

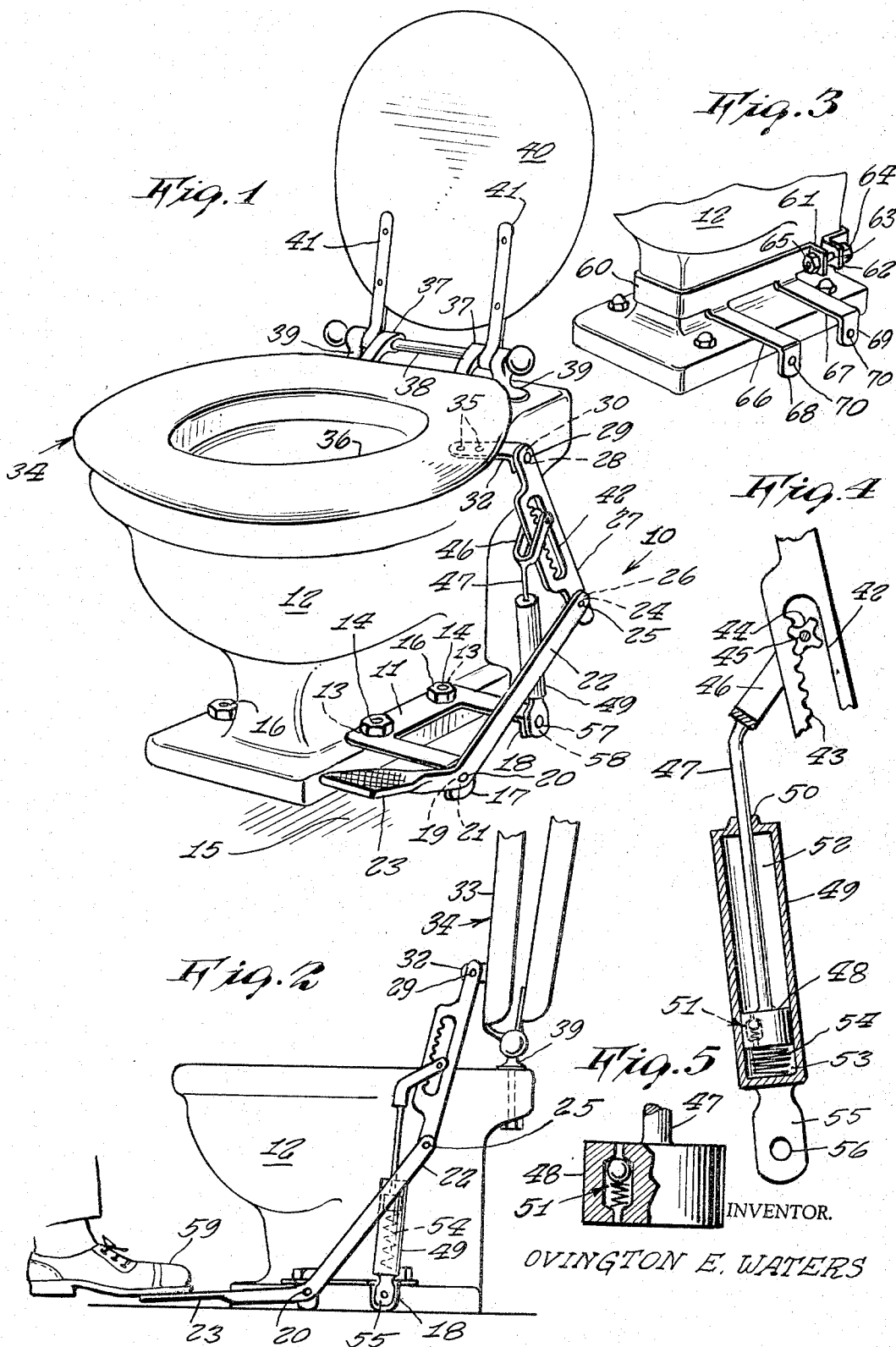
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TOILET SEAT SANITARY LIFTING MECHANISM

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TOILET SEAT SANITARY LIFTING MECHANISM

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ABSTRACT OF THE DISCLOSURE

A foot operated toilet seat lifting device, including a foot pedal lever that pushes an arm pivoted to the toilet seat, and a damping mechanism for slow downward return of the seat, the damping mechanism including an air cylinder with piston rod having a diagonally extending end movably engaging the arm.

This invention relates generally to lavatory commodes. More specifically it relates to toilet seats for commodes.

It is generally well known that most persons find it objectionable to touch with their hands any part of a toilet, particularly a public toilet that may be used by all types of persons with varied habits of cleanliness. Thus when the toilet is to be used for purposes wherein the toilet seat should be in raised position at such time, many persons who refrain from touching the seat with their hands will attempt to raise the same with their feet or simply not raise it at all. This is objectionable in view of the fact that lifting the foot so high is inconvenient and the shoe will deposit dirt and germs on the seat; and leaving the seat down while a male is in the act of urinating is likewise not clean.

Accordingly, it is a principal object of the present invention to provide a toilet seat lifting mechanism having self contained means whereby the seat may be lifted by simply depressing a foot pedal near the floor conveniently located for the person standing before the toilet. Thus the seat will not be contaminated with additional germs from a shoe bottom, and presence of the seat lifting mechanism will promote use thereof to develop the clean habit to raise a seat before certain uses of the toilet are made.

Another object of the present invention is to provide a toilet seat lifting mechanism which may be readily attached to any conventional toilet already in present use.

Still another object is to provide a toilet seat lifting mechanism that is conveniently adjustable for being adapted to toilets of various heights.

A yet further object is to provide a toilet seat lifting mechanism that can be readily incorporated into the construction of new toilets being presently manufactured.

Other objects are to provide a toilet seat lifting mechanism that is simple in design, inexpensive to manufacture, rugged in construction, easy to use and efficient in operation.

These and other objects will be readily evident upon a study of the following specification and the accompanying drawing wherein:

FIG. 1 is a perspective view of a toilet shown incorporating the present invention therewith.

FIG. 2 is a side view thereof showing the mechanism in an alternate position.

FIG. 3 is a fragmentary perspective view of a modified form of construction illustrated in FIGURE 1.

FIG. 4 is a fragmentary side view in cross section of a part of the present mechanism.

FIG. 5 is an enlarged view partly in cross section of the piston used in the construction shown in FIGURE 5.

Referring now to the drawing in detail the numeral 10 represents a toilet seat lifting mechanism according

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to the present invention wherein there is a bracket 11 which may be secured to a toilet 12. The bracket is provided with a pair of openings 13 to permit fitting the bracket over the ends of bolts 14 which are normally used for securement of the toilet to a floor 15. Thus nuts 16 screwed upon the bolts holds fast the bracket as well as the toilet. The bracket 11 extends principally in a horizontal direction having a pair of tabs 17 and 18 which are bent downwardly with the lower edges thereof in abutment with the floor to provide rigidity.

The tab 17 has an opening 19 for receiving a pin 20 which extends through an opening 21 in a lever 22. One end of the lever is provided with a foot pedal 23. The opposite end of the lever has an opening 24 for receiving a pin 25 which extends through a lower opening 26 in an arm 27. The upper end of the arm has an opening 28 for receiving a pin 29 which extends through an opening 30 in a vertical tab 31 of a bracket 32 secured to the underside 33 of a toilet seat 34 by means of screws 35.

The toilet seat is of generally oval configuration having a central opening 36. The toilet seat has a pair of brackets 37 extending rearwardly therefrom; the brackets 37 being mounted to pivot about a horizontal transverse shaft 38 secured between posts 39 mounted upon the toilet 12. A toilet seat cover 40 likewise has a pair of rearward extending brackets 41 which are mounted to pivot about the common shaft 38.

The arm 27 has an elongated slot 42 therein. One side of the slot has a plurality of teeth 43 which are in engagement with a pinion 44 positioned to travel within the slot. The pinion is mounted on a shaft 45 supported between bifurcated ends 46 of a piston rod 47. The piston rod is secured to a piston head 48 within a cylinder 49 and extends upwardly therefrom through an opening 50. The piston head is provided with a one way valve 51 which permits ready passage of air through the piston from the upper part 52 of the cylinder to the lower part 53 thereof, but which tends to retard easy passage of air in the opposite direction from the lower part 53 to the upper part 52. Thus the piston head may move quickly in an upward direction but it is slowed in its downward movement. A compression coil spring 54 is located within the lower part 53 of the cylinder, the spring bearing between the bottom of the piston head and the bottom of the cylinder chamber.

A lug 55 projects downwardly from the underside of the cylinder, the lug having an opening 56 for receiving a pin 57 which extends through an opening 58 located in vertical tab 18.

In a modified form of construction shown in FIGURE 3 a metal band 60 is used instead of the bracket 11 for supporting the movable parts of the mechanism above described. The band 60 has tabs 61 and 62 at its opposite longitudinal ends which are bent at right angles so as to be parallel to each other. Each tab has an opening 63 therethrough for receiving a common bolt 64. A nut 65 is threaded on the bolt and serves to draw the tabs together. Thus the band can be readily secured around the lower portion of a toilet. The band has a pair of sidewardly projecting extensions 66 and 67 each of which has a downwardly bent tab 68 and 69 respectively. Each of the tabs has an opening 70 therethrough. Tab 68 serves to support the foot pedal lever and tab 69 serves to support the lower end of the cylinder.

In operative use, a person places his foot 59 upon the foot pedal and depresses the same causing lever 22 to pivot about pin 20, thus causing arm 27 to urge toilet seat 34 upwardly and pivot about the shaft 38. During up-

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ward movement of the arm, the piston is raised within the cylinder by air rushing downward from the upper part to the lower part thereof. The load of lifting additionally the piston is partly relieved by the pinion that travels partly down the slot 42. After the foot is taken off the foot pedal the seat 34 is again descended. Even though the seat may have been pivoted beyond its upper limit, the weight of the mechanism will cause it to override and return downward. In its descent, the one way valve in the piston head will cause the seat to lower slowly because escape of air from the lower part of the upper part of the cylinder will be relatively slow.

While various changes may be made in the detail construction it is understood that such changes will be in the spirit and scope of the present invention as is defined in the appended claims.

I claim:

1. In a toilet seat lifting device, the combination of a means for raising a toilet seat by a person's foot, and a damping means for arresting the speed of descent of said toilet seat after having been raised, said raising means comprising a securement on a lower part of said toilet, a lever supported pivotally free on said securement, said lever having a foot pedal at one end, the opposite end of said lever being connected to one end of an arm, the opposite end of said arm being connected to a bracket mounted on the underside of said toilet seat and said arm having means for activating said damping means, said damping means comprising a longitudinal slot in said arm, one side of said slot having a plurality of teeth, a pinion in said slot engaged on said teeth, said pinion being mounted on a shaft supported between bifurcated ends of a piston rod, said bifurcated ends being angularly

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inclined respective to a remainder of said piston rod to obtain an improved damping action due to a longitudinal axis of said arm being at an angle greater than a right angle respective to a longitudinal axis of said bifurcated ends, a piston head contained within a cylinder mounted by its lower end on said securement, and a one way valve in said piston head allowing free movement of air from an upper part of said cylinder to a lower part thereof and restricted movement of said air in an opposite direction.

2. In a toilet seat lifting device the combination as set forth in claim 1 wherein said securement is a bracket mounted on the bolts securing said toilet on a floor.

3. In a toilet seat lifting device the combination as set forth in claim 1 wherein said securement is a band around a lower part of said toilet, the ends of said band being turned to form tabs having openings to receive a bolt therethrough.

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