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(54) **TOILET BOWL WITH CHANGEABLE WATER SEAL**

(57) The present invention relates to a toilet bowl with a changeable water seal, which comprises an upper region, a waste drain outlet of the upper region, a lower region and a waste drain outlet of the lower region. A deviated waste discharge passage is fixed on a supporting shaft or a supporting bore. A reposition apparatus is arranged for the reposition of the waste discharged passage, the lower end of which surrounds the waste drain outlet of the upper region, the higher end of which could be depressed and repositioned automatically and be lead to the waste drain outlet of the lower region. This invention could overcome these disadvantages that immobile waste discharge passage of the traditional toilet bowl between the waste drain outlet of the upper region and the waste drain outlet of the lower region has a higher water seal, a higher water resistance and higher water consume. The waste discharge passage of this invention is deviated automatically to form a lower water seal while flushing, and is repositioned automatically to form a higher water seal while non-flushing. It can not only seal the pour but also improve the flushing efficiency and save water. The structure of invention is simple and reliable and has lower cost.

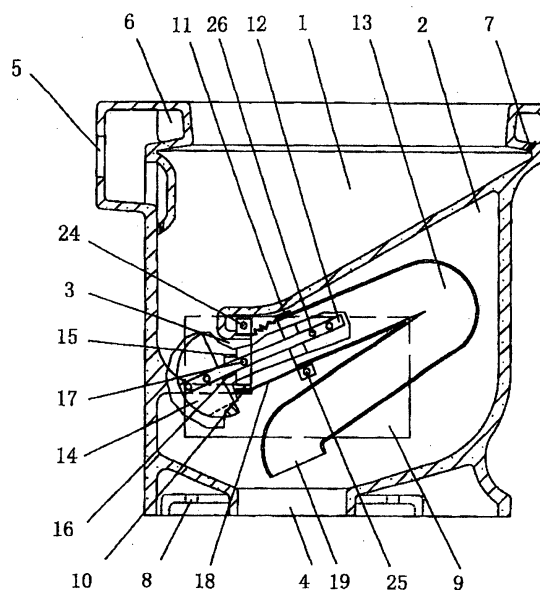


FIG. 1

EP 1 598 492 A1

Description

Technical Field

[0001] The present invention generally relates to a toilet bowl, and more specifically, to a variable water sealed toilet bowl.

Background of the Invention

[0002] The water seal device of the traditional toilet bowl is a fixed bending sewage draining passage with deeper water storage, including an upper chamber, a lower chamber, an upper chamber outlet and a lower chamber outlet. Although the waterseal in the bending passage of the lower chamber seals the smell, a resulted high water resistance decreases the flush effect significantly and results in wasting water badly; meanwhile, the larger curvature of the sewage draining passage leads to an increased waster resistance, thereby the sewage tends to stagnate in it, or worse, jamming the passage and rendering the toilet bowl out of work.

Summary of the Invention

[0003] Aiming at solving the deficiency of the prior art, the present invention provides a variable water sealed toilet bowl, which is equipped with a tiltable sewage draining passage enabling the change in the height of the waterseal: at other times the waterseal is high that providing a more desirable blocking effect, when it is flushing, the height of waterseal can be lowered and has the effect of reducing the flush resistance and saving the water for flush.

The object of the present invention is achieved by the following schemes:

[0004] A variable water sealed toilet bowl, comprising an upper chamber, a lower chamber, an upper chamber outlet, and a lower chamber outlet, wherein it's equipped with a tiltable sewage draining passage; the tiltable sewage draining passage is mounted on a supporting axle or supporting hole, its lower end surrounding the upper chamber outlet and its higher end that can lower and reset automatically leading to the lower chamber outlet, and the reset device of tiltable sewage draining passage is also equipped.

[0005] The tiltable sewage draining passage mentioned above may be rotated around the supporting axle, the upper limit of the rotation is the higher position of the tiltable sewage draining passage; and the lower limit of the rotation is the lower position of the tiltable sewage draining passage. At other times, the tiltable sewage draining passage is kept at the higher position by the reset device, thus the waterseal is high; when it is flushing, owing to the current, the tiltable sewage draining passage overcomes the force from the reset device to

rotate around the supporting axle or supporting hole and move into the lower position, which lowers the height of the waterseal and achieves the effect of lowering the flush resistance and saving water for flush. After flush, the tiltable sewage draining passage is reset by the reset device and resume its position with a high waterseal.

[0006] The described tiltable sewage draining passage can be a U-pipe sewage draining passage, a $\cap$ -pipe sewage draining passage or tiltable tubular sewage draining passages of any other shapes.

[0007] The described reset device can be selected from the counterweight reset device, the compression spring reset device, the tension spring reset device and the combined reset device of tension spring and compression spring or any other devices that can replace the tiltable sewage draining passage from the lower position to the higher position.

[0008] The supporting axle or supporting hole of the described tiltable sewage draining passage is mounted on the outside of the upper chamber outlet or the outside of the lower chamber outlet in the lower chamber.

[0009] More specifically, the object of the present invention is further achieved by the following technical measures:

a. The described tiltable sewage draining passage is tubular, namely, tiltable tubular sewage draining passage, and the configuration of the tiltable tubular sewage draining passage is: a flexible tubular sewage draining passage is mounted on the outside groove of the elbowed upper chamber outlet, the tiltable frame tilting around the axle is supported in the supporting hole on the hoop supporter fastened with bolt, and there is a reset device on one side of the tiltable frame, the other side thereof inclines to extend upwards to join the flexible tubular sewage draining passage that is extending with it simultaneously or join the tubular sewage draining passage connected to the flexible tubular sewage draining passage to form a horizontal, vertical or inclined tiltable outlet leading to the lower chamber outlet, and is tilted and reset with the tiltable frame synchronously; there is a narrow plate in the middle of the frame edge on one side of the tiltable frame, that bends downwards to form a bump, the narrow plate bending downwards and the bump form the limit plate and limit bump limiting tilt and reset.

b. The described tiltable sewage draining passage is basin-shaped, namely, the variable waterseal is basin-shaped variable waterseal, which comprise: a basin-shaped sewage draining passage with a axle and capable of tilt around the axle, that is supported in the supporting hole on the hoop supporter fastened with bolt on the outside of the upper chamber outlet, and the upper chamber outlet extends into the lower end of the basin-shaped sewage draining passage, and the basin-shaped sewage

draining passage inclines right upwards and extends to the horizontal tilting outlet, and there exists reset counterweight on the left outside of the basin-shaped sewage draining passage; the horizontal plate on the top of the supporter is the limit plate, a bending bump is the limit bump; the bottom of the supporter is fastened by screws.

[0010] The advantage of the present invention is in eliminating the high waterseal, high waster resistance and heavy waste of water of the fixed sewage draining passage between the upper chamber outlet and the lower chamber outlet in traditional toilet bowl. Design the sewage draining passage as the variable tiltable sewage draining passage that can tilt automatically into low waterseal when it is flushing and reset automatically into high waterseal when it doesn't flush seals the smell and improves the flush effect greatly, and the water is saved, thus, its structure is simple and reliable, the price performance ratio is high.

Brief Description of the Drawings

[0011] The objects, advantages and features of the present invention will be more apparent from following non-limitative description of the preferred embodiments given as examples with reference to the accompanying drawings, in which:

Figure 1 is the structural schematic diagram of a U-pipe variable water sealed toilet bowl with an upper counterweight reset mechanism;
 Figure 2 is the partial side view of the U-pipe variable water sealed toilet bowl with an upper counterweight reset mechanism;
 Figure 3 is the partial top-down view of the U-pipe variable water sealed toilet bowl with an upper counterweight reset mechanism;
 Figure 4 is the structural schematic diagram of a - pipe variable water sealed toilet bowl with an upper counterweight reset mechanism;
 Figure 5 is the partial side view of the - pipe variable water sealed toilet bowl with an upper counterweight reset mechanism;
 Figure 6 is the partial structural schematic diagram of a U-pipe variable water sealed toilet bowl with a lower counterweight reset mechanism;
 Figure 7 is the partial structural schematic diagram of a U-pipe variable water sealed toilet bowl with an upper tension spring reset mechanism;
 Figure 8 is the partial structural schematic diagram of a U-pipe variable water sealed toilet bowl with an upper compression spring reset mechanism;
 Figure 9 is the partial structural schematic diagram of a U-pipe variable water sealed toilet

bowl with a combined reset mechanism of upper tension spring and upper compression spring;
 Figure 10 is the partial structural schematic diagram of a - pipe variable water sealed toilet bowl with an upper tension spring reset mechanism;
 Figure 11 is the partial structural schematic diagram of a - pipe variable water sealed toilet bowl with an upper compression spring reset mechanism;
 Figure 12 is the partial structural schematic diagram of a - pipe variable water sealed toilet bowl with a combined reset mechanism of upper tension spring and upper compression spring;
 Figure 13 is the partial structural schematic diagram of a U-pipe variable water sealed toilet bowl with a lower tension spring reset mechanism;
 Figure 14 is the partial structural schematic diagram of a U-pipe variable water sealed toilet bowl with a lower compression spring reset mechanism;
 Figure 15 is the partial structural schematic diagram of a U-pipe variable water sealed toilet bowl with a combined reset mechanism of upper tension spring and lower compression spring;
 Figure 16 is the structural schematic diagram of the tubular variable water sealed toilet bowl;
 Figure 17 is the partial side view of the tubular variable water sealed toilet bowl;
 Figure 18 is the partial top-down view of the tubular variable water sealed toilet bowl;
 Figure 19 is the structural schematic diagram of the basin-shaped variable water sealed toilet bowl;
 Figure 20 is the partial side view of the basin-shaped variable water sealed toilet bowl;
 Figure 21 is the partial top-down view of the basin-shaped variable water sealed toilet bowl.

[0012] In which:

1. upper chamber
2. lower chamber
3. upper chamber outlet
4. lower chamber outlet
5. inlet for flush pipe
6. loop diversion pipe
7. diversion hole
8. foot hole
9. mounting window
10. hoop
11. hoop
12. supporter
13. U-pipe sewage draining passage

14. counterweight
15. tilt limit bending plate
16. reset limit bending plate
17. supporting axle
18. flexible hose
19. outlet of sewage draining passage
20. inner cover
21. outer cover
22. gasket
23. bolt
24. bolt
25. bolt
26. bolt
27. - pipe sewage draining passage
28. hoop
29. bolt
30. bending plate
31. bending plate
32. bending plate
33. bending plate
34. tension spring
35. compression spring
36. supporter
37. tiltable frame
38. curved plate
39. annulus
40. sewage draining passage
41. limit plate
42. limit bump
43. axel
44. counterweight
45. screw
46. bolt
47. tiltable outlet

Detailed Description of the Invention

Embodiment I

[0013] As shown in Fig. 1, 2 and 3, the tiltable tubular sewage draining passage disclosed in the present invention is a U-pipe variable water sealed toilet bowl with an upper counterweight reset mechanism, including a flexible hose 18 and a hoop 10 on which a tilt limit bending plate 15, a reset limit bending plate 16 and a symmetrical supporting axle 17 are provided are mounted and then fastened by bolt 24 on the outside of an upper chamber outlet 3 in the lower chamber 2. A U-pipe sewage draining passage 13, which can tilt around the supporting axle 17 and reset, is supported on the symmetrical supporting axle 17, with a supporter 12 having supporting hole being mounted on the outside of the U-pipe sewage draining passage 13, on the other side of supporter 12 a counterweight 14 is disposed, one end of the U-pipe sewage draining passage 13 is sleeved into the flexible hose 18 and fastened by hoop 11, and on the other end, namely, outlet 19 of the sewage draining passage communicates with the lower chamber outlet 4.

Window 9 is disposed on either side of the lower chamber 2, and a outer cover 21 and a gasket 22 are fixed on the inner cover 20 with countersunk head thread holes and the toilet bowl is fixed on the floor through the foot holes 8. When it does not flush, the resetting force which is formed by the combined action of counterweight 14, supporter 12, bolt 26, bolt 25, hoop 11, flexible hose 18 and U-pipe sewage draining passage 13 and the remaining water therein keeps the U-pipe sewage draining passage 13 in the high waterseal position under the resetting status and limited by the reset limit bending plate 16; when it is flushing, water in the water tank enters a loop diversion pipe 6 from a flush pipe inlet connection 5 and spouts to the inner wall of the upper chamber 1 through a set of diversion holes 7, then flows into the flexible hose 18 and U-pipe sewage draining passage 13 from the upper chamber outlet 3 and finally drains out via the sewage draining passage outlet 19 and the lower chamber outlet 4, when the flushing begins, driven by the tilting force (larger than the resetting force) generated by a certain amount of water and sewage passing the flexible hose 18 and U-pipe sewage draining passage 13, the U-pipe sewage draining passage 13 is tilted automatically around the supporting axle 17 until it is limited by the tilt limit bending plate 15 to form the low waterseal status for flushing; following the flushing, the tilting force becomes smaller than the resetting force again, and the U-pipe sewage draining passage 13 resets around the supporting axle 17 until it is limited by the reset limit bending plate 16.

Embodiment II

[0014] As shown in Fig. 4 and 5, the tiltable tubular sewage draining passage disclosed in the present invention is a - pipe variable water sealed toilet bowl with an upper counterweight reset mechanism, including a flexible hose 18 and a hoop 10 on which a tilt limit bending plate 15, a reset limit bending plate 16 and a symmetrical supporting axle 17 are provided are mounted and then fastened by bolt 24 on the outside of an upper chamber outlet 3 in the lower chamber 2. A - pipe sewage draining passage 27, which can tilt around the supporting axle 17 and reset, is supported on the symmetrical supporting axle 17, with a supporter 12 having supporting hole being mounted on the outside of the - pipe sewage draining passage 27, on the other side of supporter 12 a counterweight 14 is disposed, one end of the - pipe sewage draining passage 27 is sleeved into the flexible hose 18 and fastened by hoop 11, and on the other end, namely, outlet 19 of the sewage draining passage communicates with the lower chamber outlet 4. Window 9 is disposed on either side of the lower chamber 2, and a outer cover 21 and a gasket 22 are fixed on the inner cover 20 with countersunk head thread holes and the toilet bowl is fixed on the floor through the foot hole 8. When it does not flush, the resetting force which is formed by the combined action of counter-

weight 14, supporter 12, bolt 26, bolt 25, hoop 11, flexible hose 18 and $\neg$ pipe sewage draining passage 27 and the remaining water therein keeps the $\neg$ pipe sewage draining passage 27 in the high waterseal position under the resetting status and limited by the reset limit bending plate 16; when it is flushing, water in the water tank enters a loop diversion pipe 6 from a flush pipe inlet connection 5 and spouts to the inner wall of the upper chamber 1 through a set of diversion holes 7, then flows into the flexible hose 18 and $\neg$ pipe sewage draining passage 27 from the upper chamber outlet 3 and finally drains out via the sewage draining passage outlet 19 and the lower chamber outlet 4, when the flushing begins, driven by the tilting force (larger than the resetting force) generated by a certain amount of water and sewage passing the flexible hose 18 and $\neg$ pipe sewage draining passage 27, the $\neg$ pipe sewage draining passage 27 is tilted automatically around the supporting axle 17 until it is limited by the tilt limit bending plate 15 to form the low waterseal status for flushing; following the flushing, the tilting force becomes smaller than the resetting force again, and the $\neg$ pipe sewage draining passage 27 resets around the supporting axle 17 until it is limited by the reset limit bending plate 16.

Embodiment III

[0015] As shown in Fig. 6, the tiltable tubular sewage draining passage disclosed in the present invention is a U-pipe variable water sealed toilet bowl with a lower counterweight reset mechanism, including hoop 10 on which a symmetrical supporting axle 17, a tilt limit bending plate 15 and reset limit bending plate 16 are provided is mounted and fastened by bolt 29 on the outside of the lower chamber outlet 4 in the lower chamber 2. A U-pipe sewage draining passage 13, which can tilt around the supporting axle 17 and reset and communicates with the lower chamber outlet 4, is supported on the symmetrical supporting axle 17, with a supporter 12 having supporting hole being mounted on the outside of the U-pipe sewage draining passage 13, and on the other side of the supporter 12, a counterweight 14 is disposed. The other end of the U-pipe sewage draining passage 13 is sleeved into the flexible hose 18 and fastened by hoop 11 and bolt 25; the other end of the flexible hose 18 is sleeved on the outside of the upper chamber outlet 3 and is fastened by hoop 28 and bolt 24. When it does not flush, the resetting force which is formed by the combined action of counterweight 14, supporter 12, bolt 26, bolt 25, hoop 11, flexible hose 18 and U-pipe sewage draining passage 13 and the remaining water therein keeps the U-pipe sewage draining passage 13 in the high waterseal position under the resetting status and limited by the reset limit bending plate 16; when it is flushing, water in the water tank enters a loop diversion pipe 6 from a flush pipe inlet connection 5 and spouts to the inner wall of the upper chamber 1 through a set of diversion holes 7, then flows into the flexible hose 18

and U-pipe sewage draining passage 13 from the upper chamber outlet 3 and finally drains out via the sewage draining passage outlet 19 and the lower chamber outlet 4, when the flushing begins, driven by the tilting force (larger than the resetting force) generated by a certain amount of water and sewage passing the flexible hose 18 and U-pipe sewage draining passage 13, the U-pipe sewage draining passage 13 is tilted automatically around the supporting axle 17 until it is limited by the tilt limit bending plate 15 to form the low waterseal status for flushing; following the flushing, the tilting force becomes smaller than the resetting force again, and the U-pipe sewage draining passage 13 resets around the supporting axle 17 until it is limited by the reset limit bending plate 16.

Embodiment IV

[0016] As shown in Fig. 7 to Fig. 15, the tiltable tubular sewage draining passage disclosed in the present invention is a U-pipe or $\neg$ pipe variable water sealed toilet bowl with a spring reset mechanism, including hoop 10 on which symmetrical supporting axle 17, tilt limit bending plate 15, reset limit bending plate 16, spring mount bending plates 30 and 31 are provided is mounted and fastened by bolt 24 or bolt 29 on the outside of the upper chamber outlet 3 or the lower chamber outlet 4. A U-pipe sewage draining passage 13 or $\neg$ pipe sewage draining passage 27, which can tilt around the supporting axle 17 and reset, is supported on the symmetrical supporting axle 17, with a supporter 12 having supporting hole being mounted on the outside of the U-pipe sewage draining passage 13 or $\neg$ pipe sewage draining passage 27, on the other side of supporter 12 spring mount bending plates 32 and 33 is disposed, compression spring 35 is mounted between bending plates 30 and 32, and tension spring 34 is mounted between bending plates 31 and 33. One end of U-pipe sewage draining passage 13 or $\neg$ pipe sewage draining passage 27 is sleeved into the flexible hose 18 and fastened by hoop 11 and bolt 25, and the other end, namely outlet 19 of sewage draining passage, communicates with the lower chamber outlet 4, the other end of the flexible hose 18 is sleeved and fastened by hoop and bolt on the outside of the upper chamber outlet 3. When it does not flush, the resetting force which is formed by the combined action of the tension spring 34 or compressing spring 35 or the combination of tension spring 34 and compressing spring 35, supporter 12, bolt 25, bolt 26, hoop 11, flexible hose 18 and U-pipe sewage draining passage 13 or $\neg$ pipe sewage draining passage 27 and the remaining water therein keeps the U-pipe sewage draining passage 13 or $\neg$ pipe sewage draining passage 27 in the high waterseal position under the resetting status and limited by the reset limit bending plate 16; when it is flushing, water in the water tank enters a loop diversion pipe 6 from a flush pipe inlet connection 5 and spouts to the inner wall of the upper chamber 1 through

a set of diversion holes 7, then flows into the flexible hose 18 and the U-pipe sewage draining passage 13 or - pipe sewage draining passage 27 from the upper chamber outlet 3 and finally drains out via the sewage draining passage outlet 19 and the lower chamber outlet 4, when the flushing begins, driven by the tilting force (larger than the resetting force) generated by a certain amount of water and sewage passing the flexible hose 18 and the U-pipe sewage draining passage 13 or - pipe sewage draining passage 27, the U-pipe sewage draining passage 13 or - pipe sewage draining passage 27 is tilted automatically around the supporting axle 17 until it is limited by the tilt limit bending plate 15 to form the low waterseal status for flushing; following the flushing, the tilting force becomes smaller than the resetting force again, and the U-pipe sewage draining passage 13 or - pipe sewage draining passage 27 resets around the supporting axle 17 until it is limited by the reset limit bending plate 16.

Embodiment V

[0017] As shown in Fig. 16, Fig. 17 and Fig. 18, the sewage draining passage disclosed in the present invention is a tubular (namely, the variable waterseal is tubular) variable water sealed toilet bowl. It includes flexible tubular sewage draining passage 40 mounted on the outside groove of the upper chamber outlet 3 with a shape of elbow in the lower part of the upper chamber 1; in the supporting hole of supporter 36 that is fastened by bolt 46 and integrated with the hoop 10, a tiltable frame 37 is supported which is connected via screw axle 43 and may tilt around the screw axle 43. On the lower left side of the tiltable frame 37 there is a reset counterweight 44. Annulus 39 at the end of an elongated curved plate 38 which extends toward upper right quadrant from the right side of the tiltable frame 37 is inserted into the interlayer formed by the flanging nozzle of the flexible tubular sewage draining passage 40 that extends parallelly with the curved plate 38 to form a horizontal tilting outlet 47 that is tilted and reset with the tiltable frame 37 synchronously. A narrow plate in the middle part of the edge of left frame of tiltable frame 37 bends downward and forms a bump, the narrow plate and the bump form limit plate 41 and limit bump 42 used to limit tilt and reset. On the both sides of under part of the lower chamber 2, the mounting windows 9 are provided, and outer cover 21 and inner cover 22 on which gasket 22 and the countersunk head thread hole are provided are tighten up by bolt 23 and the toilet bowl is fixed on the floor through foot holes 8. When it does not flush, the resetting force which is formed by the combined action of counterweight 44, tiltable frame 37, curved plate 38, annulus 39 and tubular sewage draining passage 40 and the remaining water therein keeps the tubular sewage draining passage 40 in the high waterseal position under the resetting status and limited by the limit bump 42; when it is flushing, water in the water tank enters the loop di-

version pipe 6 from flush pipe inlet connection 5 and spouts on the scouring surface of the upper chamber 1 through a set of diversion holes 7, then flows into the lower end of the tubular sewage draining passage 40 from the upper chamber outlet 3 and flows out from the horizontal tilting outlet 47 on the upper right side and finally drains out through the lower chamber outlet 4 of the under part of the lower chamber 2. When the flushing begins, driven by the tilting force (larger than the resetting force) generated by a certain amount of water and sewage passing through the tubular sewage draining passage 40 and its horizontal tilting outlet 47, the tubular sewage draining passage 40 tilts around the screw axle 43 automatically until it is limited by limit plate 41, thereby the horizontal tilting outlet 47 is lowered and the low waterseal status for flushing is formed, as shown by the dot line in Fig. 16. Following the flushing, the tilting force becomes smaller than the resetting force again, and the horizontal tilting outlet 47 ascends to the high waterseal position as the tubular sewage draining passage 40 reset automatically.

Embodiment VI

[0018] As shown in Fig. 19, Fig. 20 and Fig. 21, the sewage draining passage disclosed in the present invention is a basin-shaped (namely, the variable waterseal is basin-shaped) variable water sealed toilet bowl. It includes a basin-shaped sewage draining passage 40 which has a axle 43 and can tilt around the axle is supported in the supporting hole of supporter 36 that is fastened by bolt 46 and integrated with hoop 10 on the outside groove of the upper chamber outlet 3 of the lower part of the upper chamber 1. The upper chamber outlet 3 extends into the lower part of the basin-shaped sewage draining passage 40, which extended toward the upper right quadrant to horizontal tilting outlet 47. On the left outside of the basin-shaped sewage draining passage 40 is counterweight 44, and the horizontal plate on the top of supporter 36 is limit plate 41 and the bending bump is limit bump 42. The under part of supporter 36 is fastened by screw 45. When it does not flush, the resetting force is formed by the combined action of counterweight 44, basin-shaped sewage draining passage 40 and the remaining water therein, which keeps the basin-shaped sewage draining passage 40 in the high waterseal position under the resetting status and limited by limit bump 42; while it is flushing, water in the water tank enters the loop diversion pipe 6 from flush pipe inlet connection 5 and spouts to the scouring wall of upper chamber 1 through a set of diversion holes 7, then flows into the lower end of the basin-shaped sewage draining passage 40 from the upper chamber outlet 3 and flows out from the horizontal tilting outlet 51 on the upper right side and finally drains out through the lower chamber outlet 4 at the bottom of the lower chamber 2. When the flush begins, driven by the tilting force (larger than the resetting force) generated by a certain

amount of water and sewage passing through the basin-shaped sewage draining passage 40 and its horizontal tilting outlet 47, the basin-shaped sewage draining passage 40 with axle 43 is tilted around the axes of axle 43 automatically until it is limited by limit plate 41, thereby the horizontal tilting outlet 47 is lowered with it, and the low waterseal status for flushing is formed, as indicated by the dot line in Fig. 19. Following the flushing, the tilting force becomes smaller than the resetting force again, and the horizontal tilting outlet 47 ascends to the high waterseal position as the basin-shaped sewage draining passage 40 reset automatically. The other parts are the same as the embodiment V, so here will not give unnecessary details.

Claims

1. A variable water sealed toilet bowl, comprising:

an upper chamber, a lower chamber, an upper chamber outlet and a lower chamber outlet; wherein a tiltable sewage draining passage is provided which is mounted on a supporting axle or supporting hole, wherein a lower end thereof surrounds the upper chamber outlet, and a higher end thereof capable of descending and resetting automatically leads to the lower chamber outlet, and a reset device for the tiltable sewage draining passage is also provided.

2. The variable water sealed toilet bowl according to claim 1, wherein the described tiltable sewage draining passage is tubular, namely, the configuration of the tiltable tubular sewage draining passage is: a flexible tubular sewage draining passage is mounted on the outside groove of the elbowed upper chamber outlet, the tiltable frame tilting around the axle is supported in the supporting hole on the hoop supporter fastened with bolt, and there is a reset device on one side of the tiltable frame, the other side thereof inclines to extend upwards to join the flexible tubular sewage draining passage that is extending with it simultaneously or join the tubular sewage draining passage connected to the flexible tubular sewage draining passage to form a horizontal, vertical or inclined tiltable outlet leading to the lower chamber outlet, and is tilted and reset with the tiltable frame synchronously; there is a narrow plate in the middle of the frame edge on one side of the tiltable frame, that bends downwards to form a bump, the narrow plate bending downwards and the bump form the limit plate and limit bump limiting tilt and reset.

3. The variable water sealed toilet bowl according to claim 1, wherein the described tiltable sewage draining passage is basin-shaped, namely, the var-

iable waterseal is basin-shaped variable waterseal, comprising: a basin-shaped sewage draining passage with a axle and capable of tilt around the axle, that is supported in the supporting hole on the hoop supporter fastened with bolt on the outside of the upper chamber outlet, and the upper chamber outlet extends into the lower end of the basin-shaped sewage draining passage, and the basin-shaped sewage draining passage inclines right upwards and extends to the horizontal tilting outlet, and there exists reset counterweight on the left outside of the basin-shaped sewage draining passage; the horizontal plate on the top of the supporter is the limit plate, a bending bump is the limit bump; the bottom of the supporter is fastened by screws.

4. The variable water sealed toilet bowl according to claim 1 or claim 2, wherein the described tiltable sewage draining passage is U-pipe sewage draining passage or - pipe sewage draining passage.
5. The variable water sealed toilet bowl according to claim 1 or claim 2 or claim 3, wherein a supporting axle or supporting hole is mounted on the outside of the upper chamber outlet or the lower chamber outlet in the lower chamber.
6. The variable water sealed toilet bowl according to claim 1 or claim 2 or claim 3, wherein the reset device is selected from the counterweight reset device, the compression spring reset device or the tension spring reset device or the combined reset device of compression spring and tension spring.
7. A basin-shaped variable water sealed toilet bowl according to claim 4, wherein the reset device is selected from the counterweight reset device, the compression spring reset device or the tension spring reset device or the combined reset device of compression spring and tension spring.
8. The variable water sealed toilet bowl according to claim 5, wherein the reset device is selected from the counterweight reset device, the compression spring reset device or the tension spring reset device or the combined reset device of compression spring and tension spring.

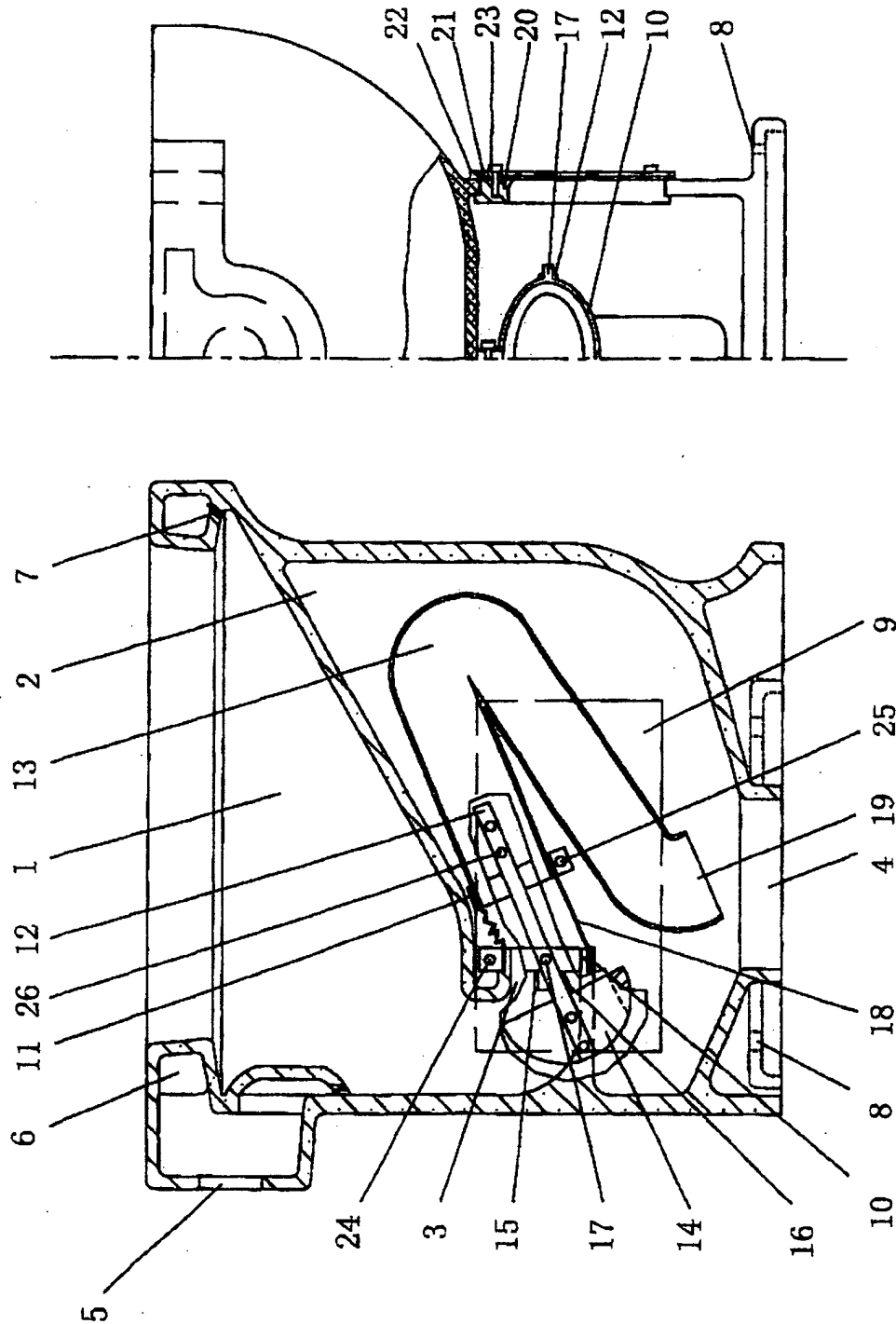


FIG. 2

FIG. 1

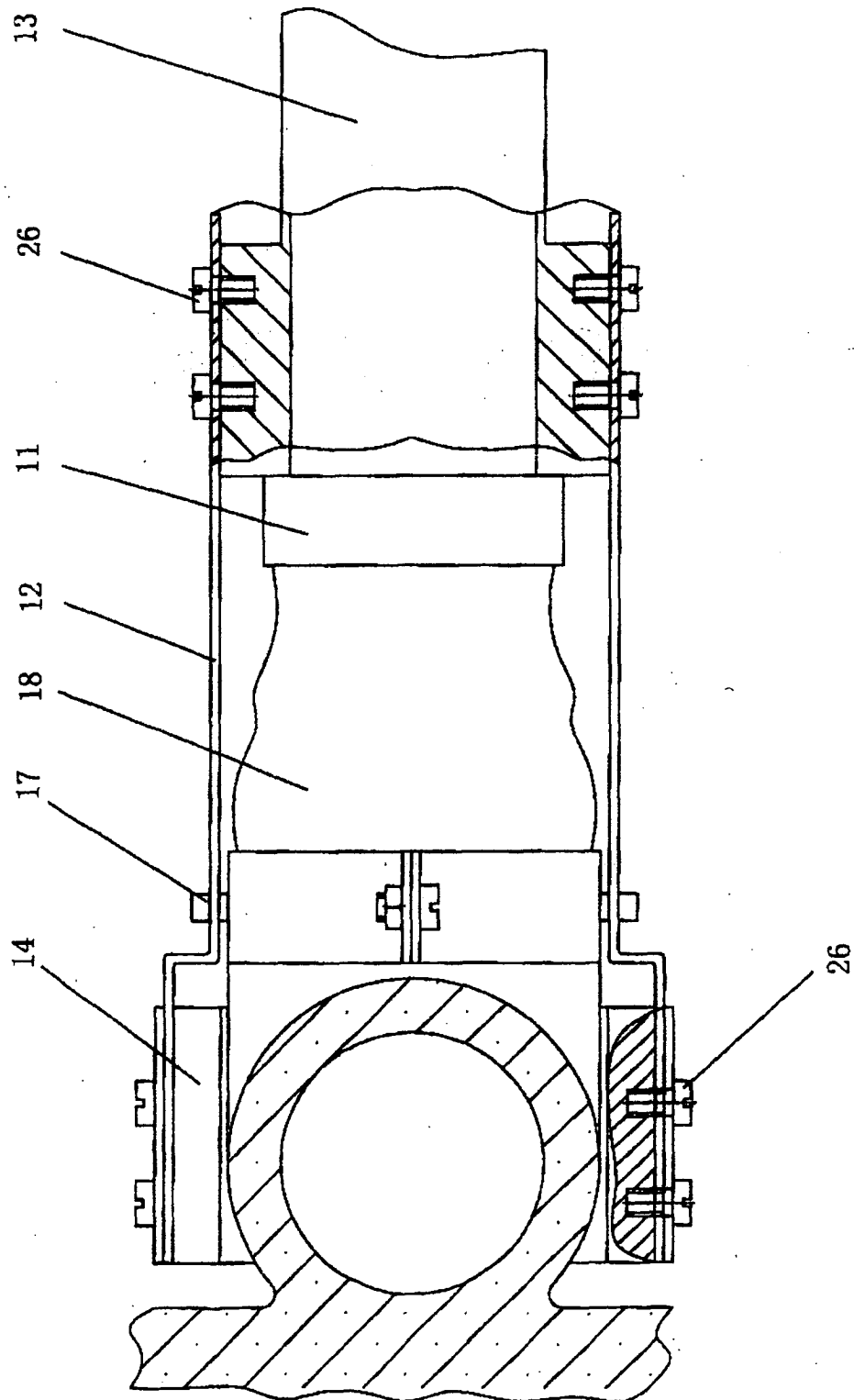


FIG. 3

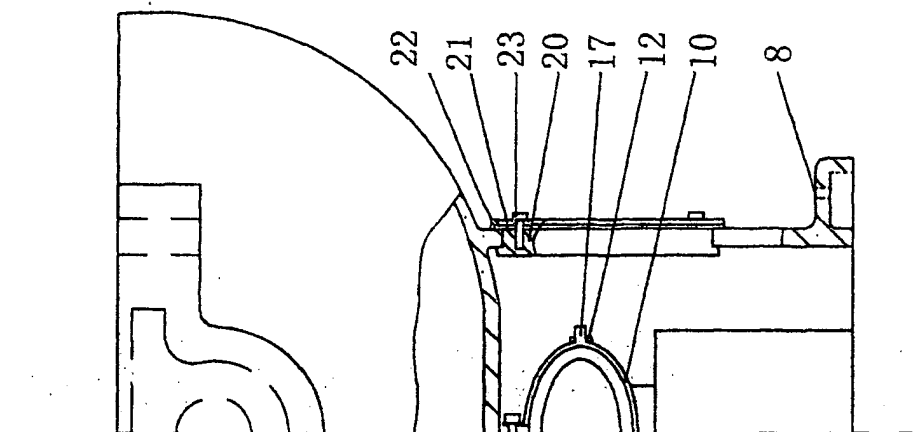


FIG. 5

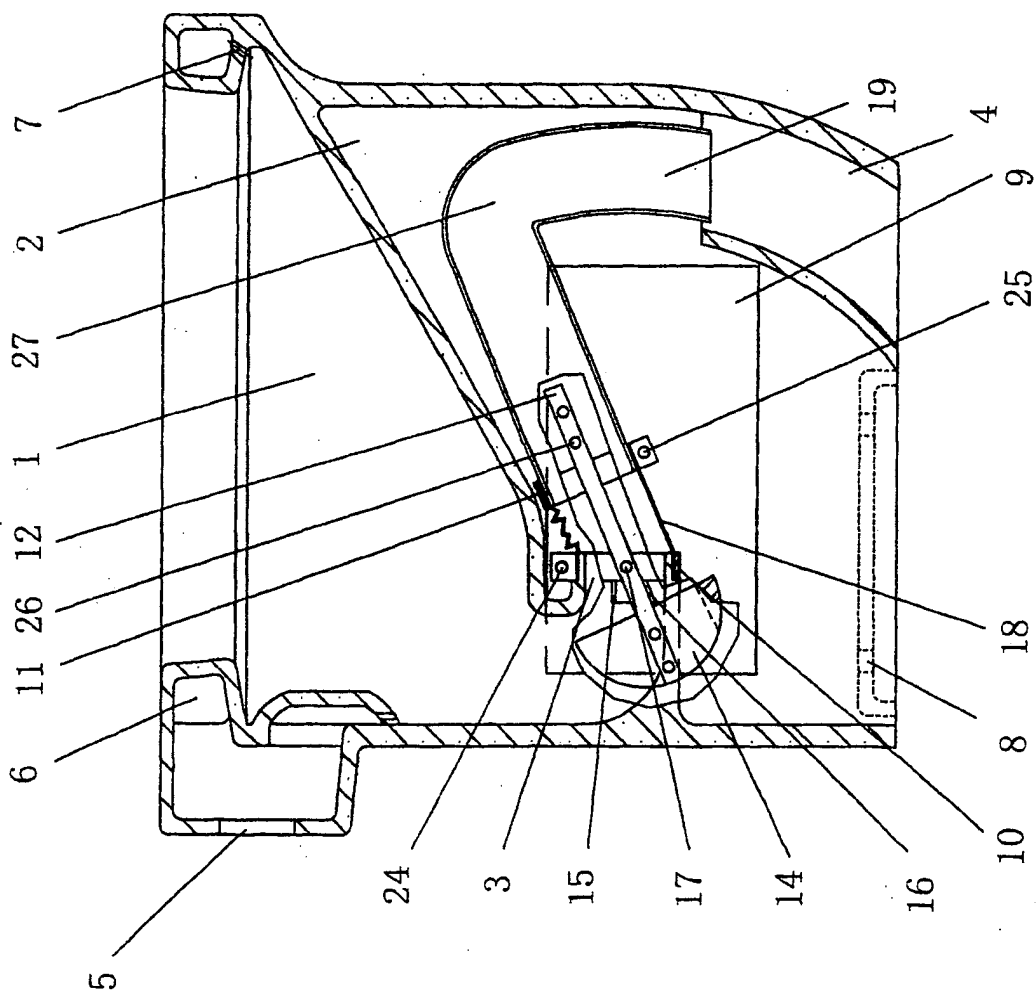


FIG. 4

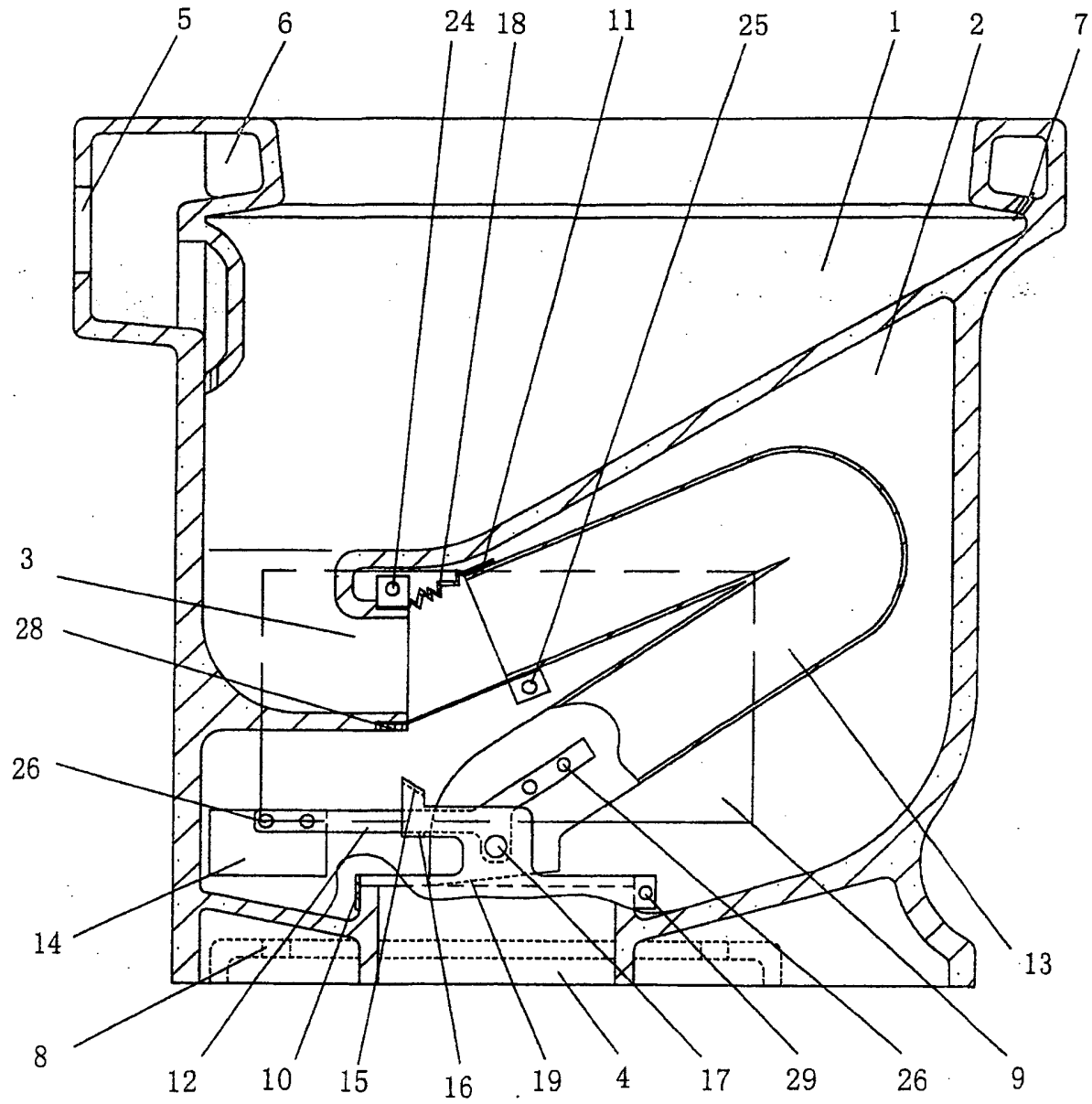


FIG. 6

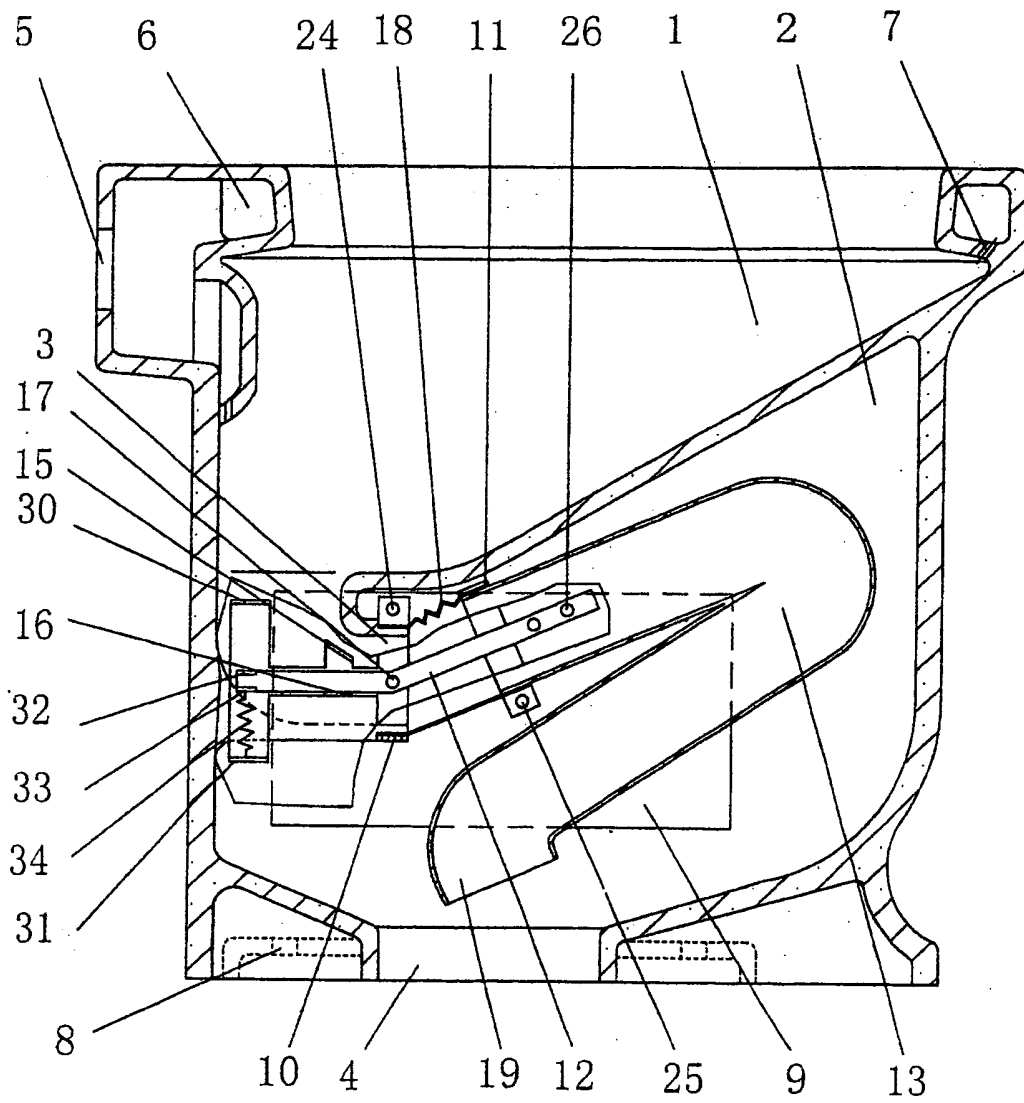


FIG. 7

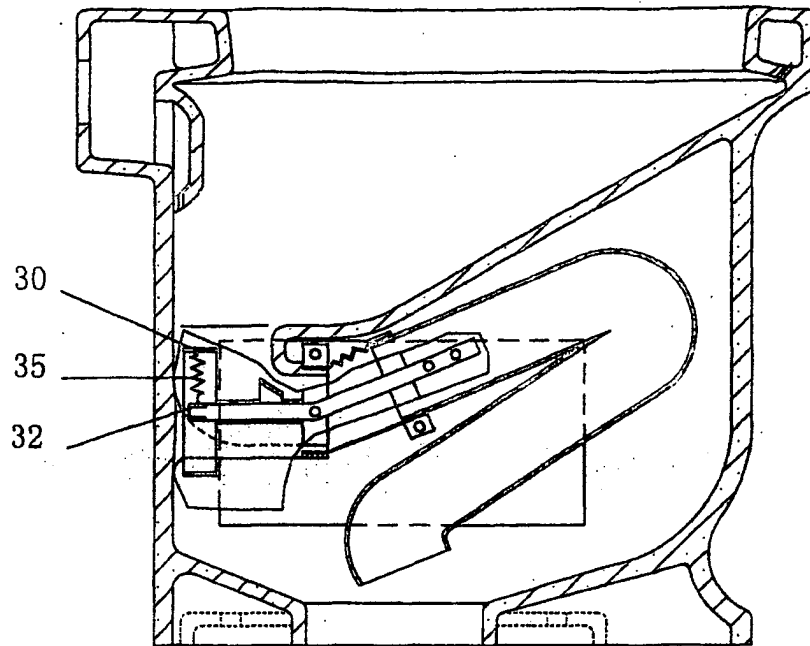


FIG. 8

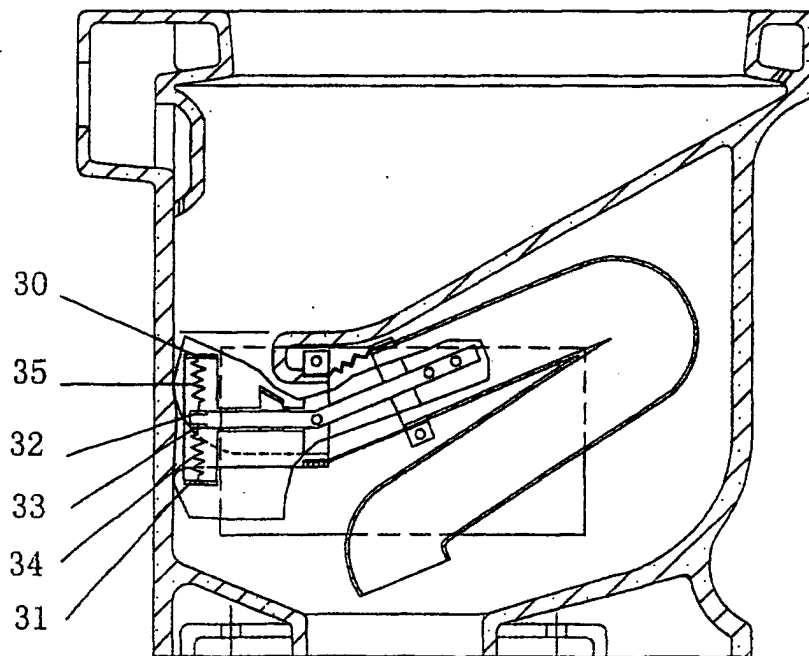
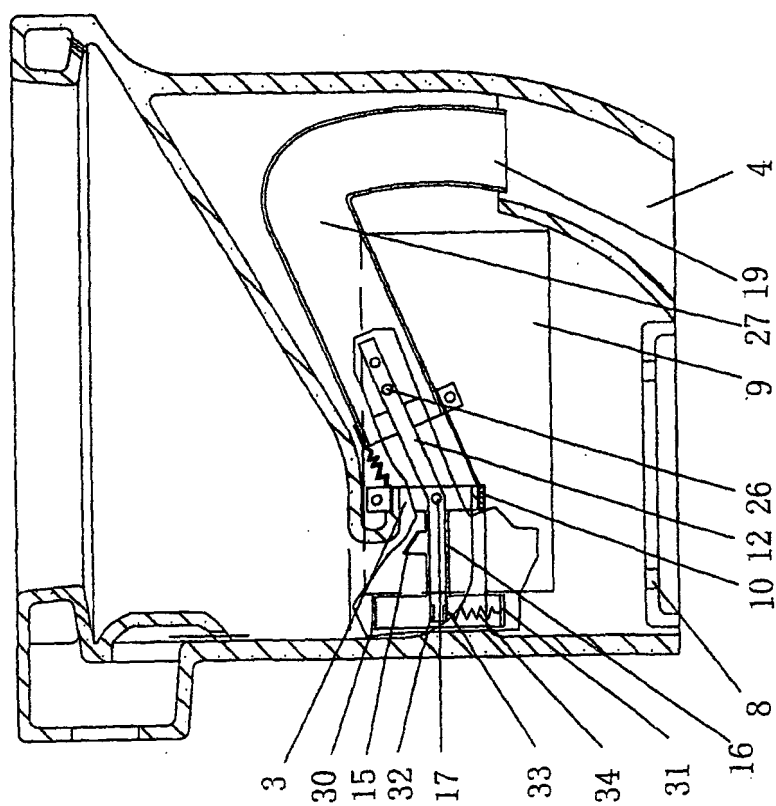
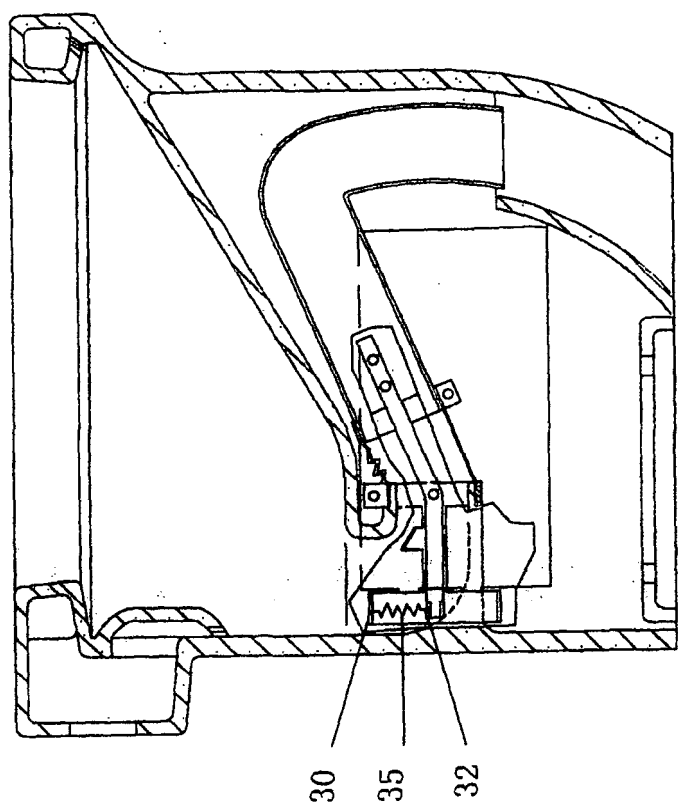


FIG. 9



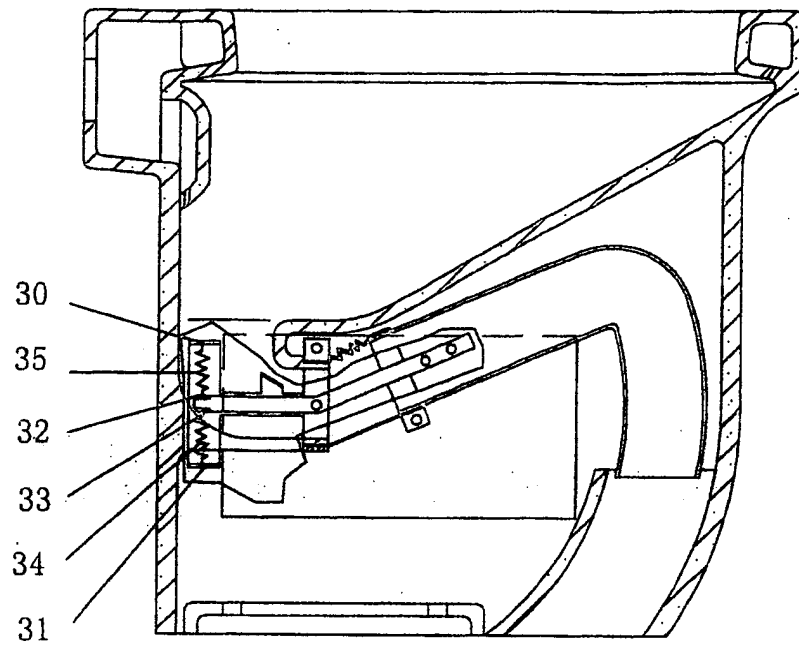


FIG. 12

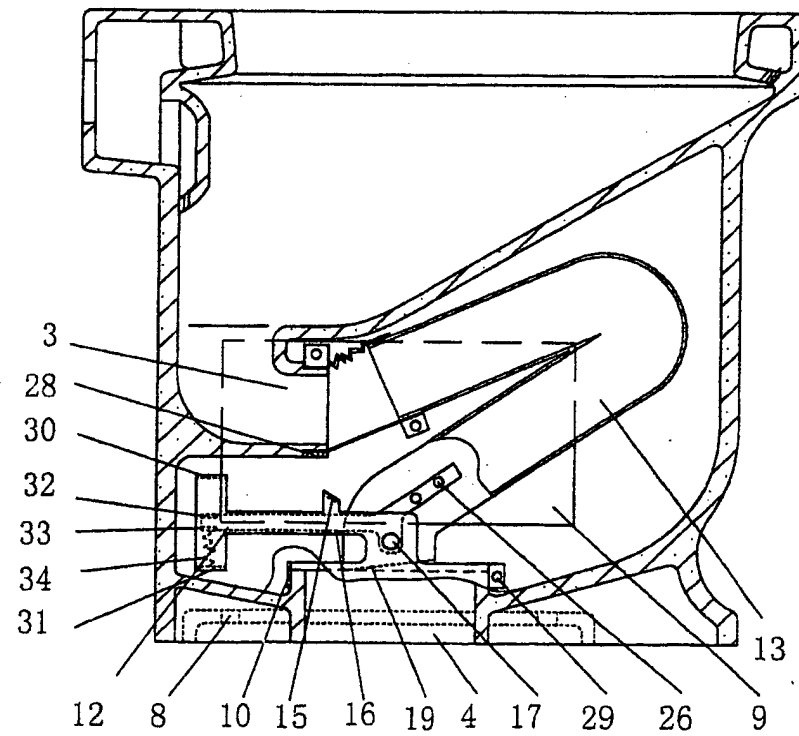


FIG. 13

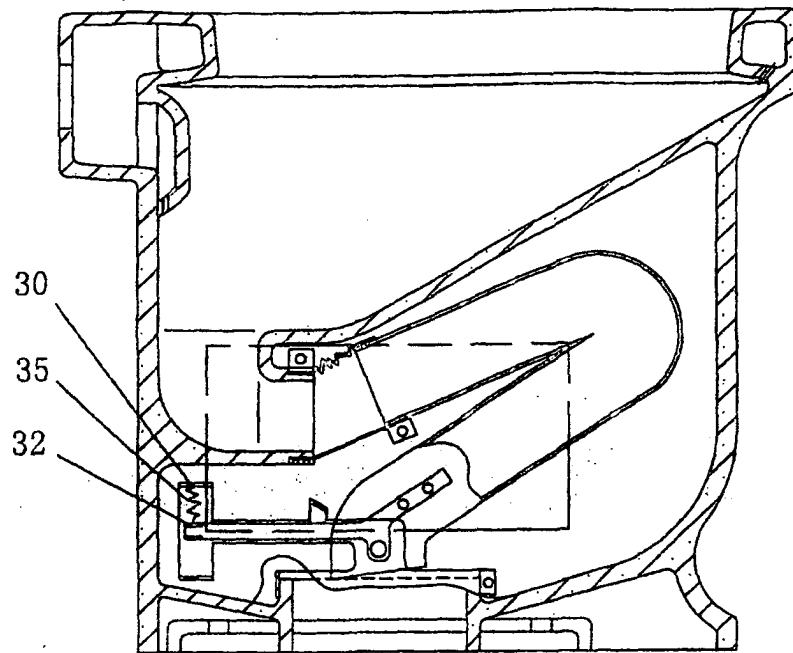


FIG. 14

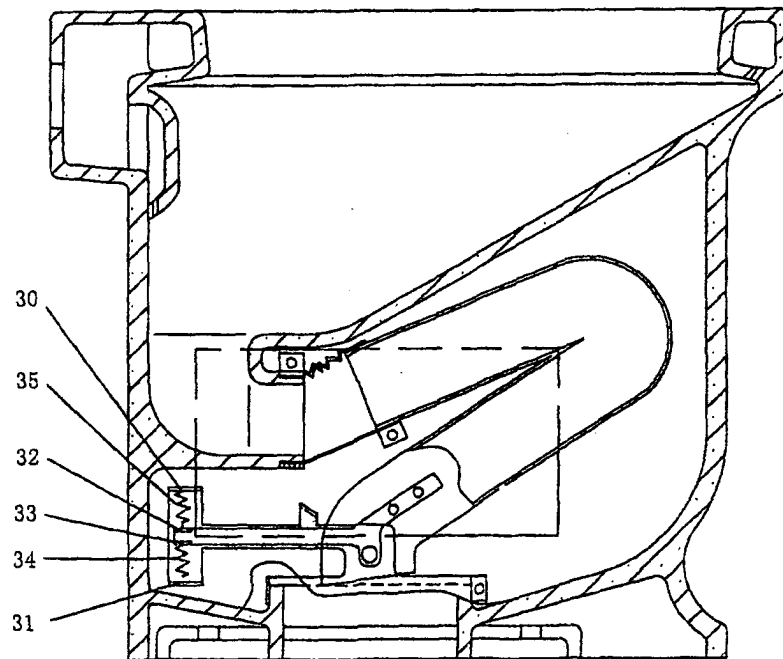


FIG. 15

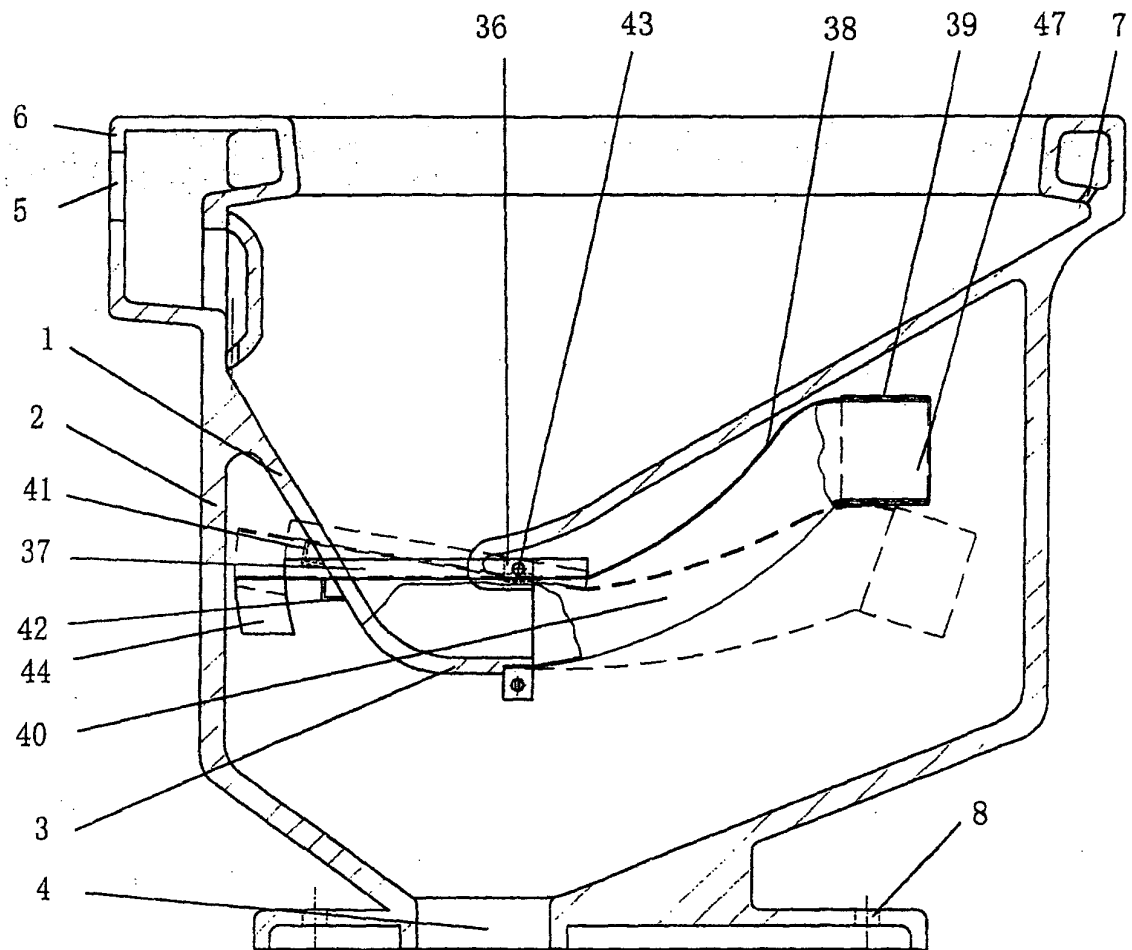


FIG. 16

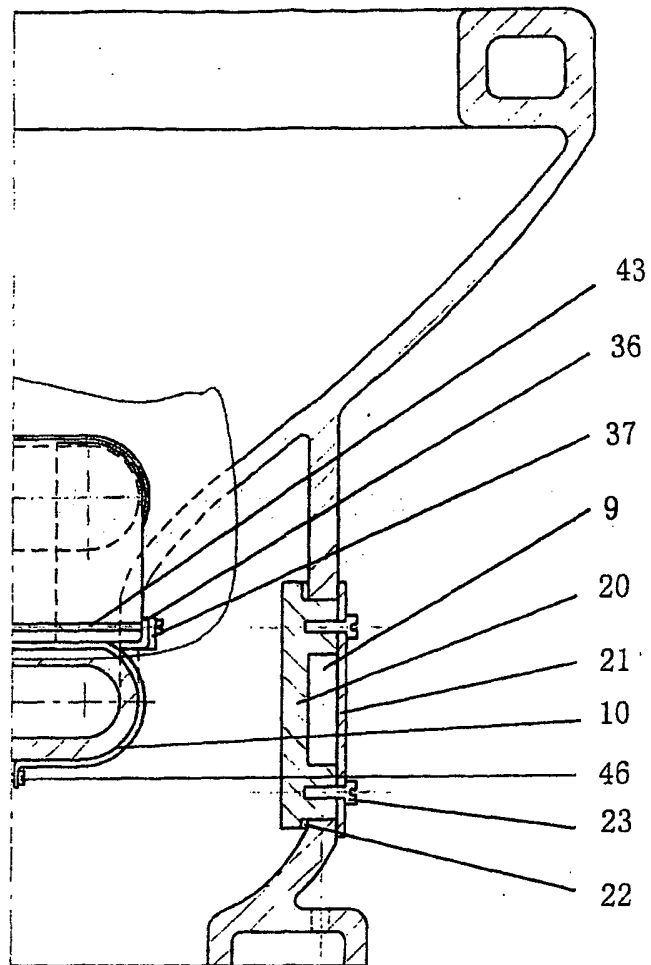


FIG. 17

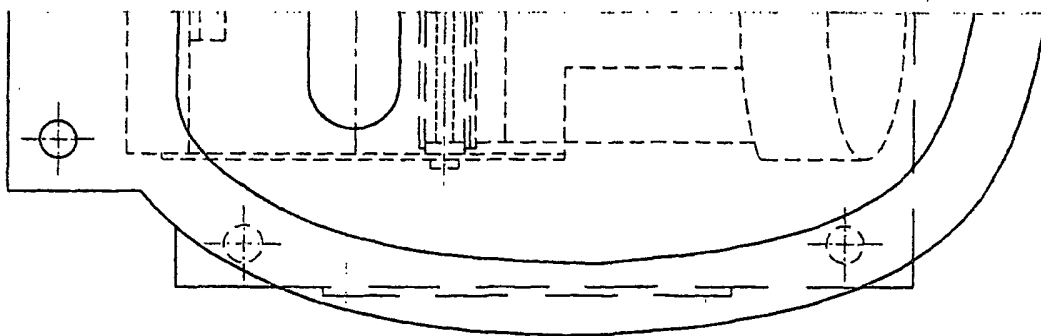


FIG. 18

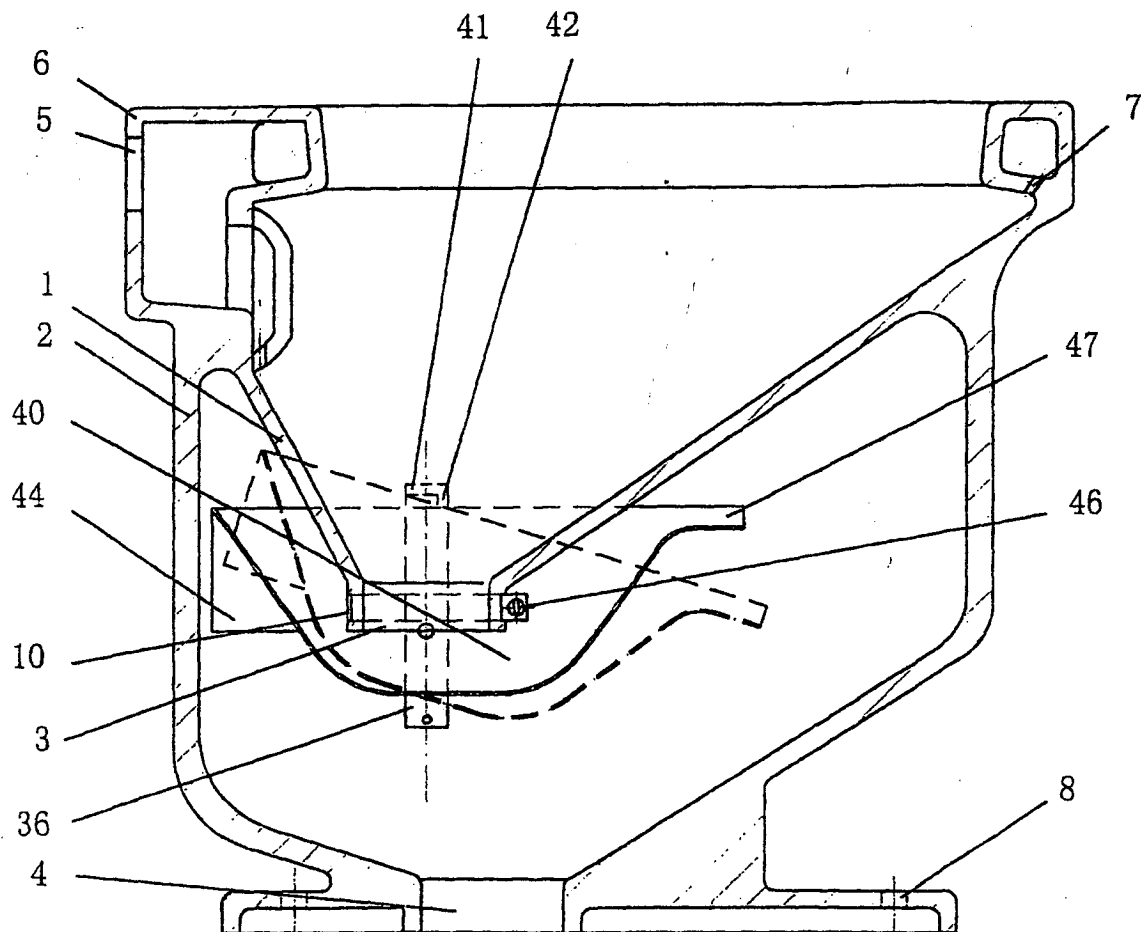


FIG. 19

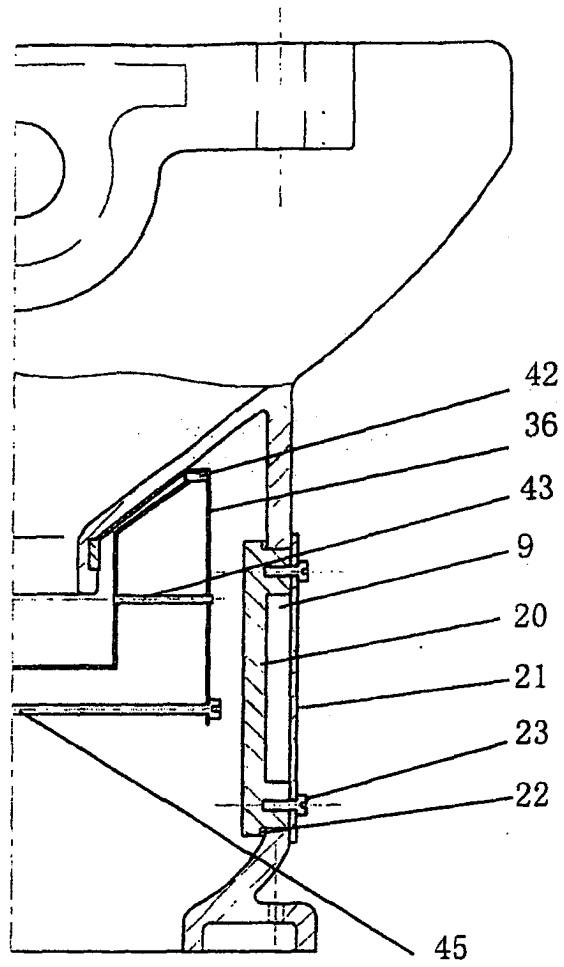


FIG. 20

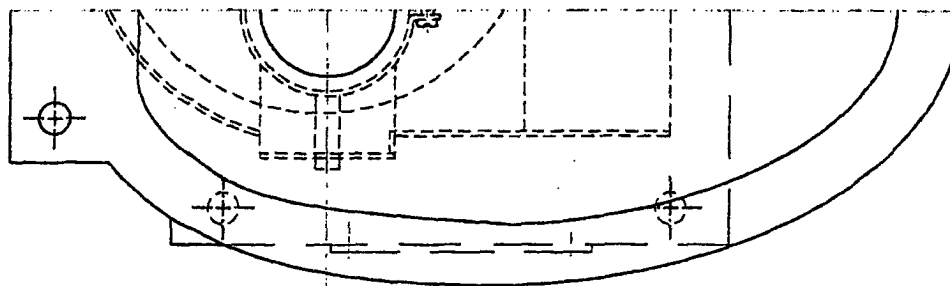


FIG. 21

INTERNATIONAL SEARCH REPORT

International application No.

PCT / CN2004 / 000099

A. CLASSIFICATION OF SUBJECT MATTER

E03D 11 / 10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

E03D11/10, 11 / 02, 11 / 00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPI, PAJ, CNPAT, tube, plastic, water w seal, hydraulic w seal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 2526372 Y The whole document	1-8
A	CN 2378451 Y The whole document	1-8
A	CN 2326646 Y The whole document	1-8
A	CN 249512 Y The whole document	1-8
A	JP 2002-322717 A The whole document	1-8
A	US 3835479 The whole document	1-8

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents: “A” document defining the general state of the art which is not considered to be of particular relevance “E” earlier application or patent but published on or after the international filing date “L” document which may throw doubts on priority claim (S) or which is cited to establish the publication date of another citation or other special reason (as specified) “O” document referring to an oral disclosure, use, exhibition or other means “P” document published prior to the international filing date but later than the priority date claimed		“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention “X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone “Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art “&” document member of the same patent family
Date of the actual completion of the international search 5 JUL.2004(5.07.2004)	Date of mailing of the international search report 22 . JUL 2004 (22 . 07 . 2004)	
Name and mailing address of the ISA/ 6 Xitucheng Rd., Jimen Bridge, Haidian District, 100088 Beijing, China Facsimile No. 86-10-62019451	Authorized officer HAN Bingbing Telephone No. 86-10-62085022	

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INTERNATIONAL SEARCH REPORT
Information on patent family membersInternational application No.
PCT / CN2004 / 000099

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		CA1006652	1977-03-15

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