

UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

Published:

- *with international search report (Art. 21(3))*
- *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*

A DRAIN PIPE COMPRISING A PLURALITY OF OUTLET VENTS

FIELD OF INVENTION

5

[001] The present disclosure relates to a field of piping systems. More particularly, the present disclosure relates to an apparatus such as a drain pipe comprising multiple outlet vents to separate water received at an opening.

10

BACKGROUND

[002] It is known that drain connectors/pipes are used to drain water from kitchen sinks, wash basins, bathroom floors, sewage tanks and so on. Typically, the drain connectors include a coupler which is used to connect the water source and an exit pipe. As known, the drain connectors collect water from the surface and pass it to its exit path. Additionally, the drain connectors can be used for trapping water for preventing smell and insects coming in.

[003] Further, it is known that the drain connectors come in various shapes and styles having multiple openings to collect water and draining water through a single outlet. It should be noted that the above designs has several disadvantages. For example, if the user wishes to drain the water received through several outlets to different tanks which can be used for different purposes, then the designs discussed above cannot be used. This problem is prevalent in households and other accommodations where the water received from sinks, be it free from detergent or contaminated, the water is drained out through one outlet. If the water is free from detergent, then the water can be used for irrigation. Else, the water can be further processed for treatment.

[004] Currently, the process to treat contaminated water is very complex and requires lot of investment on machinery and manpower. Further, there is no apparatus disclosed in the art that can allow draining the water using multiple outlets which helps in separating water received at inlet port and direct the water to an outlet among the multiple outlets to drain the water.

[005] Therefore, there is a need for an apparatus comprising multiple outlets to separate the water received at an inlet.

SUMMARY

- 5 [006] The following summary is illustrative only and is not intended to be in any way limiting. In addition to the illustrative aspects, example embodiments, and features described above, further aspects, example embodiments, and features will become apparent by reference to the drawings and the following detailed description.
- 10 [007] One or more of the problems/limitations of the conventional prior art may be overcome by various embodiments of the present invention.

OBJECT

- 15 [008] It is the primary object of the present invention to provide an apparatus such as a drain pipe comprising multiple outlets.

[009] It is one object of the present invention to provide an apparatus comprising multiple outlet vents used to discharge liquid collected using a single collector/inlet vent (drain pits).
20 The flow of liquid to one of the multiple outlet vents is facilitated by a valve member. A user manually adjusts the valve member to drain the liquid through one of the multiple outlet vents.

[0010] It is one object of the present invention to provide an apparatus facilitating separating liquid received at a single inlet and discharging that liquid through an outlet among a plurality
25 of outlets is disclosed. The apparatus comprises a housing having a plurality of outlet vents. The apparatus comprises a valve member comprising at least one cut section. The apparatus comprises a pit grill coupled to the valve member, characterized in that the pit grill is rotated resulting in rotation of the valve member such that the cut section is made to come in alignment
30 of one of the outlet vents of the housing, such that liquid received at the pit grill is made to flow out through one of the outlet vents of the housing.

BRIEF DESCRIPTION OF THE FIGURES

[0011] These and other features, aspects, and advantages of the example embodiments will become better understood when the following detailed description is read with reference to the accompanying drawings in which like characters represent like parts throughout the drawings.

[0012] FIG. 1A illustrates a schematic diagram of an apparatus comprising multiple outlet vents, in accordance with one embodiment of the present disclosure;

[0013] FIG. 1B illustrates a schematic diagram showing a top view of the valve member, in accordance with one embodiment of the present disclosure;

[0014] FIG. 1C illustrates a schematic diagram showing a top view of a valve member, in accordance with another embodiment of the present disclosure;

[0015] FIG. 2A illustrates a schematic diagram of an apparatus in conical shape comprising multiple outlet vents, in accordance with one embodiment of the present disclosure;

[0016] FIG. 2B illustrates a schematic diagram of the valve member, in accordance with one embodiment of the above disclosure;

[0017] FIG. 2C illustrates a schematic diagram of the above valve member, in accordance with another embodiment of the present disclosure;

[0018] FIG. 3A illustrates a schematic diagram of an apparatus comprising multiple chambered apparatus with separate outlet vents, in accordance with one embodiment of the present disclosure;

[0019] FIG. 3B illustrates a schematic diagram of a support member, in accordance with one embodiment of the present disclosure;

[0020] FIG. 3C illustrates a schematic diagram of a semi pores grill, work in accordance with one embodiment of the present disclosure;

[0021] FIG. 4A illustrates a schematic diagram of a housing comprising multiple outlet vents, having a semi found shield trap that work in accordance with one embodiment of the present disclosure;

5 [0022] FIG. 4B illustrates a schematic diagram of a bent structure, that work in accordance with one embodiment of the present disclosure;

[0023] FIG. 5A, 5B and 5C illustrate a schematic diagrams of a pit grills and its supporting plates, that work in accordance with one embodiment of the present disclosure;

10

[0024] FIG. 6A illustrates a schematic diagram of a housing comprising multiple outlet vents on same side, that work in accordance with one embodiment of the present disclosure;

15 [0025] FIG. 6B illustrates a schematic diagram of a valve member, in accordance with one embodiment of the present disclosure;

[0026] FIG. 6C illustrates a schematic diagram of a support member, in accordance with one embodiment of the present disclosure;

20 [0027] FIG. 6D illustrates a schematic diagram of a pit grill, in accordance with one embodiment of the present disclosure;

[0028] FIG. 7A and 7B illustrate a schematic diagram of pivoted valve and its pit grill, that work in accordance with another embodiment of the present disclosure;

25

[0029] FIG. 8A, 8B and 8C, illustrate a schematic diagram of an oscillating pivot lever trap, in accordance with another embodiment of the present disclosure; and

30 [0030] FIG. 9A and 9B, illustrate an apparatus adapting double layered slanting lid trap mechanism, in accordance with another embodiment of the present disclosure.

[0031] Further, skilled artisans will appreciate that elements in the figures are illustrated for simplicity and may not have necessarily been drawn to scale. Furthermore, in terms of the construction of the device, one or more components of the device may have been represented

in the figures by conventional symbols, and the figures may show only those specific details that are pertinent to understanding the embodiments of the present invention so as not to obscure the figures with details that will be readily apparent to those of ordinary skill in the art having the benefit of the description herein.

5

DETAILED DESCRIPTION

[0032] For the purpose of promoting an understanding of the principles of the invention, reference will now be made to the embodiments illustrated in the figures and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated system, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

15

[0033] It will be understood by those skilled in the art that the foregoing general description and the following detailed description are exemplary and explanatory of the invention and are not intended to be restrictive thereof.

20

[0034] The present disclosure discloses an apparatus facilitating separating liquid received at a single inlet and discharging the liquid through an outlet among a plurality of outlets. The apparatus comprises a housing having a plurality of outlet vents. The apparatus comprises a valve member comprising at least one cut section. The apparatus comprises a pit grill coupled to the valve member, characterized in that the pit grill is rotated resulting in rotation of the valve member such that the cut section is made to come in alignment of one of the outlet vents of the housing, such that liquid received at the pit grill is made to flow out through one of the outlet vents of the housing.

25

[0035] Various embodiments of the apparatus are explained using the FIGS1A-9B.

30

[0036] Now referring to FIG. 1A, a schematic diagram of an apparatus 10 comprising multiple outlet vents is shown, in accordance with one embodiment of the present disclosure. The apparatus 10 comprises a housing 20. The housing 20 may indicate a pipe that is used to receive

and discharge liquid through the openings provided at the end. In the current embodiment, the housing 20 is provided in a cylindrical shape or a drum shape. The housing 20 comprises a water trap space 21 provided at the bottom. The water trap space 21 is provided so that the liquid such as water remains at a level 22 shown in the FIG. 1A.

5

[0037] The housing 20 comprises a plurality of outlet vents 23A, 23B, 23C, and 23D and so on provided in a horizontal plane. The plurality of outlet vents 23A, 23B, 23C, and 23D may be provided above the level 22 in the housing 20 such that liquid remains below the plurality of outlet vents 23A, 23B, 23C, and 23D at all times. In one example, the plurality of outlet vents 23A, 23B, 23C, and 23D are spaced at equal distance. In another example, the plurality of outlet vents 23A, 23B, 23C and 23D are spaced at varied distance. Although it is shown that there are four outlet vents provided in the housing 20, it should be understood that two or more outlet vents may be provided in the housing to direct liquid in one of the outlet vents.

10 **[0038]** In one example, the housing 20 is provided with a supplementary inlet provision 24 above the plurality of outlet vents 23A, 23B, 23C, and 23D. The supplementary inlet provision 24 is provided to allow flow of water from additional inlet.

[0039] Further, the apparatus 10 comprises a valve member 30. The valve member 30 is provided inside of the housing 20. In one example, the valve member 30 is provided in a cylindrical shape. It should be understood that outer diameter of the valve member 30 is in friction-free contact with the inner surface of the housing 20. Further, the height of the valve member 30 is same as the height of housing 20. As such, when the valve member 30 is placed inside the housing 20, the bottom of the valve member 30 comes in contact with the water trap space 21 of the housing 20. The valve member 30 comprises a cut section 31 on its surface. The cut section 31 at the valve member 30 is provided such that the cut section 31 can come in the alignment/axis/horizontal plane of the plurality of outlet vents 23A, 23B, 23C, and 23D. In one example, the valve member 30 is provided with openings 32 permit the trapped liquid to the cut section 34 at the bottom, as shown in the FIG. 1A.

25
30

[0040] The apparatus 10 comprises a support member 40 which is used to couple the housing 20 to a floor when the apparatus 10 is used in washrooms or kitchen sink. Further, the apparatus 10 comprises a pit grill 50 which is used to receive liquid on its surface. The liquid received at

the pit grill 50 is the main/inlet source of liquid for the apparatus 10. The pit grill 50 is coupled to the valve member 30 inside the housing 20.

5 [0041] The pit grill 50 comprises a plurality of holes 51 to receive the liquid. Further, the pit grill 50 comprises a plurality of grips 55 used to rotate the pit grill 50. As specified above, the pit grill 50 is coupled to the valve member 30. As such, rotating the pit grill 50 rotates the valve member 30.

10 [0042] In operation, water is received at the pit grill 50. Further, the water flows through the inside of the valve member 30. In order to direct the liquid to flow through any one outlet vent e.g., outlet vent 23B, the pit grill 50 is rotated using the grips 55. The pit grill 50 is rotated until the cut portion 31 of the valve member 30 comes in alignment of the outlet vent 23B thereby forming an opening through the cut portion 31 and the outlet vent 23B for the liquid to flow out of the valve member 30 and then the housing 20. Similarly, if a user wants to drain the
15 liquid through the outlet vent 23D, then the user may rotate the pit grill 50 to position the cut portion 31 of the valve member 30 in alignment with the outlet vent 23D.

[0043] Referring to FIG. 1B, a schematic diagram showing a top view of the valve member 30 is shown, in accordance with one exemplary embodiment of the present disclosure. The valve
20 member 30 comprises the cut section 31 which forms an open space 34. When liquid flows from a center 35 of the valve member 30, the liquid is made to go out of the valve member 30 through the space 34 created due to the cut section 31. It should be understood that the liquid will not pass to other outlet vents where the valve member 30 and the housing drums 20 touch, except at the space 34 made out of the valve member 30.

25 [0044] Referring to FIG. 1C, a schematic diagram showing a top view of a valve member 130 is shown, in accordance with one exemplary embodiment of the present disclosure. The valve member 130 comprises a plurality of bended valves 132 coupled using shafts 133. The shafts 133 are supported by a rod 134. The blended valves 132 are separated and positioned in such
30 a way that the blended valves 132 cover the outlet vents except for one vent. For instance, if there are four outlet vents provided on the housing 20, then three bended valves 132 provided at the valve member 130, thereby creating an opening 135. Further, the valve member 130 comprises a knob 136 to rotate the valve members 130. The knob 136 will be provided at the pit grill center 52 (50, shown in FIG. 1) so that the user may operate the knob 136 to position

the opening 135 of the valve member 130 to align with one of the outlet vent e.g., outlet vent 23B of the housing 20.

5 [0045] In one example, markings may be provided on the pit grill 50 to show the position of the space 34 (and opening 135). In addition, markings (say, A,B,C,D) may be provided on the support member 40 to show the position of the outlet vents 23A, 23B, 23C and 23D so that the user may align the space 34 (and opening 135) with respect to any of the outlet vents 23A, 23B, 23C and 23D.

10 [0046] As there are multiple outlet vents 23A, 23B, 23C and 23D, the user can use the grips 55 or the knob 136 to position the space with respect to any one outlet vent and close other outlet vents.

15 [0047] Referring to FIG. 2A, a schematic diagram of an apparatus 200 comprising multiple outlet vents is shown, in accordance with another embodiment of the present disclosure. The apparatus 200 comprises a housing 220. The housing 220 indicate a pipe that is used to receive and discharge liquid through the openings provided. In the current embodiment, the housing 220 is provided in a conical shape. The housing 220 comprises a tip 215 provided at the bottom for holding the valve member 230 in steady position. The housing 220 comprises a plurality of
20 outlet vents 223A and 223B as shown in FIG. 2. The apparatus 200 further comprises a mouth 230 for placing the valve member 230 or 260 inside the housing 220.

[0048] Referring to FIG. 2B, a schematic diagram of the valve member 230 is shown. The valve member 230 comprises a cut section 231 on its surface. The cut section 231 at the valve
25 member 230 is provided such that the cut section 231 comes in the alignment/axis/horizontal plane of the plurality of outlet 223A and 223B. In one example, the valve member 230 is provided with a valve tip 232 provided at the bottom. The valve tip 232 helps in keeping the valve member 230 inside of the housing 220 when the liquid is received in the valve member 230.

30 [0049] In one embodiment, the valve member 230 is provided with a pit grill 250 at the top. The pit grill 250 is coupled to a grip 255. As explained above, the grip 255 is used to rotate the pit grill 250 which in turn is used to rotate the valve member 230. The valve member 230 is

rotated until the cut section 231 comes in the alignment/axis/horizontal plane of the outlet vent 223A or 223B.

5 [0050] Referring to FIG. 2C, a schematic diagram of the valve member 260 is shown, in accordance with another embodiment of the present disclosure. The valve member 260 comprises a cut section 261 on its surface. The cut section 261 at the valve member 260 is provided such that the cut section 261 comes in the alignment/axis/horizontal plane of the plurality of outlet vents 223A and 223B. In one example, the valve member 230 is provided with a valve tip 262 provided at the bottom. The cut section 261 is provided such that the cut
10 section 261 extends from the valve tip 262 to a point above the plurality of outlet 223A and 223B. The cut section 261 is extended such that the liquid flowing inside the valve member 260 will rise above the cut section 261 and flows out through one of the outlet vents 223A or 223B.

15 [0051] In one embodiment, the valve member 260 is provided with a pit grill 270 at the top. The pit grill 270 is coupled to a grip 275. As explained above, the grip 275 is used to rotate the pit grill 270 which in turns the valve member 260. The valve member 260 is rotated until the cut section 261 comes in the alignment/axis/horizontal plane of the outlet vent 223A or 223B.

20 [0052] Referring to FIG. 3A, a schematic diagram of an apparatus 300 comprising multiple outlet vents is shown, in accordance with another embodiment of the present disclosure. The apparatus 300 comprises a housing 310. The housing 310 may be provided in a cylindrical shape. The housing 310 comprises a partition wall 311 to separate the housing 310 into a first chamber 312A and a second chamber 312B. The housing 310 further comprises a plurality of
25 outlet vents 320A and 320B.

[0053] Further, the housing 310 is coupled to a support member 340 and a pit grill 350. As can be seen in FIG. 3B, the support member 340 comprises a groove 341 to hold the pit grill 350. Further, the support member 340 comprises markings such as 34R and 34W to indicate
30 position of the outlet vents 320A and 320B respectively.

[0054] Now, referring to FIG. 3C, the pit grill 350 comprises a plurality of holes 351. In one example, the plurality of holes 351 may be provided on a portion of the pit grill 350, say only on one half side 352. Remaining portion 353 is covered. As such, liquid is made to flow
35 through the pit grill 350 and into the housing 310 using the half side 352. Further, the pit grill

350 is provided with grips 355 to rotate the pit grill 350. In one example, the pit grill 350 is provided with a marking 35M on the half side 352 to indicate the position of the marking 34R or 34W on the support member 340 and the outlet vents 320A and 320B.

5 [0055] In one implementation, the liquid entering into the housing is trapped such that dirt particles can be separated before being discharged through the outlet vents. Referring to FIG. 4A, the housing 310 (shown in FIG. 3) comprising a bent structure 460 at the outlet vents 320A and 320B is shown. The bent structure 460 extends from the outlet vent e.g., 320A till the bottom surface of the housing 310. The bent structure 460 may comprises a plurality of
10 openings 461 at the end to trap the unwanted particles (foul air and insects).

[0056] Referring to Fig. 4B, an alternate embodiment of a bent structure/pipe 470 is shown. The bent structure 470 is provided in a 90 degree fashion. The bent structure 470 comprises a hollow structure where a first end 471 is coupled to the outlet vent e.g., 320A and a second end
15 472 is extended till the bottom of the housing 310. In one example, the second end 472 comprises a plurality of openings 473 to trap the particles. It should be understood that the second end 472 is immersed such that the clogged water is made a water trap to pass through the plurality of openings 473.

20 [0057] Referring to FIG. 5A, an alternate embodiment of a pit grill 550 is shown. The pit grill 550 is coupled to a semi covering plate 552 on top with a shaft 553. Further, the semi covering plate 552 comprises a grip/knob 555 provided on its top to hold and rotate the semi covering plate 552. In operation, the user can rotate the semi covering plate 552 in order to keep the not-covered area particularly to the desired chamber 312A or 312B.

25 [0058] Further, referring to FIG. 5B, which is a top view of an exemplary embodiment of the pit grill 570 shown in FIG. 5A. As can be seen, the pit grill 570 comprises a plurality of holes 561 to receive the liquid. The pit grill 570 which can be fixed to the support member (not shown, similar to support member 40 shown in FIG. 1A) having a central part 562 which is
30 used to fix a semi round slanting plate 571 with a shaft 573. Further, the user may rotate the knob 555 provided in markings. It should be understood that the markings may be provided on the support member and such implementation is within the scope of the present disclosure.

[0059] Now, referring the FIG. 5C, which is the side view of the exemplary embodiment of a pit grill 570 is shown. In the current embodiment, the pit grill 570 comprises a slating plate

571 below the pit grill 570. Further, the slating plate 571 comprises a cut section 572 at one end. Furthermore, the pit grill 570 is coupled to the slating plate 571 using a shaft 573. In use, when the user rotates the grip 555, the slanting plate 571 provided underneath the pit grill 570 gets rotated. As such, when the liquid is falling through the hole 561, the liquid flow down
5 through the cut section 572 and fall down only to the required chamber underneath. In other words, the slanting plate 571 prevents liquid from falling in to the undesired chamber at the same time trans-locates to the other side chamber. As such, flow of the liquid can be controlled in the desired path.

10 **[0060]** Referring the FIG. 6A, an exemplary embodiment of a housing 620 is shown. As can be seen the housing 620 comprises a hollow structure 621. Further, the housing 620 comprises a plurality outlet vents 622A, and 622B. Further, the housing 620 receives a valve member 630 through the hollow structure 621. In the current exemplary embodiment, the shape of the valve member 630 is different from the valve member 30 shown in FIG. 1A.

15

[0061] The valve member 630 comprises a projected surface 631. Further, the valve member 630 comprises an inward area 632 which acts as the permissible position that allows outward flow of water. Further, the valve member 630 comprises two projections 633 at top and 634 at bottom which help the valve member 630 remain steady at center and keep one
20 outlet path (622A or 622B) closed with the projected surface 631. In addition, the valve member 630 comprises a groove 639 formed to the structure of the projected surface 631. In one example, the valve member 630 at bottom 663 may comprise a plurality of openings 664 which are made to submerge in water and permits outward flow and works as water-trap.

25 **[0062]** Now referring to FIG. 6C, a support member 640 is shown. The support member 640 comprises a groove 645. Further, the support member 640 comprises markings such as 64R and 64W to indicate position of the outlet vents 622A and 622B respectively.

[0063] In accordance with the current embodiment, a pit grill 650 comprising a plurality of
30 holes 651 is shown in FIG. 6D. Further, the pit grill 650 comprises a cylindrical body 652 extending downward. Further, the pit grill 650 is provided with grips 655 to rotate the pit grill 650. Furthermore, the pit grill 650 comprises a projection 659 as shown in FIG. 6D. The projection 659 is coupled to the groove 639 on the valve member 630.

[0064] In operation, the pit grill 650 is rotated to rotate the valve member 630. Since the projected surface 631 is smaller, the inward area 632 acts as the permissible position, that allows outward flow of water. The openings 664 kept submerged in water, permit that outward flow and work as water-trap. The two projections 633 at top and 634 at bottom helps the valve member 630 remain steady at center and keep one exit path (622A or 622B) keep closed with the projected surface 631. Additional stoppers may be provided to prevent extra / unwanted rotation beyond the required move other than desired 45 degree.

[0065] Referring to FIG. 7A and 7B, a pit housing 710 is shown, in accordance with an exemplary embodiment of the present disclosure. In the present embodiment, the pit housing 710 is provided in a V-shape. In other words, the pit housing 710 is provided at an angle ranging from 120 to 170 degrees. As such, the pit housing 710 comprises two opposing flat surfaces 75A and 75B. Although the shape of the pit housing 710 is shape to be in V-shape, it should be understood that the shape may include A-shape. Each of the flat surfaces 75A and 75B comprises one exit openings 73A and 73B, respectively. Further, the exit openings 73A and 73B lead to outlet vents 72A and 72B, respectively. The outlet vents 72A and 72B can be either parallel downwards or in straight line to the opposing sides.

[0066] The pit housing 710 comprises a support member 740 and a covering grill 750. There is an oscillating by-flapped V-shutters 74A and 74B having pivoted point 76 at its bottom joint and a rod 71 in between which is long enough to come out through the covering grill 750. The covering grill 750 comprises a long central cut 751 through which the rod 71 is supposed to come out always. Further, a ball-knob 70 is fixed to the rod 71 at its tip after putting the covering grill 750 back on position. When the rod 751 slants to side-R / 74R, the V-shutter of that side 74A gets in touch with that V-flat surface (75A). As a result, liquid cannot flow through the outlet vent 72A. That is, whole water coming to pit housing 710 will flow only through exit path outlet vent 72B which should be leading to recycling pit. On the other way, if the ball knob 70 is at side-W/ 74W, then the V-shutter of that side 74B will touch the side flat surface 75B and closes the opening 73B. As a result, all the water will flow only through outlet vent 72A which leads to total waste water pit.

[0067] If more water reaches suddenly and fills the pit housing 710, there is a chance of getting the V-shutters float and fail to close one hole perfectly. To avoid such situation and hold the rod 71 steady at that side, small friction grips 759 are provided at both sides of the

central cut 751. Once the rod 71 passes that grip on one side, it cannot come back without human manipulation. In this way, the bypassing of used water can be executed easily. Further, an additional grip / catch may be provided to keep the pivot point 76 steady at the bottom of the pit housing 710.

5

[0068] The protrusion of the knob shall be lesser at sides of the grill but it will be high at center part of the grill cut 751. At center the rod 71 will be exposed over the grill 750. Because of the bi-flapped valve design described above, tilting distance of the pivot rod 71 is reduced. If it is single shutter, where the lid 74 is on the rod 71 itself; the angular movement it should perform must be very high and the protuberance of the rod 71 will be very high at center part and shall be disturbing.

[0069] Referring to FIG. 8A, 8B and 8C, an oscillating pivot lever trap is explained, in accordance with one embodiment of the present disclosure. In the present embodiment, a housing 810 is provided in square shape and outlets vents 82A and 82B are provided at same side. The housing 810 is coupled to an inner water trapping vessel 830. The inner water trapping vessel 830 may be provided in a cylindrical or in a square shaped structure. The housing 810 is coupled to a pit grill 850 to receive liquid/water. When water reaches inside through the pit grill 850 to the central hole 811 and pass to sides through the cut holes / gaps provided at bottom of the trapping vessel 830. Further, the housing 810 is provided with a knob 80 at top side at the top side of the pivot 81 having broader flaps at bottom side 82. The pivot is on the shaft 83 and the washer thickness 84 which provide more strength and gap from trapping vessel body.

25

[0070] The housing 810 comprises a half way down groove 85 on outer portion, up to the right level for permitting the sliding down of the pivot shaft 83 together with the trapping vessel 830. Once the pivot shaft 83 reaches to this middle (its permitted bottom) position, then the pivot shaft 83 will get stability and the pivot shaft 83 will only permit the required oscillations. The trapping vessel 830 is kept steady by providing more stability runners 812.

30

[0071] The housing 810 further comprises a support member 840. The support member 840 comprises a long cut 841 for permitting the oscillation of the pivot 81. Markings R/Green color (84R) and W/Red color (84W) may be provided at either ends of the cut 841 for indicating

recyclable and total waste tracks respectively. When the knob 80 is pushed to R/Green side, the bottom flap 82 of the pivot 83 will close the hole 82B. As a result, water is made to flow only through a hole 82A which leads to recycle tank. If the knob 80 is pushed to W/Red side, the bottom flap 82 will move to hole 82A and open the path 82B which leads the water only to total waste pit.

[0072] Referring to FIG. 9A and 9B, an apparatus 900 adapting double layered slanting lid trap mechanism is explained. FIG. 9A illustrates a vertical cross section and FIG. 9B is a perspective view without having housing and trap parts for detailing the double layered slanting lid trap mechanism. The apparatus 900 comprises a tiltable lid 930. The tiltable lid 930 comprises a top layer 951 and a bottom layer 952 which is inter connected at sides making a duct 95 inside. The bottom layer 952 is larger than the top layer 951. Specifically, the bottom layer 952 is larger than the top layer 951 at opening sides 96A and 96B.

[0073] When a tilt-able lid 930 comes parallel to the support member 940, the top layer grill 951 comes parallel to the support member 940 and closes the entire sides and work as a perfect lid preventing water exit. The tilt-able lid 930 tilts to either side across the shaft 93, which is provided above to a pit partition 911.

[0074] When the user push down the tiltable lid 930 at side 94C, the tiltable lid 930 will slant to chamber 91A and the prolonged part 96B of the bottom lid 952 will touch the bottom side 94B of the support member 940 and the opening 95A of duct 95 will get exposed above the floor surface. In order to allow the water to flow from 94D side to the chamber 91A, the tilt-able lid 930 is slanted from 95A to 95B. At the same time the water at 94C side will fall to gap 955 and further to the chamber 91A. Similarly, the tiltable lid 930 may slant in opposite side direct the water to 91B. When the tiltable lid 930 slants in other side, the prolonged part 96A of the bottom lid 952 gets in touch with the part 94A and prevents any spill to the 91A. As a result, water will only go to the chamber 91B. That is the outlet vents 92A or 92B get used water according to the slanting of lid toward its same side. The support member 940 may be provide with markings to indicate the correct track with colour code such as green and red or R/ W marking for representing recyclable and total waste paths respectively.

[0075] Water will be collected always in the bottom of the pit up to the level of exit pipe 912. The trap covers 97A and 97B having holes 961 at bottom side which will come under the

water holding level 912 making the outlet vents 92A and 92B not directly exposed to bathroom floor. In this way, the current mechanism works as a water trap too. The covers 97 can be as simple as (460 or 470) explained in figure (4A and 4B).

5 [0076] The current mechanism may be implemented as a single layer lid. In such mechanism, to prevent water flow to undesired chamber, that side's lid is not opened / slanted up. That is, only one half of the lid over the required pit should go down by pressing. In other words, the lid is divided and only one part is made to work at a time. Since there is no counterpart to lift the downward lid up, a spring load mechanism may be provided to get it
10 closed in next push or the other side push.

[0077] Extra inlet pipes provision can be done to both chambers. When implemented, the water coming to that chamber will only go to that side exit vent. If we can ensure the additional water source will not have soapy content, (suppose the exit from bath tub), we can directly
15 connect to this Green / Recycle side. Otherwise, if there is chance for both re-usable and contaminated, (eg. Form wash basins) we have to lay double line piping from those secondary sources to each of these chambers and have to do the required adjustments at the time of use.

[0078] The apparatus explained above can be used for kitchen or bathroom sinks. Further,
20 the apparatus may be used for septic tanks or drainage systems. The grips may be operated using hands or legs depending on the position of the grip on the pit grill.

[0079] Examples are provided to illustrate the present disclosure to drain water using two
outlet vents for washing machines.

25 [0080] Currently, washing machines come with mono track for drain and spin outflows. In order to save water for irrigational or recyclable needs, the existing washing machines may be fitted with the apparatus with multiple outlets explained above. As such, one track (outlet vent) can be permanently connected to fully waste pit and the other track (outlet vent) permanently
30 to reusable tank. User can manually choose the track opening from washing machine itself or it can be done according to the program in fully automatic machines.

[0081] Presently some single pit single exit water-traps available have adaptation to connect
35 the washing machine's exit pipe externally. That is it will allow draining of the soapy water without spreading over the toilet floor. By implementing the present disclosure, each chamber

in the same trap-pit should have one each external connectors for the same tidy need explained above. The track could be make identified with R/Green and W/Red markings as well representing recyclable and total waste paths respectively.

5 **[0082]** Another example includes providing double outlet water closet. As known, lavatory flushing is one of the largest water consuming areas in every household and other accommodation. A lavatory closet having this bypassing feature shall be a more value item since there is no practice of fixing a separate urinal basin in the same toilet now a days. This bifurcation can be executed by various means. One is an add-on valve piece to fix in between
10 closet vent and connecting pipe in horizontal way. The same can be done in vertical way too and can be fixed far away from closet. Another model is a new two-way-ready closet itself where the users have option to control/block the solid waste (total waste) channel by the built in valve or bush which can be operated by liver (peddle or hand operating) or cable or rod (by push or pull) or electro / mechanical way. If this bypassing is executed with power / motor
15 controlled, a single unit down on the common track is only required, where parallel control-switch connections to each toilet have to be done for each toilet's operation. Right now there are two switches/knobs available for flushing. One is for limited quantity water use while the other one drain completes water from the flush tank. As a part of this invention, we suggest a third stitch for flushing which can simultaneously operate the flow track as well as the flush
20 opening. If so, the users only need to operate only one switch for urine flushing to gain the water saving work. All these operations should be executed with universal color code schemes - R/Green and W/Red marking or color principle. (Figures not included). Saving water for good needs with the help of these innovative products shall be very easy and practical. However, to execute these, user need to fix some storage tanks at lower level than all these water sources.
25 However it shall be good if they are plastic tanks with lids, one each for each type of water source and it is placed on open ground. Lid will help to prevent mosquito growth and spreading foul smell that may come from kitchen and WC effluents. Use of separate tanks will help users to irrigate the specific water to specific areas. For example, they can avoid loan irrigation with WC effluents or they can only use amino-rich water after cutting fish from kitchen, only for
30 irrigating trees and so. It shall be good join all tanks form bottom with separate control valves and a motor to pump when needed. It shall be good fixing an irrigation line system to all places around house including terrace. Moreover, it is good to have a total waste pit nearby or pipe connected so that the user can drain all the stored water without pumping. All with these ideas we intent to help people to get more irrigative water even in the peek summers at their

households, for growing more organic vegetable, garden and other greenery around it. Likewise, it also intends to help industries to treat waste water most effectively and efficiently with least effort and cost. We have illustrated only few different styles of traps working with this principle, even-though, much more varieties we have gone through in the development process.

[0083] While specific language has been used to describe the disclosure, any limitations arising on account of the same are not intended. As would be apparent to a person skilled in the art, various working modifications may be made to the method in order to implement the inventive concept as taught herein.

[0084] The figures and the foregoing description give examples of embodiments. Those skilled in the art will appreciate that one or more of the described elements may well be combined into a single functional element. Alternatively, certain elements may be split into multiple functional elements. Elements from one embodiment may be added to another embodiment. For example, orders of processes described herein may be changed and are not limited to the manner described herein. Moreover, the actions of any flow diagram need not be implemented in the order shown; nor do all of the acts necessarily need to be performed. Also, those acts that are not dependent on other acts may be performed in parallel with the other acts. The scope of embodiments is by no means limited by these specific examples. Numerous variations, whether explicitly given in the specification or not, such as differences in structure, dimension, and use of material, are possible.

WE CLAIM:

1. An apparatus (10), comprising:
5 a housing (20) comprising a plurality of outlet vents (23A, 23B, 23C, 23D);
a valve member (30) comprising at least one cut section (31); and
a pit grill (50) coupled to the valve member (30);
characterized in that:
the pit grill (50) is rotated resulting in rotation of the valve member (30) such that the
10 cut section (31) is made to come in alignment of one of the outlet vents (23A, 23B, 23C, 23D)
of the housing (20), such that water received at the pit grill (50) is made to flow out through
one of the outlet vents (23A, 23B, 23C, 23D) of the housing (20).
2. The apparatus (10) as claimed in claim 1, wherein the pit grill (50) comprises a support
15 member (40) provided between the pit grill (50) and the housing (20).
3. The apparatus (10) as claimed in claim 1, wherein the pit grill (50) comprises grips (55)
used to rotate the pit grill (50).
- 20 4. The apparatus (10) as claimed in claim 1, wherein the valve member (30) is provided
in a cylindrical shape.
5. The apparatus 220 as claimed in claims 1& 4, wherein the valve member 230 is
provided in a conical shape.
- 25 6. The apparatus (300) as claimed in claim 1, wherein the housing (310) comprises a
partition wall (311).
7. The apparatus (300) as claimed in claims 1 & 6, wherein the pit grill 350 comprises a
30 plurality of holes (351) only on one half circle 352.
8. The apparatus (300) as claimed in claims 1,6 & 7, wherein the exit holes 320A and
320B comprises a bend structures (460, 470) as traps.

9. The apparatus (300) as claimed in claim 8, wherein the bend structures (460, 470) comprises a plurality of cut sections (461, 473) at bottom end and a pipe hole (471) at top end, and wherein the pipe hole (471) is aligned with the outlet vents (320A and 320B) of the housing (310).

5

10. The apparatus (300) as claimed in claim 6, wherein the pit grill (550) is coupled to a semi covering plate (552) top to it, to cover its one half side to prevent the water entering to the undesired chamber (312A or 312B) of the housing (310).

10

11. The apparatus (300) as claimed in claim 6, wherein the pit grill (570) is coupled to a slanting semi covering plate (571) under to it, to direct all the water falling through the grill holes only of the desired chamber(312A or 312B) of the housing (310).

15

12. The apparatus (620) as claimed in claim 1, wherein the valve member (630) comprises a small of projected surfaces (631) which could cover only one exit vent at a time and thus allow liquid flow through all other depressed area 632.

20

13. The apparatus (710) as claimed in claim 1, wherein apparatus (710) and the valve member (74) are provided in V-shape.

14. The apparatus (700) as claimed in claims 1&13, wherein the trap housing (710) comprises a knob (70) to control the position of the conical valves (74).

25

15. The apparatus (810) as claimed of claims above, wherein the pit grill (50) comprises a knob (80) passing through its long cut (841), wherein this knob (80) on top of a flat pivot (82) having shaft (83) at centre part, and wherein the knob (80) is operated to open the openings (82A or 82B) one at a time to its outlet vents.

30

16. An apparatus (900), comprising:

a housing (910) comprising a plurality of outlet vents (92A, 92B);

a partition wall (911) provided in the housing(910) to partition the housing (910) into a first chamber (91A) and a second chamber (91B); and

a tiltable double layered single unit lid (930) having a duct 95 inside, tiltably coupled to the partition wall (911);

when in operation - when push one side down, the other side comes up to the floor surface and go vice versa on other side push

characterized in that:

5 the tiltable lid (930) when remain in parallel with floor surface, close both the ducts perfectly and thus prevent flow entirely ; and when in slating position, allow to flow all the liquid around the hole only into the lower side chamber, either over the top layer (951) from lowered side or (and) through the duct hole (95) from raised side.

10 17. An apparatus as of claim 16 having single layered lid remain parallel to floor surface, but parted and hinged across the axis 93,

When in use only one side go down when pushed allowing the flow of liquid only to that side chamber, characterized that:

15 The lids are spring loaded and come to parallel / closed position on next push or other side push where the other side also work the same way for serving the purpose of the apparatus.

18. The apparatus as claimed in claims 1 & 12, wherein the new valve control switch on semi-automatic washing machine, open and close two separate exit paths one at a time, enabled bypass of waste water to the desired output track.

20 19. The apparatus as claimed in claims 1, 12 & 18, wherein the new byway valve controlled by programs in fully automatic washing machine controlled water exit flow as desired.

25 20. The apparatus as claimed in claims 1 to 16, wherein the new valve embodiment enabled flush water flow to desired track in lavatory closets.

21. The apparatus as claimed in claims 1 & 20, wherein the new valve controls enabled standardised with universal colour code or marking as Green/R for recyclable and Red/W for total waste track identification.

30

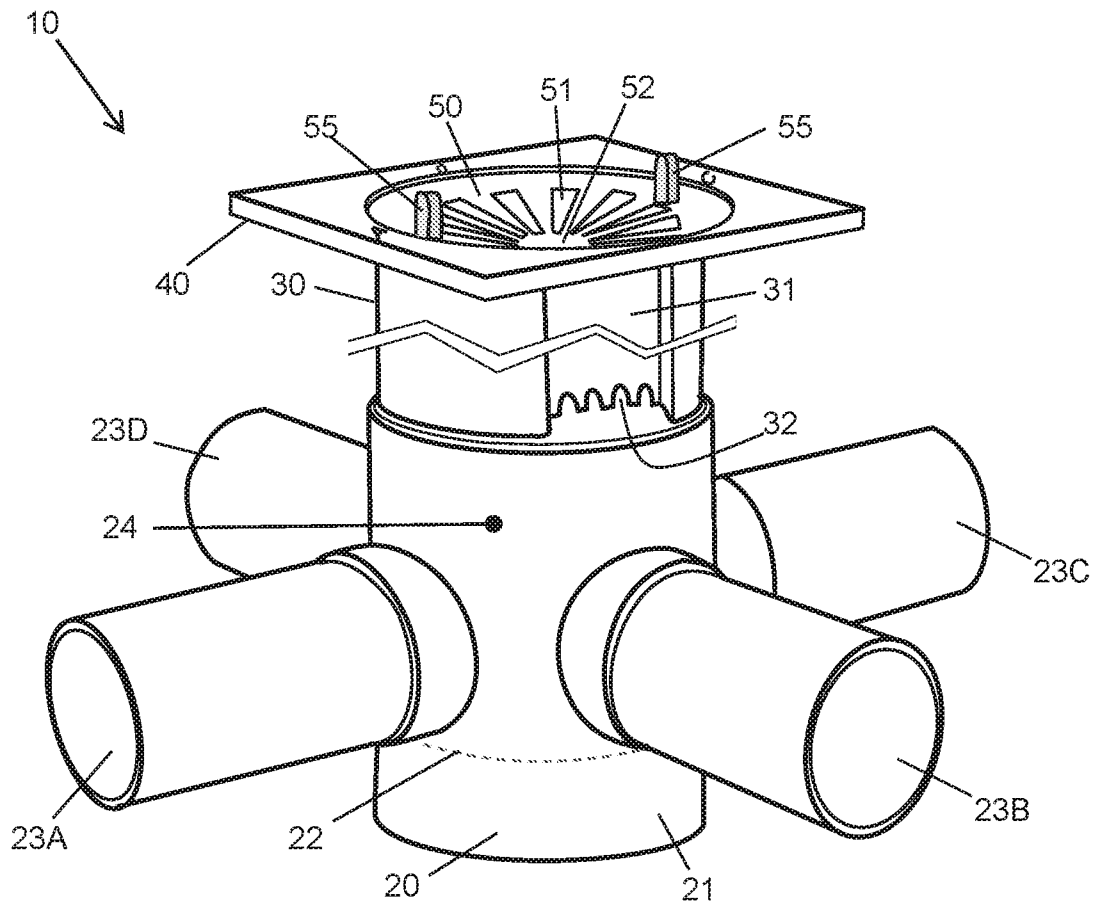


FIG. 1A

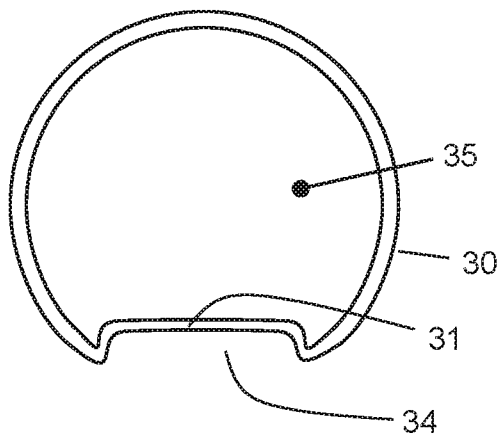


FIG. 1B

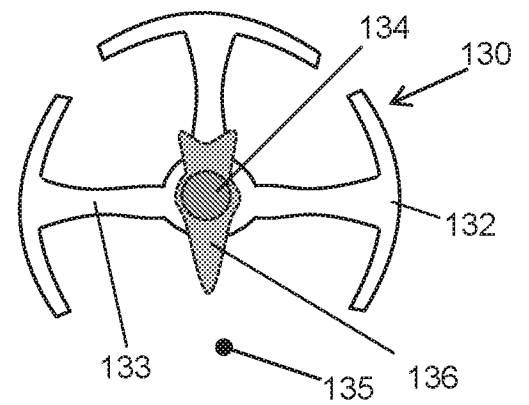
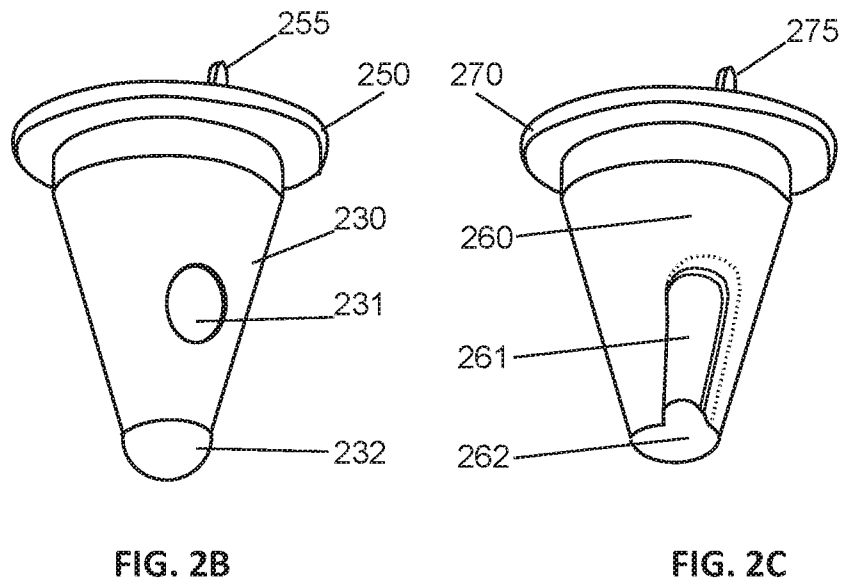
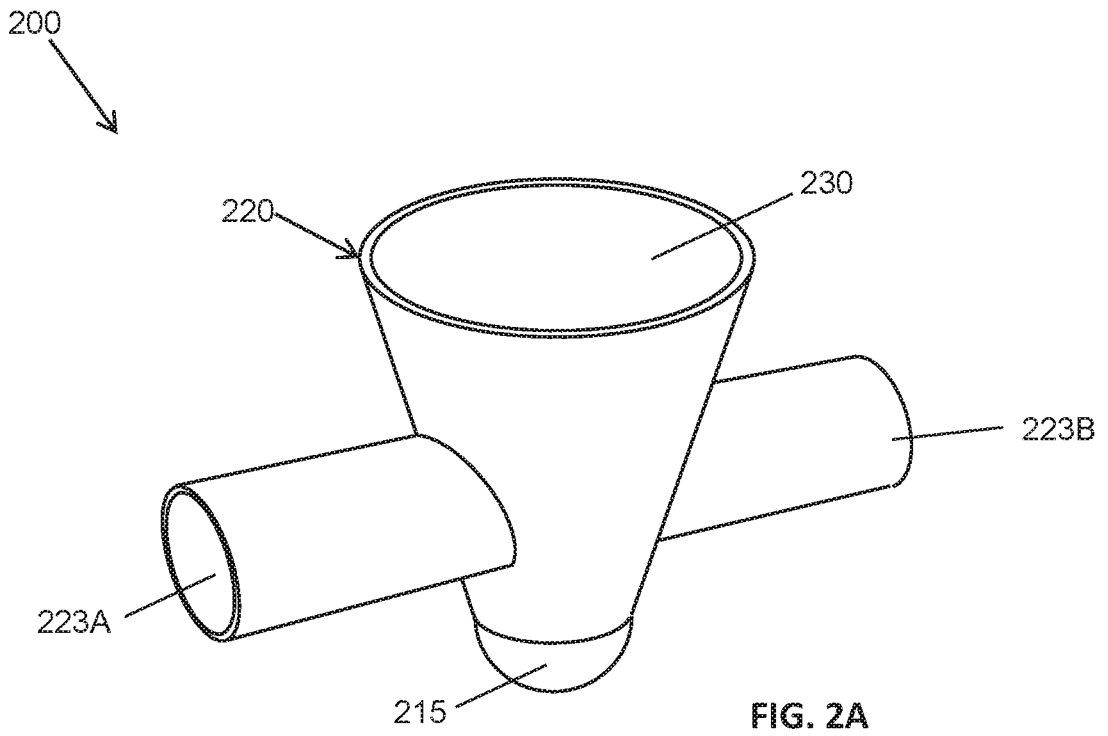


FIG. 1C



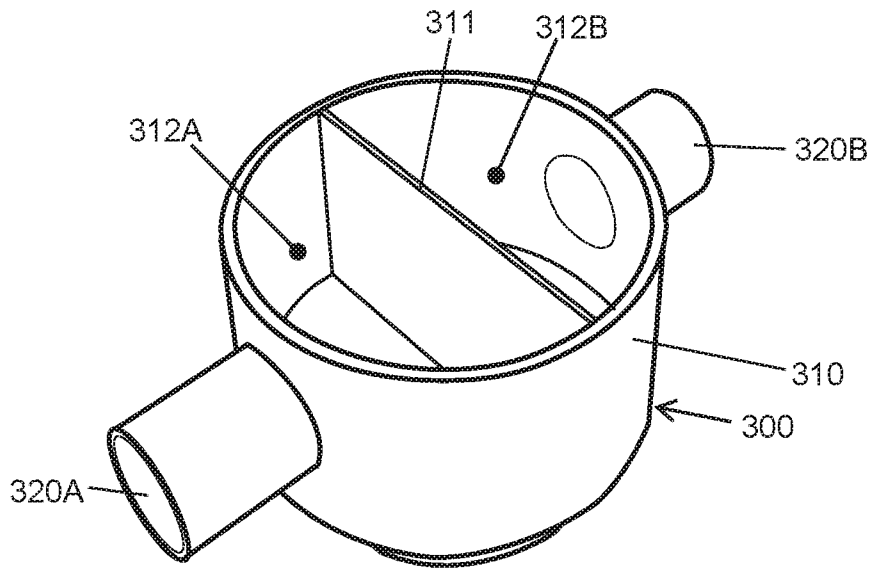


FIG. 3A

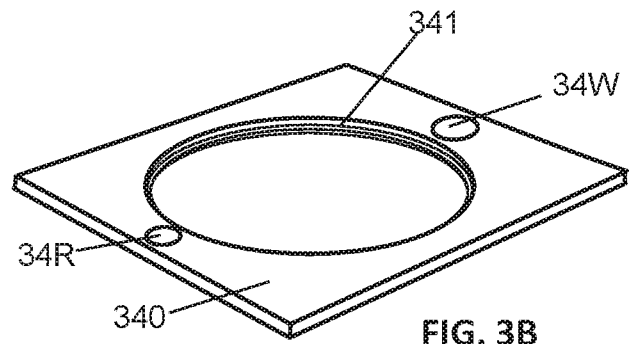


FIG. 3B

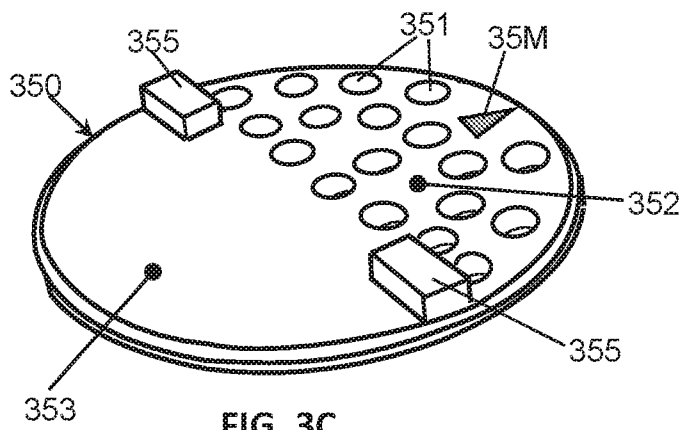
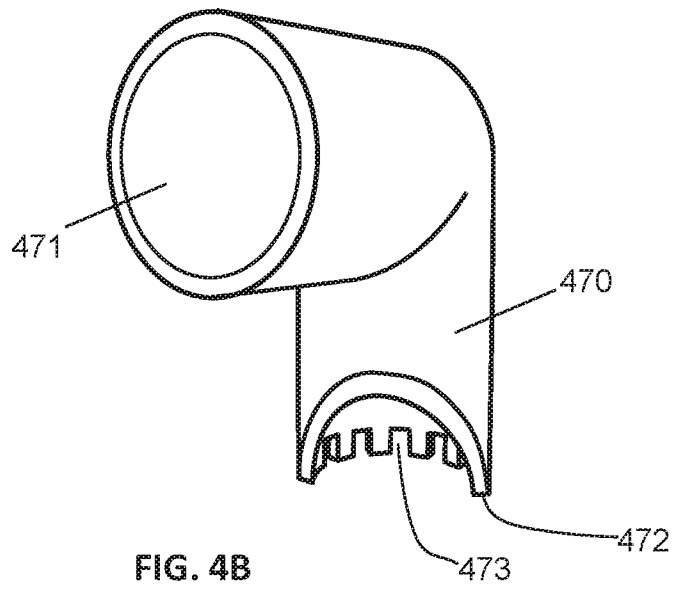
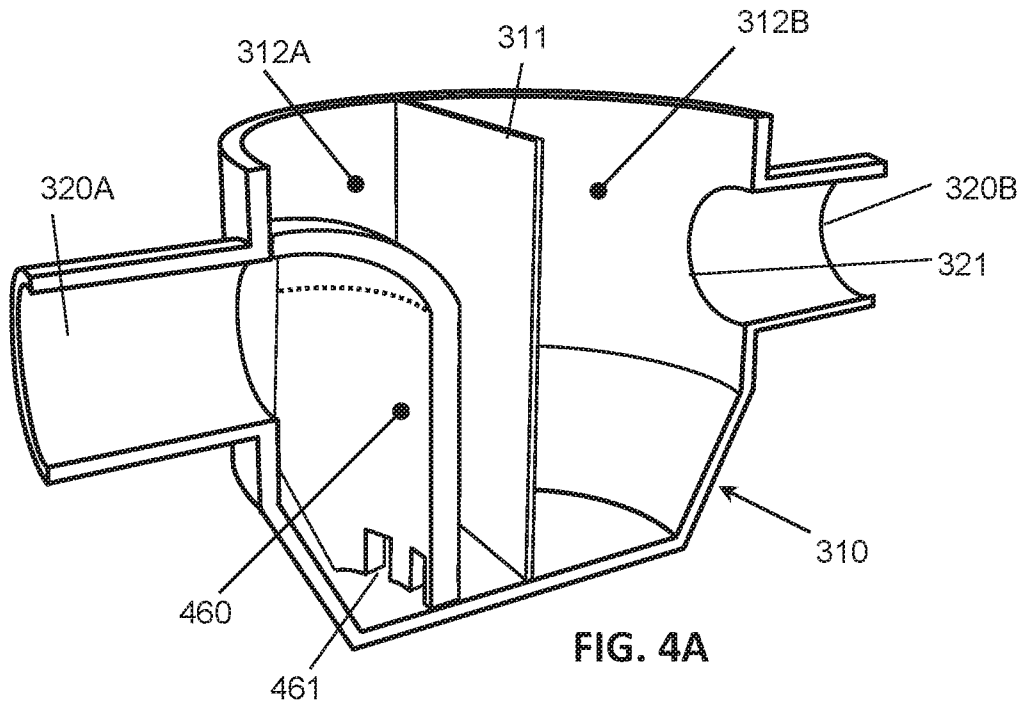


FIG. 3C



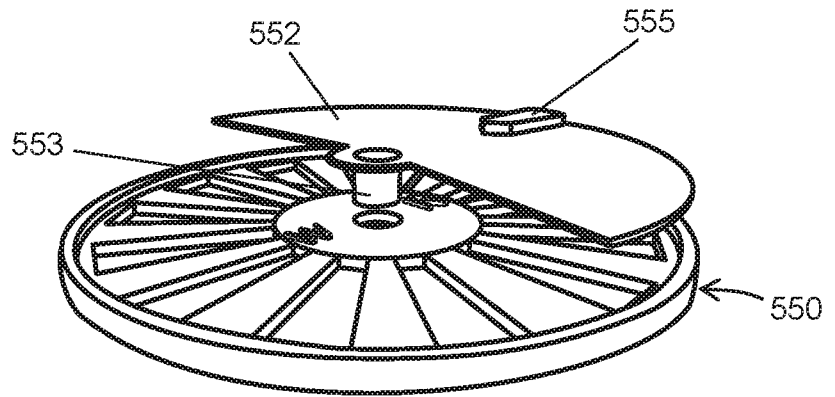


FIG. 5A

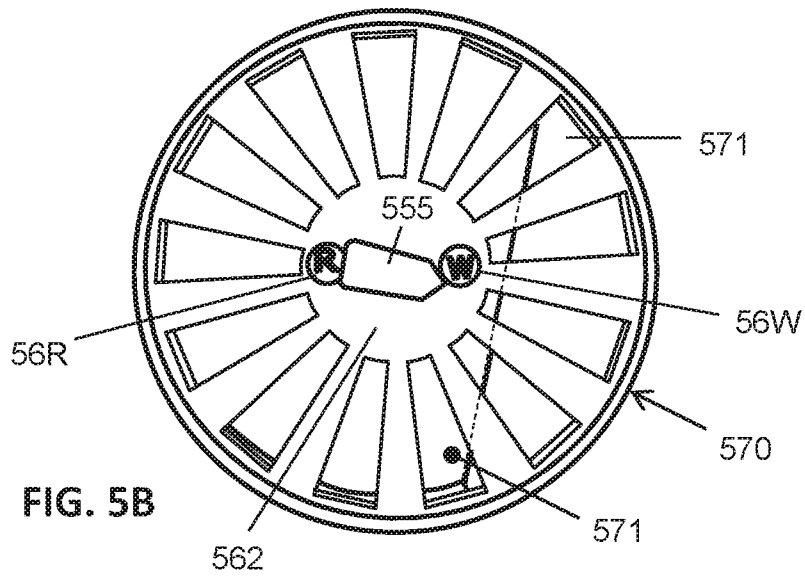


FIG. 5B

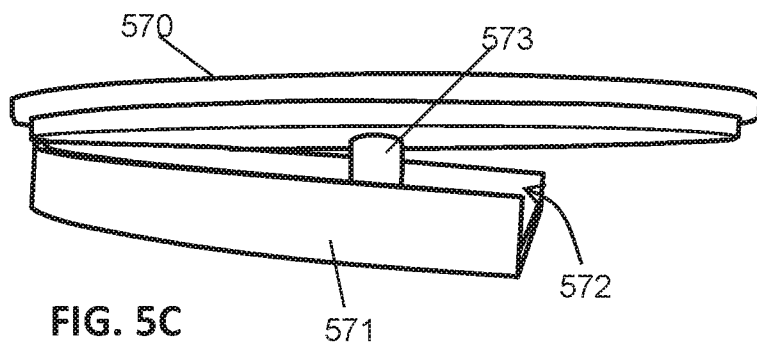


FIG. 5C

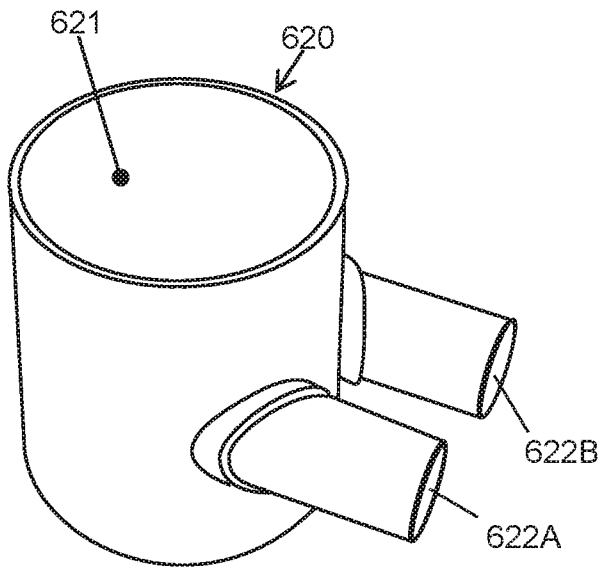


FIG. 6A

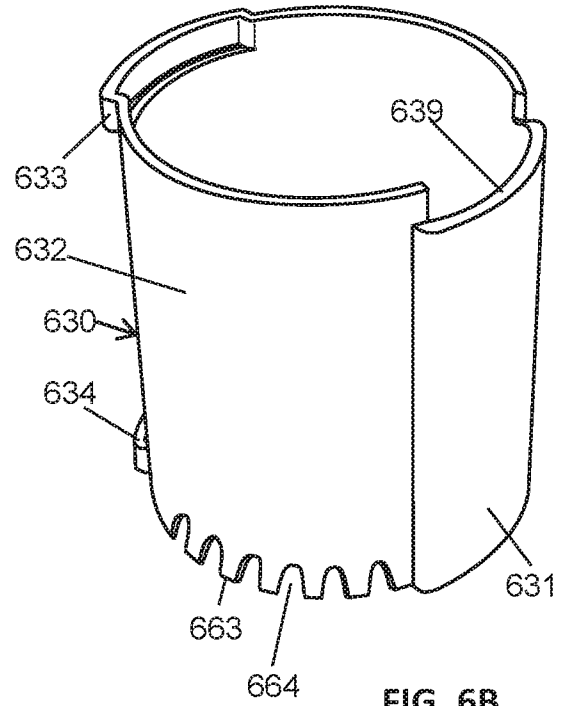


FIG. 6B

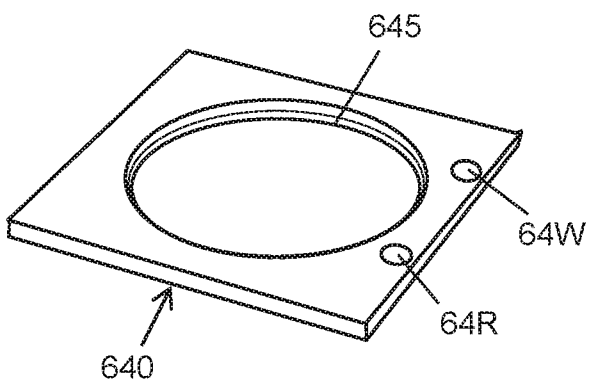


FIG. 6C

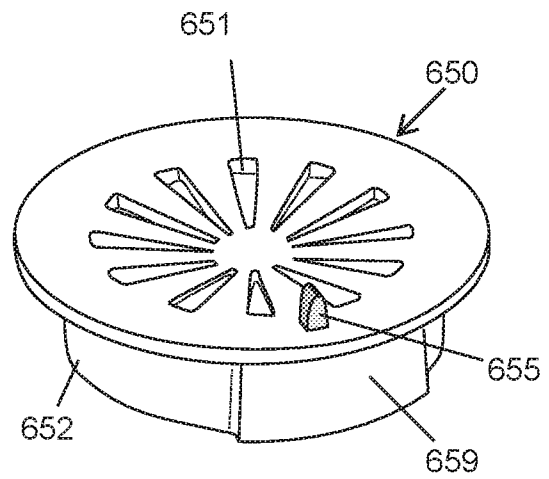


FIG. 6D

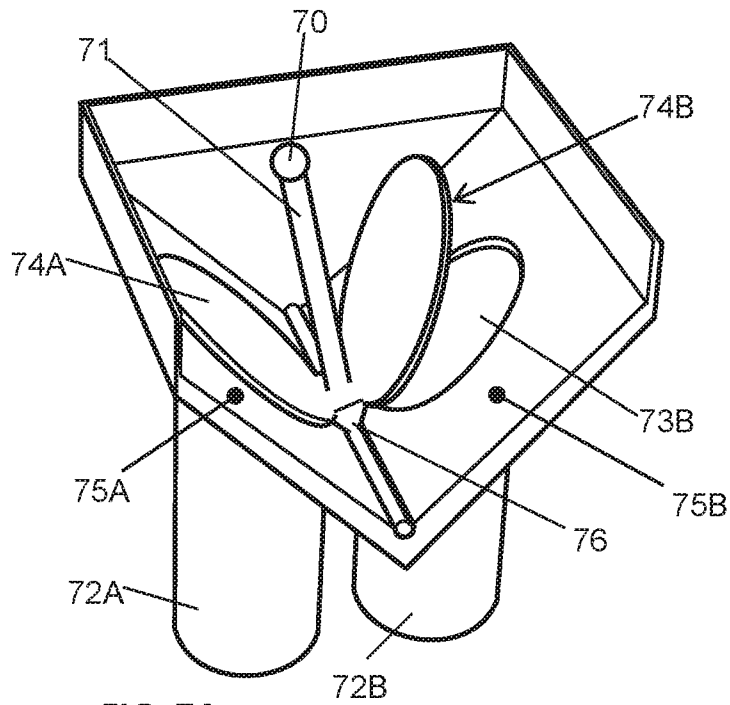


FIG. 7A

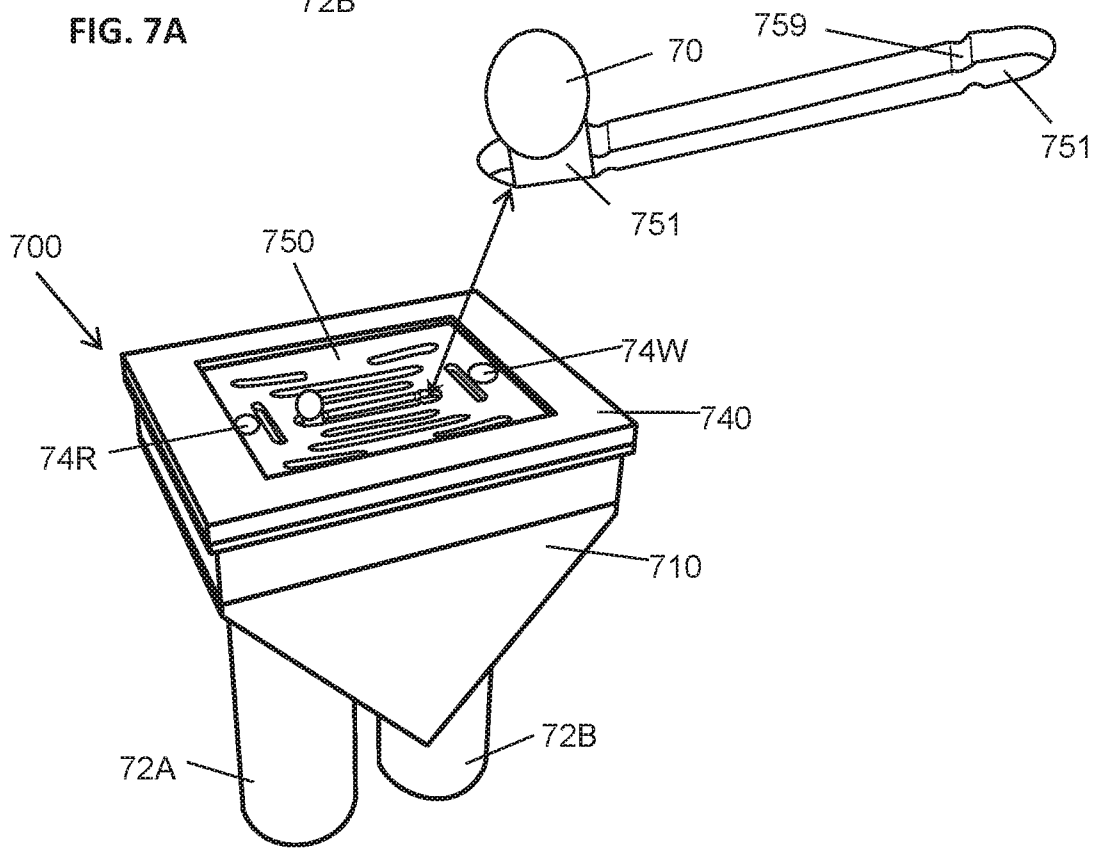


FIG. 7B

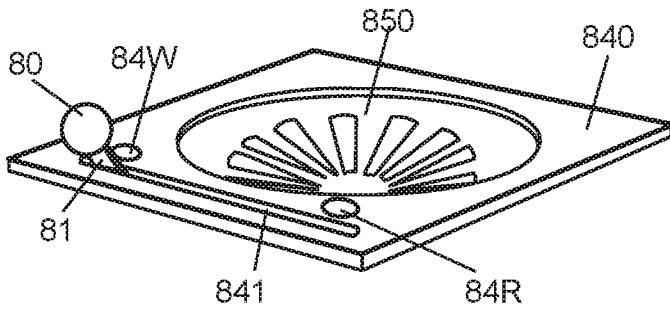


FIG. 8A

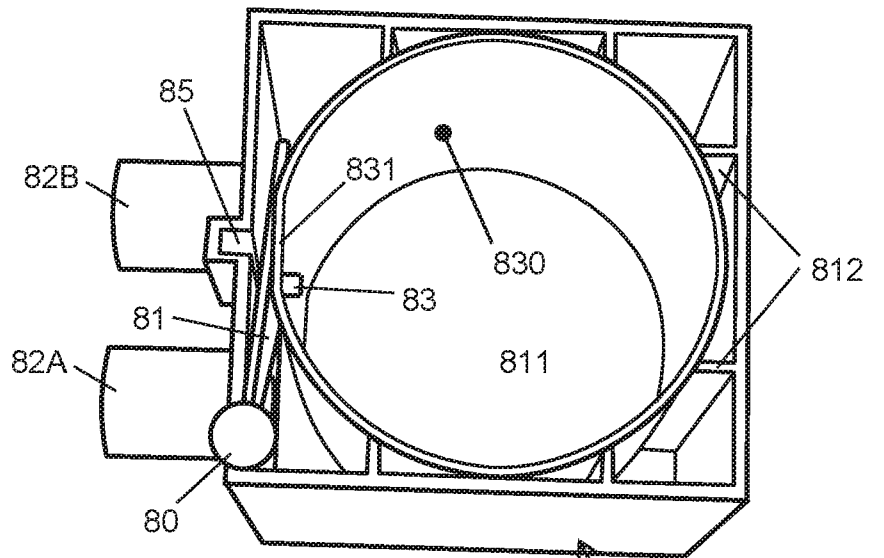


FIG. 8B

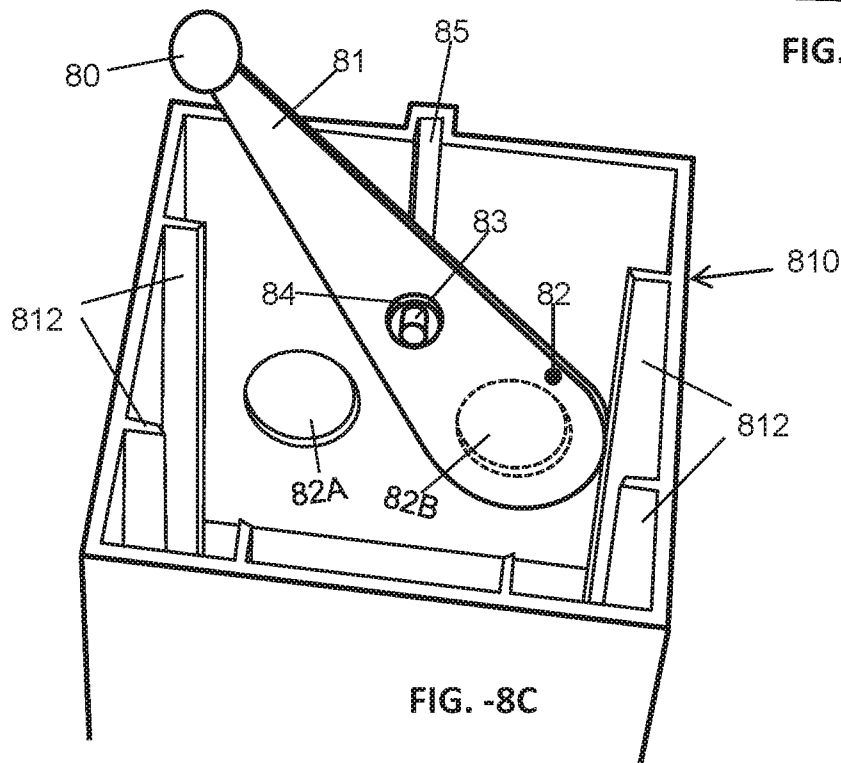
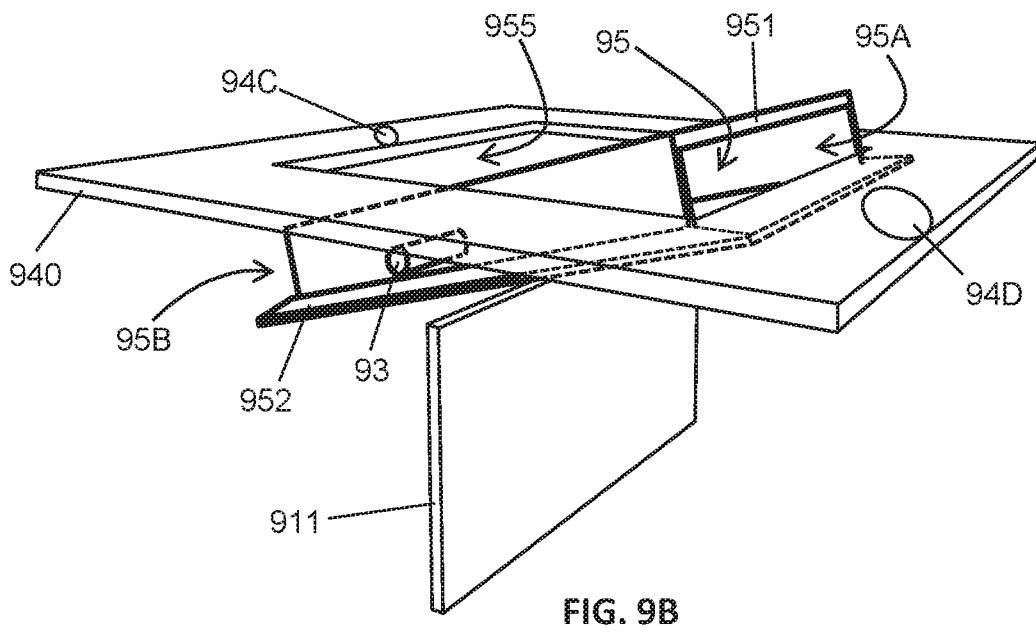
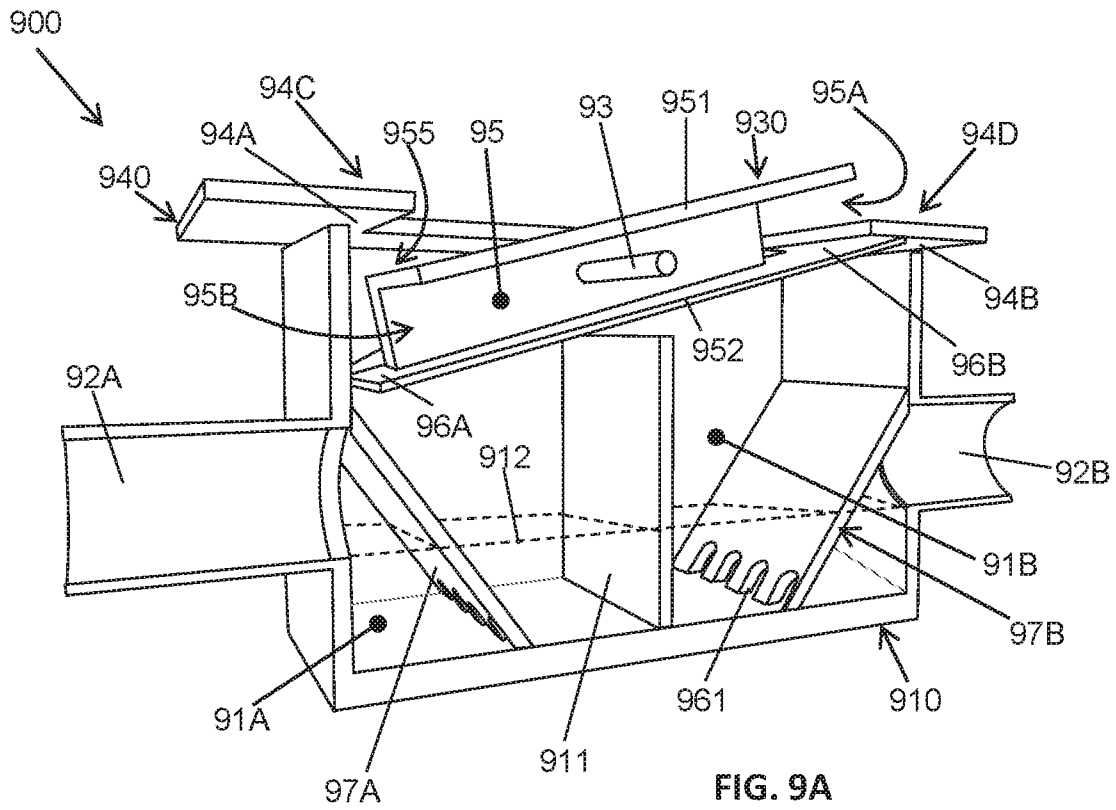


FIG. -8C



INTERNATIONAL SEARCH REPORT

International application No.
PCT/IN2018/050233

A. CLASSIFICATION OF SUBJECT MATTER
E03C1/22 Version=2018.01

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)

E03C

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)

TotalPatent One, IPO Internal Database

KEYWORDS: drain, pipe, pit grill, conical valve, housing, partition

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR101699850 B1 (TIC CO. LTD.) 25 JANUARY 2017 (25.01.2017) Abstract; Description, Paragraphs 0025, 0026, 0030, 0035, 0036, 0047-0050, 0057; Figures 1, 2; Claims 1-5	1-15, 18-21
Y	EP2453065 A2 (VIENA GMBH & CO. KG) 16 MAY 2012 (16.05.2012) Abstract; Description, Paragraphs 0002, 0017, 0019, Figures 1-5; Claim 1	1-21
Y	US5377362 A (JACKSON Ingrid) 3 JANUARY 1995 (03.01.1995) Abstract; Column 4, Line 27-48; Figures 1,-3; Claims 2, 3	1-15, 18-21
Y	US6066119 A (WCM IND INC.) 23 MAY 2000 (23.05.2000) Abstract; Column 2, Line 13-55; Figures 2, 3; Claim 1	16, 17
Y	EP2937476 B1 (JIANGMEN FENIX SHOWER PRODUCTS TECHNOLOGY CO LTD) 12 OCTOBER 2016 (12.10.2016) Abstract; Description, Paragraphs 0026, 0028; Figures 1, 2; Claim 1	15



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

02-08-2018

Date of mailing of the international search report

02-08-2018

Name and mailing address of the ISA/

Indian Patent Office
Plot No.32, Sector 14, Dwarka, New Delhi-110075
Facsimile No.

Authorized officer

Shivanshu Mohan Singh

Telephone No. +91-1125300200

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IN2018/050233

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR101673382 B1 (LEE Chul Ho) 8 NOVEMBER 2016 (08.11.2016) Abstract Description, Paragraphs 0042-0050, 0055-0057; Figures 1-3 -----	1-14, 18-21
Y	WO2012024716 A1 (ECO GUARDIANS PTY LTD) 1 MARCH 2012 (01.03.2012) Abstract Page 3, Line 34-38; Page 4, Line 1-4; Page 5, Line 2-14; Figures 1(b), 1(d), 2(a); Claims 1-4	1-14, 18-21

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IN2018/050233

Citation	Pub.Date	Family	Pub.Date
EP 2453065 A2	16-05-2012	DE 202010015319 U1	19-02-2013
US 5377362 A	03-01-1995	CA 2142858 A1	03-03-1994
		WO 9404058 A1	03-03-1994
		AU 5010593 A	15-03-1994
EP 2937476 B1	28-10-2015	CN 103953785 A	30-07-2014
		US 2015308086 A1	29-10-2015
WO 2012024716 A1	01-03-2012	AU 2011293077 A1	11-04-2013