Sept. 18, 1945. L. J. MENGES 2,384,949

SANITARY APPARATUS FOR TOILET DOORS

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Fig. 1.

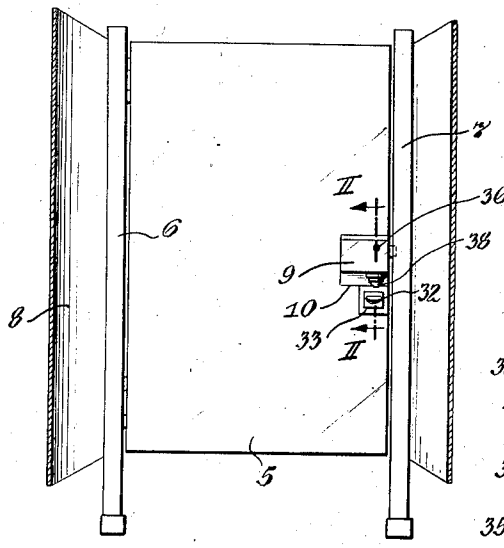


Fig. 2.

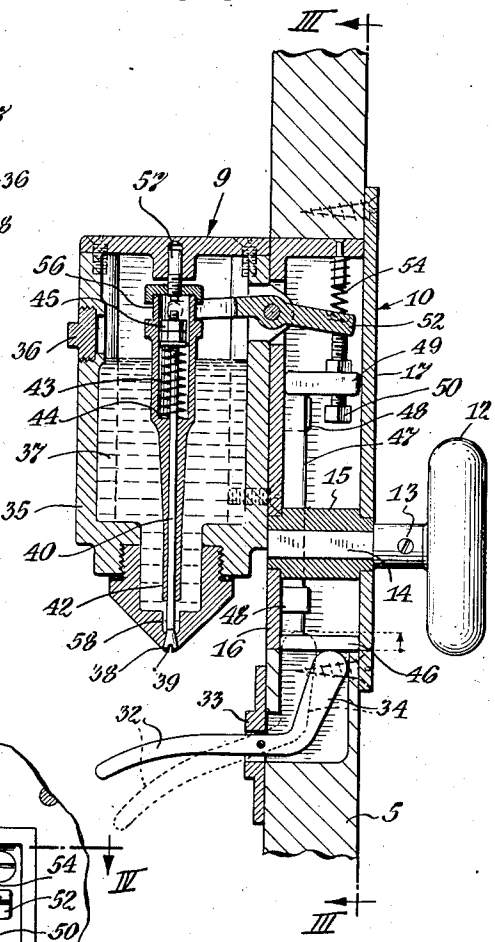
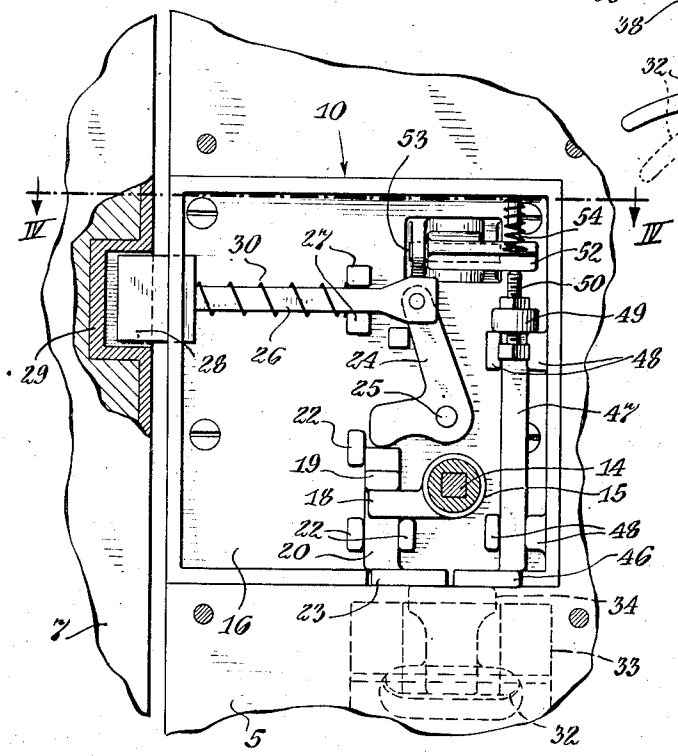


Fig. 3.



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Fig. 4.

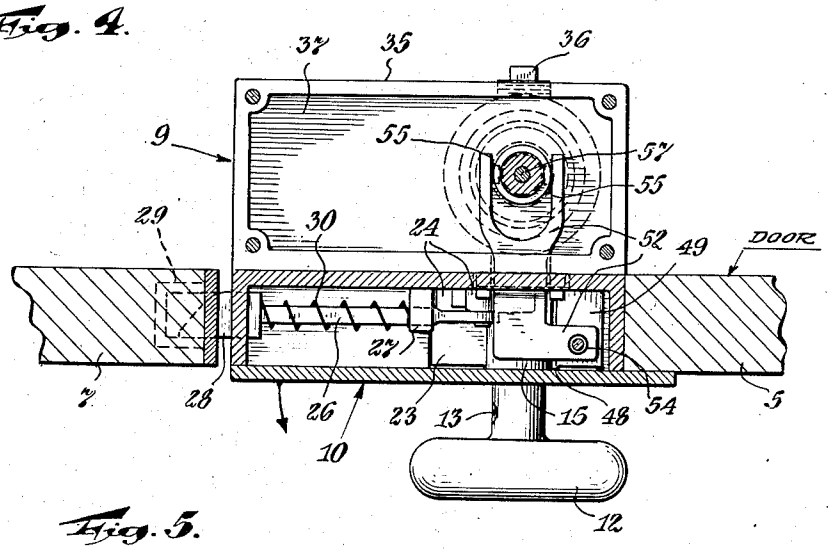


Fig. 5.

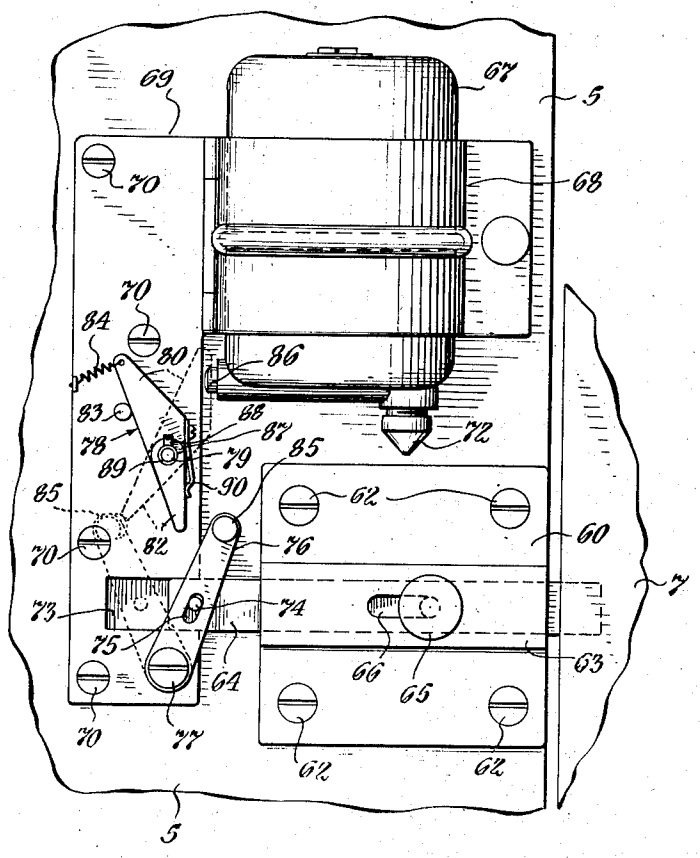
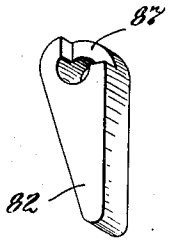


Fig. 6.



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SANITARY APPARATUS FOR TOILET DOORS

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6 Claims. (Cl. 292—1)

The present invention relates to sanitary or antiseptic apparatus and more particularly to such apparatus for the doors of toilets and other public places.

It has long been recognized that in the interest of public health sanitation is of prime importance and that by the practice of personal hygiene the spread of communicable diseases can be greatly curtailed. Although this is common knowledge and the great majority of the public are inclined to practice cleanliness and hygiene there are, nevertheless, many persons who through carelessness or thoughtlessness fail to do so at times. This is particularly true in instances where persons use public toilets and often forget to wash their hands. In the preparation of food products such as in canning factories, bakeries and the like, many precautions are taken to provide the most sanitary conditions but there is always present the human element which through carelessness can practically nullify these conditions.

It is accordingly an object of the present invention to provide a sanitation apparatus for toilet doors or enclosures which ejects an antiseptic or colored liquid on the hand of the user upon unfastening of the toilet door so that failure to wash the hands can be readily detected.

Another object of the present invention is the provision of a sanitation apparatus for toilet doors or enclosures which is automatically operated upon unfastening of the door latch to eject a spray of antiseptic or colored liquid onto the hand of the user so that failure to wash the hands after use of the toilet can be readily detected either by the color of the liquid on the hand or the resulting obnoxious odor.

A further object of the present invention is the provision of a sanitary apparatus for toilet doors or enclosures wherein an antiseptic or colored fluid is automatically sprayed upon the hand of the user by the operation of the door latch to unfasten the door or enclosure.

Still other objects of the present invention will become obvious to those skilled in the art by reference to the accompanying drawings wherein:

Fig. 1 is an elevational view of a toilet door in its closed and latched position and showing the sanitary apparatus of the present invention attached thereto;

Fig. 2 is a sectional view on an enlarged scale taken on the line II—II of Fig. 1 and showing the sanitary apparatus attached to the toilet door and forming a part of a door latch of well known design;

Fig. 3 is a sectional view taken on the line III—III of Fig. 2;

Fig. 4 is a sectional view taken on the line IV—IV of Fig. 3;

Fig. 5 is an elevational view showing a modification which the sanitary apparatus of the present invention may take and as applied to a door latch of the sliding bolt type, and

Fig. 6 is a perspective view of an operating part of the apparatus as shown in Fig. 5.

Referring now to the drawings in detail a toilet door 5 of well known design is shown hinged to a post 6 and latched in closed position to another post 7, the side walls 8 completing the enclosure. Attached to the door 5 is the sanitation apparatus 9 of the present invention and which can be better understood by reference to the more detailed showing of Figs. 2 to 4 inclusive.

As shown in these latter figures the door 5 is provided with a latch 10 mortised therein which includes a knob 12 secured in the customary manner by a set screw 13 to a square shaft 14. Surrounding this shaft is a collar 15 journalled for rotation in the closure plates 16 and 17 and provided with an integral laterally extending projection 18 (Fig. 3). The free end of this projection 18 engages a projection 19 (Fig. 3) extending normally from a sliding bar 20 movable between guide posts 22 with such sliding bar being also provided with an angularly projecting base member 23 for a purpose hereinafter described. A cam 24 is pivoted at 25 to the closure plate 16 with one end thereof engaging the top of the sliding bar 20 and the other end pivotally connected to the latch bar 26, the latter of which moves between guide posts 27 and is biased in position to cause the latching member 28 to enter the keeper 29 in the post 7, by a coil spring 30.

The construction thus far described constitutes the customary door latch mechanism so that upon rotation of the door knob 12 the projection 18 raises the projection 19 and hence the sliding bar 20. Since the pivoted cam 24 engages the sliding bar 20 raising of the latter causes clockwise rotation of the cam 24 about its pivot 25 moving the latch bar 26 to the right, as viewed from Figs. 3 and 4, with attendant withdrawal of the latching member 28 from the keeper 29 against the tension of spring 30, and enabling the user to open door 5 and enter the toilet enclosure.

When it is desired to leave the toilet enclosure the user depresses a lever arm 32 pivoted to an escutcheon plate 33. This lever arm 32 extends in

an upward direction interiorly of the door mortise with its inner end 34 engaging the base member 23 of the sliding bar 20. Accordingly depression of the lever arm 32 about its pivot raises the sliding bar 20 in the same manner as rotation of the door knob 12, as above mentioned, with withdrawal of the latch member 28 from the keeper 29 enabling the door 5 to be opened.

In order to assure the user washing his hands after leaving the toilet enclosure the sanitation apparatus 9 is provided on the inside of the toilet door and is automatically operated by the latch mechanism to spray the hand of the user only upon operation of the latch from the inside of the toilet door and while the hand is on the latch operating member. To this end the latch 10 is provided with a reservoir 35 having a detachable plug 36 to enable filling of the reservoir with an antiseptic, colored, or obnoxious fluid 37.

For the purpose of ejecting a spray of the fluid 37 on the hand of the user, an outlet 38, which is normally closed by a valve 39, is provided immediately above the latch operating lever arm or member 32. The valve 39 is attached to a stem 40 extending upwardly through a piston 42 and a coil spring 43, disposed between a shoulder 44 on the interior of the piston and a tensioning nut assembly 45, maintains the valve 39 normally in its seat within the outlet 38. To open this valve 39 the end 34 of the lever arm 32 engages a base member 46, similar to the base member 23, which is carried by a sliding bar 47 movable between guide posts 48. This latter sliding bar 47 is also provided with a normally extending projection 49 having an adjustable set screw 50 secured thereto.

As can be seen more clearly in Figs. 2 and 3 this set screw 50 contacts one end of a rocker arm 52 pivoted at 53 and which is biased into contact with the set screw 50 by a coil spring 54. The other end of the rocker arm is bifurcated, as shown in Fig. 4, with its longitudinal axis aligning with that of the lever arm 32 disposed below the reservoir. The bifurcated ends of the rocker arm 52 are provided with pins 55 (Fig. 4) engaging an annular groove 56 in the piston 42 and an adjustable guide pin 57 slidable in the wall of the reservoir maintains the piston 42 in fixed position within the reservoir 35.

Accordingly, upon depressing of the lever arm 32 to operate the latch in the manner previously described such lever arm also raises the base member 46. This in turn raises the sliding bar 47 together with its projection 49 and adjustable set screw 50, and since this set screw contacts the rocker arm 52 the adjacent end of the latter is also raised against the tension of the coil spring 54. Rotation of the rocker arm 52 about its pivot 53 thus follows causing downward movement of the piston 42 aided somewhat by the tension of the spring 43 which also serves to keep the valve 39 closed during initial movement of the piston 42. Moreover, the spring 43 more or less counter-balances the tension exerted by the spring 54 thus enabling free and easy movement of the piston 42 with the expenditure of very little effort on the part of the user when depressing the lever arm 32.

Downward movement of the piston 42 continues until the lower end thereof closes a small chamber 58 formed by a reduced diameter portion in the reservoir immediately in back of the valve 39 thereby applying pressure to the small quantity of fluid 37 thus trapped therein. However, since the fluid 37 naturally cannot be compressed the pressure created by the piston 42 closing the small chamber 58 forces the valve 39 open thereby ejecting under pressure a fine spray of the small quantity of fluid 37 within this small chamber. Following initial opening of the valve 39 by the pressure exerted by the piston 42 the valve is held in an open position by the engagement of the guide pin 57 which is so adjusted that the end thereof extending interiorly of the piston 42 engages the end of the valve stem 40.

Thus this small quantity of fluid in the form of a fine spray is ejected over practically the entire hand of the user while it is on the latch operating member constituting the lever arm 32. Upon release of this lever arm 32 all moving parts are restored to normal position by gravity and the springs 43 and 54. The fluid 37 being an obnoxious antiseptic or a colored liquid removable only by washing can thus be immediately detected reminding the user to thoroughly wash his hands before returning to his normal pursuits.

In Figs. 5 and 6 a slight modification of the present invention is shown with the apparatus applied to a door latch of the sliding bolt type frequently employed on toilet doors normally remaining open when not in use. By reference to these latter figures the latch is shown as comprising a plate 60 fastened to the inside of the toilet door 5 by suitable screws 62. Such plate is provided with a raised channel 63 in which a bolt latch 64 slides by the user grasping a latch operating member such as a knob 65 extending through a slot 66 in the channel member 63 thereby moving the right hand end of the bolt into and out of a slot formed in the post 7.

The sanitation apparatus of this modification comprises a cylinder 67 containing an antiseptic fluid under pressure and which can be readily obtained on the market. A removable band hanger 68 secures the cylinder to a plate 69 of substantially L-shape which is also secured to the inside of the toilet door 5 by suitable means such as screws 70 so as to dispose the cylinder outlet 72 immediately above the grasping knob 65. This latter plate 69 is provided with a notch 73 to allow movement of the bolt latch 64 therein with the adjacent end of the bolt latch being provided with a pin 74 passing through a slot 75 in an arm 76 pivoted at 77 to the plate 69. Consequently upon sliding movement of the bolt latch 64 movement of the pin 74 within the slot 75 causes arcuate movement of the free end of the pivoted arm 76.

A rocker arm 78 is pivoted at 79 to the plate 69 which is formed of two over-lapping parts 80 and 82 partially rotatable with respect to each other about the pivot 79. In the normal position of the rocker arm one end is biased against a stop 83 by a coil spring 84 while the other end is disposed in the path of arcuate movement of a projecting pin 85 carried by the free end of the pivoted arm 76. Upon unlocking of the latch bolt 64, by movement to the left as shown in Fig. 5, counter-clockwise rotation of the arm 76 about its pivot 77 occurs with the result that the pin 85 engages the section 82 of the rocker arm 78 causing rotation of the latter about its pivot 79 against the tension of spring 84. The section 80 of the rocker arm 78 simultaneously moves about the pivot 79 until it engages a valve button 86 on the cylinder 67, as shown in dotted lines in Fig. 5, thus opening the outlet 72 with attendant ejection of a spray of antiseptic fluid on the hand of the user. By this time the pin 85 on the end of pivoted arm 76 will have reached the limit

of its arcuate movement in one direction which is beyond an engaging position with the section 82 of the rocker arm 78 allowing the latter to return to its normal position, as shown by the full lines in Fig. 5, under the action of the spring 84.

Since there is no necessity for causing the ejection of a spray of fluid during locking of the latch bolt 64 the lower section 82 of the rocker arm 78 is arranged to partially rotate about the pivot 79 independent of any movement of the other section 80. Thus upon movement of the latch bolt 64 to the right for the purpose of locking the door 5 the pin 85 carried by the pivoted arm 76 will again engage the section 82 of the rocker arm 78. However, counter-clockwise rotation of rocker arm section 80 about its pivot 79 is prevented by the stop 83. The remaining section 82 nevertheless moves counter-clockwise about the pivot 79 since it is provided with an arcuate slot 87, as shown in Fig. 6, one end of which normally engages a set screw 88 extending laterally from a bushing 89 forming an integral part of the section 80, which thus allows rotation of the section 82 about the bushing 89 and pivot 79 with complete rotation being prevented by the other end of the arcuate slot 87. However, prior to the end of the arcuate slot engaging the set screw 88, the pin 85 on the pivoted arm 76 will have passed beyond engaging position with the rocker arm 78 allowing return of the section 82 to its normal position by the aid of a leaf spring 90. When in its normal position the set screw 88 rests against the opposite end of the arcuate slot 87, as shown in Fig. 5, thus enabling both sections 80 and 82 to be rotated simultaneously in a clockwise direction about the pivot 79 with attendant automatic operation of the antiseptic apparatus simultaneously with unfastening of the door latch as above described.

It thus becomes obvious to those skilled in the art that a sanitary apparatus particularly for the doors of toilet enclosures is herein shown and described which is automatically operable by the door latch to eject a spray of antiseptic, colored, or obnoxious fluid under pressure on the hand of a user. Inasmuch as the fluid is readily detectable by its color or odor and can be removed from such a large area as the hand only by thorough washing it serves to prevent the forgetting of this act of personal hygiene. Moreover, such apparatus can be readily installed on existing toilet doors and on the gate of a railing enclosing urinals with facility and desirable results.

Although several embodiments of the present invention have been shown and described it is to be understood that other modifications thereof may be made without departing from the spirit and scope of the appended claims.

I claim:

1. A sanitary apparatus for the door of a toilet enclosure comprising a dispensing means secured to the inside of the door directly adjacent the inside operator for the door latch, said dispensing means being operated by means which are actuated by said inside operator for the latch.

2. A sanitary apparatus for the door of a toilet enclosure comprising a dispensing means secured to the inside of the door directly adjacent the inside operator for the door latch, and means actuated by said inside operator for the door latch to cause said dispensing means to release a quantity of fluid on the hand of one manipulating the inside operator for the door latch.

3. A sanitary apparatus for the door of a toilet enclosure comprising a dispensing means secured to the inside of the door directly adjacent the inside operator for the door latch, and means actuated by said inside operator for the door latch only during unlatching movement of the latter to cause said dispensing means to release a quantity of fluid on the hand of one manipulating the inside operator for the door latch to unlatching position.

4. A sanitary apparatus for the door of a toilet enclosure comprising a dispensing means containing a fluid secured to the inside of the door directly adjacent the inside operator for the door latch and provided with a valve, and mechanism connected to the valve of said dispensing means and actuated by said operator for the door latch to cause opening of the valve and the ejection of a spray of fluid on the hand of one manipulating the inside operator for the door latch.

5. A sanitary apparatus for the door of a toilet enclosure comprising a dispensing means containing a fluid secured to the inside of the door directly adjacent the inside operator for the door latch and provided with a valve, and mechanism connected to the valve of said dispensing means and actuated by said operator for the door latch only during unlatching movement of the latter to cause opening of the valve and the ejection of a spray of fluid on the hand of one manipulating the inside operator for the door latch to unlatching position.

6. A sanitary apparatus for the door of a toilet enclosure comprising a dispensing means containing a fluid secured to the inside of the door directly adjacent the inside operator for the door latch and provided with a valve and piston therein, and mechanism connected to the piston of said dispensing means and actuated by said operator for the door latch to cause movement of said piston and opening of the valve with attendant ejection of a spray of fluid on the hand of one manipulating the inside operator for the door latch.

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