EUROPEAN PATENT SPECIFICATION

(54) WATER CLOSET WITH FLUSHING CISTERN
    WASSERKLOSETT MIT SPÜLKASTEN
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Description

[0001] The present invention relates to a water-closet with a flushing cistern of the type as defined in the pream-ble to claim 1.

[0002] Water-closets or toilets have in most cases a water tank or cistern, which is connected to the actual toilet bowl and serves to accommodate the volume of water needed for flushing. Traditionally, this water cistern has been made of the same kind of porcelain as the toilet bowl itself and has then been screwed to this by means of bolts extending through the bottom of the cistern. In the water cistern, a water-filling and flushing system is mounted, and the supply conduit to this also extends through the bottom of the cistern. The water cistern is at the upper end closed with a porcelain cover, through which the operating member of the flushing mechanism or system extends. The porcelain cover is in many cases loosely arranged on the cistern and is held in place by a sleeve nut being passed through a hole in the cover and screwed together with the corresponding threaded pipe of the flushing mechanism or system. This prior-art construction, however, suffers from many drawbacks. For instance, it is often difficult to achieve tightness in the passages through the bottom of the flushing cistern and provide an attractive and permanent joint in the transition between the toilet bowl and the cistern bottom. A further drawback is that maintenance, e.g. exchange of the bottom valve in the flushing cistern, is difficult to carry out on the one hand owing to the narrow space in the mounted flushing cistern and, on the other hand, because the flushing cistern must, precisely when exchanging the bottom valve, be detached from the toilet bowl. A further drawback of this known type of toilets is that at high temperatures and high humidity a large amount of condensation forms on the outside of the flushing cistern.

[0003] In order to obviate the last-mentioned drawback, it is known to install an inner cistern in the porcelain tank of a toilet, as disclosed in US-A-5,295,273. An example of this technique is a toilet sold by IFÖ Sanitär under the trademark Carat. In this known toilet, use is made of a U-shaped distributing or flushing pipe which connects the interior of the water tank with the flushing conduits on each side of the toilet bowl. This flushing pipe is loosely arranged in the bottom of the indentation (pit) of the toilet bowl under the cistern, since porcelain making does not permit sufficient accuracy for exact fixing of the flushing pipe. When mounting the cistern on the toilet bowl, the bottom valve must thus be adapted to the flushing pipe, which is a demanding operation and besides may cause faults resulting in functional disorders. The bottom valve face is in turn connected to a filling and flushing system, whose lower end is fixed by means of the same valve face. The inner cistern has outwardly directed flange portions forming shoulders, by which the inner cistern rests against a supporting surface of the toilet bowl. For securing the inner cistern to the toilet bowl, use is made of a number of clamping screws which, from the inside of the inner cistern, have been passed through the flange portions of the inner cistern and down into the corresponding hole in the supporting surface of the toilet bowl. For securing the outer cistern or "cover", use is made of the known technique of clamping down, by a clamping screw, the outer cistern against an additional seat of the toilet bowl. Between the lower edge of the outer cistern and this seat, a seal is in most cases arranged both for aesthetical reasons and for preventing accumulation of dirt.

[0004] For securing, use is thus made of the known technique of passing a sleeve nut through a hole in the top or cover of the outer cistern and then screwing this sleeve nut onto the upper end of the flushing mechanism or system. In this case, there is also a stiffening beam at the upper end of the inner cistern for increasing the stability.

[0005] Although the problem with the formation of a large amount of condensation has been solved by using an inner cistern in the last-mentioned known toilet construction, this construction still suffers from drawbacks which are detrimental to the user and the person who is responsible for the maintenance of the filling and flushing system of the toilet.

[0006] A considerable drawback of this known construction thus is that the outer tank may easily, owing to the selected method of securing, be dislodged if the user applies great pressure to the outer cistern, for instance when seating himself and bumping against the outer cistern with his back. The outer cistern is secured to the toilet merely indirectly via the inner tank and the filling and flushing system. Since the inner tank and this system are made of a thin, flexible material, the outer cistern can be dislodged even by minor forces which are directed to the upper part of the outer cistern. Moreover, any maintenance or exchange of the bottom valve and the filling and flushing system is connected with the requirement of screwing off the inner cistern from the toilet bowl, which is an operation that necessitates qualified mechanics.

[0007] There is thus a demand for further improvement of the technique represented by the last-mentioned water toilet with an inner cistern. An object of the present invention is to meet this demand, and this is achieved if the water-closet is designed as defined in claim 1. The subclaims define especially preferred embodiments of the invention.

[0008] The invention thus relates to a water-closet having a toilet bowl and a flushing fluid cistern attached thereto. This comprises an inner cistern and a casing or outer cistern. The inner cistern rests against the toilet bowl by means of an external flange which also forms a supporting surface for the casing. The inner cistern is secured to the toilet bowl by fastening means which are arranged on the outside of the inner cistern and engage with the flange of the inner cistern. Above and at a distance from the supporting surface, there is at least one
locking projection extending over the supporting surface. On the outside of the cistern, there is at least one turnable fixing hook. The casing has an inwardly directed flange at least at the locking projection or projections and at the fixing hook or hooks and is fixed to said supporting surface by means of these projections and hooks.

[0009] The inner cistern and the outer cistern are designed in such a manner that the inner cistern has an outwardly directed flange or is connected with a bottom plate, the outer edge of which forms this flange. The flange forms a supporting surface for the lower edge of the outer cistern and can also form a seal between the lower edge of the outer cistern and a supporting surface of the toilet bowl. The inner cistern is attached to the toilet bowl by means of fastening elements which are secured to the outwardly directed flange and therefore are located outside the flushing fluid space of the inner cistern.

[0010] To secure the outer cistern to the toilet bowl, there is an inwardly directed flange at the lower end of the outer cistern at least in the positions where securing should occur. The inner cistern comprises on the one hand one or more locking projections, under which the corresponding flange of the outer cistern can be inserted, and, on the other hand, at least one turnable locking hook, which is turnably attached on the outside of the inner cistern, preferably on the outwardly directed flange, and the shaft of which is accessible from the outside of the water-closet.

[0011] The filling and flushing system or flushing device is mounted in the inner cistern and its operating member projects through a hole in the top of the outer cistern. In known manner, a sleeve nut can be used to stabilise the flushing system or device relative to the outer tank, but when using the invention, it is not necessary for this sleeve nut and the flushing system or device to take up any forces for retaining the outer cistern, since this is held in place by the fastening means arranged at the lower end. By this arrangement, the torque at the points of attachment will be much smaller when applying an overturning pressure to the outer cistern as compared with the above-mentioned known construction of the inner and outer cisterns.

[0012] The invention also confers the advantage that the outer flange of the inner cistern can serve as attachment for the necessary inlet pipe which is to be connected to the water conduit. If desired, when using the invention it is therefore possible to assemble in advance the inner cistern, connection pipe, filling and flushing system, bottom valve and distributing or flushing pipe to a single unit, which in simple motions can be put in place and secured to the toilet bowl. It is particularly advantageous if the flushing pipe is joined to the bottom valve in a fixed and completely sealed fashion and therefore is independent of the fitting problems connected with a flushing pipe that is loosely arranged in the toilet bowl.

[0013] Subsequently, the outer cistern can be moved down over and be fastened under the locking projection or projections of the inner cistern and then be secured by means of the turnable hook or hooks accessible from the outside, while the flange of the inner cistern serves as a sealing insert between the lower edge of the outer tank and the corresponding supporting surface of the toilet bowl.

[0014] A preferred embodiment of a water-closet having an inner cistern according to the present invention will now be described in more detail with reference to the accompanying drawings.

Fig. 1 is a vertical section approximately of the centre of the toilet bowl with a mounted flushing cistern.

Fig. 2 is a sectional view approximately along line II II in Fig. 1.

Fig. 3 is a top plan view of the rear end of the toilet bowl and the pit formed therein for insertion of a flushing pipe included in the flushing system.

Fig. 4 is a vertical section similar to Fig. 1, illustrating the mounting of the inner cistern on the toilet bowl.

Fig. 5 is the corresponding vertical section after mounting of the inner cistern.

Fig. 6 is the same vertical section after slipping down the outer cistern onto the inner cistern so as to be attached around this.

[0015] The drawings illustrate a water-closet having a toilet bowl 10, at the rear end of which there is a pit 11 for receiving a distributing or flushing pipe 12, whose two branches are passed through openings 13 in the pit wall and are connected to flushing nozzles (not shown) inside the rim 14 of the toilet bowl. At the upper edge of the pit 11, there is a seat 15. Inside this seat, there are inwardly directed wall portions 16 having through-holes 17 for fastening means which will be described below.

[0016] The water-closet also comprises an inner cistern 18, which is made of some suitable plastic material. In the embodiment shown, the bottom 19 of the inner cistern is attached to a cistern or bottom plate 20, which extends outside the bottom 19 to form an outwardly directed circumferential flange 21. Alternatively, this flange may be integrated with the inner cistern. The flange 21 rests against the seat 15 of the toilet bowl. The flange 21 serves as attachment for fastening means 22, which in this case are in the form of expansion bolts, which are accessible from the upper side of the flange and which in the mounted position of the inner cistern extend down through the above-mentioned through-holes 17 to hold the inner cistern hard against the seat 15. The heads of the expansion bolts can abut directly against the flange 21 (not shown in this embodiment), but can also (as is the case in the preferred embodiment as shown) abut indirectly against the flange 21. In the shown preferred embodiment of the inner cistern, this is
thus formed with a shoulder 38 spaced from the bottom plate 20 and the supporting surface 39 thereof. The fastening means 22 engage with this shoulder 38 and the flange 21, which results in the cistern being very strongly secured.

[0017] In order to further reinforce and support the attachment of the inner cistern, the bottom plate can be formed with upwardly directed lugs 40 which prevent the fastening bolts of the fastening means 22 from being inclined.

[0018] On the front of the inner cistern 18 there are forwardly projecting holding-down or locking projections 23, which are arranged at a short distance above the supporting surface 39 of the flange 21. On the back of the inner cistern 10, there is at least one fixing hook 24, which is turnably attached on the outside of the inner cistern, in this preferred case to the projecting flange 21.

[0019] The locking projection or projections 23 and the fixing hook or hooks 24 serve to lock a casing or outer cistern 25 which is slipped onto the inner cistern 21 and the lower edge of which rests against the supporting surface 39 of the flange 21 supported by the seat 15.

[0020] The casing 25 has at its lower end an inwardly projecting flange 26 at least in the positions straight in front of the holding-down projection or projections 23 and the fixing hook or hooks 24. The mutual distance between the locking projection 23 and the shaft of the opposite fixing hook 24 is so much smaller than the distance between the inwardly directed free edges of the corresponding inwardly directed flanges 26 at the lower edge of the casing 25 that the casing, when being mounted, can be slipped onto the inner cistern, pushed backwards such that the flange 26 on the front of the casing is pushed in between the locking projection 23 and the flange 21 and is then fixed in place by turning the fixing hook 24, which thus engages over the flange 21 (see Fig. 1). To enable this turning of the fixing hook 24, the stub shaft of the hook may have a hexagonal hole in its free end face for receiving a hex key wrench.

[0021] As shown in Figs 1, 2 and 4-6, a filling and flushing system or flushing device 27 has been mounted in the inner cistern 18 by an external threaded connecting piece 28 being passed through a hole in the bottom 19 of the cistern and in the flange-forming cistern plate 20, such that the device 27, by an abutment surface 30, comes into abutment against the cistern plate. Between the abutment surface and the cistern bottom 19, a sealing ring 30 is suitably inserted. A sleeve-shaped locking nut 31 is screwed to the downwardly extending portion of the connecting piece 28 and adapted to clamp the flushing device in the cistern and to simultaneously clamp the cistern plate 20 against the cistern bottom 19.

[0022] The distributing pipe 12 is then attached to the sleeve-shaped locking nut 31, for instance by being snapped over this. To stabilise the position of the distributing pipe 12, the cistern plate 20 can suitably have downwardly projecting stabilising projections 32, which ensure that the two branches of the distributing pipe 12 are oriented in the correct, forwardly directed positions.

[0023] It is also shown in Figs 1, 2 and 4-6 that the cistern 18 has indentations 33 in the positions where the fastening means 22 and the fixing hooks 24 are arranged. Moreover, the toilet bowl 10 also has indentations 41 in the positions of the fixing hooks 24, which thus become accessible from the outside of the inner cistern, the outwardly directed flange 21 of the inner cistern 18 extending as a roof over this indentation.

[0024] It is also apparent from these Figures that a connecting pipe 34 with coupling means 35 is also attached to the flange portion 21 of the cistern plate 20 and is extended along one of the indentations 33 to the upper edge of the inner cistern and from there to the flushing device 27. At the upper end of the flushing device, the operating member 36 of the device is extended upwards, such that it extends through a passage in the top of the casing 25. A sleeve nut 37 is in prior-art manner used to stabilise the position of the operating member 36 in the passage. In contrast to known water-closets having an inner cistern, this sleeve nut and the flushing device need not take up any forces for clamping the outer cistern or casing to the toilet bowl, but it is sufficient if the sleeve nut stabilises the position of the flushing device relative to the casing.

[0025] In the above embodiment, the invention has been shown in connection with a special type of filling and flushing system. However, the invention may also be used for all types of filling and flushing systems which are mounted in a flushing fluid tank. Instead of a separate bottom plate or flange, it is possible in some systems to weld or in some other manner permanently attach the plate or flange to the inner cistern.

[0026] The invention also makes it possible to design a water cistern, in which the cistern and the flushing system are permanently joined together and completely without passages, which may cause water leakage.

Claims

1. A water-closet comprising a toilet bowl (10), a flushing fluid cistern (18, 25) attached thereto by fastening means (22), a filling and flushing system (27) and at least one flushing pipe (12) for transferring flushing liquid to distributing ducts (14) in said toilet bowl (10), the flushing fluid cistern (18, 25) comprising an outer cistern (18) and, covering and surrounding this, a casing or outer cistern (25), characterised in that the inner cistern (18) comprises or is connected to-an outwardly directed flange (21, 38, 40), by means of which the inner cistern rests against a seat (15) of the toilet bowl (10) and which forms a supporting surface (39) for the casing (25).

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The water-closet as claimed in claim 1 or 2, characterised in that the outwardly directed flange (21) is formed on a cistern plate (20) clamped to the underside of the inner cistern (18).

2. The water-closet as claimed in claim 1, characterised in that the outwardly directed flange (21) is formed on a cistern plate (20) clamped to the underside of the inner cistern (18).

3. The water-closet as claimed in claim 1 or 2, characterised in that at least parts of the outwardly directed flange (21, 38, 40) are formed as an external shoulder (38) on the outside of the inner cistern (18).

4. The water-closet as claimed in claims 2 and 3, characterised in that the cistern plate (20) has a lug (40) which is positioned outside the outwardly facing shoulder (38) and which, together with the shoulder (38), forms a holding surface for the fastening means (22).

5. The water-closet as claimed in any one of claims 1-4, characterised in that the filling and flushing system (27) is secured to the bottom (19) of the inner cistern (18).

6. The water-closet as claimed in any one of claims 1-5, characterised in that the flushing pipe or pipes (12) are secured to the bottom (19) of the inner cistern (18).

7. The water-closet as claimed in claim 6, characterised in that the flushing pipe (12) extends down into a pit (11) which is formed in the toilet bowl (10) and the upper edge of which serves as said seat (15) for the outwardly directed flange (21) of the inner cistern (18).

8. The water-closet as claimed in any one of claims 1-7, characterised in that the toilet bowl (10) has an indentation (41) at each turnable fixing hook, and that the outwardly directed flange (21) of the inner cistern (18) extends as a roof over this indentation (41) to make the fixing hook (24) accessible from the outside of the toilet.

9. The water-closet as claimed in any one of the preceding claims, characterised in that the holding-down projection (23) and the fixing hook (24) are arranged at a shorter distance from one another than the distance between the corresponding positions of the free inner edge of the inwardly directed flange (26) of the casing (25).

10. The water-closet as claimed in any one of the preceding claims, characterised in that the inner cistern (18) has downwardly projecting stabilising projections (32) for stabilising the position of the flushing pipe or pipes (12) relative to the inner cistern (18).

11. The water-closet as claimed in any one of the preceding claims, characterised in that a flushing fluid supply conduit (34) extends through the outwardly directed flange (21) of the inner cistern (18) and is extended along the outside of the inner cistern and connected to the upper end of the filling and flushing system (27).

**Patentansprüche**

1. Wasserklosett, das ein Toilettenbecken (10), einen Spülluftkasten (18, 25), der mit Befestigungseinrichtungen (22) daran angebracht ist, ein Füll-und-Spül-System (27) und wenigstens ein Spülrohr (12) zum Transport von Spülluft zu Verteilungsleitungen (14) in dem Toilettenbecken (10) umfaßt, wobei der Spülluftkasten (18, 25) einen inneren Spülkasten (18) und ein Gehäuse bzw. einen äußeren Spülkasten (25) umfaßt, der diesen abdeckt und umschließt, dadurch gekennzeichnet,

2. Wasserklosett, das ein Toilettenbecken (10), einen Spülluftkasten (18, 25), der mit Befestigungseinrichtungen (22) daran angebracht ist, ein Füll-und-Spül-System (27) und wenigstens ein Spülrohr (12) zum Transport von Spülluft zu Verteilungsleitungen (14) in dem Toilettenbecken (10) umfaßt, wobei der Spülluftkasten (18, 25) einen inneren Spülkasten (18) und ein Gehäuse bzw. einen äußeren Spülkasten (25) umfaßt, der diesen abdeckt und umschließt, dadurch gekennzeichnet,

festigen,
daß der innere Spülkasten (18) wenigstens ei-
en äußeren Niederhaltevorsprung (23) auf-
weist, der über die Auflagefläche (39), die
durch den Flansch (21, 38, 40) gebildet wird,
vorsteht und in einem Abstand dazu angeord-
net ist,
daß der innere Spülkasten (18) wenigstens ei-
nen drehbaren Fixierhaken (24) aufweist, der
an der Außenseite des inneren Spülkasten (18)
angebracht ist,
daß das Gehäuse (25) an seinem Rand, der der
Auflagefläche (39) zugewandt ist, einen nach
innen gerichteten Flansch (26) wenigstens an
Positionen aufweist, die den Positionen des Niederhaltevorsprungs
bzw. der Niederhaltevorsprünge (23) sowie des
Fixierhakens bzw. der Fixierhaken (24) des in-
neren Spülkastens entsprechen, und
daß das Gehäuse (25) an dem Toilettenbecken
(10) mit dem Niederhaltevorsprung bzw. den
Niederhaltevorsprüngen (23) und dem Fixier-
haken bzw. den Fixierhaken (24) angebracht
ist.

2. Wasserklosett nach Anspruch 1, dadurch gekenn-
zeichnet, daß der nach außen gerichtete Flansch
(21) an einer Spülkastenplatte (20) ausgebildet ist,
die an der Unterseite des inneren Spülkastens (18)
festgeklemmt ist.

3. Wasserklosett nach Anspruch 1 oder 2, dadurch
gekennzeichnet, daß wenigstens Teile des nach
außen gerichteten Flansches (21, 38, 40) als äuße-
re Schulte (38) an der Außenseite des inneren
Spülkasten (18) ausgebildet sind.

4. Wasserklosett nach Anspruch 2 und 3, dadurch
gekennzeichnet, daß die Spülkastenplatte (20) ei-
en Ansatz (40) aufweist, der außerhalb der nach
außen gerichteten Schulte (38) angeordnet ist und
der zusammen mit der Schulte (38) eine Halteflä-
che für die Befestigungseinrichtungen (22) bildet.

5. Wasserklosett nach einem der Ansprüche 1-4, da-
durch gekennzeichnet, daß das Füll-und-Spül-
System (27) an dem Boden (19) des inneren Spül-
behälters (18) befestigt ist.

6. Wasserklosett nach einem der Ansprüche 1-5, da-
durch gekennzeichnet, daß das Spülrohr bzw. die
Spülröhre (12) am Boden (19) des inneren Spülka-
stens (18) befestigt sind.

7. Wasserklosett nach Anspruch 6, dadurch gekenn-
zeichnet, daß sich das Spülrohr (12) in eine Vertie-
fung (11) nach unten erstreckt, die in dem Toiletten-
becken (10) ausgebildet ist und deren oberer Rand
als der Sitz (15) für den nach außen gerichteten
Flansch (21) des inneren Spülkastens (18) dient.

8. Wasserklosett nach einem der Ansprüche 1-7, da-
durch gekennzeichnet, daß das Toilettenbecken
(10) eine Mulde (41) an jedem drehbaren Fixierha-
ken aufweist, und daß der nach außen gerichtete
Flansch (21) des inneren Spülkastens (18) sich als
Abdeckung über diese Mulde (41) erstreckt, so daß
der Fixierhaken (24) von der Außenseite der Toile-
te her zugänglich ist.

9. Wasserklosett nach einem der vorangehenden An-
sprüche, dadurch gekennzeichnet, daß der Ab-
stand zwischen dem Niederhaltevorsprung (23) und
dem Fixierhaken (24) kürzer ist als der Abstand
zwischen den entsprechenden Positionen des frei-
en inneren Randes des nach innen gerichteten
Flansches (26) des Gehäuses (25).

10. Wasserklosett nach einem der vorangehenden An-
sprüche, dadurch gekennzeichnet, daß der inne-
re Spülkasten (18) nach unten vorstehende Stabi-
lisierungs-vorsprünge (32) aufweist, mit denen die
Position des Spülrohrs bzw. der Spülröhre (12) in
Bezug auf den inneren Spülkasten (18) stabilisiert
wird.

11. Wasserklosett nach einem der vorangehenden An-
sprüche, dadurch gekennzeichnet, daß eine
Spülfuid-Zuführleitung (34) sich durch den nach
außen gerichteten Flansch (21) des inneren Spül-
kastens (18) hindurch erstreckt, und sich an der Au-
ßenseite des inneren Spülkastens entlang erstreckt
und mit dem oberen Ende des Füll-und-Spül-
Systems (27) verbunden ist.

Revendications

1. W.-C. comportant une cuvette de toilette (10), un
réservoir de liquide de chasse d'eau (18, 25) fixé
dessus par des moyens de fixation (22), un système
de remplissage et de chasse d'eau (27) et au moins
un tuyau de chasse d'eau (12) destiné à transférer
le liquide de chasse d'eau vers des conduits de dis-
tribution (14) dans ladite cuvette de toilette (10), le
réservoir de liquide de chasse d'eau (18, 25) com-
portant un réservoir interne (18) et, recouvrent et
entourant celui-ci, un bolier ou réservoir externe
(25), caractérisé en ce que
le réservoir interne (18) comporte ou est relié à
une bride orientée vers l'extérieur (21, 38, 40),
au moyen de laquelle le réservoir interne repose contre un siège (15) de la cuvette de toilette (10) et qui forme une surface de support (39) pour le boîtier (25), des moyens de fixation (22) pour le réservoir interne (18) sont prévus sur le côté extérieur du réservoir interne et engagent la bride orientée vers l'extérieur (21, 28, 40) afin de fixer le réservoir sur le siège (15) de la cuvette de toilette (10), le réservoir interne (18) possède au moins une saillie de retenue externe (23) qui dépasse audessus de la surface de support (39) formée sur ladite bride (21, 38, 40) et est disposée à une distance de celle-ci, le réservoir interne (18) possède au moins un crochet de fixation rotatif (24) qui est monté sur l'extérieur du réservoir interne (18), le boîtier (25) a sur son bord orienté vers la surface de support (39) une bride orientée vers l'intérieur (26) au moins dans des positions correspondant aux positions de la saillie ou des saillies de retenue (23) et du crochet des crochets de fixation (24) du réservoir interne, et le boîtier (25) est fixé sur la cuvette de toilette (10) au moyen de la saillie ou des saillies de retenue (23) et du crochet ou des crochets de fixation (24).

2. W.-C. selon la revendication 1, caractérisé en ce que la bride orientée vers l'extérieur (21) est formée sur une plaque de réservoir (20) serrée sur le côté inférieur du réservoir interne (18).

3. W.-C. selon la revendication 1 ou 2, caractérisé en ce qu'au moins des parties de la bride orientée vers l'extérieur (21, 38, 40) sont formées en tant qu'épaulement externe (38) sur le côté extérieur du réservoir interne (18).

4. W.-C. selon les revendications 2 et 3, caractérisé en ce que la plaque de réservoir (20) possède une patte (40) qui est positionnée à l'extérieur de l'épaulement orienté vers l'extérieur (38) et qui, avec l'épaulement externe (38), forme une surface de maintien pour les moyens de fixation (22).

5. W.-C. selon l'une quelconque des revendications 1 à 4, caractérisé en ce que le système de remplissage et de chasse d'eau (27) est fixé sur le fond (19) du réservoir interne (18).

6. W.-C. selon l'une quelconque des revendications 1 à 5, caractérisé en ce que le tuyau ou les tuyaux de chasse d'eau (12) sont fixés sur le fond (19) du réservoir interne (18).

7. W.-C. selon la revendication 6, caractérisé en ce que le tuyau de chasse d'eau (12) s'étend vers le bas dans une cavité (11) qui est formée dans la cuvette de toilette (10) et dont le bord supérieur sert de dit siège (15) pour la bride orientée vers l'extérieur (21) du réservoir interne (18).

8. W.-C. selon l'une quelconque des revendications 1 à 7, caractérisé en ce que la cuvette de toilette (10) possède une strie (41) au niveau de chaque crochet de fixation rotatif, et en ce que la bride orientée vers l'extérieur (21) du réservoir interne (18) s'étend en tant que sommet sur cette strie (41) afin de rendre le crochet de fixation (24) accessible de l'extérieur des toilettes.

9. W.-C. selon l'une quelconque des revendications précédentes, caractérisé en ce que la saillie de retenue (23) et le crochet de fixation (24) sont disposés à une distance plus courte l'une de l'autre que la distance entre les positions correspondantes du bord interne libre de la bride orientée vers l'intérieur (26) du boîtier (25).

10. W.-C. selon l'une quelconque des revendications précédentes, caractérisé en ce que le réservoir interne (18) possède des saillies de stabilisation dépassant vers le bas (32) destinées à stabiliser la position du tuyau ou des tuyaux de chasse d'eau (12) par rapport au réservoir interne (18).

11. W.-C. selon l'une quelconque des revendications précédentes, caractérisé en ce qu'un conduit d'alimentation en fluide de chasse d'eau (34) s'étend à travers la bride orientée vers l'extérieur (21) du réservoir interne (18) et s'étend le long du côté extérieur du réservoir interne et est relié à l'extrémité supérieure du système de remplissage et de chasse d'eau (27).