

SPECIFICATION

Sanitation apparatus

- 5 This invention relates to sanitation apparatus. 5
- In rural areas of less-developed countries of the world a substantial proportion of illness is caused by bowel infection. One of the most serious of the illnesses is Cholera but other illnesses include Amoebic and Bacillary Dysentries and certain other diarrhoeas, Typhoid and Paratyphoid, Hookworm and Roundworm infections and Poliomyelitis, all of which can be caused by
- 10 contamination of soil, plants and water supplies by sewage. 10
- Therefore, it is desirable to provide satisfactory sewage disposal to reduce disease attributable to bowel infection.
- However, latrines in rural areas of less-developed countries, which may be classified in order of ascending merit as the bucket or conservancy system, the trench latrine, the bored hole and
- 15 the septic tank do not include provision for flushing the latrines due to the unavailability of sufficient water and apparatus for supplying the water to the latrines. 15
- Consequently low volumes of flushing liquid must be used; preferably combined with maximum flushing efficiency.
- According to the present invention there is provided a one piece lavatory pan having no
- 20 flushing water supply conduit or apertures associated therewith said receptacle comprising a downwardly angled bowl portion extending from a forward end thereof toward a rear face of the bowl portion, said rear face and said angled portion together terminating at their lower edges in a water trap, said trap being adapted for connection to a waste conduit extending rearwardly of said rear face, characterized in that the rear face of the bowl portion extends downwardly and
- 25 rearwardly to the upper edge of the water trap thereby to define with said downwardly angled portion a substantially frusto-conical space having its notional axis extending generally upwardly from the receptacle, the arrangement being such that when flushing liquid is thrown into said receptacle along said axis the flushing effect is maximized. 25
- The apparatus may further include a platform adapted to be engaged by a flange extending
- 30 outwardly from the upper edge of the receptacle. The platform may be a lamina having an aperture therein to receive the receptacle and the lamina may be of timber. 30
- The receptacle may be of a plastics material such as polyethelene.
- Following is a description, by way of example only with reference to the accompanying drawings, of one method of carrying the invention into effect.
- 35 In the drawings:- 35
- Figure 1* is a plan view of sanitation apparatus in accordance with the invention;
- Figure 2* is a cross section on the line A-A of Fig. 1;
- Figure 3* is a cross section on the line B-B of Fig. 1;
- Figure 4* is a diagrammatic cross sectional view of a sanitation apparatus in accordance with
- 40 the invention arranged in one embodiment and 40
- Figure 5* is a diagrammatic view of the apparatus arranged in another embodiment.
- Referring to Figs. 1 to 3 of the drawings, there is shown a lavatory pan 23 having a substantially rectangular upper annular wall 24, a rear portion 7 which extends downwardly and rearwardly and front 11 and side portions 25, 26 of which extend downwardly and converge
- 45 inwardly to a rearwardly downwardly inclined base portion 10. The base portion 10 has a rearward downwardly curved portion 9 contiguous with a downwardly rearwardly extending portion 8. The lower extremities of the portions 8 and 7 of the lavatory pan 23 are contiguous with a conduit 27 which in longitudinal cross section is U-shaped. The conduit 27 has located on an outer end portion thereof one end of a pipe 28 which in longitudinal cross section is
- 50 curved so that an end of the pipe 28 remote from the lavatory pan 23 extends outwardly and downwardly from the pan 23. The upper annular wall 24 has an outwardly extending circumferential flange 29. 50
- Referring now to Fig. 4 of the drawings, the lavatory pan 23 is used in co-operation with a squatting board 30 having an aperture 31 therein for receiving the pan 23, and an outlet pipe
- 55 32, one end of which is located on the pipe 28. 55
- The lavatory pan 23 is intended to be located on a prepared surface which may for example be a cement or concrete plinth 33 laid on ground 34 which has been hollowed out to receive the lavatory pan 23 and which has been provided with a pit or canal 35 for receiving sewage from the pan 23. The pit or canal 35 is provided adjacent the hollowed out ground 34 and may
- 60 be covered by a cover 36. 60
- The squatting board 30 is located on the prepared surface 33 and the lavatory pan 23 is lowered through the aperture 31 of the board 30 so that the flange 29 of the pan 23 seats on an upper surface of the board 30, the lower portions of the pan 23 are received in the hollowed out portion of the ground 34 and the outlet pipe 32 extends into the pit or canal 35.
- 65 When water is poured into the lavatory pan 23, the water flows through the conduit 27, and 65

the pipes 28 and 32 to the pit or canal 35 thereby flushing sewage from the pan 23 to the pit or canal 35. However, some of the water remains in the conduit 27, as shown in Fig. 4. The dimensions of the conduit 27 are such that the water which remains in the conduit 27 blocks off communication of air and odour between the pit or canal 35 and the lavatory pan 23. Also, the dimensions of the conduit 27 are such that the conduit 27 retains only a small amount of water. In this manner, only a small amount of water is necessary to flush the lavatory pan 23 and, since supply of water in rural areas of less developed countries is not plentiful, the lavatory pan 23 is specifically adapted for such areas.

The lavatory pan 23 preferably is of high density polyethelene which is inexpensive, durable and easy to clean. However the pan may alternatively be of PVC or glass fibre. The squatting board 30 may be of timber or of cement or concrete and may be provided with raised portions as shown in Fig. 5.

It will be appreciated that more than one pit or canal 35 may be provided, as shown in Fig. 5. It will be appreciated that sanitation apparatus used hitherto in rural areas of less developed countries requires a rapid flush of approximately 14 litres water to remove sewage each time it is used, whereas in the sanitation apparatus in accordance with the present invention waste matter is forced through the conduit 27 by pouring manually approximately 2 litres of water into the lavatory pan 23.

The dimensions of the apparatus referred to above are set out in the following table, the portions indicated in reference numerals in the figures of the drawings being indicated in the left hand column of the table and the corresponding dimensions of the portions being indicated in the right hand column.

25	PORTION	DIMENSIONS	25
	1	84 Millimetres outside diameter outlet.	
	2	76 Millimetres long.	
	3	22 Millimetres long.	
30	4	105 Millimetres outside radius.	30
	5	88 Millimetres outside radius.	
	6	10 Millimetres outside radius.	
	7	176 Millimetres straight length.	
	8	70 Millimetres straight length.	
35	9	98 Millimetres outside radius.	35
	10	181 Millimetres straight length.	
	11	96 Millimetres outside radius.	
	12	343 Millimetres opening.	
	13	9 Millimetres inside radius.	
40	14	15 Millimetres radius.	40
	15	208 Millimetres opening.	
	16	3.5 Millimetres thickness throughout.	
	17	115 Millimetres straight length.	
	18	8.5 Millimetres radius.	
45	19	2438 Millimetres height.	45
	20	1219 to 1524 (Millimetres) square base.	
	21	1067 Millimetres long.	
	22	914 Millimetres wide.	

CLAIMS:

1. A one piece lavatory pan having no flushing water supply conduit or apertures associated therewith said receptacle comprising a downwardly angled bowl portion extending from a forward end thereof toward a rear face of the bowl portion, said rear face and said angled portion together terminating at their lower edges in a water trap, said trap being adapted for connection to a waste conduit extending rearwardly of said rear face, characterized in that the rear face of the bowl portion extends downwardly and rearwardly to the upper edge of the water trap thereby to define with said downwardly angled portion a substantially frusto-conical space having its notional axis extending generally upwardly from the receptacle, the arrangement being such that when flushing liquid is thrown into said receptacle along said axis the flushing effect is maximised.

2. A pan according to claim 1 wherein a flange extends outwardly of the upper edge of the receptacle, said flange being adapted to support the receptacle in use.

3. A pan as claimed in either of claims 1 or 2 wherein the apparatus further includes a platform adapted to be engaged by the flange.

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It will be appreciated that more than one pit or canal 35 may be provided, as shown in Fig. 5. It will be appreciated that sanitation apparatus used hitherto in rural areas of less developed countries requires a rapid flush of approximately 14 litres water to remove sewage each time it is used, whereas in the sanitation apparatus in accordance with the present invention waste matter is forced through the conduit 27 by pouring manually approximately 2 litres of water into the lavatory pan 23.

The dimensions of the apparatus referred to above are set out in the following table, the portions indicated in reference numerals in the figures of the drawings being indicated in the left hand column of the table and the corresponding dimensions of the portions being indicated in the right hand column.

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2. A pan according to claim 1 wherein a flange extends outwardly of the upper edge of the receptacle, said flange being adapted to support the receptacle in use.

3. A pan as claimed in either of claims 1 or 2 wherein the apparatus further includes a platform adapted to be engaged by the flange.



4. A pan as claimed in claim 3 wherein the platform is a lamina having an aperture therein to receive the receptacle.
5. A pan as claimed in claim 4 wherein the lamina is of timber.
6. A pan as claimed in any one of the preceding claims wherein the receptacle is of plastics material.
7. A pan as claimed in claim 4 wherein the plastics material is polyethylene.
8. A pan substantially as hereinbefore described and as illustrated in the accompanying drawings.
9. A sanitation apparatus comprising a one piece lavatory pan according to any one of claims 1 to 8.

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