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(54) **FLUSH TOILET BOWL.**

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Description

This invention relates to a flushing toilet bowl, and more particularly a seat sitting type flushing toilet bowl according to the preamble of the claim. Such a flushing toilet bowl is known from US-A-1476445.

As shown in Fig. 6, a further prior art seat sitting type flushing toilet is made such that an entire bowl surface (1') is formed by a curved surface having a large curvature. Due to this fact, a combined force of branch flows of flushing water injected from each of rim water discharging holes (4) of a rim water passage (5) is weak and so a flow of water stream may not be concentrated.

In view of this fact, the prior art flushing toilet bowl may adjust the rim water discharging holes (4) to set a direction of each of branched flows to concentrate a force of the water streams.

However, in case of the prior art means may generate a certain disturbance in a direction of each of the branched streams in response to a size and a position of each of the rim water discharging holes and so a desired object may not be attained.

This invention has been made in view of the above-mentioned problems and its object is to provide a flushing toilet bowl having less disturbance of a direction of flow of each of the flows and capable of concentrating a force of the water stream even if there are disturbances in sizes of the rim water discharging holes and their positions.

This object is solved by a flushing toilet bowl including the features of the claim.

The flushing toilet bowl constructed as above is operated such that each of the branched flows of flushing water injected from the discharging holes is condensed at the recess part having the aforesaid V-shape and flown forcibly into a filth dropping recess of aforesaid V-shape without being dispersed.

Accordingly, a force of the water stream is concentrated, the filth can be forcibly flown out and then a filth discharging capability is substantially improved.

As described above, since it is possible to reduce the disturbance of the branched flows, concentrate a forced water flow and make an efficient discharging of filth, so that an amount of flushing water can be saved.

Fig.1 is a top plan view for showing a flushing toilet bowl of one preferred embodiment of the present invention with partly broken away.

Fig.2 is a sectional view taken along a line II-II of Fig.1.

Fig.3 is a sectional view taken along a line III-III of Fig.1.

Fig. 4 is a perspective view for showing a longitudinal section of a substantial part with partly

broken away.

Fig. 5 is an enlarged sectional view showing the other example of rim water discharge holes.

Fig. 6 is a perspective view in longitudinal section for showing one example of a prior art flushing toilet bowl.

Best mode for Performing the Invention

In order to describe this invention mode in detail, this invention will be described in reference to the accompanying drawings.

(A) in the drawings denotes a main body of a toilet bowl which is provided with a bowl (1), a water supplying chamber (2) and a trap water discharge passage (3) defined and formed to be adjacent to each other through partition walls. The trap water discharging passage (3) communicates a bottom part of the bowl (1) with a filth port (7) opened at a bottom wall of a rear part of the main body (A) of the toilet bowl in substantial S-shaped curve form.

The bowl (1) is provided with a rim water passage (5) communicating with the water supplying chamber (2) along an upper circumferential end of the bowl (1) so as to project into the bowl (1). The rim water passage (5) is provided with at its bottom surface some rim water discharging holes (4) with proper intervals.

The main body (A) of the toilet bowl is provided with a filth dropping recess (6) at the rear-most end of the bowl (1) and the rear surface of the filth dropping recess (6) is opened with an inlet (31) of the trap water discharging passage (3).

The above-mentioned structural form is of a well-known siphon type flushing toilet bowl and the present invention is made such that the bowl (1) in the siphon type flushing toilet bowl having the conventional type of well-known structural form has a bowl surface (1') at its rear bottom part formed into a substantial V-shape in its section.

That is, the recess (a) of the substantial V-shaped section of the aforesaid bowl surface (1') is expandedly formed from a part near the central part of the bowl (1) to the part of the bowl rear wall (11) toward its rear portion encloses the filth dropping recess (6) and communicates with the recess (6) in its dropped form.

Accordingly, the recess (a) of the substantial V-shaped section concentrates each of branched streams of the washing water discharged from the rim water discharging holes (4) of the rim water passage (5) down the bowl surface (1') toward the part (a) and it can flow into the filth dropping recess (6) as one large stream.

Other portions except the recess part (a) of the substantial V-shaped section of the bowl surface (1') is formed into a curved surface having a large

curvature in the same manner as that of the prior art bowl and communicate with the aforesaid recess (a). In an example illustrated, this part is formed by a continuation of a plurality of curved surfaces having different curvatures. A proper width part ranging from a part slightly above a part corresponding to a position of a water accumulating surface (b) to a part slightly lower than the former one except the rear wall side is formed as a curved surface having a lower curvature than that of each of the upper part and the lower part, thereby the corresponding part is formed as a stepped part (8) having such a shape as one slightly bulging outwardly.

With such an arrangement above, since the bowl surface (1') at a part corresponding to a position of the accumulated water surface is bulged outwardly by the stepped part (8) and wide, even if a small amount of accumulated water is set, the water accumulation surface can be made large.

This means that the amount of adhesion of filth against the bowl surface (1') is less and thus it is possible to provide a sanitary toilet bowl having a less total amount of water in case of flushing or discharging.

In turn, the rim water discharging holes (4) of the rim water passage (5) are arranged over an entire circumference of the rim water passage (5). Several, for example, five hole diameters to be arranged at the most-front part, i.e. a so-called lip side, are made as special large hole diameters, and more practically, 20 ϕ in respect to the fact that the diameters of the rim water discharging holes (4) at the part of the general toilet bowl are about 14 ϕ , and then the flushing water is forcibly injected.

With such an arrangement, it is not necessary to raise a head within the flushing water tank (B) and a volume of tank is reduced.

Accordingly, in accordance with the aforesaid structure, the present invention may accomplish the desired object sufficiently and further attain a substantial water saving. However, in case of the illustrated example, the following structure is arranged in order to provide a further water saving.

Namely, as shown in Fig.2, the rim water discharging holes (4) formed into large diameter holes are formed such that a bottom wall of the rim water discharging passage (5) is projected (41) inwardly or outwardly along edges of the discharging holes (4) or as shown in Fig.5, a cylindrical member (42) is fixed to the rim water discharging hole (4) and its injected water guiding surface is extended in a thickness direction of the bottom wall of the rim water discharging passage (5). With this arrangement, the branched flushing water is guided to form a straight stream having less disturbance to show a strong combined force of the branched

flushing streams, resulting in that a main stream flowing in a straight forward forcibly from the most-forward side of the rim water discharging passage (5) toward the trap discharging water passage inlet (31) is formed and thus an effect of the present invention can be improved more together with a binding of the flushing water caused by the recess part of a substantial V-shaped section.

The rim water discharging passage (5) is formed by inclining its bottom surface part in a rearward and downward direction so as to prolong a water discharging from a rear part of the rim water discharging passage (5) and to assure supplementary water for water sealing.

With such an arrangement as above, it is possible to provide a flushing water toilet bowl in which washing water more than a specified amount is not required to raise and recover the water accumulated surface (b) and a superior water saving can be attained. Simultaneously, a complex supplementary water supplying mechanism is not needed for the water supplying fitting in the tank (B), but the water accumulated surface (b) of a specified height can always be attained without being influenced by a variation of supplied water at the aforesaid water supplying fitting.

The trap water discharging passage (3) is made such that the stepped surface (9) is formed at a rear wall side of the main body (A) of the toilet bowl in the midway of the descending passage (32), and further a downstream side (32a) at the stepped surface in the descending passage (32) is eccentrically set toward the ascending passage (33) by a projecting amount of the step surface (9).

As shown in Fig.1, the step surface (9) is projected along an inner circumference of the descending passage (32) by about a half-circumference over an arcular form as viewed in its top plan view. It is further projected at a substantial right angle in respect to a descending direction of the flushing water.

Such a structure of the trap water discharging passage (3) as described above is made such that flushing water flowing into the water discharging passage (3) and flowing down in the descending passage (32) is struck against the step surface (9), and thereafter it is flown down while being eccentrically set at a downstream side, an upstream side of the step surface in the trap water discharging passage (3) can be surely filled with water, then a siphon action is carried out rapidly with supplying a small amount of water to cause the filth in the bowl to be forcibly discharged out.

Namely, a water saving characteristic can be improved more.

Claims

1. A flushable toilet bowl (1) in which the bowl at its rear bottom part is formed with a recess (a) leading to a trap water discharge passage (3); 5
characterized in that
 said recess (a) is V-shaped and widens in vertical cross-section in a horizontal direction from a part of the bowl (1) away from said passage (3) towards said passage (3) and narrows in horizontal cross-section in a vertical direction towards the bottom of the bowl (1). 10

Patentansprüche

1. Spülbare Toilettenschüssel (1), bei der die Schüssel an ihrem rückwärtigen Bodenteil mit einer Ausnehmung (a) ausgebildet ist, die zu einer Fangwasserabflußleitung (3) führt, 15
dadurch gekennzeichnet, daß 20
 die Ausnehmung (a) V-förmig ist und sich im vertikalen Querschnitt in einer horizontalen Richtung von einem Teil der Schüssel (1) weg von der Leitung (3) hin zu der Leitung (3) weitet und sich im horizontalen Querschnitt in einer vertikalen Richtung zum Boden der Schüssel (1) hin verengt. 25

Revendications

1. Cuvette de toilettes à chasse d'eau (1) dans laquelle la cuvette présente, dans sa partie de fond arrière, un creux (a) menant à un passage de vidange d'eau à siphon (3) ; 30
 caractérisée 35
 en ce que ledit creux (a) est en foie de V et, en coupe verticale, s'élargit dans la direction horizontale à partir d'une partie de la cuvette (1) qui est éloignée dudit passage (3) vers ledit passage (3) tandis qu'en coupe horizontale, il se rétrécit dans la direction verticale vers le fond de la cuvette (1). 40

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FIG. 1

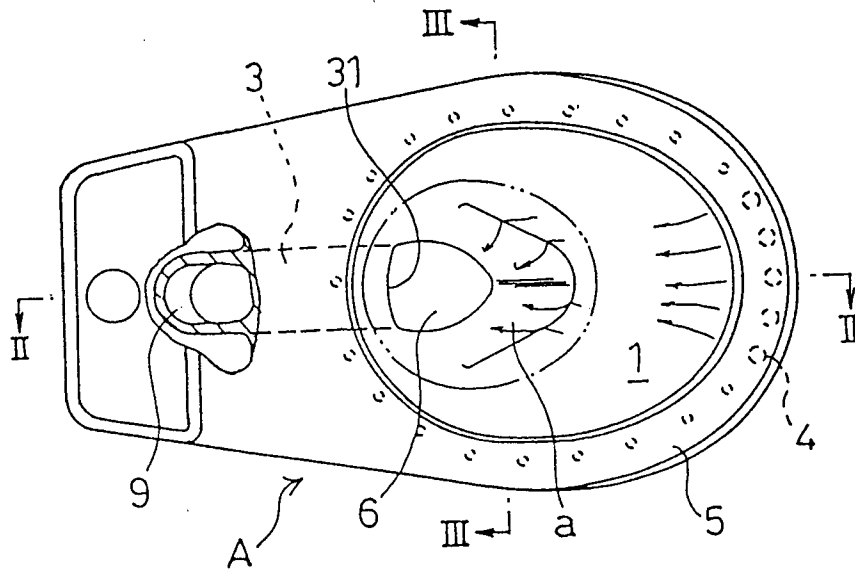
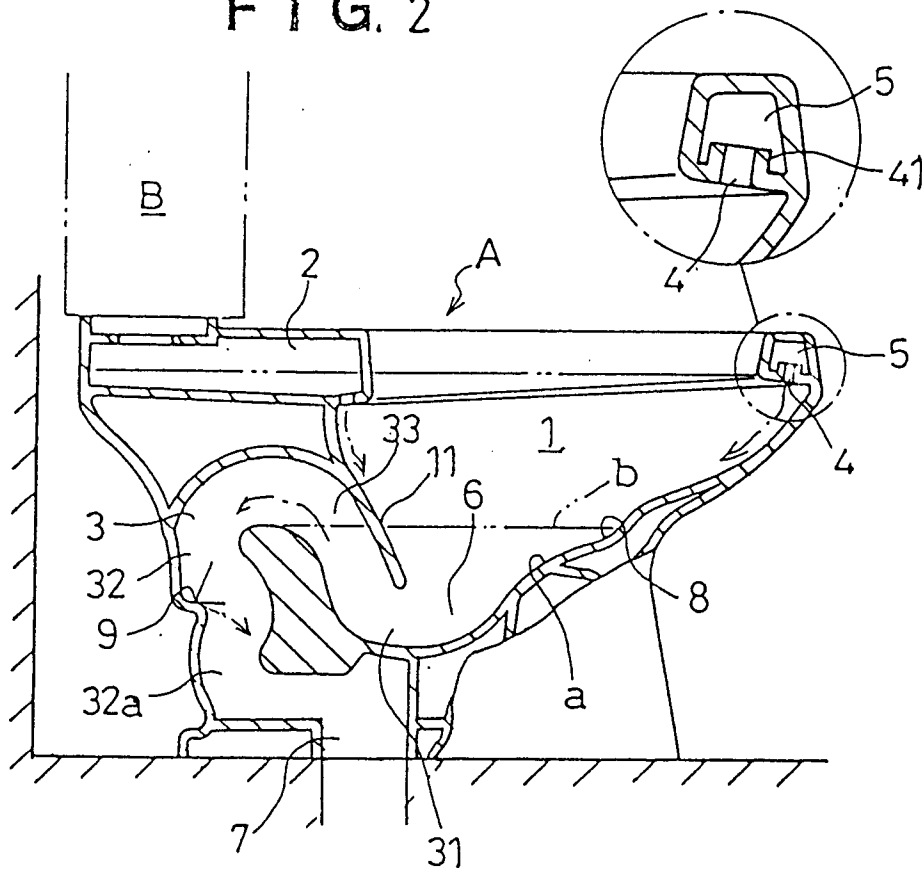


FIG. 2



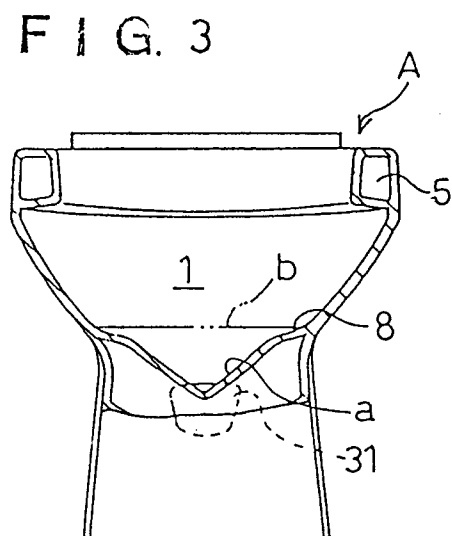
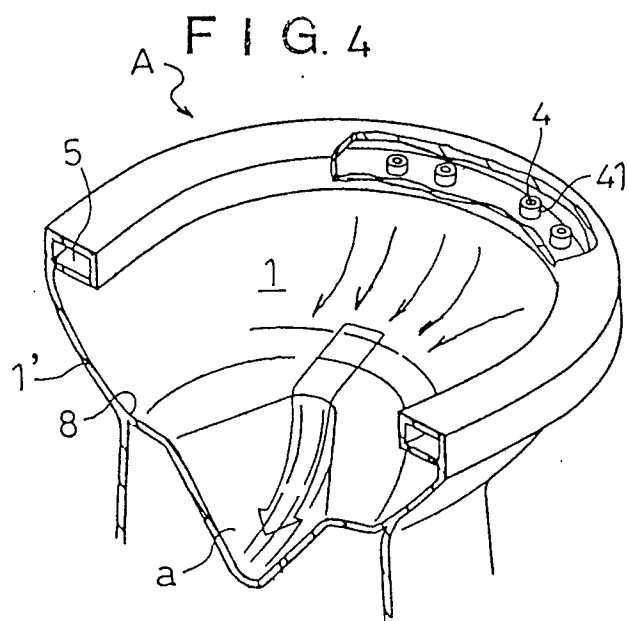


FIG. 5

