June 21, 1932. S. ALBERTS 1,863,682

TOILET BOWL

Filed Aug. 23, 1930

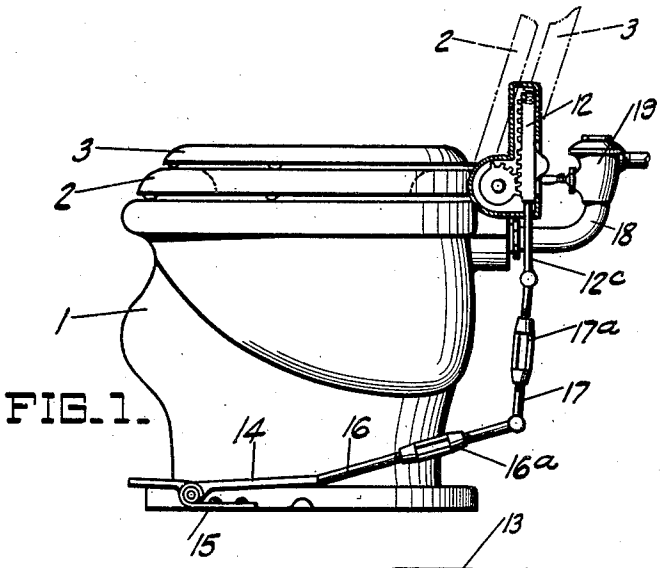


FIG. 1.

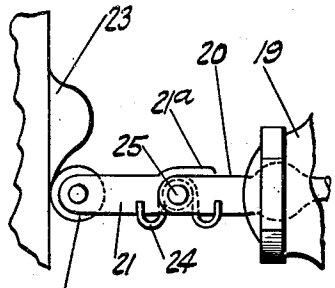


FIG. 5.

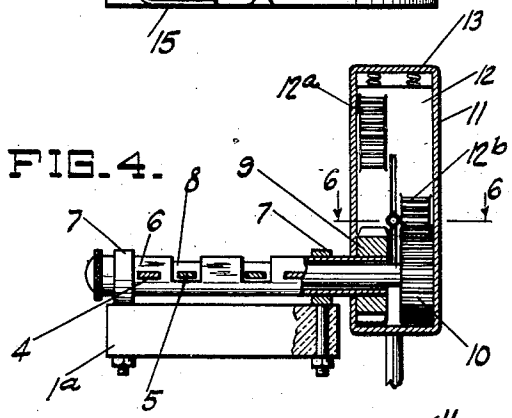


FIG. 4.

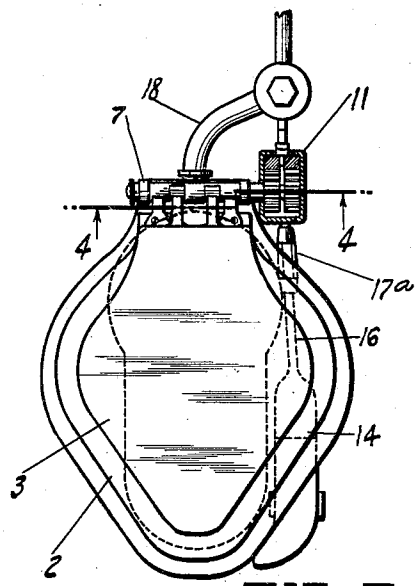


FIG. 2.

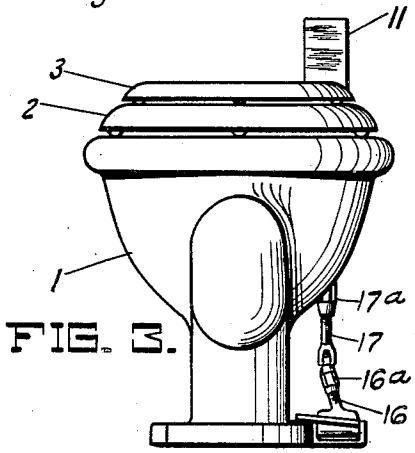


FIG. 3.

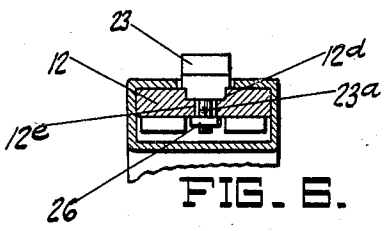


FIG. 6.

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UNITED STATES PATENT OFFICE

SAMUEL ALBERTS, OF LOS ANGELES, CALIFORNIA

TOILET BOWL

Application filed August 23, 1930. Serial No. 477,195.

My invention relates to toilet bowls, and particularly to means for actuating and controlling the seats, covers and flushing valves thereof.

The objects of my invention are: first, to provide a toilet bowl in which the toilet seat and toilet seat cover, or either of them, may be raised and lowered without touching the same with the hands, thereby providing a very sanitary toilet bowl construction, and one whereby the person using same would be more likely impelled to raise the toilet seat, and to lower the toilet cover, when using or when through using the same; second, to provide a toilet bowl construction of this class, in which the toilet seat and the toilet seat cover are raised and lowered by the same means, but independently of each other, so that the seat may be raised and lowered, when the cover is in a raised position; third, to provide a toilet bowl, whereby the raising and lowering of the seat and cover is effected by a foot pedal conveniently arranged at the side of the forward portion of the toilet receptacle; fourth, to provide a toilet bowl construction in which the toilet is flushed by a foot pedal, which is, or may be, arranged in cooperative relation with a toilet seat cover, so that the toilet bowl receptacle is flushed when the cover is lowered against the seat, or in which the toilet bowl receptacle is not flushed until the seat cover is lowered; fifth, to provide a novelly constructed gear and rack means for raising and lowering the seat and cover; sixth, to provide a novel means for mounting and adjusting a cam means in connection with the rack for controlling the toilet flushing valve, even though the position of the flushing valve may vary considerably in the flushing line; seventh, to provide a simple and economical means for partially absorbing the shock from the falling toilet seat and toilet cover when the foot pedal is suddenly released by the foot, when the cover is in a position with respect to its pivotal axis normally to fall to its closed position; eighth, to provide as a whole a novelly constructed toilet bowl, and one which is simple and economical of construction proportionate to its functions, and one which will not readily deteriorate or get out of order.

With these, and other objects in view as will appear hereinafter, my invention also includes certain novel features of construction, combination and arrangement of parts and portions, as will be hereinafter described in detail and particularly set forth in the appended claims, reference being had to the accompanying drawing and to the characters of reference thereon which form a part of this application, in which:

Fig. 1 is a side elevational view of a toilet bowl incorporating my invention in one form showing certain parts and portions broken away and in section to facilitate the illustration;

Fig. 2 is a top view thereof, showing certain parts and portions thereof broken away and in section to facilitate the illustration;

Fig. 3 is a front elevational view thereof;

Fig. 4 is an enlarged fragmentary sectional view thereof, taken through 4—4 of Fig. 2;

Fig. 5 is an enlarged fragmentary elevational view thereof, showing particularly the construction of the valve actuating lever, and its association with the valve actuating cam;

Fig. 6 is an enlarged fragmentary sectional view thereof, taken through 6—6 of Fig. 4.

Like characters of reference refer to similar parts and portions throughout the several views of the drawing:

The toilet bowl receptacle, designated 1, is of conventional construction and is provided with a conventional toilet seat 2 and a conventional toilet cover 3 at the upper side of the receptacle 1. Both the cover and the seat are pivotally mounted at their rear edges, and are preferably coaxially mounted. The seat 2 is provided at its rear portion with backwardly extending arms 4 which are secured to a tube 6, which is rotatably mounted in a pair of journals 7, which journals are secured to a backwardly extending supporting ledge 1a on the toilet bowl receptacle 1. The cover 3 is also provided with backwardly extending arms, designated 5, which are secured at their rear ends to a rock shaft 8, which is coaxial with and rotatably mounted within the tube 6. Thus

the cover may be raised independently of the seat; and the seat may be raised independently of the cover when the cover is in a raised position.

One end of the tube 6 extends a considerable distance beyond one of the journals 7 and is provided at said end with a gear 9. The rock shaft 8 extends with one end beyond the last mentioned end of the tube 6 and is also provided on said extended end with a gear 10 of similar size and construction to the gear 9. Around these gears is a casing 11, which extends a considerable distance above the gears. Within the casing 11 is reciprocally mounted a gear rack member 12 which consists substantially of a wide plate having fragmentary gear racks 12*a* and 12*b* spaced laterally and longitudinally with respect to each other and so arranged as to engage and rotate the gears 9 and 10 independently and consecutively. When the seat and cover are both lowered, the gear rack 12*b* is in mesh with the gear 10. As the gear rack member 12 is lowered, the gear 10 is rotated, raising the cover 3 to the position shown by dotted lines in Fig. 1. After the cover is raised, the rack 12*b* is disengaged from the gear 10 and the rack 12*a* engages the gear 9, rotating the gear 9 and raising the seat 2 to the dotted line position shown in Fig. 1. The reverse movement of the gear rack member 12, namely, the upward shifting of the same, causes the seat and the cover to be lowered independently and consecutively. When the seat and cover are shifted forwardly beyond their pivotal axes, the weight of the seat and cover may fall of their own weight to their horizontal positions, if the manual operating means, which will be described hereafter, is released. The impact of the falling seat is somewhat reduced when the gear rack 12*b* engages the gear 10 and throws the cover 3 forwardly of its dotted line position; and the impact of the cover 3 against the seat 2 is reduced when the gear rack member 12 is shifted to its upper position in the casing 11. This impact or shock is reduced by the resistance offered by the rack, and connections, and by compression springs 13, which are positioned at the upper end of the rack member 12, and which engage the upper end of the casing 11 when the gear rack member reaches its upper position.

The member 12, upon which the gear racks are mounted, is shifted or reciprocated by a foot pedal 14, which is positioned at one side and near the forward portion of the base of the toilet receptacle 1. This pedal is pivotally mounted intermediate its ends on a floor bracket 15 so that the pedal 14 may be rocked in either direction about its pivotal support. The rear end of the pedal 14 is provided with a relatively long backwardly extending arm 16, which is pivotally connected by a link 17 to an arm 12*c* which extends downwardly from the rack member 12. Both the arm 16 and the link 17 are provided intermediate their ends with turnbuckles 16*a* and 17*a*, respectively, so as to adjust the lengths of the arm and link as desired to suit the arrangement of elements in the particular toilet bowl with which my device is used.

In the water line 18 which is connected to the receptacle 1 for flushing the same, is positioned a flushing valve 19, which may be of any desired construction. This flushing valve is provided with an actuating lever 20 which extends therefrom toward the rack member 12. To the extended end of the lever 20 is pivotally connected a pawl lever 21 which is provided at its forward end with a roller 22 which is adapted to be engaged by a cam member 23 carried by the rack member 12. The pawl lever 21 is provided at its upper side and, at its pivotal connection with the lever 20, with a backwardly extending lug 21*a*, which is adapted to engage the upper side of the lever 20 for tilting the lever 20 about its pivotal mounting in the valve 19 when the pawl lever 21 is raised. The pawl lever and the valve actuating lever 20 are held in such relation with the lug 21*a* in engagement with the lever 20 by a spring 24 extending around the pin 25, pivotally connecting said levers, the ends of the spring extending around the under sides of said levers. The cam member 23 is adjustably mounted on the rack member 12, as shown in Fig. 6, so that my device may be applied to toilet apparatus in which the flushing valve may vary with respect to the top of the toilet bowl receptacle. In this instance, the cam member 23 slides in a longitudinal groove 12*d* at the back side of the rack member, and is provided with a threaded shank 23*a* which extends forwardly through a longitudinal slot 12*e* in the rack member. This threaded shank is secured in place to the front side of the rack member by a nut 26, thus, there is provided a simple means for rigidly supporting and also for adjusting the cam member.

It will be noted that as the rack member 12 is lowered for raising the cover, the cam member engages the upper side of the pawl lever, or the roller at the end thereof, and forces the pawl lever downwardly without moving the actuating lever 20. As the cover 3 is lowered to its closed position, the cam member is again raised. engaging the roller at the end of the pawl lever and raising the same, which raises the valve actuating lever 20 and opens the flushing valve. It will be noted that such flushing occurs when the toilet cover is lowered and does not occur until the cover is lowered. The valve 19 is preferably of such construction in which the valve actuating lever or arm 20 is returned

to such a position that the valve is normally closed.

Though I have shown and described a particular construction, combination and arrangement of parts and portions of my toilet bowl apparatus, I do not wish to be limited to this particular construction, combination and arrangement, but desire to include in the scope of my invention, the construction, combination and arrangement substantially as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a toilet bowl, a toilet receptacle open at its upper side, a toilet seat pivotally mounted at its rear portion over the upper side of the receptacle, a toilet cover pivotally mounted at its rear portion coaxial with the pivotal axis of the toilet seat and positioned above the latter, and means unitary for independently and successively raising and lowering said cover and seat relative to the receptacle.

2. A toilet bowl, a toilet receptacle open at its upper side, a toilet seat pivotally mounted at its rear portion over the upper side of the receptacle, a toilet cover pivotally mounted at its rear portion coaxial with the pivotal axis of the toilet seat and positioned above the latter, a gear secured to each of the seat and cover, coaxial with each other and with the pivotal axes of the seat and cover, and means for independently rotating the gears for raising and lowering the cover and seat.

3. In a toilet bowl, a toilet receptacle open at its upper side, a toilet seat pivotally mounted at its rear portion over the upper side of the receptacle, a toilet cover pivotally mounted at its rear portion coaxial with the pivotal axis of the toilet seat and positioned above the latter, a gear secured to each of the seat and cover, coaxial with each other and with the pivotal axes of the seat and cover, a gear rack means reciprocally mounted adjacent said gears and adapted to mesh with each of the gears, and a manual means for shifting said rack means for raising and lowering the seat and cover.

4. In a toilet bowl, a tolet receptacle open at its upper side, a toilet seat pivotally mounted at its rear portion over the upper side of the receptacle, a toilet cover pivotally mounted at its rear portion coaxial with the pivotal axis of the toilet seat and positioned above the latter, a gear secured to each of the seat and cover, coaxial with each other and with the pivotal axes of the seat and cover, means for rotating the gears and a foot pedal pivotally mounted intermediate its ends at the side and forward portion of the base of the toilet receptacle and pivotally connected with its rear end to said gear rotating means.

5. In a toilet bowl, a toilet receptacle, a seat member pivotally mounted at the upper side of the receptacle, a gear secured to the seat and coaxial with the pivotal axis thereof, a gear rack meshing with the gear, manual means for shifting the rack, means for enclosing the gear and rack, and a shock absorber in connection with the rack and enclosing means.

6. In a toilet bowl, a toilet receptacle open at its upper side, a toilet seat cover pivotally mounted at its rear edge over the open side of the toilet receptacle, a gear secured to the cover and coaxial with the pivotal axis thereof, and a gear rack meshing with the gear, manual means for shifting the rack, means for enclosing the gear and rack, and a shock absorber in connection with the rack and enclosing means.

7. In a toilet bowl, a toilet receptacle, a flushing line connected thereto, a toilet cover pivotally mounted at its rear portion at the upper side of the receptacle, a gear secured to the cover and coaxial with the pivotal axis of the cover, a gear rack reciprocally mounted adjacent the gear and adapted to mesh therewith, a valve in the flushing line, a pivoted operating lever for the valve, means in connection with the gear rack for actuating the valve lever when said cover is lowered, and manual means for shifting said gear rack in opposite directions as desired.

8. In a toilet bowl, a toilet receptacle, a flushing line connected thereto, a toilet cover pivotally mounted at its rear portion at the upper side of the receptacle, a gear secured to the cover and coaxial with the pivotal axis of the cover, a gear rack reciprocally mounted adjacent the gear and adapted to mesh therewith, a valve in the flushing line, a pivoted operating lever for the valve, means in connection with the gear rack for actuating the valve lever when said cover is lowered, a foot pedal pivotally mounted intermediate its ends at the side and forward portion of the base of the receptacle, and flexible and adjustable means connecting the rear end of the foot pedal to the gear rack for shifting the latter in opposite directions.

9. In a toilet bowl, a toilet receptacle, a flushing line connected to the receptacle, a valve in the line, an actuating lever for the valve, a pawl lever pivotally mounted at the extended end of the valve lever for raising the latter when the free end of the pawl lever is engaged from the under side, and whereby the pawl lever is tilted independently of the valve lever when the former is engaged from the upper side, a vertically reciprocating member adjacent the free end of the pawl lever for engaging the latter when the reciprocating member is shifted in opposite directions, and cover and seat means operatively connected to the reciprocating member for raising and lowering the cover and seat means when the foot pedal is actuated.

10. In a toilet bowl, a toilet receptacle, a seat member pivotally mounted at its edge at the upper side of the receptacle and arranged to be forced and held normally in two extreme positions at the opposite sides of a neutral position, one position being immediately over the opening of the receptacle and the other an out-of-the-way position about its pivotal axis clear of the opening of the receptacle, and means for shifting the seat about its pivotal axis in opposite directions for forcing the seat to either side of the neutral position toward its extreme positions for raising and lowering the seat.

11. In a toilet bowl, a toilet receptacle, a seat cover member pivotally mounted at its edge at the upper side of the receptacle and arranged to be forced and held normally in two extreme positions at the opposite sides of a neutral position, one position being immediately over the opening of the receptacle and the other an out-of-the-way position about its pivotal axis clear of the opening of the receptacle, and means for shifting the seat cover about its pivotal axis in opposite directions for forcing the seat cover to either side of the neutral position toward its extreme positions for raising and lowering the seat.

12. In a toilet bowl, a toilet receptacle, a seat member pivotally mounted at its edge, on a horizontal axis, at the upper side of the receptacle and arranged normally to fall and to be held, substantially of its own weight, in either of two extreme positions at the opposite sides of a vertical plane passing through said axis, one extreme position being positioned immediately over the opening of the receptacle and the other a raised position clear of the receptacle, and manual means for shifting the seat about its pivotal axis in opposite directions toward opposite sides of said vertical plane.

13. In a toilet bowl, a toilet receptacle, a seat cover member pivotally mounted at its edge, on a horizontal axis, at the upper side of the receptacle and arranged normally to fall and to be held, substantially of its own weight, in either of two extreme positions at the opposite sides of a vertical plane passing through said axis, one extreme position being positioned immediately over the opening of the receptacle and the other a raised position clear of the receptacle, and manual means for shifting the seat cover about its pivotal axis in opposite directions toward opposite sides of said vertical plane.

14. In a toilet bowl, a toilet receptacle, a flushing line connected thereto, a toilet cover pivotally mounted at its rear portion at the upper side of the receptacle, a valve in said flushing line, a foot pedal pivotally mounted intermediate its ends at the side of the receptacle, and means operatively connecting said foot pedal to said cover and to said valve for raising the cover when the foot pedal is depressed at one side of its axis, and for lowering the cover and simultaneously actuating said valve when said foot pedal is depressed at the opposite side of its axis.

15. In a toilet bowl, a toilet receptacle, a toilet cover pivotally mounted at its edge at the upper side of the receptacle, a foot pedal pivotally mounted intermediate its ends at one side of the receptacle, and means for connecting the rear end of said foot pedal operatively with said toilet cover for positively shifting the same in opposite directions about its pivotal axis, said cover being raised when said pedal is depressed at one side of its pivotal axis and lowered when said foot pedal is depressed at the opposite side of its pivotal axis.

In testimony whereof, I have hereunto set my hand at Los Angeles this 5th day of August, 1930.

SAMUEL ALBERTS.