

## Description

The present invention relates to cistern mechanisms and, in particular, to a dual flush cistern mechanism.

Dual flush cistern mechanisms are known per se in order to provide the advantageous function of either a small volume flush or a "normal" large volume flush. Considerable savings in water utilisation are able to be achieved thereby.

In order to be economically cost competitive, dual flush cistern mechanisms must be able to be fabricated by means of low cost procedures such as plastics moulding and should be able to be easily assembled. These two desiderata can be achieved if one or more of the components of the cistern mechanism have at least two operation functions.

The dual flush cistern mechanism disclosed in British Patent Application No. 2,077,790A discloses a dual flush mechanism of the kind defined in the preamble of claim 1. It suffers from the disadvantage that it requires several components that each have a separate task. For example, a fixed hollow tube 5 is provided as an air inlet tube and a separate stem 8 is slidable along the tube 5 in order to open the flush valve. The stem 8 carries a stop 11 which float 14 hits in order to bring about a reduced volume flush.

Also DE-A-2601282 discloses a fixed support 22 which functions as the upper portion of an overflow tube. A hollow stem 12 slides within this support 22 and carries the stop lugs 17 which the float 19 hits in order to bring about a reduced volume flush. Here the overflow function is shared by the components 12 and 22 and again there is a duplication of vertically extending members of substantial length.

It is the object of the present invention to provide a simplified dual flush cistern mechanism.

According to the present invention there is disclosed a dual flush mechanism for a cistern, said mechanism comprising a substantially vertical stem mounted for substantially vertical movement above an annular flush valve of said cistern and having a flush valve seal located at its lower end; a float slidably mounted on said stem intermediate the ends thereof; a first lever arm pivotally connected to said stem at a location spaced from a first pivot in said cistern for said first lever arm, and being pivotable by each of a first and a second operating mechanism to raise said stem to open said flush valve; a second lever arm pivotable by said second operating mechanism about a second pivot in said cistern and carrying a latch member releasably engageable with said float to retain said float in a first, high operating position, and a projection extending from said stem to limit the travel of

said float into a second low operating position; wherein said first operating mechanism is operable to raise said stem with said float retained in said high operating position by said latch member to open said flush valve until water within said cistern reaches a low level; and wherein said second operating mechanism is operable to substantially simultaneously raise said stem to open said flush valve to drain water from said cistern and release said latch member whereby said float drops with the water level in said cistern until said float engages said stem projection to move said stem downwardly and close said flush valve before the water in said cistern reaches said low level, said float being buoyantly movable from said low to said high position to re-engage said latch member with said float when said cistern is re-filled with water characterized in that said movable stem is hollow to alone form the overflow outlet and to combine the functions of overflow outlet and slide for the float (15) in a single member which operates said flush valve (12), wherein said first lever arm comprises a pair of levers located one to either side of said stem, one end of said levers being pivotally connected to said stem, and said pivot has a longitudinal axis which is stationary with respect to said cistern, movement of the stem in longitudinal direction of the levers being restricted by said pivotal connections of the levers to the stem.

One embodiment of the present invention will now be described with reference to the drawings in which:

Fig. 1 is a schematic perspective view of the apparatus of the preferred embodiment, a portion of the float being cut away and only a portion of the floor of the cistern being illustrated,

Figs. 2A to 2C are identical longitudinal cross-sections through the cistern of the preferred embodiment illustrating a full flush operating sequence for a cistern incorporating the mechanism of Fig. 1 and,

Figs. 3A to 3B are views similar to Figs. 2A to 2C but taken along a section line spaced therefrom, and illustrating a partial flush sequence for the mechanism of Fig. 1.

As best seen in Figs. 2A-C and 3A-B, the cistern mechanism 1 is mounted within a substantially conventional cistern 2 having a floor 3. This cistern 2 also has a cover 4 having a pair of recesses 5, 6 within each of which one of a pair of spring loaded operating buttons 7 and 8 is respectively located.

The cistern floor 3 is provided with an outlet 9 in substantially conventional fashion which is able to be closed by a generally annular seal 10 carried at the lower end of a hollow stem 11. The seal 10 and outlet 9 together constitute a flush valve 12

whilst the hollow stem 11 constitutes an overflow pipe through which water can pass to the outlet 9 should the level of water in the cistern exceed the intended maximum level 31 (Fig. 2A). The stem 11 carries two projections 13 adjacent its lower end.

As best seen in Fig. 1, a generally rectangular float 15 is slidably mounted on the stem 11. The float 15 is illustrated in its higher operating position in Fig. 1 in which a protrusion 16 on the upper edge of the float is releasably engaged with a latch member 17. Whilst the latch member 17 limits the downward movement of the float 15 when engaged with the protrusion 16, the upward movement of the float 15 is limited by engagement of the float 15 with a pair of lever arms 18 pivoted about stationary pivot 19 and pivotably connected to the stem 11 at 20.

As best seen in Fig. 1, the lever arms 18 are connected together at their ends remote from the stem 11 by a V-shaped channel member 21 which receives the lower ends of two connecting rods 22 and 23. The upper ends of the connecting rods 22, 23 are respectively connected to the operating buttons 7 and 8.

As also best seen in Fig. 1, a generally rectangular frame 25 from which the latch member 17 depends is pivotably mounted at 26 and includes a cantilever arm 27. The latch member 17 includes a ramp or inclined surface 24. The connecting rod 23 includes a lug 28 which is able to engage the arm 27 via a link 29 pivoted at 30. The arms 18, frame 25 and link 29 are respectively pivoted relative to the cistern 2 by pivots 19, 26 and 30 which engage the interior of the cistern in substantially conventional fashion.

The operating sequence of the cistern mechanism 1 will now be described with reference to Figs. 2A to 2C inclusive which illustrate the full or normal flush sequence. In the situation illustrated in Fig. 2A, the cistern 2 is filled with water to its intended maximum level 31. In this condition, the float 15 is submerged but the protrusion 16 is retained by the latch member 17.

If the operating button 7 is now depressed as indicated in Fig. 2B, the connecting rod 22 depresses V-shaped channel member 21 and therefore turns lever arms 18 about pivot 19 so as to raise the stem 11. As a consequence, water flows past the seal 10 and into the outlet 9 since the flush valve 12 is effectively opened by the raising of stem 11.

As indicated in Fig. 2C, the button 7 is returned to its rest position by its associated spring. When the level of water within the cistern 2 has dropped to the level indicated in Fig. 2C, the force of water passing through the flush valve 12 is no longer sufficient to maintain the seal 10 and stem 11 in the raised position. Thus, the stem 11 moves

downwardly under its own weight therefore closing seal 10 against the outlet 9 to close the flush valve 12. The cistern 2 is then automatically re-filled by any conventional mechanism such as a float valve (not illustrated).

Where a small volume flush is required, from the initial position illustrated in Fig. 2A, the button 8 is depressed as illustrated in Fig. 3A. As a consequence, connecting rod 23 moves downwardly thereby pivoting the V-shaped channel member 21 and lever arms 18 about pivot 19 as before so as to raise stem 11. In addition, the lug 28 on connecting rod 23 via link 29 depresses the free end of cantilever arm 27 which tilts the frame 25 about the pivotal mounting 26. As a consequence, the latch member 17 moves in an anti-clockwise direction as seen in Fig. 3A thereby releasing the protrusion 16 of the float 15.

As a result of the lifting of the stem 11, the flush valve 12 opens as before and water drains from the cistern 2 through the outlet 9 until the upper portions of the float 15 begin to protrude above the level of water within the cistern 2.

The situation illustrated in Fig. 3B is then reached where the button 8 and connecting rod 23 have been returned to their rest positions thereby allowing the frame 25 and latch member 26 to pivot back into their rest positions. Similarly link 29 pivots back into its rest position. As the water level drops within the cistern 2, the float 15 slides downwardly along the stem 11 until the lower end of the float engages the projections 13 extending from the stem 11. This engagement limits the downward travel of the float 15 relative to the stem 11 and instead moves the stem 11 downwardly so as to prematurely reach the position illustrated in Fig. 3C where the flush valve 12 is closed.

It will be seen from Fig. 3C that the flushing action has been completed but a substantial volume of the water originally present in the cistern 2 still remains. As a consequence, the volume of the partial flush initiated by operating button 8 is very much less than that of the full flush initiated by operation of button 7.

It will be apparent to those skilled in the art that as the cistern 2 is refilled the float 15 rises upwardly along the stem 11 so as to move the protrusion 16 past the inclined surface 24 of the latch member 17. As a consequence, the protrusion 16 and latch member 17 are thus re-engaged and the cistern 2 is thus returned to the initial condition illustrated in Fig. 2A.

As best seen in Figs. 3A-C the float 15 is provided with a generally horizontal web 35 which joins the inner and outer walls of the float 15. Since the volume above the web 35 retains water, whilst the volume below the web 35 retains air and therefore provides the buoyancy for the float 15, by

altering the position of the web 35 relative to the top of the float 15 and by also altering the length of the float 15, the buoyant force of the float 15 applied by protrusion 16 to the latch member 17, and the gravitational force of the float 15 applied to the projections 13 can be adjusted to an optimum value.

Furthermore, it will be apparent that the stem 11 fulfills three functions. The first is as an operating member for the seal 10, the second is as a slide for the float 15, and the third is as an overflow pipe. As a consequence of this multi-function component, a saving in component pieces, and hence both fabrication costs and assembly time, is achieved. Furthermore, the arrangement of the stem 11 enables the buttons 7, 8 to be centrally located in the cover 4 which is aesthetically pleasing.

The foregoing describes only one embodiment of the present invention and modifications, obvious to those skilled in the art, can be made thereto without departing from the scope of the present invention as claimed.

For example, each of the operating mechanisms interconnecting the latch member 17 and lever arms 18 with the operating buttons 7, 8 can be varied as desired in order to achieve any aesthetic purpose. Also the pivots 19, 26 and 30 can be provided either by rods protruding from the interior side walls of the cistern, or by use of a separate frame.

## Claims

1. A dual flush mechanism for a cistern (2), said mechanism comprising a substantially vertical stem (11) mounted for substantially vertical movement above an annular flush valve (12) of said cistern (2) and having a flush valve seal (10) located at its lower end; a float (15) slidably mounted on said stem (11) intermediate the ends thereof; a first lever arm (18) pivotably connected to said stem (11) at a location (20) spaced from a first pivot (19) in said cistern (2) for said first lever arm (18), and being pivotable by each of a first and a second operating mechanism (22, 23) to raise said stem (11) to open said flush valve (12); a second lever arm (27) pivotable by said second operating mechanism (23) about a second pivot (26) in said cistern and carrying a latch member (17) releasably engageable with said float (15) to retain said float in a first, high operating position, and a projection (13) extending from said stem to limit the travel of said float into a second low operating position; wherein said first operating mechanism (22) is operable to raise said stem (11) with said float (15) re-

tained in said high operating position by said latch member (17) to open said flush valve (12) until water within said cistern reaches a low level; and wherein said second operating mechanism (23) is operable to substantially simultaneously raise said stem (11) to open said flush valve (12) to drain water from said cistern and release said latch member (17) whereby said float (15) drops with the water level in said cistern until said float (15) engages said stem projection (13) to move said stem (11) downwardly and close said flush valve (12) before the water in said cistern reaches said low level, said float (15) being buoyantly movable from said low to said high position to re-engage said latch member (17) with said float (15) when said cistern is re-filled with water characterized in that said movable stem (11) is hollow to alone form the overflow outlet and to combine the functions of overflow outlet and slide for the float (15) in a single member which operates said flush valve (12), wherein said first lever arm comprises a pair of levers (18) located one to either side of said stem (11), one end of said levers (18) being pivotally connected to said stem (11), and said pivot (19) has a longitudinal axis which is stationary with respect to said cistern (2), movement of the stem in longitudinal direction of the levers (18) being restricted by said pivotal connections of the levers to the stem.

2. A mechanism as claimed in claim 1 wherein the other ends of said a pair of levers have an upwardly opening V-shaped channel member (21) extending thereacross, and said pivot (19) is located between the ends of said pair of levers.

3. A mechanism as claimed in claim 2 wherein said cistern (2) has a top (4) and said first operating mechanism comprises a first spring loaded button (7) mounted in said top (4) and a first connecting rod (22) extending between said first button (7) and said channel member (21), whereby depressing said first button (7) pivots said pair of levers (18) to raise said stem (11).

4. A mechanism as claimed in claim 3 wherein said second operating mechanism comprises a second spring loaded button (8) mounted in said top (4) and a second connecting rod (23) extending between said second button (8) and said channel member (21), said second connecting rod having a lug (28) engageable with said second lever arm (27) following depressing of said second button to pivot said second



altering the position of the web 35 relative to the top of the float 15 and by also altering the length of the float 15, the buoyant force of the float 15 applied by protrusion 16 to the latch member 17, and the gravitational force of the float 15 applied to the projections 13 can be adjusted to an optimum value.

Furthermore, it will be apparent that the stem 11 fulfills three functions. The first is as an operating member for the seal 10, the second is as a slide for the float 15, and the third is as an overflow pipe. As a consequence of this multi-function component, a saving in component pieces, and hence both fabrication costs and assembly time, is achieved. Furthermore, the arrangement of the stem 11 enables the buttons 7, 8 to be centrally located in the cover 4 which is aesthetically pleasing.

The foregoing describes only one embodiment of the present invention and modifications, obvious to those skilled in the art, can be made thereto without departing from the scope of the present invention as claimed.

For example, each of the operating mechanisms interconnecting the latch member 17 and lever arms 18 with the operating buttons 7, 8 can be varied as desired in order to achieve any aesthetic purpose. Also the pivots 19, 26 and 30 can be provided either by rods protruding from the interior side walls of the cistern, or by use of a separate frame.

#### Claims

1. A dual flush mechanism for a cistern (2), said mechanism comprising a substantially vertical stem (11) mounted for substantially vertical movement above an annular flush valve (12) of said cistern (2) and having a flush valve seal (10) located at its lower end; a float (15) slidably mounted on said stem (11) intermediate the ends thereof; a first lever arm (18) pivotally connected to said stem (11) at a location (20) spaced from a first pivot (19) in said cistern (2) for said first lever arm (18), and being pivotable by each of a first and a second operating mechanism (22, 23) to raise said stem (11) to open said flush valve (12); a second lever arm (27) pivotable by said second operating mechanism (23) about a second pivot (26) in said cistern and carrying a latch member (17) releasably engageable with said float (15) to retain said float in a first, high operating position, and a projection (13) extending from said stem to limit the travel of said float into a second low operating position; wherein said first operating mechanism (22) is operable to raise said stem (11) with said float (15) re-

tained in said high operating position by said latch member (17) to open said flush valve (12) until water within said cistern reaches a low level; and wherein said second operating mechanism (23) is operable to substantially simultaneously raise said stem (11) to open said flush valve (12) to drain water from said cistern and release said latch member (17) whereby said float (15) drops with the water level in said cistern until said float (15) engages said stem projection (13) to move said stem (11) downwardly and close said flush valve (12) before the water in said cistern reaches said low level, said float (15) being buoyantly movable from said low to said high position to re-engage said latch member (17) with said float (15) when said cistern is re-filled with water characterized in that said movable stem (11) is hollow to alone form the overflow outlet and to combine the functions of overflow outlet and slide for the float (15) in a single member which operates said flush valve (12), wherein said first lever arm comprises a pair of levers (18) located one to either side of said stem (11), one end of said levers (18) being pivotally connected to said stem (11), and said pivot (19) has a longitudinal axis which is stationary with respect to said cistern (2), movement of the stem in longitudinal direction of the levers (18) being restricted by said pivotal connections of the levers to the stem.

2. A mechanism as claimed in claim 1 wherein the other ends of said a pair of levers have an upwardly opening V-shaped channel member (21) extending thereacross, and said pivot (19) is located between the ends of said pair of levers.

3. A mechanism as claimed in claim 2 wherein said cistern (2) has a top (4) and said first operating mechanism comprises a first spring loaded button (7) mounted in said top (4) and a first connecting rod (22) extending between said first button (7) and said channel member (21), whereby depressing said first button (7) pivots said pair of levers (18) to raise said stem (11).

4. A mechanism as claimed in claim 3 wherein said second operating mechanism comprises a second spring loaded button (8) mounted in said top (4) and a second connecting rod (23) extending between said second button (8) and said channel member (21), said second connecting rod having a lug (28) engageable with said second lever arm (27) following depressing of said second button to pivot said second



lever arm about said second pivot (26) and release said latch member (17).

5. A mechanism as claimed in claim 4 wherein said lug (28) engages said second lever arm (27) via a link (29) pivoted adjacent its mid point (30), said lug (28) depressing one half of said link (29) to move said second lever arm (27), and said link (29) returning to its original level position under the weight of the other half of said link. 5 10
6. The mechanism as claimed in any one of claims 1 to 5 wherein said stem (11) has a rectangular cross-section. 15
7. A mechanism as claimed in any one of claims 1 to 6 wherein said float (15) is an open ended tube having an interior sleeve through which said stem (11) passes and a web (35) which connects said sleeve and tube to provide two volumes, an upper one which retains water and a lower one which retains air to respectively provide oppositely directed gravitational and buoyant forces. 20 25
8. A mechanism as claimed in any one of claims 1 to 7 wherein said first and second pivots engage the interior of said cistern. 30

#### Patentansprüche

1. Zweimengen-Spülmechanismus für einen Spülkasten (2), umfassend einen im wesentlichen vertikalen Schaft (11), der zu einer im wesentlichen vertikalen Bewegung über einem ringförmigen Spülventil (12) des Spülkastens (2) gelagert ist und eine Spülventildichtung (10) aufweist, die an seinem unteren Ende angeordnet ist; einen Schwimmer (15), der auf dem Schaft (11) zwischen den Enden desselben verschiebbar gelagert ist; einen ersten Hebelarm (18), der mit dem Schaft (11) an einer Stelle (20) schwenkbar verbunden ist, die von einem ersten Gelenkzapfen (19) in dem Spülkasten (2) für den ersten Hebelarm (18) einen Abstand aufweist, und der sowohl durch einen ersten als auch durch einen zweiten Betätigungsmechanismus (22, 23) verschwenkbar ist, um den Schaft (11) zum Öffnen des Spülventils (12) anzuheben; einen zweiten Hebelarm (27), der durch den zweiten Betätigungsmechanismus (23) um einen zweiten Gelenkzapfen (26) in dem Spülkasten verschwenkbar ist und der ein Riegelteil (17) trägt, das mit dem Schwimmer (15) lösbar in Eingriff bringbar ist, um den Schwimmer in einer ersten, oberen Betriebsstellung zu halten; und einen 35 40 45 50 55

von dem Schaft abstehenden Vorsprung (13) zur Begrenzung der Bewegung des Schwimmers auf eine zweite, untere Betriebsstellung, wobei der erste Betätigungsmechanismus (22) betätigbar ist, um den Schaft (11) anzuheben, wobei der Schwimmer (15) von dem Riegelteil (17) in der oberen Betriebsstellung gehalten ist, um das Spülventil (12) zu öffnen, bis das Wasser in dem Spülkasten einen unteren Pegelstand erreicht, und wobei der zweite Betätigungsmechanismus (23) betätigbar ist, um im wesentlichen gleichzeitig den Schaft (11) anzuheben und das Spülventil (12) zu öffnen, um Wasser aus dem Spülkasten abzulassen, und das Riegelteil (17) freizugeben, wodurch der Schwimmer (15) zusammen mit dem Wasserspiegel in dem Spülkasten absinkt, bis der Schwimmer (15) mit dem Schaftvorsprung (13) in Eingriff gelangt, um den Schaft (11) nach unten zu bewegen und das Spülventil (12) zu schließen, bevor das Wasser in dem Spülkasten den besagten unteren Pegelstand erreicht, wobei der Schwimmer (15) durch Auftriebskraft von der besagten unteren in die besagte obere Stellung bewegbar ist, damit das Riegelteil (17) wieder mit dem Schwimmer (15) in Eingriff gelangt, wenn der Spülkasten erneut mit Wasser gefüllt wird, dadurch gekennzeichnet, daß der bewegliche Schaft (11) hohl ist, um allein den Überlaufauslaß zu bilden und die Funktionen des Überlaufauslasses und der Gleitführung für den Schwimmer (15) in einem einzigen Teil zu kombinieren, das das Spülventil (12) betätigt, wobei der erste Hebelarm zwei Hebel (18) umfaßt, die auf beiden Seiten des Schaftes (11) angeordnet sind, wobei ein Ende dieser Hebel (18) mit dem Schaft (11) schwenkbar verbunden ist und wobei der Gelenkzapfen (19) eine Längsachse hat, die in Bezug auf den Spülkasten (2) ortsfest ist, wobei die Bewegung des Schaftes in Längsrichtung der Hebel (18) durch die Schwenkverbindungen der Hebel mit dem Schaft begrenzt ist.

2. Mechanismus nach Anspruch 1, wobei die anderen Enden der beiden Hebel ein sich quer zu diesen erstreckendes, nach oben offenes, V-förmiges Profilteil (21) haben und wobei der Gelenkzapfen (19) zwischen den Enden der beiden Hebel angeordnet ist.
3. Mechanismus nach Anspruch 2, wobei der Spülkasten (2) einen Deckel (4) hat und wobei der erste Betätigungsmechanismus eine erste federbelastete Taste (7), die in dem Deckel (4) gelagert ist, und eine erste Verbindungsstange (22) umfaßt, die sich zwischen der ersten Taste (7) und dem Profilteil (21) erstreckt, wobei



ein Niederdrücken der ersten Taste (7) die beiden Hebel (18) zum Anheben des Schaftes (11) verschwenkt.

1. Mechanismus nach Anspruch 3, wobei der zweite Betätigungsmechanismus eine zweite federbelastete Taste (8), die in dem Deckel (4) gelagert ist, und eine zweite Verbindungsstange (23) umfaßt, die sich zwischen der zweiten Taste (8) und dem Profiltail (21) erstreckt, wobei die zweite Verbindungsstange eine Nase (28) aufweist, die beim Niederdrücken der zweiten Taste mit dem besagten zweiten Hebel (27) in Eingriff bringbar ist, um den zweiten Hebel um den zweiten Gelenkzapfen (26) zu verschwenken und das Riegelteil (17) auszurücken.

5. Mechanismus nach Anspruch 4, wobei die Nase (28) mit dem zweiten Hebelarm (27) über einen Schwenkhebel (29) in Eingriff gelangt, der nahe seinem Mittelpunkt (30) angelenkt ist, wobei die Nase (28) eine Hälfte des Schwenkhebels (29) nach unten drückt, um den zweiten Hebelarm (27) zu bewegen, und wobei der Schwenkhebel (29) unter dem Gewicht der anderen Hälfte dieses Hebels in seine Ausgangsstellung zurückkehrt.

6. Mechanismus nach einem der Ansprüche 1 bis 5, wobei der Schaft (11) einen rechteckigen Querschnitt hat.

7. Mechanismus nach einem der Ansprüche 1 bis 6, wobei der Schwimmer (15) ein Rohr mit offenem Ende ist, das eine innere Hülse aufweist, durch die sich der Schaft (11) erstreckt, und einen Steg (35) aufweist, der die Hülse mit dem Rohr verbindet, um zwei Räume zu bilden, von denen ein oberer Wasser enthält und ein unterer Luft enthält, um entgegengesetzt gerichtete Schwer- und Auftriebskräfte zu schaffen.

8. Mechanismus nach einem der Ansprüche 1 bis 7, wobei die ersten und zweiten Gelenkzapfen an der Innenseite des Spülkastens festgelegt sind.

#### Revendications

1. Un mécanisme de chasse d'eau à deux volumes (2), ledit mécanisme comprenant une tige (11) sensiblement verticale montée pour se déplacer de façon sensiblement verticale au-dessus d'une valve annulaire de vidange (12) de ladite chasse d'eau (2) et comprenant un joint d'étanchéité de valve de vidange (10)

disposé à son extrémité inférieure; un flotteur (15) monté coulissant sur ladite tige en une position intermédiaire entre les extrémités de celle-ci; un premier bras de levier (18) relié pivotant à ladite tige (11) à un emplacement (20) placé à distance d'un premier pivot (19) dans ladite chasse d'eau (2) pour ledit premier bras de levier (18) et étant susceptible d'être amenée à pivoter par chacun d'un premier et d'un second mécanismes opératoires (22, 23) pour lever ladite tige (11) afin d'ouvrir ladite valve de vidange (12); un second bras de levier (27) susceptible d'être amené à pivoter par ledit second mécanisme opératoire (23) autour d'un second pivot (26) dans ladite chasse d'eau et portant un organe de verrou (17) susceptible de venir en contact de façon libérable avec ledit flotteur (15) afin de retenir ledit flotteur dans une première position opératoire haute, et une partie en saillie (13) s'étendant à partir de ladite tige pour limiter le déplacement dudit flotteur dans une seconde position opératoire basse; dans lequel ledit premier mécanisme opératoire (22) est susceptible de fonctionner pour lever ladite tige (11) avec ledit flotteur (15) retenu dans ladite position opératoire (11) par ledit organe de verrou (17) afin d'ouvrir ladite valve de vidange 12 jusqu'à ce que l'eau contenue dans la chasse d'eau atteigne un niveau bas; et dans lequel ledit second mécanisme opératoire (23) est susceptible de fonctionner pour lever de façon sensiblement simultanée ladite tige (11) afin d'ouvrir ladite valve de vidange (12) pour laisser s'échapper l'eau en provenance de ladite chasse d'eau et de libérer ledit organe de verrou (17), de manière que ledit flotteur (15) descende avec le niveau d'eau dans ladite chasse d'eau jusqu'à ce que ledit flotteur (15) vienne en contact avec ladite partie en saillie (13) de la tige afin de déplacer ladite tige (11) vers le bas et de fermer ladite valve de vidange (12) avant que l'eau dans ladite citerne n'atteigne ledit niveau bas, ledit flotteur (15) étant susceptible de se déplacer par flottaison à partir de ladite position basse vers ladite position haute afin de ramener en contact ledit organe de verrou (17) avec ledit flotteur (15) lorsque ladite chasse d'eau est à nouveau remplie d'eau, caractérisé en ce que ladite tige mobile (11) est creuse pour former seule la sortie de débordement et pour combiner les fonctions de sortie de débordement et de glissement pour le flotteur (15) dans un organe unique qui actionne ladite valve de vidange (12), dans lequel ledit premier bras de levier comporte une paire de leviers (18) situés individuellement de chaque côté de ladite tige (11), une extrémité desdits



- leviers (18) étant reliée de façon pivotante à ladite tige (11) et en ce que ledit pivot ((19) comporte un axe longitudinal qui est fixe par rapport à ladite chasse d'eau (2), le déplacement de la tige dans la direction longitudinale du levier (18) étant limité par lesdites liaisons pivotantes entre les leviers et la tige.
2. Un mécanisme tel que revendiqué à la revendication 1, caractérisé en ce que les autres extrémités de ladite paire de leviers comportent un organe de canal (21) en forme de V ouvert vers le haut et qui est transversal aux leviers, et en ce que ledit pivot (19) est disposé entre les extrémités de ladite paire de leviers.
  3. Un mécanisme tel que revendiqué à la revendication 2, caractérisé en ce que ladite chasse d'eau (2) comporte une partie supérieure (4) et ledit premier mécanisme opératoire comporte un premier bouton-poussoir (7) sollicité par ressort et monté dans ladite partie supérieure (4), et une première tige de liaison (22) s'étendant entre ledit premier bouton-poussoir (7) et ledit organe de canal (21), de telle manière que l'abaissement dudit premier bouton-poussoir (7) fasse pivoter ladite paire de leviers (18) afin de lever ladite tige (11).
  4. Un mécanisme tel que revendiqué à la revendication 3, caractérisé en ce que ledit second mécanisme opératoire comporte un second bouton-poussoir (8) sollicité par ressort, monté dans ladite partie supérieure et une seconde tige de liaison (23) s'étendant entre ledit second bouton-poussoir (8) et ledit organe de canal (21), ladite seconde tige de liaison comportant une patte (28) susceptible de venir en contact avec ledit second bras de levier (27) après l'abaissement dudit second bouton-poussoir afin de faire pivoter ledit second bras de levier autour dudit second pivot (26) et de libérer ledit organe de verrou (17).
  5. Un mécanisme tel que revendiqué à la revendication 4, caractérisé en ce que ladite patte (28) est en contact avec ledit second bras de levier (27) via une biellette (29) montée pivotante en une position adjacente à son point central (30), ladite patte (28) venant presser une moitié de ladite biellette (29) pour déplacer ledit second bras de levier (27), et ladite biellette (29) revenant à sa position de levier d'origine sous l'effet du poids de l'autre moitié de ladite biellette.
  6. Le mécanisme tel que revendiqué à l'une quelconque des revendications 1 à 5, caractérisé en ce que ladite tige (11) présente une section transversale rectangulaire.
  7. Un mécanisme tel que revendiqué à l'une quelconque des revendications 1 à 6, caractérisé en ce que ledit flotteur (15) est constitué par un tube à extrémité ouverte comportant un manchon intérieur qui est traversé par ladite tige 11 et une âme (35) qui relie ledit manchon et ledit tube afin de réaliser deux volumes, un volume supérieur qui retient de l'eau et un volume inférieur qui retient de l'air, afin de réaliser respectivement des forces directes opposées de gravitation et de flottabilité.
  8. Un mécanisme tel que revendiqué à l'une quelconque des revendications 1 à 7, caractérisé en ce que lesdits premier et second pivots viennent en contact avec l'intérieur de ladite chasse d'eau.