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DESCRIPTION

TECHNICAL FIELD

[0001] The present invention relates to a WC with improved noise characteristics.

BACKGROUND ART

[0002] For some time, the question of noise has been a key focus of research in the field of sanitary fixtures.

[0003] Over the years this aspect has become an increasingly important factor when purchasing sanitary fixtures.

[0004] For a more complete understanding of the issue of noise, think for example of a structure like a hotel, where the number of bathrooms is basically equal to the number of bedrooms. Being able to reduce bathroom noise in such structures can clearly make a significant contribution to improving the standard of the hotel itself.

[0005] The sanitary fixture that generates the most noise is the WC. The water released into the WC for flushing usually generates a particularly loud and annoying noise.

[0006] US2003/088910, which is considered to represent the closest prior art for the invention, describes a flush toilet according to the preamble of claim 1, the flush toilet comprising a toilet body having a bowl for storing wash water as water seal, first means for supplying the toilet body with pressurized wash water and second means for discharging the wash water substantially horizontally along the upper peripheral portion of the inner surface of the bowl to swirl it along the inner surface of the bowl.

[0007] EP0320372 describes a siphon breaking disconnecter for supplying a W.C. pan with water from a pressurized mains supply with a view to flushing said W.C. pan, comprising a first, supply pipe capable of being connected at one end to the mains and opening at the other end into an upper chamber, said chamber communicating, at its lower part, by an axial injector opening with the top part of a cavity provided with a vent situated downstream of the injector opening, said cavity being finally connected for gravity flow to the pan by a second, evacuation pipe, characterized - in that the vent of the cavity consists of the outlet of a spout situated at a first distance from the injector opening, - in that the spout extends externally to the wall of the cavity while sloping slightly upwards with respect to a plane perpendicular to the axis of the injector opening, - and in that the top part of the cavity comprises a tubular skirt surrounding the outlet of the injector opening and extending therefrom over a distance at least equal to said first distance.

[0008] The need was therefore felt to produce a WC with an alternative flushing water supply duct that allows to reduce the amount of noise generated by flushing.

DISCLOSURE OF INVENTION

[0009] The object of the present invention is a WC, the essential characteristics of which are claimed in claim 1, and the preferred and/or secondary characteristics are claimed in claims 2-5.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] A non-limiting embodiment will now be described purely by way of example, with the help of the accompanying figures, in which:

figure 1 is a longitudinal cross-section of a WC according to the present invention;

figure 1a is an enlarged view of a detail of the cross-section shown in figure 1;

figure 1b is a cross-section along the line I-I in figure 1a;

figure 2 is a cross-section along the line II-II in figure 1.

BEST MODE FOR CARRYING OUT THE INVENTION

[0011] In figures 1 and 2, denoted as a whole by reference numeral 1 is a WC according to the present invention.

[0012] The WC 1 comprises a single-piece ceramic structure 2 defining a bowl 3, a drainage pipe 4 connected to a bottom portion of the bowl 3, and a flushing water supply duct 5 which communicates with the bowl 3 through a single flushing opening 6. The duct is obtained within a rear portion 2a of the structure 2 to be connected to a water supply network.

[0013] The duct 5 extends along a longitudinal axis X and is defined in sequence by an inlet portion 7 where the connection to the water supply network is implemented and the dimensions of which are standard as regulated by specific directives, by a flowing portion 8, and by an outlet portion 9 in a lateral wall 10 of which the flushing opening 6 is obtained.

[0014] As is clear from figures 1 and 1b, the outlet portion 9 has a flow-through section that is equal to approximately half of the flow-through section of the flowing portion 8. This means that

between the flowing portion 8 and the outlet portion 9 the flow-through section narrows by approximately one half.

[0015] Preferably, the outlet portion 9 has a flow-through section with an area ranging from 35 to 65%, more preferably from 45 to 55%, of the area of the flow-through section of the flowing portion 8.

[0016] The flushing opening 6 is obtained in the lateral wall 10 of the outlet portion 9 and has a flow-through section with an area equal to approximately 35% of the area of the flow-through section of the outlet portion 9. Preferably, the opening 6 has a flow-through section with an area ranging from 20 to 50%, more preferably from 30 to 40%, of the area of the flow-through section of the outlet portion 9.

[0017] In particular, as is apparent from figure 1, the outlet portion 9 is defined by the lateral wall 10 parallel to the axis X and by a bottom wall 11 arranged so as to close said outlet portion 9 and which is inclined upwards with respect to the axis X. Owing to the inclined position of the bottom wall 11, the outlet portion 9 extends beyond the flushing opening 6. In this way, the flushing flow speed is reduced which further enhances the efficacy of the present invention.

[0018] The bowl 3 is delimited by a wall 12 which is defined, following the flow of water as indicated by the arrows in figure 2, by a first lateral portion 13, by a front portion 14, by a second lateral portion 15 and by a bottom portion 16. The flushing opening 6 is obtained in the bottom portion 16 and faces towards the first lateral portion 13.

[0019] As can be seen in figure 1, the lateral wall 12 is rimless and thus ensures better hygiene. A rimless lateral wall guarantees the absence of recesses that are difficult to reach for cleaning and can thus harbour bacteria.

[0020] Thanks to the specific characteristics of the flushing water supply duct 5 and of the single opening 6, there is a significant reduction in the amount of noise produced by the flushing water when the WC is flushed but without any loss of efficacy of the actual flushing.

[0021] Lastly, the conformation of the front portion 14 of the lateral wall 12 contributes to further improving the correct outflow of the flushing water and thus reducing the amount of noise that is generated.

[0022] As indicated by the arrows in figure 2, the water that flows out of the flushing opening 6 generates a spiral flow that flows along the entire lateral wall 12. The spiral path of the flow of flushing water thus guarantees that along said path there is no impact between different portions of water with the consequent reduction of noise.

[0023] The present invention offers the important advantage of being able to guarantee low noise of the flushing water when the WC is flushed, together with high efficiency in cleaning the inside walls of the WC.

[0024] Furthermore, when the characteristics are also associated with a rimless WC, there is also the added advantage of ensuring a high level of hygiene.

REFERENCES CITED IN THE DESCRIPTION

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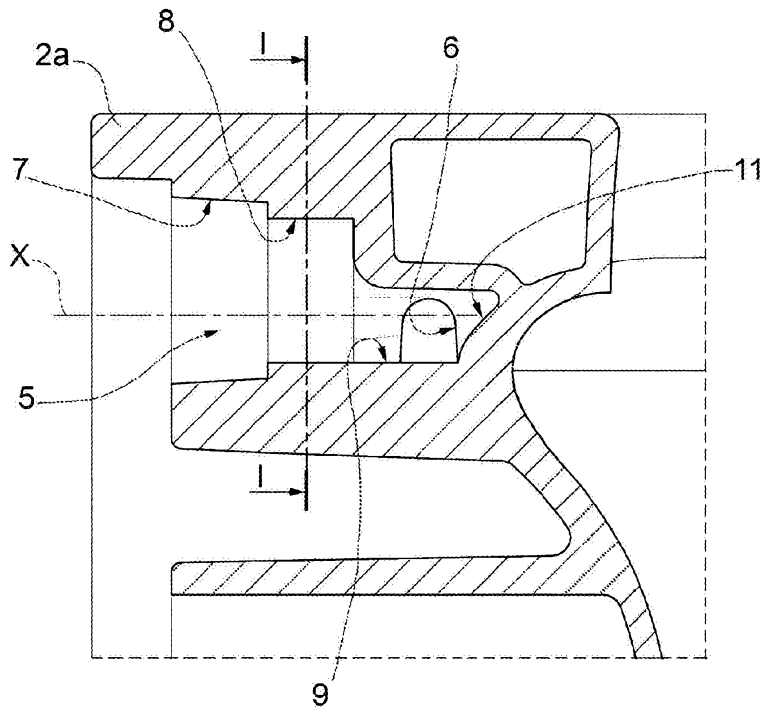
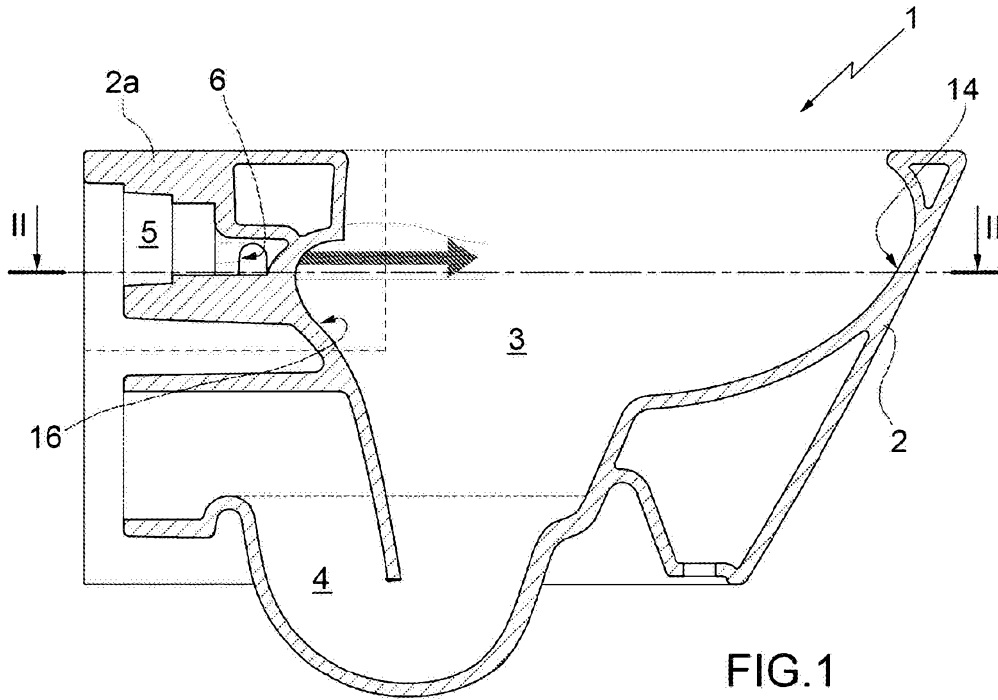
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- US2003088910A [0006]
- EP0320372A [0007]

P a t e n t k r a v

- 5 1. WC (1), omfattende en struktur (2), der definerer mindst en kumme (3), der er afgrænset af en sidevæg (12), og en skyllevandstilførselskanal (5), der opnås i en bageste del (2a) af strukturen (2) for at blive forbundet med et vandnet, og strækker sig langs en akse X, omfattende mindst en strømningsdel (8) og en udløbsdelen (9), der er direkte forbundet med strømningsdelen (8), og kommunikerer med kummen (3), således at det er muligt for skyllevandet at strømme gennem en enkelt åbning (6), idet udløbsdelen (9) er defineret af en
- 10 strømningssafsniit med et område der er 20 til 50 % af området af et gennemstrømningssafsniit af udløbsdelen (9), hvor udløbsdelen (9) har et gennemstrømningssafsniit med et område, der er 35 til 65 % af området af gennemstrømningssafsniittet af strømningsdelen (8);
- kendetegnet ved, at**
- 15 åbningen (6) er anbragt i sidevæggen (10) af udløbsdelen (9), hvor udløbsdelen (9) er aksialt lukket af en bundvæg (11), der skærer akse X, hvor bundvæggen (11) er skrå i forhold til akse X og udløbsdelen (9), der strækker sig ud over skylleåbningen (6).
- 20 2. WC ifølge krav 1, **kendetegnet ved, at** åbningen (6) har et gennemstrømningssafsniit med et område på 30 til 40 % af området af gennemstrømningssafsniittet af udløbsdelen (9).
- 25 3. WC ifølge krav 1 eller 2, **kendetegnet ved, at** udløbsdelen (9) har et gennemstrømningssafsniit med et område på 45 til 55 % af området af gennemstrømningssafsniittet af strømningsdelen (8).
- 30 4. WC ifølge et af de foregående krav, **kendetegnet ved, at** sidevæggen (12) er kantløs.
5. WC ifølge et af de foregående krav, **kendetegnet ved, at** strukturen (2) er et enkelt stykke fremstillet af keramik.

DRAWINGS



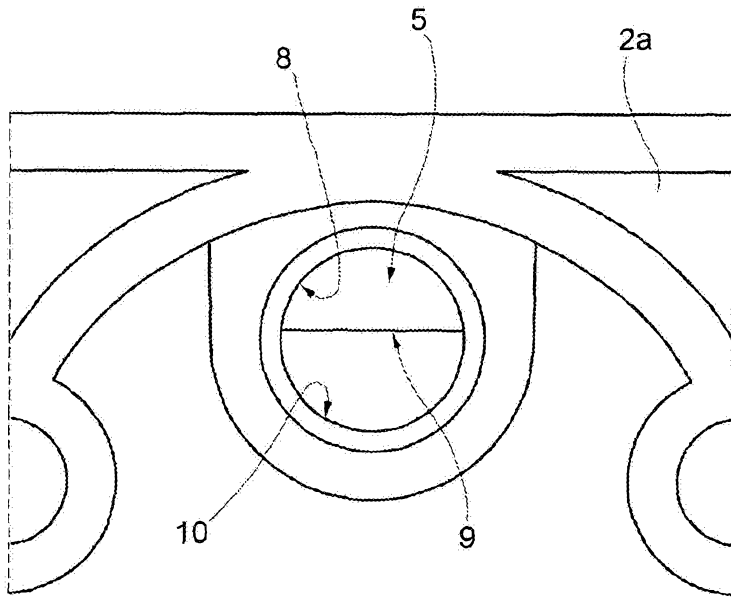


FIG. 1b

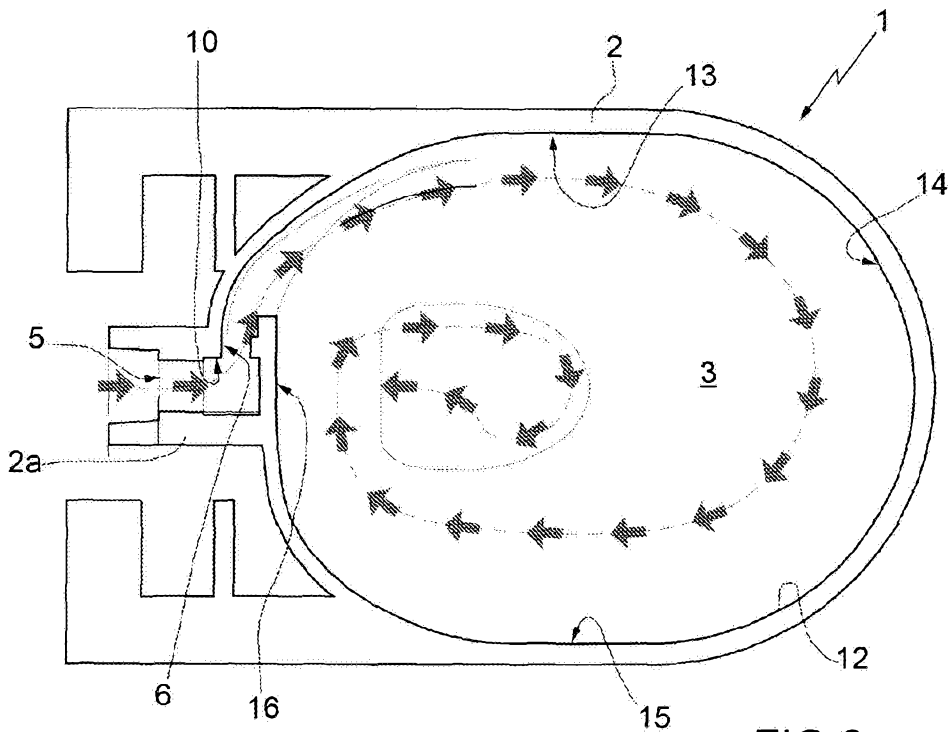


FIG. 2