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R. L. JEWELL

2,956,285

BED PAN RINSING STRUCTURE

Filed Dec. 19, 1958

FIG. 1

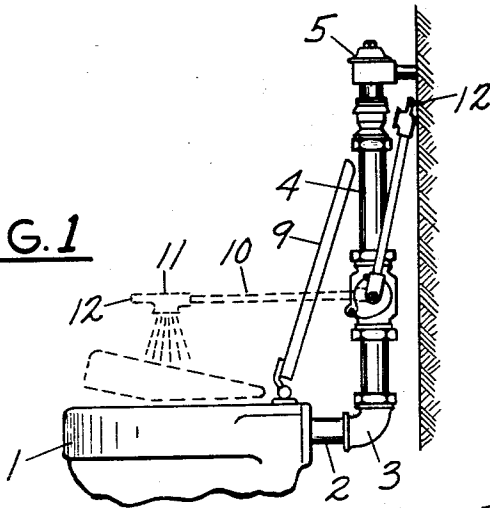


FIG. 2

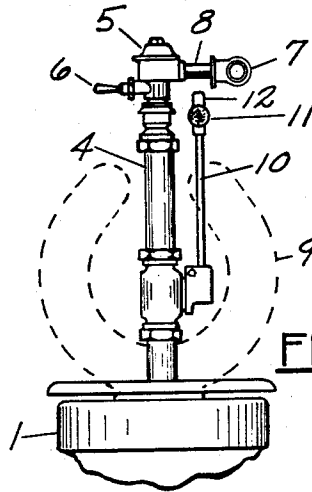


FIG. 3

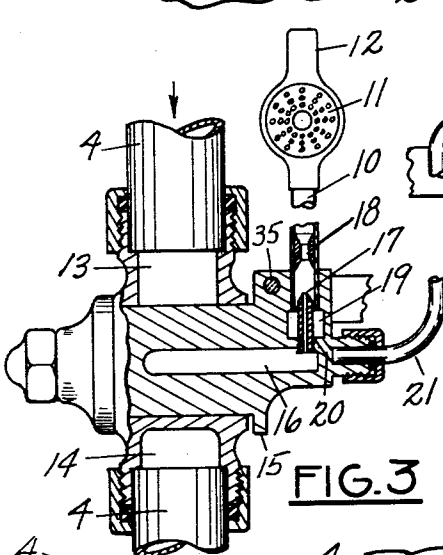


FIG. 6

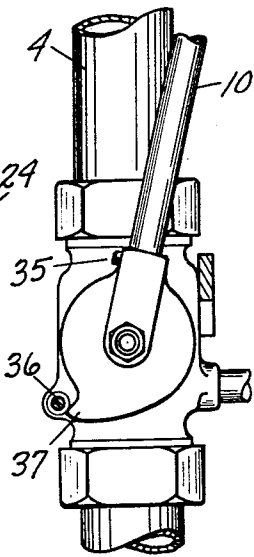


FIG. 4

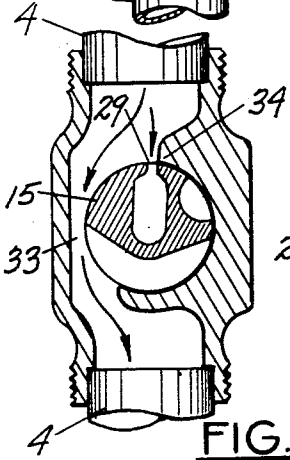
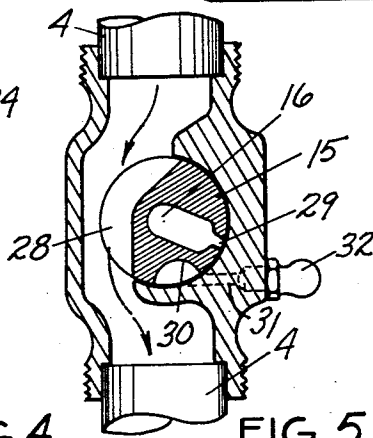


FIG. 5



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BED PAN RINSING STRUCTURE

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2 Claims. (Cl. 4—7)

This invention is a bed pan rinsing structure for directing part of the toilet flushing water into a spray nozzle discharging downwardly into the toilet for use in rinsing bed pans. The structure fits directly in the flush line without any offsets which permits installation with a minimum of alteration of existing plumbing. Little or no resistance is offered to normal flushing.

In the drawing, Fig. 1 is a side view of a toilet equipped with the bed pan rinsing structure; Fig. 2 is a front view; Fig. 3 is an enlarged sectional front elevation of the valve; Fig. 4 is a section on line 4—4 with the valve in rinsing position; Fig. 5 is a similar section with the valve in non-rinsing position; Fig. 6 is an end view of the valve with the nozzle in the non-rinsing position.

In the drawing, 1 indicates a toilet having a flush inlet 2 connected by an elbow 3 to a flush line 4 controlled by a flush valve 5 having an operating handle 6. The water supply line 7 is connected by a horizontal pipe 8 to the valve 5. The parts so far described are or may be of common construction in either new or existing toilet installations.

When used for bed pan rinsing, the toilet seat 9 is lifted and a nozzle 10 is swung downward from the vertical or non-rinsing position indicated by full lines in Fig. 1 to the horizontal or rinsing position indicated by dotted lines in Fig. 1. In the rinsing position, whenever the handle 6 is operated to flush the toilet, a fraction of the flush water flows through the downwardly directed spray head 11 at the outer end of the nozzle while the balance of the flush water flows into the toilet through the flush inlet 2. The spray head 11 in the rinsing position is directed downwardly into the toilet so as to be useful for rinsing bed pans. The bed pan rinsing is concurrent with the toilet flushing which is desirable. The nozzle is moved to the desired position by a handle 12 which projects beyond the spray head 11 in such a position that it is not possible to slip a hose over the outer end of the nozzle in violation of plumbing codes.

The flow through the nozzle 10 is controlled by a valve having an inlet 13 and an outlet 14 connected in the flush water line 4 between the flush valve 5 and the toilet. The inlet and outlet are directly opposite each other and can be connected into an existing flush line without any offsets. The nozzle 10 is fixed in the outer end of a valve plug 15 to receive flush water from a way 16. The way 16 discharges through a nozzle 17 into a venturi throat 18 which produces a suction in chamber 19 surrounding the nozzle 17. The chamber is connected through a way 20 and a conduit 21 to an aspirator 22 in the cap 23 of a container 24 for a deodorant. The quantity of deodorant aspirated is controlled by a regulating screw 25. A foot valve 26 maintains the liquid level of deodorant in a suction tube 27 so that the quantity of deodorant aspirated is not dependent upon the liquid level within the container 24.

In the vertical or non-rinsing position of the nozzle 10 illustrated in Figs. 3 and 5, flush water flows straight through an enlarged passageway provided by a relieved

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portion 28 in the valve plug 15. In this position, all of the flush water flows through the toilet and it is desirable that little or no restriction be offered to the flow. The restriction offered by the relieved portion 28 is so slight that the back pressure or pressure drop through the valve is negligible.

When the nozzle 10 is swung to the horizontal or bed pan rinsing position illustrated in Figs. 1 and 4, an opening 29 in the valve plug 15 is turned upwardly so as to be presented to the downwardly flowing flush water. Whenever the flush valve 5 is actuated, part of the flush water flows through the opening 29 into the way 16 and from there through the nozzle 10 and spray head 11 and the balance of the flush water flows through a somewhat restricted passageway 33 direct to the toilet. The restriction offered by the passageway 33 provides a back pressure between the inlet and outlet of the valve sufficient to force the liquid through the opening 29 into the nozzle 10 and spray head 11. The back pressure need not be large and need not be adjustable. Back pressures of from ten to fifteen percent of the water supply pressure are adequate.

It will be noted that in the rinsing position the opening 29 is very close to the cutoff surface 34 on the valve body. While still keeping the nozzle 10 in the substantially horizontal position, it is accordingly possible for the operator to reduce the flow through the spray head 11 by merely lifting the spray head slightly until a portion of the opening 29 has moved under the cutoff surface 34. Only a few degrees of tilting is required to move part of the opening 29 under the shutoff surface 34 so that the user can restrict the flow through the spray head without making a significant change in the direction of the spray. For the proportions illustrated, the flow through the opening 29 can be varied from a maximum to a complete shutoff by tilting the nozzle through an angle of about 10 degrees. The adjustment of the flow through the spray head 11 does not change the back pressure or flow through the way 33.

Because of the possibility of varying the flow through the opening 29, it is possible to limit the maximum flow through the spray head by an adjustable set screw 35 which engages a stop surface 36 in the lowered or rinsing position of the nozzle 10 and thereby limits the maximum exposure to the water of the opening 29. If the set screw 35 is adjusted so that the opening 29 is partially blocked, then the maximum flow through the opening 29 will be partially restricted. This would prevent too large a flow through the spray head 11 although the operator could choose a lesser flow by stopping the nozzle 10 in a position in which the set screw 35 was short of engagement with the stop 36. When the nozzle is swung upwardly to the non-rinsing position, the stop 36 cooperates with an ear 37 on the valve plug 15 to stop the upward movement of the nozzle 10 short of wall surface behind the toilet.

The valve has a grease groove 30 which in the non-rinsing position registers with a passageway 31 leading to a grease fitting 32 for supplying lubricant to the valve. The valve need be lubricated only at infrequent intervals.

What is claimed as new is:

1. In a toilet having a flush line connected to a water supply and controlled by a flush valve, a bed pan rinsing structure having an inlet and an outlet opposite each other and connected in the flush line, a valve plug rotatable in said structure between rinsing and non-rinsing position, said plug in all positions defining between it and said structure an open passageway leading from the inlet to the outlet, said passageway in the rinsing position being of fixed size and sufficiently restricted to develop a back pressure equal to a small fraction of the water supply

pressure, a nozzle having a spray head fixed to and moved with the plug between an out of the way position in the non-rinsing position of the plug and a position discharging into the toilet in the rinsing position of the plug, said plug having an opening in one side and a way extending from said opening through the plug to the nozzle and said structure having a cut-off surface blocking said opening in the non-rinsing position of the plug and said plug moving said opening out from under said cut-off surface and exposing said opening to the flush water as said plug and nozzle reach the rinsing position, a stop limiting the movement of the plug and nozzle in the rinsing position and thereby determining the degree of exposure of said opening to the flush water and the resultant flow through the nozzle, the nozzle discharging into the toilet in all degrees of exposure of the opening to the flush water.

2. In a toilet having a flush line connected to a water supply and controlled by a flush valve, a bed pan rinsing structure having an inlet and an outlet in line with each other and connected in the flush line, a valve member in said structure movable between rinsing and non-rinsing positions, said member in all positions defining between it and said structure an open passageway leading from the inlet to the outlet, the passageway in the rinsing posi-

tion offering sufficient resistance to develop a back pressure equal to a small fraction of the water supply line pressure but insufficient to interfere with the flushing action, a nozzle having a spray head, said nozzle being fixed to and movable with the valve member and being out of the way in the non-rinsing position of the valve member and discharging into the toilet in the rinsing position of the valve member, said valve member having an opening in one side and a way leading from said opening to the nozzle, and said structure having a cut-off surface blocking said opening in the rinsing position of the valve member and said valve member moving said opening out from under said cut-off surface and exposing said opening to the flush water as the valve member reaches the rinsing position, a stop limiting the movement of the valve member in the rinsing position and thereby determining the degree of exposure of the opening to the flush water and the resultant flow through the nozzle, the nozzle discharging into the toilet in all degrees of exposure of the opening to the flush water.

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