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PATENT SPECIFICATION

Application Date: Aug. 29, 1935. No. 24165/35. 145,329

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PROVISIONAL SPECIFICATION

Improvements in and relating to Chemical Closets

We, JOHN THOMAS RUSSELL WATSON, of 42, Market Street, Sydney, in the State of New South Wales, Commonwealth of Australia, a British Subject, and INSULAR LAMPS (SYDNEY) LIMITED, of 42, Market Street, Sydney, aforesaid, a Company duly organized under the Laws of the State of New South Wales, aforesaid, do hereby declare the nature of this invention to be as follows:—

This invention relates to sanitary closets of the type suitable for use in districts where there are no sewerage facilities or where the supply of water is limited. The invention more particularly refers to that type of closet in which a reservoir of a solvent and deodorising fluid is provided.

The object of the invention is to provide a new and improved construction of closet of this type which will be relatively simple and economical to manufacture and which will be reliable and efficient in its operation and in addition shall be hygienic and clean and capable of being charged and discharged economically and simply. Further objects are that the closet shall be silent in its operation, simple and easy to instal. Still further objects and advantages of the invention will be apparent from the following description of its nature.

There is provided a tank of suitable capacity and material which is adapted to receive and hold a quantity of the desired solution which may, for example, be caustic soda. The material of which the tank is constructed is chosen so that it is substantially unaffected by the contents. The tank may be of any suitable shape, but may be conveniently relatively long compared to its width so that it may be installed with the forward part within a building and the rear part projecting through the wall thereof. The rear portion is provided with ventilation means and also means for discharging the solution when required and means for permitting overflow of the solution when it exceeds a certain predetermined level. These means may be of any suitable and well known type.

The forward part of the tank is provided at its top with a sanitary seat of any suitable type which seat is provided with a lid which is so mounted that it may be opened and closed over the seat as required. Below the seat and within the tank is a tray which is of a trough like nature and is of greater depth at the rear end than at the front. The tray has a bottom preferably of semi-circular section with a corresponding opening at the rear end. It is mounted in a frame which passes round the top thereof and rearwardly to a pair of rods which pass vertically upwards through holes in the seat or cover of the tank. These rods are attached to a cross member which extends the full width of the tank and which has attached to its ends guide rods which pass downwards and enter guide means attached to the exterior of the tank on each side. These guide means are so arranged that the cross piece together with the tray which is within the tank may be raised and lowered vertically. Thus the tray may be immersed and withdrawn from the solution within the tank the solution flowing into and out of the interior of the tray through the opening in the rear thereof as it is lowered and raised.

The means for lowering and raising the trays comprise a lever which is pivotted to the cross member carrying the tray supporting means and the guides. This lever extends from this cross member towards the front of the closet and is coupled to the lid of the seat towards the front end thereof. The lever also extends rearwardly from the cross member the rear end being provided with a roller or the like which co-operates with a track or guide way provided on the top of the tank. Thus when the lid is in the closed position and the tray is immersed within the contents of the tank the lever is in a position approaching the horizontal with its rear end at the extreme rear position and the cross member carrying the tray and guides at its lowest position. When the forward end of the lever is raised the lid is opened by the means thereon which co-operate with the lever. The point of attachment to the cross member rises about the pivotting point at the rear end of the

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lever and so the cross member and the tray are raised so that when the lid is opened the tray is brought to a position below the seat and clear of the solution, the solution running out the rear end of the tray and taking with it anything that may have previously been deposited therein. When the lever is depressed the lid is closed and at the same time the cross member is allowed to fall and, consequently, the tray to re-enter the solution.

The speed of the movement of the tray in re-entering the solution is regulated so that it cannot enter at an excessive speed with the consequent liability of splashing the solution, which may be of a corrosive nature, through the opening of the seat. The speed regulating means may consist of a cylinder mounted in a convenient position and preferably clear of the solution, the cylinder having therein a plunger attached by a rod to the mechanism controlling the tray. The cylinder is provided with a valve and the plunger with a washer both of which are so arranged that the lifting movement is relatively unimpeded while the return movement is regulated by the speed of the escape of air from the cylinder as the plunger forces it down. With this arrangement it is possible to slam the operating lever and the lid down quickly, but the tray and its mechanism is retarded by the regulating means and enters the solution only at the speed at which it is set, means being provided for varying this speed. By virtue of the fact that the mechanism controlling the tray may be retarded in its return travel compared to the lever the pivotting point of the lever upon the cross member may at some point be high compared to its normal position. If this condition exists the rear end of the lever which is provided with a roller or the like, is lifted from its seating, returning thereto at a later period as the tray reaches its lowest position.

Dated the 29th day of August, 1935.
For the Applicants,
F. J. CLEVELAND & CO.,
Chartered Patent Agents,
29, Southampton Buildings, Chancery Lane, London, W.C. 2.

COMPLETE SPECIFICATION

Improvements in and relating to Chemical Closets

We, JOHN THOMAS RUSSELL WATSON, of 42, Market Street, Sydney, in the State of New South Wales, Commonwealth of Australia, a British Subject, and INSULAR LAMPS (SYDNEY) LIMITED, of 42, Market Street, Sydney, aforesaid, a Company duly organized under the Laws of the State of New South Wales, aforesaid, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to sanitary closets of a sort which use a chemical fluid as a solvent and deodorizer and consequently are particularly suitable for use in districts where there are no sewage facilities or where the supply of water is limited.

According to the present invention, there is provided a chemical closet having a receiving tray adapted to be raised from and lowered into the chemical solution, the speed of lowering the tray being so controlled as not to exceed a predetermined maximum; in this way it is possible to achieve silence in operation, and splashing of the fluid in the container is obviated.

In order that it may be clearly understood and more readily carried into effect, the invention is hereinafter described with reference to the accompanying diagrammatic drawings, in which:

Figure 1 is a perspective view of the closet showing the lid closed;

Figure 2 is a perspective view showing the lid open;

Figure 3 is a perspective view showing a stage in the operation of the closet; and

Figure 4 is a sectional side elevation of the closet with the lid open.

A tank 10 of suitable capacity and material is adapted to receive and hold a quantity of the desired solution 11 which may, for example, be caustic soda. The material of which the tank 10 is constructed is chosen so that it is substantially unaffected by the contents 11. The tank 10 may be of any suitable shape, but may be conveniently relatively long compared to its width so that it may be installed with the forward part 12 within a building and the rear part 13 projecting through the wall 14 thereof. The rear portion 13 is provided with ventilation means 15 and also means 16 for discharging the solution 11 when required and means for permitting overflow of the solution 11 when it exceeds a certain predetermined level. These means 16 may be of any suitable and well known type.

The forward part 12 of the tank is provided at its top with a sanitary seat 17 of any suitable type which seat 17 is provided with a lid 18 which is so mounted that it

may be opened and closed over the seat 17 as required. Below the seat 17 and within the tank is a tray 19 which is of a trough like nature and is of greater depth at the rear end than at the front. The sloping bottom 20 of the tray is preferably of semi-circular section with a correspondingly shaped opening 21 at the rear end. A baffle plate 24 is provided. The tray is mounted in a frame 22 which passes round the top thereof and rearwardly to a pair of rods 23 which pass vertically upwards through holes in the seat or cover of the tank. These rods 23 are attached to a cross member 25 which extends the full width of the tank and which has attached to its ends guide rods 26 which pass downwards and enter guide means 27 attached to the exterior of the tank 10 on each side. These guide means 27 are so arranged that the cross piece 25 together with the tray 19 which is within the tank may be raised and lowered vertically. Thus the tray 19 may be immersed and withdrawn from the solution 11 within the tank, the solution flowing into and out of the interior of the tray through the opening 21 in the rear thereof as it is lowered and raised.

The means for lowering and raising the tray comprise a lever 28 which is pivotted at 29 to the cross member 25 carrying the tray supporting means 23 and the guides 26. The lever 28 extends from this cross member towards the front of the closet and is coupled to the lid 18 of the seat towards the front end thereof by means of a bracket 30. The lever 28 also extends rearwardly from the cross member 25, the rear end of the lever being provided with a roller 31 which co-operates with a track 32 or guide way provided on the top of the tank. Thus when the lid is in the closed position (as shown in Figure 1) and the tray 19 is immersed within the contents 11 of the tank the lever 28 is in a position approaching the horizontal with its rear end at the extreme rear position on the track 32 and the cross member 25 carrying the tray and guides at its lowest position. When the forward end of the lever 28 is raised the lid is opened by the means 30 thereon which co-operate with the lever. The point of attachment 29 of the lever 28 to the cross member 25 rises above the fulcrum point at the rear end of the lever and so the cross member 25 and the tray 19 are raised. Thus when the lid 18 is opened the tray 19 is brought to a position below the seat 17 and clear of the solution 11, the solution running out the rear end 21 of the tray and taking with it anything that may have previously been deposited in the tray. When the lever 28 is depressed the lid is closed and at the same time the cross member 25 is allowed to fall and, consequently, the tray is allowed to re-enter the solution.

The speed of the movement of the tray in re-entering the solution is regulated so that it cannot enter at an excessive rate with the consequent liability of splashing the solution, which may be of a corrosive nature, through the opening of the seat. The speed regulating means consist of a cylinder 33 mounted in a convenient position but preferably in a position clear of the solution such as on the outside of the tank as shown. The cylinder has therein a plunger 34 attached by a rod 35 to the cross member 25 and thence to the mechanism controlling the tray. The cylinder is provided with a valve or valves 36 and the plunger with a washer, all of which are so arranged that the raising movement of the plunger is relatively unimpeded while the return movement is regulated by the speed of the escape of air from the cylinder 33 as the plunger is forced down by the weight of the mechanism attached to 25. The valves 36 may comprise air inlet means of suitable type such as a mushroom valve and adjustable outlet means such as a needle valve. The means are arranged so that a relatively free flow of air is allowed into the cylinder while the exhaust flow is restricted as may be required to control the speed of descent.

With this arrangement it is possible to slam the operating lever 28 and the lid 18 down quickly, but the tray 19 and its associated mechanism is retarded by the regulating means and enters the solution only at the speed for which the regulating means is set, provision being made for varying this speed, as, for example, by regulation of the valve or valves 36. If the lever 28 is moved to shut down the lid 18 more quickly than the mechanism operates to return the tray, the roller 31 at the end of the lever will lift up from the seating 32 into a position such as that shewn in Figure 3; the roller 31 will return to its seating when the mechanism reaches its lowest position. Thus, irrespective of the speed of closing the lid the tray is relatively slowly and gently lowered into the solution at a predetermined maximum speed, this speed of the tray movement being regulated so that splashing of the solution is obviated.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A chemical closet having a receiving tray adapted to be raised from and lowered into the chemical solution, the speed of lowering being so controlled as not to

may be opened and closed over the seat 17 as required. Below the seat 17 and within the tank is a tray 19 which is of a trough like nature and is of greater depth at the rear end than at the front. The sloping bottom 20 of the tray is preferably of semi-circular section with a correspondingly shaped opening 21 at the rear end. A baffle plate 24 is provided. The tray is mounted in a frame 22 which passes round the top thereof and rearwardly to a pair of rods 23 which pass vertically upwards through holes in the seat or cover of the tank. These rods 23 are attached to a cross member 25 which extends the full width of the tank and which has attached to its ends guide rods 26 which pass downwards and enter guide means 27 attached to the exterior of the tank 10 on each side. These guide means 27 are so arranged that the cross piece 25 together with the tray 19 which is within the tank may be raised and lowered vertically. Thus the tray 19 may be immersed and withdrawn from the solution 11 within the tank, the solution flowing into and out of the interior of the tray through the opening 21 in the rear thereof as it is lowered and raised.

The means for lowering and raising the tray comprise a lever 28 which is pivotted at 29 to the cross member 25 carrying the tray supporting means 23 and the guides 26. The lever 28 extends from this cross member towards the front of the closet and is coupled to the lid 18 of the seat towards the front end thereof by means of a bracket 30. The lever 28 also extends rearwardly from the cross member 25, the rear end of the lever being provided with a roller 31 which co-operates with a track 32 or guide way provided on the top of the tank. Thus when the lid is in the closed position (as shown in Figure 1) and the tray 19 is immersed within the contents 11 of the tank the lever 28 is in a position approaching the horizontal with its rear end at the extreme rear position on the track 32 and the cross member 25 carrying the tray and guides at its lowest position. When the forward end of the lever 28 is raised the lid is opened by the means 30 thereon which co-operate with the lever. The point of attachment 29 of the lever 28 to the cross member 25 rises above the fulcrum point at the rear end of the lever and so the cross member 25 and the tray 19 are raised. Thus when the lid 18 is opened the tray 19 is brought to a position below the seat 17 and clear of the solution 11, the solution running out the rear end 21 of the tray and taking with it anything that may have previously been deposited in the tray. When the lever 28 is depressed the lid is closed and at the same time the cross member 25 is allowed to fall and, consequently, the tray is allowed to re-enter the solution.

The speed of the movement of the tray in re-entering the solution is regulated so that it cannot enter at an excessive rate with the consequent liability of splashing the solution, which may be of a corrosive nature, through the opening of the seat. The speed regulating means consist of a cylinder 33 mounted in a convenient position but preferably in a position clear of the solution such as on the outside of the tank as shown. The cylinder has therein a plunger 34 attached by a rod 35 to the cross member 25 and thence to the mechanism controlling the tray. The cylinder is provided with a valve or valves 36 and the plunger with a washer, all of which are so arranged that the raising movement of the plunger is relatively unimpeded while the return movement is regulated by the speed of the escape of air from the cylinder 33 as the plunger is forced down by the weight of the mechanism attached to 25. The valves 36 may comprise air inlet means of suitable type such as a mushroom valve and adjustable outlet means such as a needle valve. The means are arranged so that a relatively free flow of air is allowed into the cylinder while the exhaust flow is restricted as may be required to control the speed of descent.

With this arrangement it is possible to slam the operating lever 28 and the lid 18 down quickly, but the tray 19 and its associated mechanism is retarded by the regulating means and enters the solution only at the speed for which the regulating means is set, provision being made for varying this speed, as, for example, by regulation of the valve or valves 36. If the lever 28 is moved to shut down the lid 18 more quickly than the mechanism operates to return the tray, the roller 31 at the end of the lever will lift up from the seating 32 into a position such as that shewn in Figure 3; the roller 31 will return to its seating when the mechanism reaches its lowest position. Thus, irrespective of the speed of closing the lid the tray is relatively slowly and gently lowered into the solution at a predetermined maximum speed, this speed of the tray movement being regulated so that splashing of the solution is obviated.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A chemical closet having a receiving tray adapted to be raised from and lowered into the chemical solution, the speed of lowering being so controlled as not to

exceed a predetermined maximum.

2. A chemical closet as set forth in Claim 1, having a lid, and in which raising and lowering of the receiving tray is effected by raising and lowering the lid.

3. A chemical closet as set forth in either of the preceding claims, in which the rate of immersion of the tray is adjustable.

4. A chemical closet as set forth in any of the preceding claims, having adjustable pneumatic means for controlling the speed of immersion of the tray.

5. A chemical closet as set forth in any of the preceding claims, in which the tray comprises a trough-like structure having a sloping bottom and an opening at or near the deeper end thereof.

6. A chemical closet as set forth in any of the preceding claims 2 to 5, having the lid and a seat arranged upon the tank for receiving a chemical solution, and the means for raising and lowering the tray so arranged that even if the speed of lowering the lid exceeds a predetermined rate, the speed of lowering the tray is unaffected and continues to be restricted so as not to exceed the predetermined rate.

7. A chemical closet as set forth in Claim 6, having the tray connected to rods passing through said tank to lifting mechanism having guide means, a lever pivotally connected to said lifting mechanism and to said lid and having a free end extending beyond said lifting mechanism to establish sliding contact with a fixed base, and speed regulating means associated with said lifting mechanism whereby the speed of lifting is relatively unrestricted but the speed of lowering is limited to a predetermined maximum.

8. A chemical closet as set forth in Claim 7, in which said lifting mechanism comprises a cross member having guide means so that it may be lifted and lowered substantially vertically, said cross member being adapted to receive the rods connected to said tray, the lever connected to said lid and connecting links extending to the speed regulating device whereby the movement of said member during the lowering movement is restricted to a predetermined maximum rate.

9. A chemical closet as set forth in either of Claims 7 or 8, in which said lifting mechanism is connected to a plunger within a cylinder, said cylinder having air inlet means and air outlet means whereby the speed of the movement of the plunger corresponding to the lowering of the tray is restricted to a predetermined maximum.

10. A chemical closet as set forth in Claim 9, in which the predetermined speed is regulated by adjustment of a needle valve in said cylinder.

11. The chemical closet substantially as described with reference to the accompanying diagrammatic drawings.

Dated the 4th day of December, 1935.

For the Applicants,
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