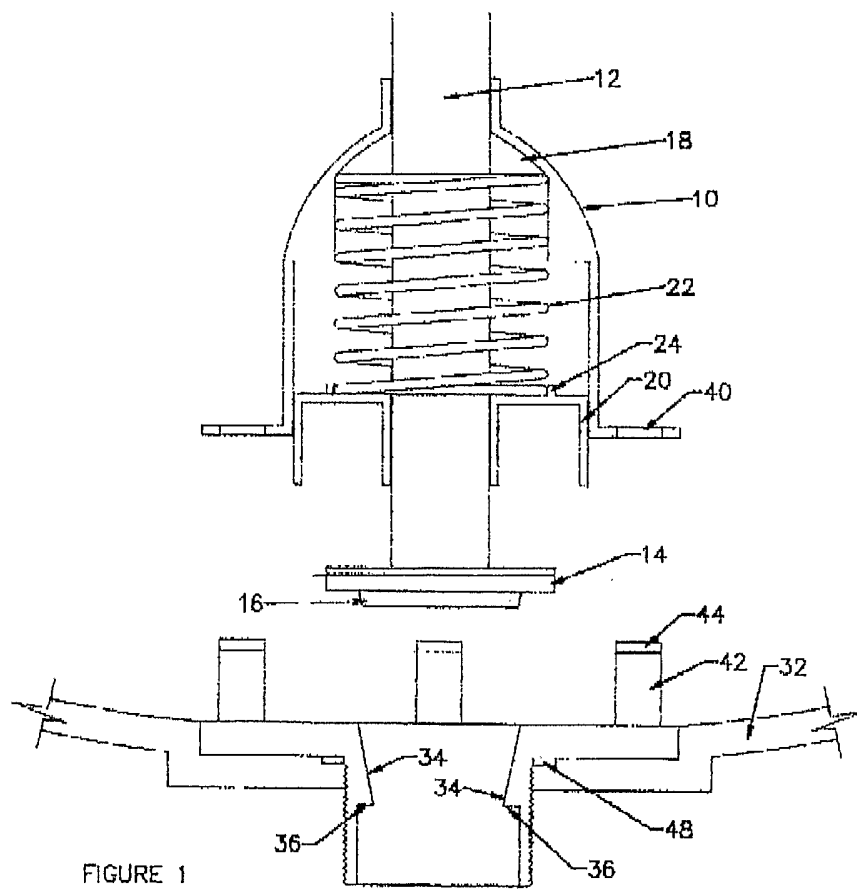
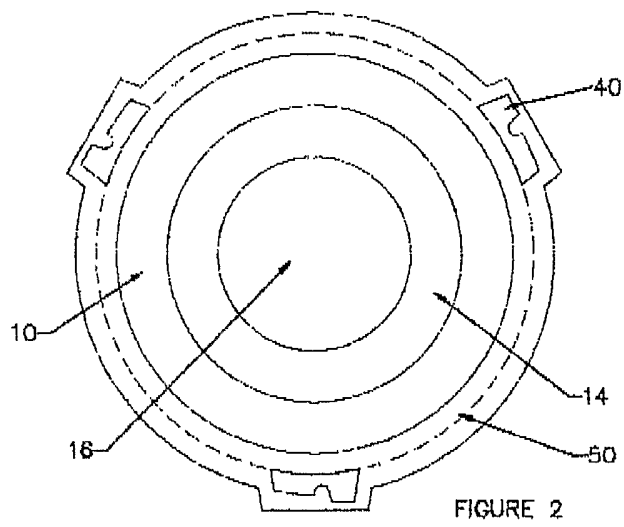
1. A flushing cistern arrangement including a plug which obturates an outlet, the plug being adapted to be raised from the outlet by means of a lever, the plug being biased to its closed position, to which it return on release of the lever, characterised in that the plug has
5 a vertical rod which passes through a cylindrical or bell-like housing, and connects with a lever;

the cylindrical housing being adapted to receive the plug when the rod is raised for a flushing operation,
the housing having means biasing the plug to its closed position.

10 2. The flushing cistern arrangement according to claim 1 characterised in that the compression spring abuts the inside top of the housing and the top of the plug.

3. The flushing cistern arrangement according to claim 2 characterised in that when the lever of the cistern is raised by means of a handle, knob or the like, the plug is lifted from its position on the outlet and is raised against the action of the compression spring
15 and, when the hand is released, the spring urges the plug downwards to its closing position.

4. The flushing cistern arrangement according to any of the above claims characterised in that the outlet is frustoconical in section for optimum water flow and complements the plug.



INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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IPC 7 E03D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

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X	DE 101 32 146 A (GADIR ABULGASIM AHMED ABDUL) 23 January 2003 (2003-01-23) page 1, line 42 - line 45; figure 1 ---	1-3
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X	EP 0 505 840 A (FRIBERG OSCAR) 30 September 1992 (1992-09-30) abstract --- -/--	1-3

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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