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J. P. SARLIN

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SANITARY ATTACHMENT FOR TOILET BOWLS

Filed Sept. 30, 1957

4 Sheets-Sheet 3

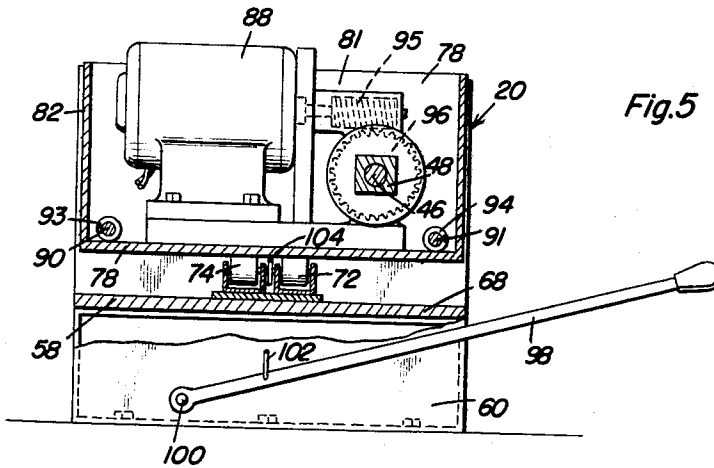


Fig. 5

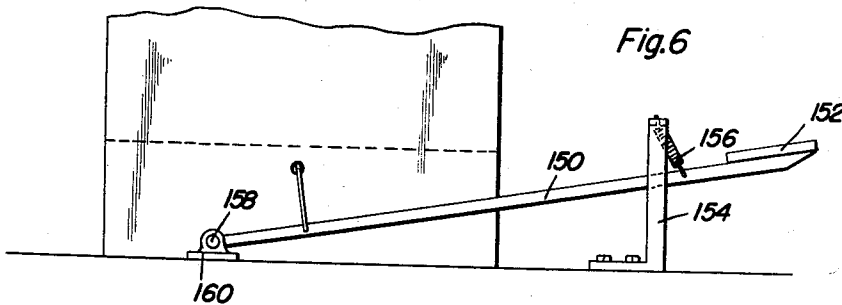


Fig. 6

Fig. 7

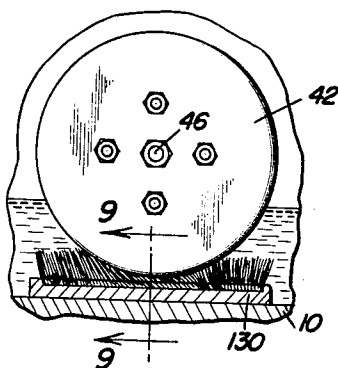


Fig. 8

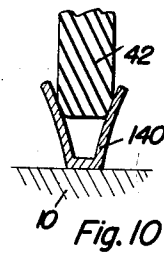
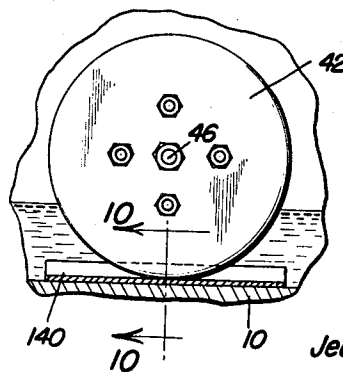


Fig. 10

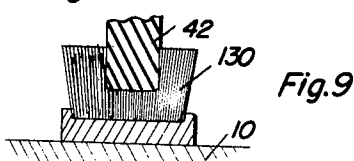


Fig. 9

Jean P. Sarlin
INVENTOR.

BY *Almon A. O'Brien*
and *Harvey B. Jacobson*
Attorneys

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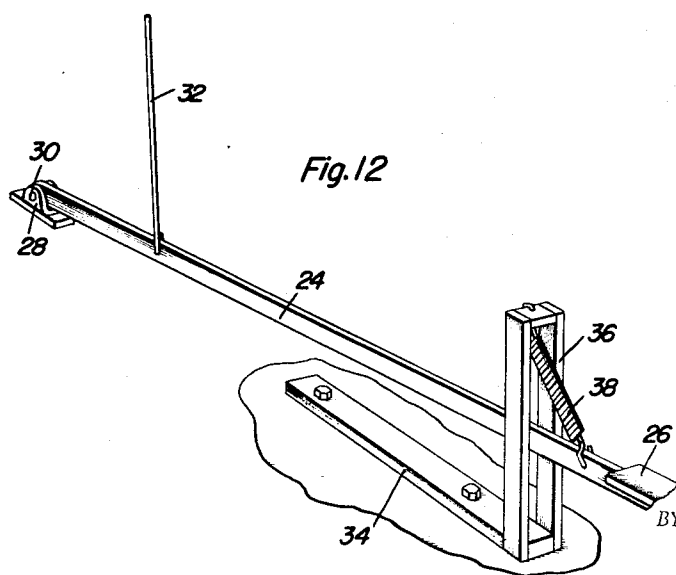
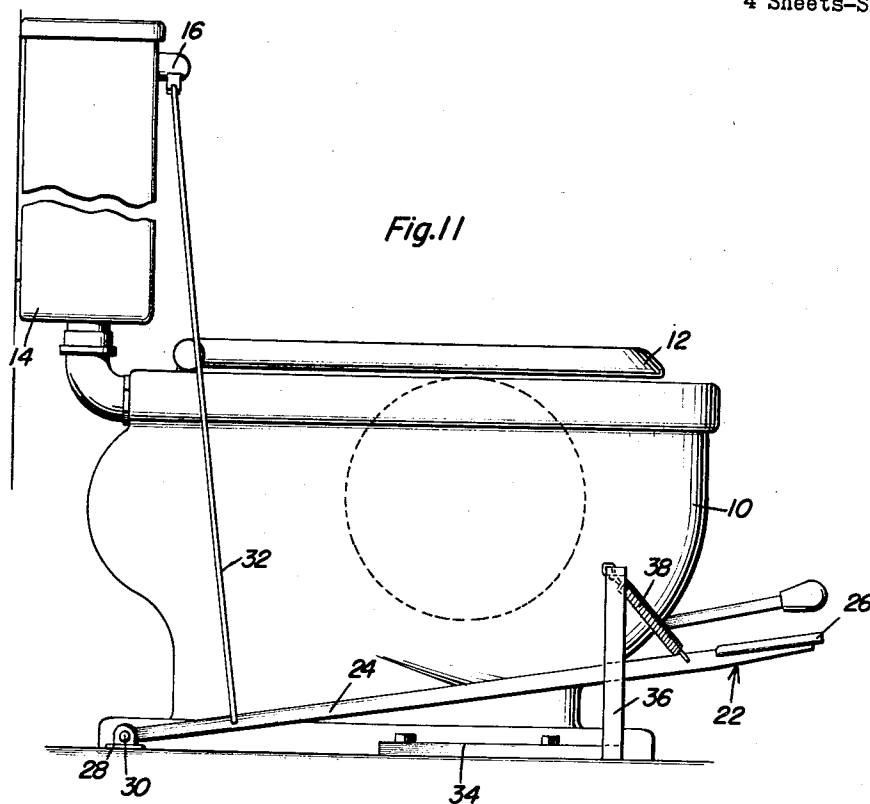
J. P. SARLIN

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Jean P. Sarlin
INVENTOR.

BY *Albion A. O'Brien*
and Harvey E. Jackson
Attorneys

1

2

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SANITARY ATTACHMENT FOR TOILET BOWLS

Jean P. Sarlin, Maywood, Calif.

Application September 30, 1957, Serial No. 687,115

10 Claims. (Cl. 4-1)

This invention relates to plumbing fixtures and more particularly to a sanitary attachment for a toilet bowl.

An object of the invention is to provide a sanitary attachment for a toilet bowl which has principal use and its widest application for invalids. The attachment provides means by which an armless person may cleanse himself after defecation. One of the features of the invention is that the cleaning pad has means by which it is automatically cleansed.

A further object of the invention is to provide a toilet bowl with fittings by which an invalid may perform all of the necessary actions in using only his feet. Mechanical aids constitute the invention, one being arranged to operate the flush handle and another being to cleanse the user after defecating. The latter function is achieved by a rotating pad that moves from an inoperative lateral position in a toilet bowl to an operative approximately centered position and which is motor operated. At the same time that the pad is rotating it automatically becomes cleaned by one or more of a variety of structures.

A further object of the invention is to achieve the above functions by a mechanically simplified organization which is capable of being produced at a reasonable cost, especially in comparison to the functions which it performs, these considered to be very important not only from a physiological standpoint but also from a psychological standpoint.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a top view of a toilet which has a cleansing attachment constructed in accordance with the invention.

Figure 2 is a front view of the toilet and attachment of Figure 1.

Figure 3 is a sectional view taken on the line 3-3 of Figure 1.

Figure 4 is a transverse sectional view taken on the line 4-4 of Figure 1.

Figure 5 is a sectional view taken on the line 5-5 of Figure 2 and showing principally the attachment for the toilet.

Figure 6 is an elevational view showing the means for operating the cleansing attachment as a modification of the means shown in Figure 5.

Figure 7 is a fragmentary sectional view showing a modification of the means to clean the rotating pad.

Figure 8 is an elevational view showing a further modification of the means for cleaning the rotating pad.

Figure 9 is a sectional view taken on the line 9-9 of Figure 7.

Figure 10 is a sectional view taken on the line 10-10 of Figure 8.

Figure 11 is an elevational view of another attachment for the toilet whose purpose is to enable the toilet to be flushed by depressing a foot pedal.

Figure 12 is a perspective view of the attachment in Figure 11.

Referring initially to Figs. 11 and 12, I have illustrated a toilet bowl 10 that has a seat 12 and a flush tank 14. The flush tank has a flush tank operating handle 16. The toilet bowl may be of standard form or may be modified by the inclusion of my cleansing attachment 20 illustrated in Figs. 1-10, inclusive. Inasmuch as my invention deals with equipment and improvements in equipment enabling armless invalids to care for sanitary bodily functions, the attachment 22 of Figs. 11 and 12 cooperates with the attachment 20 to achieve this common end. Attachment 22 consists of a lever 24 that has a foot pedal 26 at the outer end and that is mounted for oscillation on support 28 that carries approximately horizontal pivot 30. The inner end of lever 24 is mounted for pivotal movement on pivot 30 and is intended to be foot operated. A rod, cable, link or other force transmitting elongated member 32 is attached to the lever 24 intermediate the ends of the latter and is attached to the flush handle 16. Bracket 34 is attached to the floor near the toilet bowl and has an upstanding approximately rectangular guide 36 through which the lever extends. The guide constrains the movement of the lever and serves as a support for return spring 38 that is attached to the top of the guide and to the lever near the foot pedal 26. Therefore when the person depresses the foot pedal 26, the lever causes the flush mechanism in the toilet flush tank 14 to be operated. Spring 38 returns the lever 24 to the rest position and also enables the flush tank handle 16 to be returned to the starting position.

Toilet bowl 10 is formed with a vertical side 40 so that rotating pad 42 can be brought to a rest position very close to it and beneath the seat 12. The pad is in the form of a disk and made of pliable material, for example rubber or rubber-like plastic. The pliable disk is bolted or otherwise detachably connected to a face plate 44, and the face plate is attached to shaft 46. The shaft extends through a sleeve 48. The shaft and sleeve both pass through bushings 50 and 52 in the lateral passage 54 that is formed in the side of the toilet bowl 10. These bushings may have packing between them to exclude water.

A stand 58 is mounted on the floor adjacent to the toilet bowl by an inside mounting plate 60 and outside legs 62. The inside mounting plate is connected by bolts 64 to the side of the toilet bowl, and it has a hole through which the sleeve 48 is passed. This stand has a base 68 and an outside wall 70. The entire stand and contents thereof may be enclosed in a housing, this being an optional feature.

A plurality of groups of rollers are on the base 68. The group 72 of rollers is the same as the group 74 and is parallel to it. Each group is constructed of a number of spindles on which there is a single roller and supporting channels for the spindles, the supporting channels attached to the base 68 of stand 58. Although I have illustrated only two groups of rollers it is to be clearly understood that if more rollers are deemed necessary they may be used. Alternatively, the rollers may be enlarged or reduced depending on engineering design.

Carriage 78 is mounted for movement on the rollers. The carriage is constructed of a casing 80 that has a bottom wall which rests on the rollers, a back wall 81 and side walls 82 and 83. A stop 84 is arranged at right angles to the side wall 82 and is adapted to contact limit switch 85 that is secured to the plate 60 and that is wired with motor 88 in such a way as to de-energize the motor in response to full innermost travel of the carriage 78.

Guide rods 90 and 91 are attached to mounting plate 60 and to the wall 70, passing through holes in the car-

3

riage wall 81. Springs 93 and 94 have their ends in contact with mounting plate 60 and wall 81 of carriage 78. These springs function as means to return the carriage after it is moved inwardly toward the toilet bowl for use of the rotating pad 42.

Electric motor 88 is mounted on the bottom of the carriage and is wired through the limit switch 85. A worm 95 and a gear 96 drive enclosed in gear box 97 and mounted on the bottom of carriage 98 or formed as a part of motor 88, establishes a drive connection between the shaft of motor 88 and the shaft 46. The shaft 46 is secured to gear 96 while the shaft of motor 88 is secured to worm 95. Accordingly, when the motor is energized, as by depressing a foot operated switch, the rotating pad is set into motion. When the user desires to move the pad to the operative position at approximately the center line of the toilet bowl, the user depresses the lever 98 which is mounted for pivotal movement on pivot 100 that is secured to mounting plate 60. A cable, cord or the like 102, is secured to the lever 98 and is entrained over a guide pulley 104 between the channels that support the two groups 72 and 74 of rollers. The cable 102 passes through openings in the stand in order to reach the pulley 104. The end of the cable 102 is secured by a bolt 106 or a like fastener, to the wall 81 of the carriage. Therefore, when the lever 98 is depressed, the cable pulls the carriage toward the toilet bowl thereby moving the sleeve 48, shaft 46 and the pad 42 that is supported by the shaft toward the center line of the toilet. As previously described the stop 84 contacting switch 85 is used to stop the motor. As an alternative which is of equal importance to the described function of switch 85, the limit switch 85 may be used as the starting switch for the motor. In this event the wiring will be such that switch 85 causes motor 88 to be energized only when the rotating pad is in the operative position. There are other ways of wiring the motor and of controlling its energization, many of which are within the contemplation of this invention.

There are means in the toilet bowl for automatically cleaning the rotating pad. One embodiment of these means are seen best in Figs. 1, 3 and 4. They consist of a pair of rollers 110 and 112 mounted in an upstanding channel 114 that is anchored, as by bolting, to the bottom of the toilet bowl. The axes of rotation of the rollers 110 and 112 are parallel to the axis of rotation of the pad 42. The periphery of the pad comes in contact with the rollers 110 and 112 and by a squeeze action causes the pad to become cleansed as it is used.

Figs. 7-10 show various modifications of the means for cleaning the rotating pad 42. In Figs. 7 and 9 I illustrate a brush 130 which is attached to the bottom of the toilet bowl 10 and whose bristles agitate the periphery of the pad 42 as it is rotated. The distance between the brush and the periphery of the pad is such that the periphery of the pad embeds itself in the bristles of the brush, Fig. 9, during the normal operation of the pad.

Figs. 8 and 10 show a further modification where the rollers of Fig. 1 and the brush of Fig. 8 is substituted by a squeegee 140. The squeegee is secured to the bottom of the toilet bowl and is of approximately V-shape in cross section. The sides of the squeegee have the periphery of the rotating pad 42 movable therein in response to rotation of the pad so that the pad is cleansed as it is used.

Reference is now made to Fig. 6 where there is a further embodiment of the invention illustrated. The lever 98 may be foot operated or operated by some other portion of the anatomy. The lever 150 of Fig. 6 is a modification of the invention when substituted for lever 98. The lever 150 has a foot pedal 152 at one end and is constrained in its movement by support 154. The support is floor mounted and has a spring 156 secured to it. The spring is secured at its end to lever 150 and functions as a return spring. The inner extremity of the lever is mounted for oscillation on pivot pin 158 that is carried by

4

a floor bracket 160 or otherwise suitably mounted. The operation of the lever 150 causes an actuation of carriage 78 in precisely the same manner as the actuation of lever 98.

The foregoing is considered as illustrative only of the principles of the invention. Numerous modifications and changes will readily occur to those skilled in the art. For example, one hand operated equipment could be substituted where electricity is unavailable; and bracket 154 and spring 156 may be omitted since springs 93 and 94 will be sufficient. Therefore, it is not desired to limit the invention to the exact construction and operation shown and described, and all suitable modifications and equivalents falling within the scope of the claims may be made.

Having described the invention, what is claimed as new is as follows:

1. A toilet bowl that has a trap within which there is standing water and a side provided with a passage above the water level, an attachment for the toilet bowl comprising a stand located completely on the exterior of the toilet bowl, a carriage mounted for movement on said stand and disposed entirely on the exterior of the toilet bowl, a motor, a shaft extending through said passage, means exterior of the toilet bowl drivingly connecting said motor to said shaft, means mounting said motor on said carriage for movement toward and away from said side of the toilet bowl wherein the passage is formed, a rotating cleaning disc pad on said shaft and partially submerged in the water in said toilet bowl and adapted to move toward the center line of the toilet bowl in response to movement of said carriage toward said toilet bowl.

2. A toilet bowl that has a trap within which there is standing water and a side provided with a passage above the water level, an attachment for the toilet bowl comprising a stand mounted exteriorly of said bowl, a carriage mounted for movement on said stand, a motor, a shaft extending through said passage, means drivingly connecting said motor to said shaft, means mounting said motor on said carriage for movement toward and away from said side of the toilet bowl wherein the passage is formed, a rotating cleaning element on said shaft and partially submerged in the water in said toilet bowl and adapted to move toward the center line of the toilet bowl in response to movement of said carriage toward said toilet bowl, a switch, an electrical circuit having said switch and motor therein, said switch being mounted in the path of travel of said carriage, and the energization of said motor being effected by actuation of said switch.

3. The toilet bowl of claim 1, wherein there are means beneath the water level in said toilet bowl and in contact with said pad when said pad is in at least one position for automatically cleaning said pad beneath the water level while said pad is being rotated.

4. The toilet bowl of claim 3, wherein said pad cleaning means includes a pair of rollers mounted in the water at the bottom of the toilet bowl and against which the periphery of the pad is adapted to engage.

5. The toilet bowl of claim 3, wherein said pad cleaning means includes a brush mounted in the water at the bottom of the toilet bowl and against which the periphery of the pad is adapted to engage.

6. The toilet bowl of claim 3, wherein said pad cleaning means includes a squeegee mounted in the water at the bottom of the toilet bowl and against which the periphery of the pad is adapted to engage.

7. The toilet bowl of claim 2, wherein there is a foot operated lever, mechanical means connecting said foot operated lever to said carriage to move said carriage inwardly toward the toilet bowl, and resilient means connected with said carriage for returning said carriage to the starting position.

8. In a toilet bowl which has a water-containing trap and a bowl structure having a passage in the side thereof, an attachment which includes a mounting plate attached on the exterior of said side of said bowl, a stand attached

5

to said mounting plate, a plurality of rollers carried by said stand, a carriage mounted for movement on said plurality of rollers, an electric motor on said carriage, a shaft mounted in said passage, a rotating pad on the inner end of said shaft and located in said toilet bowl with a part of the pad submerged in the water of said trap, means drivingly connecting said electric motor to said shaft to rotate said pad, and foot operated means for moving said carriage inwardly toward said toilet bowl to thereby move the rotating pad toward the center line of the toilet bowl while continuing to maintain a part of the pad submerged.

9. In a toilet bowl which has a water-containing trap and a bowl structure having a passage in the side thereof, an attachment which includes a mounting plate attached on the exterior of said side of said bowl, a stand attached to said mounting plate, a plurality of rollers carried by said stand, a carriage mounted for movement on said plurality of rollers, an electric motor on said carriage, a shaft mounted in said passage, a rotating pad on the inner end of said shaft and located in said toilet bowl with a part of the pad submerged in the water of said trap, means drivingly connecting said electric motor to said shaft to rotate said pad, foot operated means for moving said carriage inwardly toward said toilet bowl to thereby move the rotating pad toward the center line of the toilet bowl while continuing to maintain a part of the pad submerged, guide means for said carriage operatively connected thereto, and a spring associated with said guide means and reacting on said carriage to return said carriage to the rest position.

10. In a toilet bowl which has a water containing trap and a bowl structure having a passage in the side thereof,

6

an attachment which includes a mounting plate attached on the exterior of said side of said bowl, a stand attached to said mounting plate, a plurality of rollers carried by said stand, a carriage mounted for movement on said plurality of rollers, an electric motor on said carriage, a shaft mounted in said passage, a rotating pad on the inner end of said shaft and located in said toilet bowl with a part of the pad submerged in the water of said trap, means drivingly connecting said electric motor to said shaft to rotate said pad, foot operated means for moving said carriage inwardly toward said toilet bowl to thereby move the rotating pad toward the center line of the toilet bowl while continuing to maintain a part of the pad submerged, guide means for said carriage operatively connected thereto, a spring associated with said guide means and reacting on said carriage to return said carriage to the rest position, and means in said toilet bowl and normally located within the water in the toilet bowl for automatically cleaning the pad as the pad is rotated.

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