April 28, 1942. H. S. CAMPBELL 2,281,265

TOILET SEAT MECHANISM

Filed Nov. 18, 1940 3 Sheets-Sheet 1

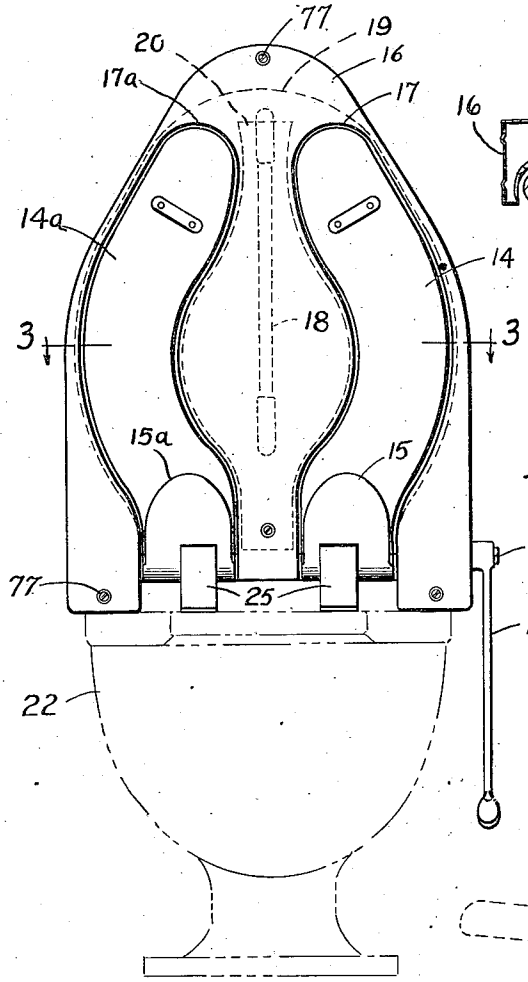


Fig. 1

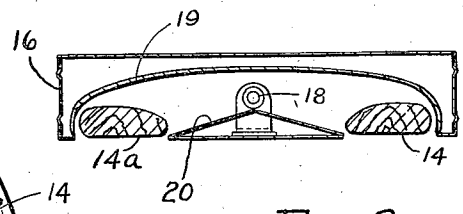


Fig. 3

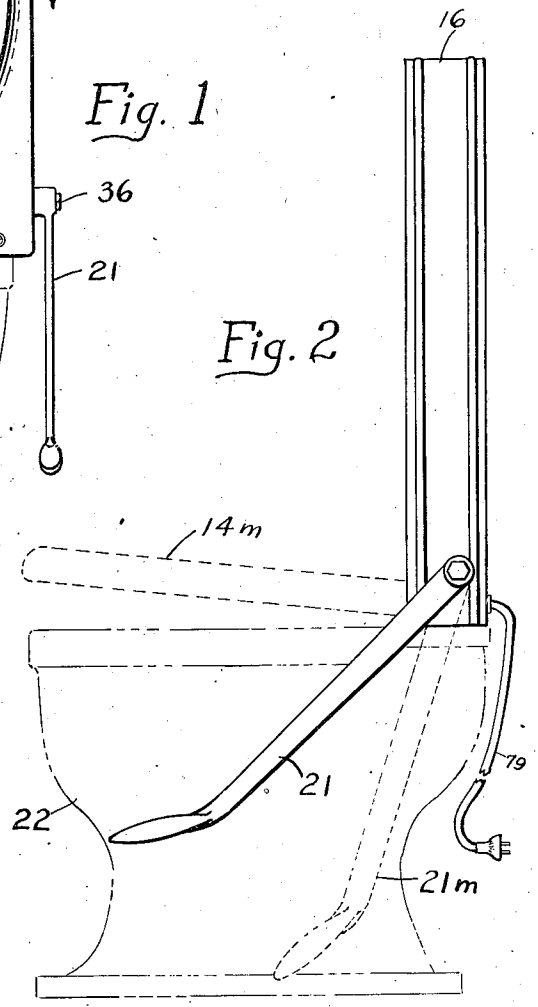


Fig. 2

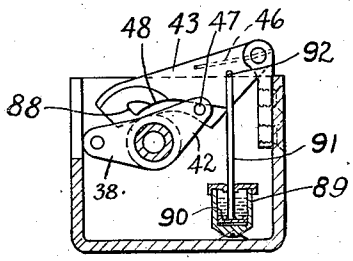


Fig. 12

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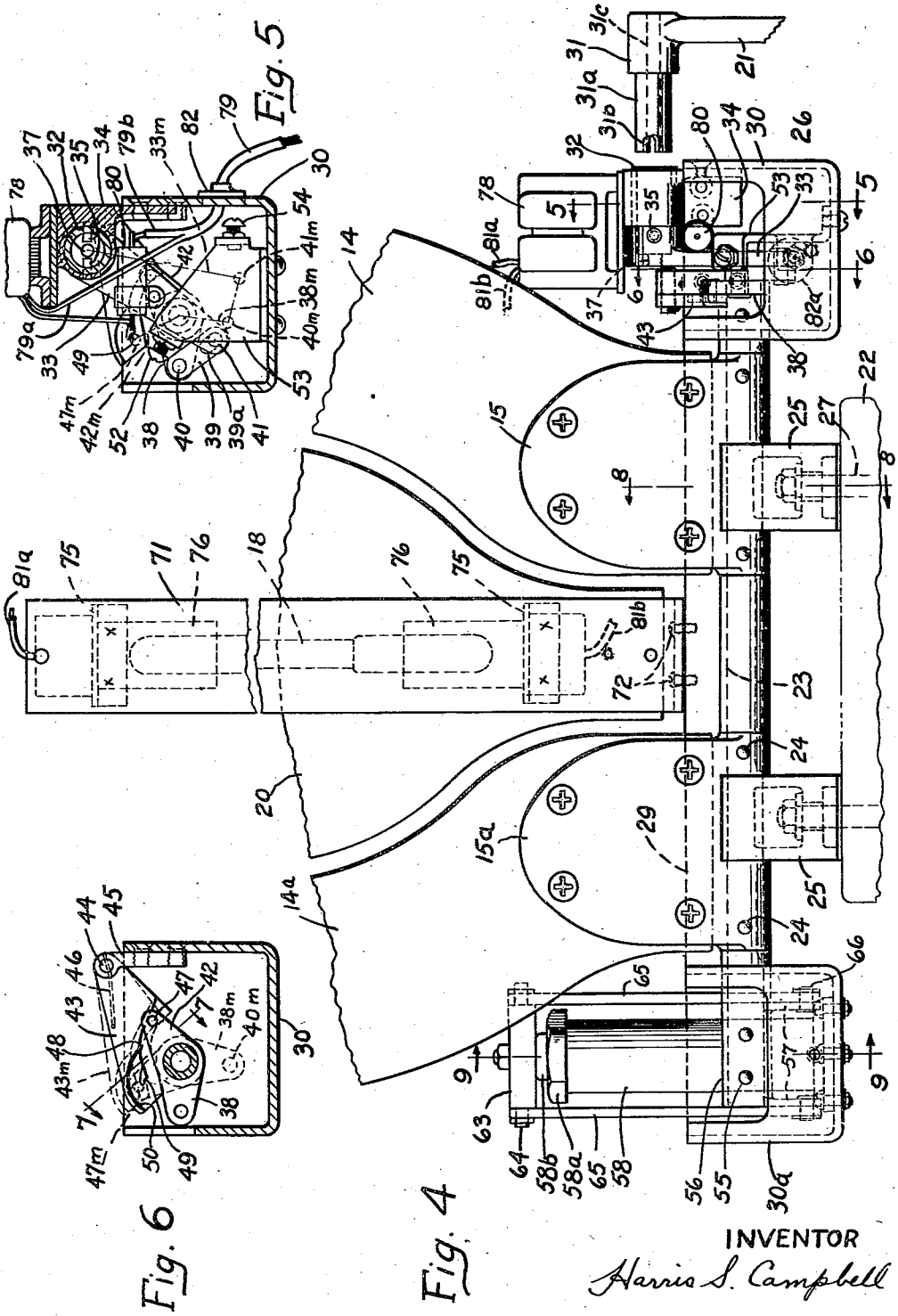


Fig. 4

Fig. 5

Fig. 6

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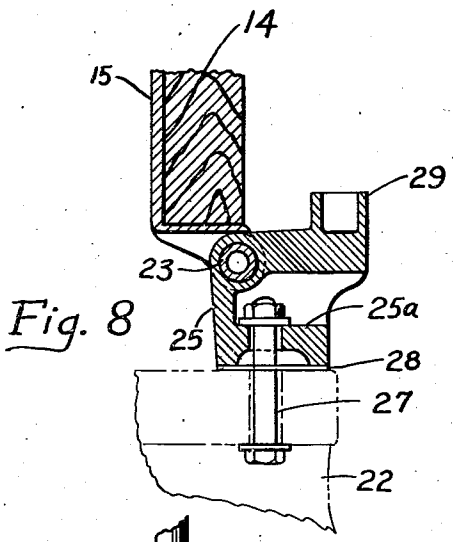


Fig. 8

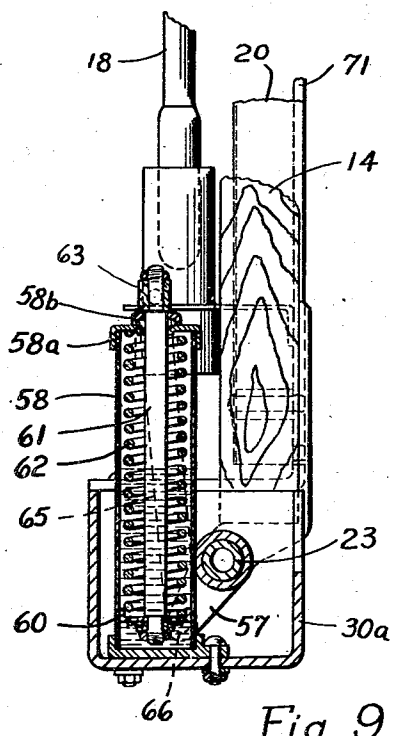


Fig. 9

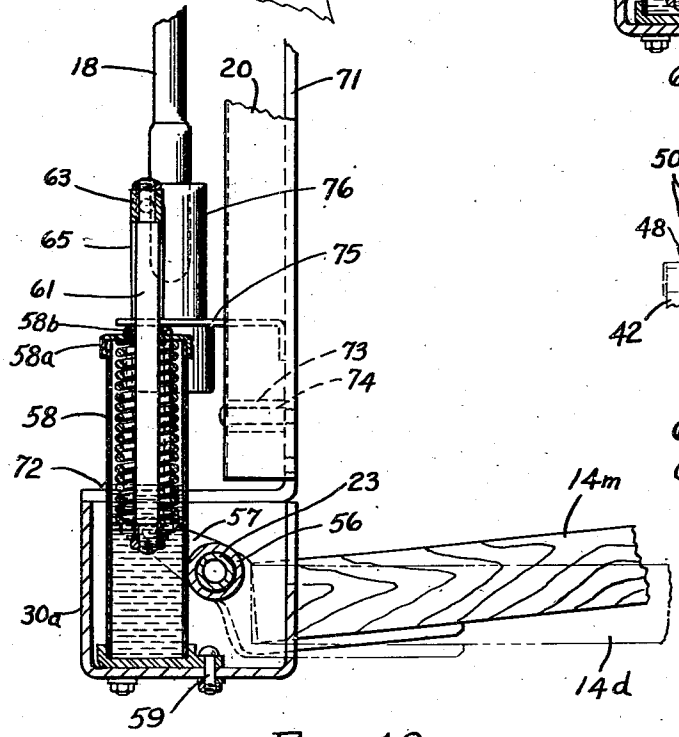


Fig. 10

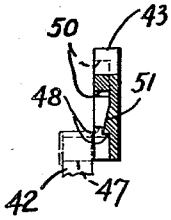


Fig. 7

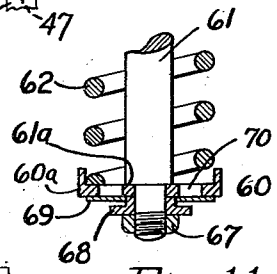


Fig. 11

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2,281,265

TOILET SEAT MECHANISM

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Application November 18, 1940, Serial No. 366,079

21 Claims. (Cl. 4—251)

This invention relates to toilet seats and is more particularly concerned with mechanism for raising and lowering such seats.

Toilet seats hinged to swing down into position on the bowl have been standard for many years. Also toilet seats which are sterilized by being raised into a cabinet in which the seat is disinfected by exposure to some disinfecting medium, for example by the rays of an ultra violet light, have also been proposed and manufactured. Prior constructions have necessitated the handling of an unsterilized handle or the like, to move it into or out of position for use. It is one of the primary objects of the present invention to provide mechanism of improved type which eliminates the need for touching the seat or other associated parts with their hands during operation thereof.

Another object of the invention is to provide a mechanism of this type which is produced in a single unit for attachment to the toilet bowl only, eliminating any additional installation operations such as, for example, the fastening of a pedal to the floor.

Another object is to provide an operating mechanism which is compact in nature and is arranged to be assembled on a base adapted to support and house to a large extent the various control and actuating units and linkages.

A more specific object of the invention is to provide a unit containing a return spring for raising the seat combined with a piston device for damping and controlling the rate of seat movement, said unit being placed in an upright position whereby space is conserved and the construction simplified. When fluid is used in the cylinder as a damping medium, the upright position eliminates the need for a complicated sealing gland to prevent leakage.

A further object of the invention is concerned with the design of a base or chassis which contacts the bowl only at two points, the remainder of the assembly being spaced therefrom, thus simplifying the problem of maintaining the bowl and base in a clean and sanitary condition.

Another specific object of the invention is the provision of adjustable stops for the limits of mechanical movement whereby the seat may be accurately positioned in its raised position to compensate for manufacturing inaccuracies thereby permitting greater leeway in manufacturing tolerances.

Another important object of the invention is to provide a simple and reliable latch mechanism for retaining the seat in its lowered position and for automatically releasing this seat and permitting it to return to the cabinet after use. One form of this mechanism contemplates a timing device which automatically permits the return of the seat to the cabinet after a predetermined interval.

How these and other objects of the invention are obtained will be clear from the following description of the drawings in which—

Figure 1 shows a front elevation of a complete seat unit according to the present invention.

Figure 2 is a side elevation of the unit.

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

Figure 4 is an enlarged view showing the base assembly according to the present invention.

Figure 5 is a sectional view taken on the line 5—5, Figure 4, showing the operating or pedal shaft assembly.

Figure 6 is a sectional view on the line 6—6, Figure 4, showing the operating latch.

Figure 7 is an enlarged cross-sectional view taken on the line 7—7, Figure 6, showing a detail of construction of the latch.

Figure 8 is a sectional view through the base support taken on the line 8—8, Figure 4.

Figure 9 is a sectional view through the control and return unit taken on the line 9—9, Figure 4.

Figure 10 is a view similar to Figure 9 with the parts shown in "seat down" position.

Figure 11 is an enlarged view showing the piston details of the control unit.

Figure 12 is a view of an alternative latch arrangement illustrating a timing device.

Figures 1, 2 and 3 indicate the relationship of the seat itself to the cabinet and other parts of the assembly. The seat is composed of two sides 14 and 14*a* mounted on hinges 15 and 15*a*. A cabinet 16 is provided into which a seat fits in its raised position. Openings 17 and 17*a* are provided in the front of the cabinet through which the seat may pass. The sterilizing lamp is indicated at 18 and from Figure 3 it will be seen that a rear reflector 19 and a front reflector 20 are provided to direct the rays of the lamp 18 around the edges of the seat parts 14 and 14*a* to provide complete sterilization.

The toilet bowl is indicated in chain dotted outline at 22. A pedal 21 projects from the outside of the cabinet. The seat and pedal are indicated in raised position in full lines. In Figure 2 the seat is indicated in lowered position by dotted outline 14*m*. The corresponding position for the pedal is indicated at 21*m*. Movement of the pedal 21 by foot pressure to the position 21*m* causes the seat to be lowered to position 14*m* where it is retained until pressure directly applied to the seat lowers it completely to horizontal position after which, upon release of direct pressure, the seat is free to return automatically to the cabinet. The mechanism for operating and controlling the seat in this fashion will be described in connection with the various figures.

In Figure 4 the sides of the seat 14 and 14*a* are

shown mounted on hinges 15 and 15a which in turn are securely fastened to a hinge rod 23 by means of pins 24. The rod 23 is supported in bearing standards 25 which are part of the base unit indicated generally by numeral 26. The standards 25 are adapted to be mounted on the toilet bowl 22 by means of bolts 27 (see also Figure 8) which pass through the holes provided in the bowl 22. A recess having a surface 25a is provided in the standard 25 upon which a clamping action is produced by bolt 27 to securely anchor the base unit 26. A washer 28 preferably of deformable material is placed under each standard 25.

The base unit 26 consists of a beam portion 29 extending across the central portion of the base and to which the hinge supporting standards 25 are connected. At the ends of the beam portions 29 box-like formations 30 and 30a are provided. These boxes serve to house and support the actuating and controlling mechanism for the seat operation.

By reference to Figures 4 and 5 the operation of the pedal actuated linkage for lowering the seat will be seen. The pedal shaft unit 31 is illustrated in position separated from the operating mechanism in order to show the method of assembly. The pedal unit 31 has a shaft 31a with slots 31b in the end. The shaft 31a fits inside the recess in the cooperating shaft 32 to which the arm 33 is attached. Shaft 32 is supported in the bearing bracket 34 which is mounted on the box portion 30 of the frame. Pins 35 project inwardly and upon assembly with pedal shaft 31a, pins 35 are engaged by slot 31b to cause movement of the arm 33 upon movement of the pedal 21. A bolt 36 (shown in Figures 1 and 2) passes through the hole 31c and engages threads 37 in arm 33. By the above construction the pedal arm 21 may be readily assembled in position without the need for removing the cabinet. This facilitates making the installation since a minimum of assembly is required after removing from the packing case.

Arm 33 projects forwardly and downwardly as will best be seen in Figure 5. A shorter arm 38 is attached to the hinge shaft 23 and projects forwardly. A link 39 has one end connected to the shaft arm 38 by means of pivot 40. The other end of link 38 is attached to operating arm 33 by means of pivot 41. A slot 39a is provided in link 39 to permit lost motion for a purpose which will be evident as the description proceeds. The parts as shown by full outline in Figure 5 are in their relative positions corresponding to the "up position" of the seat.

A second arm 42 is attached to arm 38 and projects generally upwardly and rearwardly. The relative position of these two arms 38 and 42 is clearly shown in Figure 6. Arm 42 contacts and co-operates with the latch member 43. Latch member 43 is mounted by pivot 44 to bracket 45. A light spring 46 is provided to urge the latch member downwardly and at the same time tends to hold it in contact with arm 42 under light pressure. A pin 47 projects from the arm 42 and engages a cam surface 48 in the part 43. Reference to Figure 7 will indicate the relative arrangement of these parts.

Moving the pedal causes the seat to be swung into lower position as indicated at 14m Figure 2 and brings the arm 33 into a position indicated by the line 33m. The corresponding positions for the arms 38 and 42 are indicated at 38m and 42m, Figure 5. Here it will be seen that pivots 40 and 41 are now in positions 40m and 41m. Also pin 47 has moved to position 47m and in doing so has swung across the lower cam surface 48 of the cam link 43. The configuration of cam link 43 is such that at the end of cam surface 48 there is a circular depression 49 which drops down into place against the pin 47 after it has reached the end of cam surface 48. The parts come to rest in this position and are retained therein by the cam surface 49 preventing the pin 47 from moving back. Upon movement of the seat 14 to the full down position the pin 47 is moved a small amount further forwardly than position 47m so that it is freed from the depression 49 thereby permitting the cam link 43 to drop under the influence of its weight and the spring 46 until the top cam surface 50 engages the pin 47. The pin 47 is now in position to move back along the cam surface 50 to its initial starting position when the seat 14 is released so that it may return into the cabinet. Spring mechanism to be described later is used to provide the energy for this return action.

In Figure 7 a section across the cam member 43 is shown. Here it will be seen that the cam surface 48 is arranged so that a small ledge is provided where the cam surface 48 passes the opening of the return cam surface 50. Thus the pin 47 is forced to follow the cam surface 48 in its movement corresponding to the lowering of the seat. During its return motion the pin 47 follows the cam surface 50 and comes back into the cam surface 48 toward the end of the return movement by moving over an inclined surface 51. The latch arm 43 is permitted by spring 46 to move away from the arm 42 slightly to permit the pin 47 to slide over inclined surface 51.

In Figure 5 it will be seen that in the "up position" the arm 33 comes in contact with a stop screw 52. This screw is fastened in bracket 53 and is adjustable to provide the proper setting for the arm 33. The lower position of arm 33 is also governed by another screw stop 54 which is adjusted so that the pedal movement is stopped at the proper position to permit the pin 47 to be latched into position against the surface 49, the seat being in lowered position 14m. To release the seat from this latched position it is necessary to move it a slight distance further under the influence of a weight, such as the body weight, applied to the seat. Due to the slotted hole 39a in the link 39 this slight additional movement is permitted without moving the pedal 21.

The control and actuating mechanism for returning the seat into the cabinet will be described with reference to Figures 4, 9 and 10. Attached to the hinge shaft 23 by means of pins 55 is a cylindrical member 56 to which is attached a pair of arms 57. An upright cylinder 58 is fastened in position on the frame box 30a by means of screws 59. Inside the cylinder a piston device 60 is located at the lower end of a piston rod 61 which projects through the cylinder cover 58a. A helical compression spring 62 is interposed between the piston device 60 and the cover 58a. At the upper end of piston rod 61 is mounted a yoke 63 having trunnions 64 at the ends thereof. Connecting links 65 are attached to the yoke 63 by means of trunnions 64 and pivotally connected at their lower ends to the arms 57 by means of pivots 66. The cylinder 58 is partially filled with fluid such as oil, the level of the fluid being sufficient to cover the piston device 60 at all times.

The details of the construction of the piston

device 60 are shown more clearly in Figure 11. A piston member 60a is retained in place by means of shoulder 61a and nut 67. A collar part 68 retains a flat washer part 69 in position with freedom for a slight amount of movement in an axial direction. Holes 70 are provided in piston member 60a and are positioned to be covered by washer 69. Thus upon upward movement of the piston device 60 the washer 69 falls to its lowest position against member 68, permitting free flow of the fluid downwardly through the holes 70. Upon downward movement of the piston device 60 the fluid resistance causes washer 69 to move upwardly to the position shown in full lines against the piston 60a, in which position it closes off the flow of fluid through the holes 70. Thus downward motion of the piston is greatly restricted since the fluid is forced through the small annular clearance provided between the piston and cylinder.

The operation of the spring and piston device will be as follows: A slight initial compression is given the spring so that it tends to retain the seat in up or closed position as illustrated in Figure 9. In this position the arm 57 points downwardly and the piston is near the bottom of the cylinder. To lower the seat the operator moves the pedal in a fashion previously described and consequently rotates shaft 23. As the seat is lowered into position 14m, the arms 57 are swung upwardly to the position shown in Figure 10 and their motion is transmitted through links 65 to the piston rod 61 causing the piston to be raised and the spring 62 to be compressed. During this lowering movement little restriction is offered by the fluid so that the seat may be brought quickly into lowered position. As previously described the seat becomes latched in position 14m and is retained in this position until a weight or force moves the seat to horizontal position 14d (see chain dotted outline Figure 10). This final movement releases the latch and upon removal of the weight from the seat the compressed spring 62 immediately acts to raise the seat into its up position. The restriction of the hydraulic device when moving in this direction controls the return so that it is a slow gradual motion.

Occasionally a return overload on the cam latch part 43 may occur such as when the seat is grasped by the hand and an upward force applied to try to return it to the cabinet. Under these circumstances, in order to protect the mechanism from injury, it is desirable that the seat should be released from the latched position. The surface 49 of the cam 43 is shaped so that the pin 47 is retained in position 47m under normal circumstances, such as under the return spring action. The small cam spring 46 holds down the cam in this latched position. Upon application of an overload to pin 47 the angle of contact with surface 49 is such that the small spring 46 is overcome and the cam 43 is lifted slightly to allow pin 47 to return along cam surface 48 to the "seat up" position.

A seal 58b is provided at the point where the piston 61 emerges from the cylinder cover 58a. This seal is a simple washer type seal of flexible material which is compressed against the cover 58a when the seat is in the raised position. The chief purpose of this seal is to prevent leakage of fluid from the cylinder during shipment and handling prior to installation of the seat upon a toilet bowl. Once the seat is installed the upright position of the cylinder prevents the possibility of leakage so that a complicated sealing device around the piston rod 61 is unnecessary.

Figures 4, 9 and 10 also disclose how all the operating parts are mounted on the frame unit 26. This provides for simplicity of assembly thus reducing production problems. In addition it will be seen that certain other parts may be assembled thereon to further simplify assembly. Thus there is provided a vertically disposed member 71 which is supported on the frame 26 by means of screws 72. Member 71 supports the front reflector unit 20 by means of spacers 73 and screws 74. Also attached to member 71 are brackets 75 which carry the socket units 76 in which the ultra violet ray sterilizing lamp 18 is mounted.

In Figures 4 and 5 an electrical transformer 78 is shown mounted on top of bearing bracket 34 which supports the pedal arm. A pair of electric conducting wires 79 are provided to connect the seat unit with a source of electrical current. One wire 79a of the electric cord is connected directly to the primary coil of the transformer 78 while the other wire 79b has the switch 80 connected into it in series. Switch 80 is a mercury type switch and is mounted on arm 33 in a position which causes electrical contact when the seat is in its raised position, but breaks the electrical connection when the seat is in the lowered position. In Figure 4 it will be seen that the secondary coil of the transformer 78 is connected by wires 81a and 81b to the light sockets 76, thus completing the electrical circuit for operating the ultra violet ray lamp 18.

A plug or cover member 82 is provided to close the hole 82a and support the electrical cord 79. This plug 82 is readily removable and provides access to the rear adjustable stop screw 54 to permit adjustment of the seat lowering mechanism.

After the assembly of the operating parts and the front support 71 with the reflector and lamp mounted thereon, it will be seen that all that is required to complete the finished seat unit assembly is to apply the rear portion of the cabinet with the rear reflector 19 and then the front cover of the cabinet. The cabinet is fastened on the frame 26 by means of screws 77 (see Figure 1).

Figure 12 illustrates an alternative form of latch mechanism for controlling the release of the seat from lowered position. The latch member 43 is generally similar to that shown in Figure 6. However instead of a depression at the end of cam surface 48 a smooth surface 88 is provided. Thus when the pin 47 reaches the end of cam surface 48 the weight of member 43 and the pressure of spring 46 cause member 43 to move downwardly past pin 47. A small cylinder 89 is provided with a piston 90 and piston rod 91, which piston rod is attached at 92 to the cam member 43. Thus a restriction to the downward movement of the member 43 is provided, the amount of restriction being determined by the clearance around the piston 90. If desired, means may be provided in the piston 90 to adjust the flow from one side of the piston to the other. In this way the desired timing action can be given to the member 43 so that a predetermined number of seconds is required before the surface 88 will have moved past the pin 47. During this period the seat is retained in lowered position, after which it is automatically released and returned to the cabinet by the return spring. With this form of mechanism the seat is automatically returned to the cabinet at a predetermined time interval after being lowered and does not depend

upon lowering of the seat completely to the bowl for release.

A complete operating cycle of the seat will be as follows: With the seat in the up position in the cabinet the electric circuit is complete and the ultra violet ray lamp is operating to effectively sterilize the surfaces of the seat exposed to the rays. By pressing on the pedal 21 the seat is lowered to position 14m which is just slightly above horizontal position and is automatically latched and retained in this position. During lowering of the seat the ultra violet lamp is automatically turned off by the action of tilting the mercury switch. When the seat is used, the weight applied carries the seat down to horizontal position, which movement releases the latch mechanism and after removal of the weight the seat is raised and returned to the cabinet under the influence of the spring and hydraulic piston unit. During the upward travel the electrical circuit is completed and the ultra violet ray lamp again lights, thus completing the cycle of operation.

It will be evident therefore, that I have provided a greatly improved seat unit which incorporates simplified construction and desirable operating qualities. The arrangement of operating mechanism results in assembly features which are of importance in reducing the cost of manufacture and which also provide improved operating characteristics. The particular arrangement for the combined spring and hydraulic unit produces a low cost but reliable actuating unit. The upright position of the cylinder unit allows the depth of the cabinet to be kept a minimum. The assembly arrangement permits all the operating mechanism to be kept completely within the confines of the cabinet, thus enhancing the appearance of the seat unit. The operating pedal construction and mounting permits ready installation and provides an improved means for lowering the seat without the need of handling an unsterilized part.

I claim:

1. For a hinged toilet seat, mechanism for raising and lowering said seat including a support, a primary shaft upon which said seat is mounted, a secondary shaft, a depending pedal arm associated with said secondary shaft, means interconnecting said secondary shaft and said hinge shaft for rotating said primary shaft upon movement of said pedal shaft, said means including mechanism providing for greater angular movement of said seat shaft than of said secondary shaft.

2. A toilet seat assembly including a frame unit having a pair of pedestal supports adapted for mounting said frame unit upon a toilet bowl, a hinge shaft supported by said frame unit, a toilet seat fastened to said hinge shaft, a second shaft supported on said frame unit, a depending pedal arm co-operating with said second shaft, means interconnecting said two shafts providing for larger angular movement of the hinge shaft than for the second shaft, energizing means attached to said base unit, means interconnecting said hinge shaft and said energizing means in a fashion to provide for storage of energy in said means during downward movement of said seat, said energizing means providing the force for raising of said seat.

3. For a hinged toilet seat, mechanism for raising and lowering said seat including a frame unit adapted to be supported on the toilet bowl, a shaft supported on said frame unit, a toilet seat attached to said shaft, a pedal arm supported on said frame unit and adapted to cause rotation of said shaft for the purpose of lowering said seat upon movement of said pedal arm, an arm mounted on said shaft, a cylinder and piston unit, means interconnecting said unit and said arm, a spring associated with said unit, said unit being adapted to provide the force for raising said seat and at the same time to control the rate of movement of said seat.

4. For a mechanically operated toilet seat, a chassis unit adapted to be bolted to a toilet bowl, a hinge shaft supported on said chassis, a seat attached to said hinge shaft, an arm attached to said hinge shaft, a second shaft positioned in offset relationship to said hinge shaft, an arm attached to said second shaft, said latter arm being longer than said first mentioned arm, an operating connection between said arms, and a pedal member connected to said second shaft.

5. For a mechanically operated toilet seat, a chassis unit adapted to be bolted to a toilet bowl, a hinge shaft supported on said chassis, a seat attached to said hinge shaft, an arm attached to said hinge shaft, a second shaft positioned in offset relationship to said hinge shaft, an arm attached to said second shaft, said latter arm being longer than said first mentioned arm, an operating connection between said arms, a pedal member connected to said second shaft, and a spring device having means operatively interconnecting said spring to said hinge shaft in a manner to permit said spring to counteract the weight of said seat and urge it to raised position.

6. For a mechanically operated toilet seat, a chassis unit adapted to be bolted to a toilet bowl, a hinge shaft supported on said chassis, a seat attached to said hinge shaft, an arm attached to said hinge shaft, a second shaft positioned in offset relationship to said hinge shaft, an arm attached to said second shaft, said latter arm being longer than said first mentioned arm, an operating connection between said arms, a pedal member connected to said second shaft, and a cylinder and piston unit mounted on said chassis, a helical compression spring located inside said cylinder and piston unit, means interconnecting said cylinder and piston unit to said hinge shaft whereby said spring provides a force to urge said seat to its raised position and said piston unit provides a controlling action upon the movement of said seat.

7. For a hinged toilet seat, mechanism for raising and lowering said seat including a shaft, a toilet seat attached to said shaft, a second shaft in offset relation to said first shaft, said second shaft having a pedal arm attached thereto, an operating connection between said shafts, a cylinder and piston device operatively associated with said first shaft and a spring element with interconnecting means to said first shaft.

8. For a toilet seat, a hinge shaft, means for swinging said seat from an upright position to a position slightly above horizontal, a device for latching said seat in said position, said device having a pivoted cam part, an arm attached to said hinge shaft and having means for contacting said cam part, said cam part having one surface against which said means makes contact during downward movement of the seat, a second surface for contacting said means while retaining said seat in said latched position, and a third surface for contacting said means during the upward return movement of said seat.

9. A claim in accordance with claim 8 in which the second mentioned surface is in the form of a recess shaped to fit said means and adapted to release said means upon movement of the seat to horizontal position.

10. A claim in accordance with claim 8 and having a single spring element urging said cam part against said means in two senses.

11. A claim in accordance with claim 8 and having timing means adapted to release said latch and allow said seat to be free to return after a predetermined interval.

12. For a mechanically operated toilet seat, a chassis unit adapted to be bolted to a toilet bowl, a hinge shaft supported on said chassis, a seat attached to said hinge shaft, an arm attached to said hinge shaft, a second shaft positioned in offset relationship to said hinge shaft, an arm attached to said second shaft, said latter arm being longer than said first mentioned arm, an operating connection between said arms, a pedal member connected to said second shaft, and a pair of adjustable stops attached to contact the arm of said second shaft to adjustably limit its range of movement.

13. A sterilized toilet seat assembly including a base adapted for attachment to a toilet bowl, a shaft hinged to said base, a toilet seat carried by said shaft, means for lowering said seat, a spring actuated device mounted upon said base for raising said seat, structural means attached to said base, a sterilizing ray lamp mounted on said structural means, a cabinet having an open bottom of generally rectangular shape to suit the shape of said base, said cabinet being removably fastened to said base and adapted to conceal said lamp, said structural means, said spring device and said lowering means.

14. A sterilized toilet seat assembly having a base adapted for attachment to a toilet bowl, a shaft hinged to said base, a toilet seat supported on said shaft, mechanism for lowering and raising said seat including a second shaft supported on said base, a pedal connected with said shaft, an upright piston and cylinder unit supported on said base, a spring housed in said cylinder and means interconnecting said unit to said hinge shaft, an upright structural member attached to said base, a sterilizing light and a reflector element supported by said upright member, a cabinet unit removably fastened to said base and adapted to house all of said parts except said pedal.

15. For a mechanically operated toilet seat, a base unit for attachment to a toilet bowl, a hinge shaft supported in said base unit, a toilet seat attached to said hinge shaft, an upright hydraulic cylinder attached to said base unit close to said hinge shaft, a cover for said hydraulic cylinder, a piston and piston rod adapted to fit said hydraulic cylinder, said piston rod projecting through said cover, a helical compression spring located between said piston and said cover and surrounding said piston rod, an element attached to said hinge shaft, means interconnecting said piston rod and said element to transmit the spring force and hydraulic control forces to said hinge shaft.

16. A toilet seat operating mechanism comprising a bearing unit for attachment to a toilet bowl, a hinge element mounted in said bearing unit, a toilet seat attached to said hinge element, a shaft offset from said hinge element, a pedal arm member connected to said shaft, means for removing said pedal arm member from said shaft including a cylindrical part attached to said pedal arm, said cylindrical part having means for transmitting torque and having a central hole therein, a bolt member adapted to fit said hole to permit retaining or removing of said pedal arm by inserting or removing said bolt.

17. For a mechanically operated toilet seat, a base unit having two pedestal members adapted to be bolted to a toilet bowl, said base unit having bearing means for supporting a seat hinge, a beam-like member supported by said pedestal members and raised above said toilet bowl, an enlarged box-like structure supported at each end of said beam member, a cabinet unit, said base unit being shaped to define the shape of the lower part of said cabinet unit.

18. For a toilet seat, a hinge shaft having a seat unit attached thereto, means for moving said seat from an upright position to a position slightly above horizontal, a device for latching said seat in said position, said device having a pivotally mounted part, an arm attached to said hinge shaft and having a projecting member for contacting said part, said part having an indented surface against which said member makes contact during downward movement of the seat, a second surface against which said part makes contact for retaining said seat in latched position, said second surface being shaped to cause movement of said part to release said member to move back along said first surface upon application of an excess load against said second surface.

19. For a hinged toilet seat unit, mechanism for raising and lowering said seat including a pair of pedestals adapted to mount said seat unit to a toilet bowl, a beam member integrally attached to the upper portion of said pedestals and extending between and beyond said pedestals, an enlarged bracket part integrally attached to each end of said beam-like member, a shaft extending from one bracket part to the other bracket part, a seat supported on said shaft, mechanism supported on one of said bracket parts by means of which said seat may be moved into lowered position and mechanism supported on the other of said bracket parts by means of which said seat may be raised.

20. For a mechanically operated toilet seat, a base unit for attachment to a toilet bowl, a hinge shaft supported in said base unit, a toilet seat attached to said hinge shaft, pedal operated means for moving said seat from upright to approximately horizontal position, a latch device for retaining said seat in said horizontal position, said device being adapted to release upon slight additional movement of said seat, means for raising said seat upon release from horizontal position and a cylindrical damping device mounted in substantially vertical position.

21. For a mechanically operated toilet seat, a base unit for attachment to a toilet bowl, a hinge shaft supported in said base unit, a toilet seat attached to said hinge shaft, pedal operated means for moving said seat from upright to approximately horizontal position, a latch device for retaining said seat in said horizontal position, said device including two parts in sliding engagement, one of said parts being fastened to said base unit and the other of said parts being associated with said hinge shaft.

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