A high-pressure water-saving closestool for the places such as washrooms comprises a high pressure air generator (19), a high pressure water generator, a high pressure air tank and a closestool body. All the parts are enclosed and are capable of bearing the pressure and impact force of high pressure air or high pressure water without damage. The high pressure air generator (19) is used for pressurizing the water in the high pressure water generator or inflating the high pressure air tank, and then the kinetic energy generated by the high pressure water or high pressure air is used for clearing the dirt. The high-pressure water-saving closestool saves water and energy, and is sanitary and generates less noise.
HIGH-PRESSURE WATER-SAVING CLOSESTOOL

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

The invention relates to a high-pressure water-saving closestool which belongs to sanitary products, the necessary equipment in the bathroom. The invention changed habits using amounts of water to flush the closestool for a long time, revolutionary using the high-pressure gas or high-pressure water with a small amount to wash and clean the closestool.

[0002] 2. Brief Discussion of the Related Art

The shortage of water resources is obvious to all, according to survey: Water consumption of a toilet accounts for about 60% of household water consumption. We have to save water. The water-saving closestools in market are full of hype, the actual effect is not good: some need to flush for many times, and some just rush something out of the closestool and not to the main sewer. Some products or patent applications have defaults: the utility model with application number 201220199249.6: the number of foot-stepping is not enough, so it only may cause less pressure gas. The invent patent with number 01118907.X, in which case the gas outlet is unreasonable, that may cause the high-pressure gas return to the closestool. When defecating with the closestool: sometimes the sewage stirred up by excrement or part of pee will be splashed on the body. Toilet cover closed lax: sometimes the terrible smell will come from there, the bacteria will float in the closestool, the cockroaches may climb into the interior through the closestool, it is worse for water seal tank no water. The dirty hung on the wall of the closestool that need the chemical cleaning agent to clean away, which takes a lot of time, effort and money, and also pollutes the environment. The noise is relatively large and sometimes the closestool may get blocked. After using for a long time we will feel uncomfortable. The invention uses the high kinetic energy air or water to complete the work efficiently.

[0003] The working principle and process of the closestool: the dirt need the work made by the kinetic energy X from the toilet to the main sewer. If take the maximum 6 L water for example, which means 6 L water to produce energy x, it can achieve the same results as long as with the equivalent kinetic energy y. The decrease of the water B lead to the decrease of the kinetic energy B, the remaining water C need to supplement the equivalent kinetic energy D, the remaining water C need high pressure gas to increase corresponding pressure for reaching the equivalent substitution of the kinetic energy. When completely without water, all kinetic energy is provided by a high pressure gas, and then it can be washed with a small amount of water.

[0004] The formula of substitution principle and process of the equivalent kinetic energy: 6 L water-reduced water B + remainder water C.

[0005] Also the equivalent kinetic energy Y = kinetic energy x produced by 6 L water—corresponding kinetic energy B for reducing water B + kinetic energy remainder water C.

[0006] The kinetic energy B for reducing water B—increasing the kinetic energy D of remainder water C.

[0007] The same equivalent kinetic energy Y = kinetic energy X produced by 6 liters of water—kinetic energy of remainder water C + increasing kinetic energy D of remainder water C.

[0008] When the remainder water C = 0, the equivalent kinetic energy Y = the kinetic energy X produced by 6 L water = the kinetic energy produced by the high pressure gas.

[0009] If you use the high pressure air to clean the toilet, the best matching problem of the volume and air pressure should be considered: the pressure is large enough, the gas volume is also enough.

[0010] The main body volume of the closestool: 2 L-5 L. The volume ratio of the main toilet body, high pressure air tank and high pressure gas generator is preferably 1:1:1. Now the largest volume of human high-pressure pump on the market is below 1 L-0.5 L. We need to pump more times, nearly ten times or even several times, to let high pressure gas meet the requirements. This will cost a lot of labor and time. We need a large volume and less effort costing high-pressure pump to achieve ideal goal with saving water and energy in total. The squatting toilet may be greater than the volume, but may need high pressure tank and human high pressure gas generator.

[0011] From the above, we can see: the more you want to save water, the bigger kinetic energy D remainder water C, namely gas pressure, is. Considering the material, technoloy, cost and other factors to find a balance point is good.

SUMMARY OF THE INVENTION

A high-pressure water-saving closestool for the places such as washrooms comprises a high pressure air generator (19), a high pressure water generator, a high pressure air tank and a closestool body. All the parts are enclosed and are capable of bearing the pressure and impact force of high pressure air or high pressure water without damage. The high pressure air generator (19) is used for pressurizing the water in the high pressure water generator or inflating the high pressure air tank, and then the kinetic energy generated by the high pressure water or high pressure air is used for clearing the dirt. The high-pressure water-saving closestool saves water and energy, and is sanitary and generates less noise.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a cross section of the side of the toilet body.

FIG. 2 is one-type high pressure water generator.

FIG. 3 is the top view of the three round bottom basins.

FIG. 4 is a second embodiment of the toilet body.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In order to solve the above problem, it has developed a high-pressure water-saving closestool composing of a high pressure gas generator, high pressure water generator, high pressure gas tank, toilet body, and all component parts can afford the force and rush produced by high pressure gas or the high pressure water pressure for a long time without damaging.

There are three types of sewage discharge form of the general closestool: Drop type, siphon type and jet siphon type. The invention has the advantages over them which the water consumption is small and it is not easy to be blocked.

The core of the invention: the kinetic energy generated by high pressure gas make work, this is to say, the invention use the high pressure gas generator to add the pressure to the water in the water generator or to inflate to the high-pressure tank, then use kinetic energy produced by the
high-pressure water or high pressure air to remove dirt. The concept in the invention can be explained: 1, high pressure: it refers to a pressure to be greater than atmospheric pressure, in particular when need to use the pressure of gas chamber in high pressure water generator, high pressure air tank and the toilet main body is greater than the outside atmospheric pressure. 2, high pressure water: ordinary water inflated by high pressure gas can be converted into the water having a certain kinetic energy. 3, a high-pressure gas generator: the equipment to produce high pressure gas, which can be classified as (1) human type including manual or pedal high pressure cylinder, (2) non human type electric high pressure pump, 4, high pressure water generator, the equipment to produce high pressure water, which can be classified as (1) the split of free combination and separation: the combination of the high pressure water tank and external high pressure gas generator, (2) fixed integral: high pressure gas generator directly and high pressure water tank combined as one, such as the bucket type manpower car washing equipment. 5, point A: as shown in FIG. 1 is that the angle between the vertical line 2 and the side wall 3. It is not a single angle and not a dead angle with the fixed degree. As long as they can play a relevant role: the stool is not easy sprayed onto the side wall, in case of gush to and not easy adhesion as soon as falling into the water seal. The angle formed by the tangent line of the edge of the inside closeloo stool and the gravity line, the angle is the bigger and the more unfavorable the stool to contact with the sidewall and easily to defecate falls. Because the angle of the existence of the whole area is a small stool is under big mouth approximate three-dimensional cylinder. When the angle a=0 that coincide with the vertical, this time stool in the entire region is the solid cylinder. 6, the angle B: shown as FIG. 1 it is the angle between vertical 2 and inclined 9, the smaller the angle is the easier to slide. 7, toilet cover: must be closed and can be long-term withstand high pressure without damage, is not limited in the airtight way; idle time, effective isolation to prevent anti odor; flush the toilet can reduce noise and pollution. 8, closeloo stool body: refers to the invention including the toilet cover, can be sealed with special shape of the special requirements of the toilet bowl is the three round butt basin; three round butt basin: three round refers to the anus three concentric circle, the smallest circle 1 refers to the maximum area of the anus and the actual product can not be seen, the second round 2 in external lateral is inner edge carrying the butt weight regions, third round 3 refers to the outer edge carrying the butt weight regions, the shape between round 2 and round 3 is the curve when sitting naturally, make people feel comfortable; the three-round butt basin fixed position of anus is also fixed the crash area of stool will ensure that the toilet basin minimum pollution degree; three horizontal cross section round butt basin is nearly circular or nearly oval. 9, general toilet body: it is the toilet bowl addition to the shape of the internal request with general toilet body. 10, the toilet body of the Squatting pan: The opening of the toilet bowl is larger than that of the seat, and the seat is changed to squat, and the other is the same as the main body of the toilet seat. 11, generally the main body of Squat toilet: the bowl is the general squat toilet bowl, other aspects of the toilet are the same as the main body of the toilet. Statement: the present invention comprises a sitting toilet and a squat toilet. Principle: the same can be used as a sitting toilet and a squat toilet.

High pressure gas generator: 1, non manpower type: if the electric power need to use related device to increase the cost, although the water-saving but with the electric, does not meet the overall requirements for saving energy and environmental protection. 2, human type: foot type and manual type high-pressure inflator exercise control within 10 is the best and within 5 times is suitable and more times will lead to time-consuming and laborious and fatigue. Using high pressure gas tank, if you want to get corresponding enough pressure, the volume of high-pressure inflator is needed to be relatively large, but if too much effort and not easy to use. Combined effort and the number of factors should to be considered, the volume control in the 2-4 L is more appropriate: not too much trouble. 3, non high pressure gas generator can be combined with high pressure water generator or high pressure tank or free separation. 4, high pressure gas generator to produce a high pressure gas can be used more than one thing: can remove the dust from a computer and other electrical, and can give tires inflate, etc.
5. The toilet main body of production can be reference mature pressure cooker used nonstick material, technology, process and production: acid and alkali corrosion resistance, can bear high pressure, dirt is not easy to sticking and long service life.

[0026] Seal: because all parts of the invention are inclosed, the toilet lid are generally inclosed and be opened only when used, and the volume of water seal with less than 1 L should be on it and 0.5 L may be sufficient. Interior of the toilet water sealing surface width 7 is within 5 cm: in order to ensure the stool less, high pressure to the largest extent of give an excrement acting.

[0027] Puddle: that is the water in the toilet bowl. the reasons why the toilet is blocked: sometimes stood with a certain length such as 20 cm, puddles of general toilet is the longest side such as 10 cm, stool want to go out to break off or broken, in this way it is possible to be blocked up. In order to avoid the occurrence of this situation, the pool in the main body of the invention toilet is required: width is less than 5 cm, in other words the width of the sealing surface (7) is the cuboid with the width less than 5 cm and the length above 10 cm. Vertex angle can be circular area. The length of the seal is 10 cm above, water pipes in the back can also be considered to be this length shape.

[0028] Process of the invention: after toilet cover is inclosed, the water storing chamber of high pressure water generator is filled with water, using a high pressure gas generator to inflate the high pressure water generator and high pressure gas tank to large enough, method 1, the biggest water-saving methods: with high-pressure gases acting the dirt out of the toilet and then still a small valve to discharge water to clean the toilet and to be used as seal: water consumption is the least. Method 2, the rapid method with using more water: direct use of large file valve to clean the toilet: more water, but save time and effort. Method 3, without the use of clean tap water: the reclaimed water or secondary water placed directly into the toilet and then the high-pressure gases acting to finish tasks or directly by high pressure gases acting to complete the task, and finally a small amount of reclaimed water or secondary water to wash toilet wall and to be used as the water seal: the most environmental protection.

[0029] The beneficial effects of the invention: 1, saving water and money: the excrement use the water within 3 and the urine use the water within 1 L. Sanitation: the excrement and urine will not splash to the body; three round bottom pots of special design guarantees in addition to the stool falling slope of other places almost no contact with stool; the toilet is generally inclosed except when it is used even if there is no water in water seal, so the toilet has no unpleasant smells; bacteria do not have floating pollution; cockroaches can not come into the room through the toilet climb. 3, save time and effort and environmental protection: the special shape of the main body of the design and the use of non stick coating to ensure that the health of the toilet is also not used to use chemical cleaning agent. 4, long service life: learn from the use of high pressure cooker, you can put a few layers of non-stick coating. 5, low noise: the whole toilet is inclosed, using a small amount of high pressure gas or high pressure water to naturally decrease the noise power. 6, high pressure gas generator can be used for more than one thing. 7, no jam: powerful kinetic energy generated by high pressure gas and the shape and size of the puddle. 8, the comfortableness of use: humanized design of the three round bottom pot with human body engineering and human mechanical structure.

[0030] The best implementation of the invention is the most energy saving and environmental protection: the maximum degree of water saving and increase other energy consumption. Considering now the market human type high-pressure inflator and trouble, human type high pressure gas generator and one type high pressure water generator common configuration better. The full version of A: human type high pressure gas generator, one type of high pressure water generator, high pressure tank and the toilet main body.

[0031] After putting the toilet seat lid inclosed, cleaning: excrement 1, the biggest water-saving method: after using manpower high pressure gas generator for high pressure gas tank to inflate enough gas, open outlet valve using high pressure gas cleaning stool; one type of high pressure water generator feed water tank water pressurized to large enough, open small valve switch drain flushing the toilet main body. 2, rapid methods with using more water: integral pressure water generator or high pressure gas generator to the water in the high pressure water tank pressure to large enough, open valve switch drain flushing the toilet main body. When there is fewer, stools opening a small valve switch to flush the toilet body. Urine: with one type of high pressure water generator or high pressure gas generator to the high pressure water tank in the water pressure to large enough to open the small valve switch to flush the toilet body.

[0032] The method of fastening and saving energy and water: use the no manpower high pressure gas generator to produce the high pressure gas to complete the task, and then use a little water to flush the toilet wall. But the increase of the power consumption, increase the cost of electric pumps and maintenance costs etc. On the whole, it is not energy-saving and environment protection friendly. Because of the use of methods and principles are similar, so the following is the key column different from the combination of the human resources of the high-pressure gas generator. If it is based on the invention as the core and the other functions are added and no substantial differences are also in the scope of protection of the invention. The following is part of the implementation of the invention, not to limit the scope of the invention.

[0033] Toilet: 1, the full version B: composing high pressure gas generator, one type high pressure water generator, high pressure gas tank and general toilet body.

[0034] 2, A1: a simplified version of the full version of A without high pressure tank, the others are unchanged, the cost can be reduced, with more water.

[0035] 3, B1: a simplified version of the full version of B without high pressure tank, the others are unchanged, the cost can be reduced, with more water.

[0036] 4, the full version of C: composing sub type high pressure water generator that is high pressure water tank, high pressure gas generator, high pressure air tank and the toilet main body.

[0037] 5, full version D: composing split type high pressure water generator that is high pressure water tank, high pressure gas generator, high pressure gas tank and the toilet body.

[0038] 6, a simplified version of the A2: complete a version without high pressure tank and a high-pressure gas generator, composing one high pressure water generator and the toilet main body.

[0039] 7, a simplified version of B2: full version B without high pressure tank and a high-pressure gas generator, composing one type high pressure water generator and the main body of the toilet.
[0040] 8. a simplified version of C: the full version of the C without high pressure tank, composing split type high pressure water generator that is high pressure water tank, high pressure gas generator, and a toilet body.

[0041] 9. a simplified version of D: Complete Edition d without high pressure tank, composing split type high pressure water generator that is high pressure water tank, high pressure gas generator, and general toilet subject.

[0042] Squat toilet; there is no essential difference between the base and the seat, in accordance with the above examples for simple replacement. In fact, as long as the opening of the above toilet body is changed large and changed into squat, the other is unchanged, as can be water-saving.

[0043] Principle is similar to the method. The following is the simplest solution to explain, but not to limit the scope of the protection of the invention.

[0044] Open the toilet cover 1 for using: excrement falling down on the lower part of slant 9 and then slipped into the water seal 6, urination falling down to slant 11 after then slant 9 slide into the water seal 6. after using and inclosing toilet cover 1, open the inlet valve 17 to be full of water, float 16 close inlet 17 and close the inlet valve 17. Use a high—pressure gas generator 19 or use an external high—pressure gas generator to air intake to one-way air inlet 18. Quickly cleaning method: opening the large water valve on the water part 12. High pressure water through the water outlet 15 from a water inlet 10 and jet and flush the toilet wall 3, slant 11 and 9, to work on the pee and water seal together through water seal 6 and the sewers 5 to the main sewer. The method for more to save water: using an external high-pressure gas generator to inflate the high-pressure tank inflatable big enough and then open the outlet valve of high-pressure gas through a high pressure gas tank outlet from the air inlet 1 and 10 jet blowing jet net toilet wall 3, slant 11 and 9, to wok on the pee and a water seal water together through 6 water seal and the sewers 5 to the main sewer. Finally, open the small valve of the water part 12 to flush the toilet. The most energy—efficient environmentally method: after cleaning up with high pressure gas to open the toilet lid 1 and manual directly use water or two times water flushing toilet wall 3, slant 11 and 9.

[0045] Specification drawing: all the pictures, the proportion is schematic diagram, is not accurate, can not be used for production of accurate drawings.

[0046] The main FIG. 1: the cross section of the side of the toilet body.

[0047] 1—the upper edge of the main body, or the inlet air inlet of the upper layer, or the toilet lid. The vertical line 2a and 2b is the gravity line: the auxiliary line to illustrate the problem, the actual product does not have this line, the region 1 between 2a and 2b is fecal excretion area, region 9 between 2a and 2b is the drop zone of stool. 3—the toilet side wall.

4—the angle a is the angle between the vertical line 2 and side wall 3. 5—the sewer outside the toilet main body, 6—the water seal. 7—the width of the water surface or internal surface of the toilet. 8—the angle b is the difference area of the urine: after the urine is reflected by slant b, its direction is downward, that ensure it is not easy to splash the body. slant a and b can be cambered or connect by arc.

[0048] FIG. 2 is one-type high pressure water generator, if you remove the high pressure gas generator 19 that is split type high pressure water generator. 12—the parts for controlling water with including the valve. 13—air pressure gauge or pressure reducing valve. 14—water face full of water. 15—outlet. 16—float. 17—one-way water inlet and valve. 18—one-way gas inlet and valve. 19—high pressure gas generator. Below the water surface 14 is the water storage chamber and above is the gas storage chamber.

[0049] FIG. 3 is the top view of the three round bottom basin: 20—circle 3, 21—circle 2, 22—circle 1, 11—urine outlet.

[0050] FIG. 4 is a variant of the slant 9: the toilet bowl is smaller, and the angle 8 is smaller. 9—The above part 9b of the slant 9 can be urination defecation area; the under part 9a near by the water seal can be region of falling stool. The meaning of the other numbers is the same as above mentioned.

1. A high-pressure water-saving closestool is consisted of high pressure gas generator, high pressure water generator, high pressure gas tank and toilet body and all components are sealed which can withstand long-term high-pressure gas or high pressure water pressure and impact force and can not be damaged; said high pressure refers to a pressure greater than atmospheric pressure.

2. A high-pressure water-saving closestool as claimed in claim 1 characterized in: said high pressure gas generator has the capable of generating high pressure gas and can be freely separated or combined with high pressure water generator or high pressure gas tank.

3. A high-pressure water-saving closestool as claimed in claim 1 characterized in: said high pressure water generator is inclosed and can produce high pressure water, in which the upper is air storage chamber and the lower is water storage chamber; provided with one way water inlet and air inlet, and the corresponding control valve, having one way water export;

provided with the corresponding parts for controlling the water spray including a water float and a release the button with two stall; classified as the free-separate split type and fixed one-type, fixed integral high-pressure gas has two sources; further set pressure gauge or pressure relief valve.

4. A high-pressure water-saving closestool as claimed in claim 1 characterized in: said high pressure tank is inclosed, and provided with the one-way air inlet and outlet, and the valve controlling the inlet and outlet; further set pressure gauge or pressure relief valve.

5. A high-pressure water-saving closestool as claimed in claim 1 characterized in: said main body of the toilet comprises a toilet bowl for the three round bottom basin, a toilet cover and a sealing device; said sealing device is a device that inclose the toilet bowl and toilet cover and is not be damaged to bear with high pressure in a long time; the three round bottom basin is in accordance with the human body engineering and human mechanical structure, fixed the position of the anus; the horizontal cross section of the three round bottom basin is a round or approximate ellipse; the angle a is equal to 0 or greater than 0, which is the angle between vertical line (2) and the side wall (3); The angle b is the angle between vertical line and slant (9); the puddle is not just below the anus; the water and air inlet is provided with a plurality of upper and lower layers, and the lower layer is arranged on the top of the slant a so as to clean the slant a; the upper of the slant a can be region of urination defecation, the lower near by the water seal is the crash area of stool; the slant b is the region of
urination defecation, after the urine is reflected by slant b, its direction is downward; the three round bottom basin can reference—the material, technology, process and production of the non-stick pan; the requirement of puddle is rectangular cube with the width less than 5 cm and the length over 10 cm.  
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