A device that is installed into a toilet seat coverlid that a operator can use to hygienically engage and disengage the toilet seat such that the coverlid and seat may swing together or separately into the desired positions. The device includes a knob or handle affixed to the coverlid, and connected to an engagement device that can engage or disengage the toilet seat. Due to the installation of the knob or lever on the coverlid, it is always elevated away from the urine stream and toilet water backsplash during use, and thus it maintains a cleaner contact point for the user to lift the toilet seat and/or coverlid assembly as needed for use.
HYGIENIC TOILET SEAT OPERATING DEVICE

FIELD OF THE INVENTION

[0001] The present invention is a machine directed to a toilet seat and coverlid assembly, which allows the user to lift the coverlid by itself, or the coverlid and the toilet seat together before using the toilet, in a manner that is more hygienic than having to touch the toilet seat directly.

BACKGROUND OF THE INVENTION

[0002] Toilets are fitted with a toilet seat and coverlid, which serve as hygienic devices that can be raised and lowered depending on the toilet user’s need. If a user raises only the coverlid before urinating, the toilet seat remains in close proximity to the urine stream, and the backsplash from the water’s surface. Often this causes the toilet seat to become soiled with urine. Should the next person decide to lift the toilet seat in order to avoid splashing it, they would have to touch the seat itself, which would be wet with urine from previous use. If the next user decided to sit on the toilet seat, they would be exposed to bodily fluids unless the toilet seat was previously cleaned. If the next user instead urinates with the toilet seat down, then the seat likely gets splashed more and more, making it less hygienic to touch and lift. The toilet seat’s design capability to swing upwards allows the toilet to be used more hygienically. Therefore, a device for raising and elevating the toilet seat without the user coming into direct contact with the seat would minimize the user’s contact with another’s bodily fluids, and would encourage more hygienic usage of the toilet.

[0003] The coverlid attached to the toilet seat is a functional as well as aesthetic component of the toilet. It functions to prevent backsplash of toilet contents during flushing, and adds to the design and style of various toilets. Because the coverlid occludes the entire inlet of the toilet bowl, it must necessarily be raised before a user urinates or defecates into the toilet. To achieve this purpose it swings independently of the toilet seat, which the user can leave in the lowered position and sit on during use, for instance, during defecation.

[0004] The toilet seat, however, does not necessarily have to be swung up and out of the way before use. For example, a male user may urinate into a toilet with the seat down. This generally means the inlet of the toilet bowl is smaller, increasing the chance that the user’s urine stream will land on the toilet seat. Unless the user takes the time to clean the seat, the next user will have to come into contact with the toilet seat to either clean it (if they intended to sit on it) or elevate it for appropriate use. This presents a hygienic problem for the second user, especially in the setting of public restrooms where multiple users can use a single toilet, often without regard for its cleanliness or concern for the next user.

[0005] Therefore, a device that can be installed into the toilet seat assembly that can be employed by a user to minimize his or her direct contact with the toilet seat components would be beneficial. The device should function to elevate the toilet seat without the user having to touch the seat directly. Since the coverlid is always elevated before use, it would serve as an excellent installation site for such a device that could engage the toilet seat with the coverlid, allowing the user to elevate the two components together as they are designed to do. Moreover, if the user’s direct contact point of said device is located on the coverlid it will always remain body fluid free, away from the backsplash of toilet contents, and thus, will be a much cleaner means of changing the toilet seat position.

SUMMARY OF THE INVENTION

[0006] The device is installed into the coverlid and consists of 1) a handle as the contact point for manual use by the operator, 2) a shaft connected to the handle, and 3) an engagement apparatus connected to the shaft which manually engages the toilet seat in one position (“ON” position), and disengages the seat in a second position (“OFF” position). A hole is drilled into the coverlid into which the shaft is introduced. The handle is installed into the coverlid, and the engagement apparatus is installed on the underside of the coverlid. The components of the assembly are fixed relative to each other and rotate together about the axis of the shaft through the hole in the coverlid, such that rotation of the handle rotates the engagement apparatus.

[0007] The device is installed such that the engagement apparatus can be rotated into a position where it is disengaged from the toilet seat. In this position the coverlid can be elevated independently of the toilet seat, allowing the user to sit on the seat. The installation of the device also allows the engagement apparatus to be rotated into a position where it engages the toilet seat. In this position, an upward force on the handle of the device lifts the coverlid and the toilet seat in unison, so that the user may urinate into the toilet appropriately. In all instances the handle, which is the sole direct contact point for the user, is shielded and far away from the urine stream and toilet backsplash. No matter unhygienic the toilet seat, the user never has to touch it directly.

[0008] Accordingly, there can be various accessories and modifications to the design principles of the device. For instance, the device may engage the toilet seat via a magnet and a metal piece that would engage upon coming into close proximity. Also, the handle on the coverlid could be modified for aesthetic appeal, with design variations including, but not limited to, knobs, levers, or other handle pieces with the same function of rotating the shaft and engagement apparatus into the desired position. This device may be added as an aftermarket option to existing toilet seats, or built into the design from the factory.

BRIEF DESCRIPTION OF THE FIGURES

[0009] FIG. 1: Swinging lever embodiment, underside view, “OFF” position.


[0012] FIG. 4: Swinging lever embodiment, top side view.

[0013] FIG. 5: Slide embodiment, underside view, “ON” position (guide rails not pictured)

[0014] FIG. 6: Slide embodiment, top side view, knob handle

[0015] FIG. 7: Slide embodiment, underside view, “OFF” position, guide rails shown

[0016] FIG. 8: Magnetic engagement embodiment, underside view, “ON” position.

[0017] FIG. 9: Magnetic engagement embodiment, top side view, knob handle.
DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] The invention consists of a handle, shaft and an engagement apparatus, the details of which will be discussed herein. Any and all of these components may be constructed of various industrial materials, including, but limited to, plastics, polymers, composites, pure metals, alloys, wood, ceramics, porcelains and combinations of these.

[0019] In one embodiment, the handle consists of a lever which is connected to the coverlid by the shaft and extends beyond the outer edge of the coverlid so that the user’s hand may grasp it, and manipulate the device into the “ON” or “OFF” positions. The user’s contact point of the lever may contain a modifying surface for improved usability such as a no-slip coating, or sleeve, which allows for different colors, textures, and stylistic designs. The handle may be designed as a single, integratong piece with the engagement apparatus, or it have provisions for secondarily mounting the engagement apparatus. These provisions include, but are not limited to, threaded holes into which the engagement apparatus may be fastened, bracing receptacles, or adhesive surfaces.

[0020] The handle is joined to the shaft, connecting it to the coverlid as well as forming the pivot point about which the device rotates into the “ON” and “OFF” positions. This shaft may consist of a threaded screw, rivet, pin, bushing, retaining clips, or any similar fastening component. In another embodiment the handle’s connection to the coverlid can be via a pivoting joint system that can be glued or fastened onto the coverlid.

[0021] The engagement apparatus attached to or built into the handle may consist of right and left arms which are angled such that the outermost tips of the arms reach underneath the toilet seat when the device is rotated into the “ON” position(s), enabling lifting of the toilet seat. By pivoting the device about its anchor-point into the “OFF” position, the arms do not reach underneath the toilet seat, and therefore pass through the toilet seats central inlet when the coverlid is lifted. The arms may be attached to the handle by threaded screws, rivets, fasteners, pins, bushings, adhesives, clamps, sliding clips, snapping clips or buttons. The surfaces of the tips of the arms may be modified with rubbers, non-slip sleeves or other higher friction materials for more effective engagement of the toilet seat.

[0022] In another embodiment, the engagement apparatus consists of a magnetic mechanism. This mechanism can be a magnet attached to the device, with a ferromagnetic piece installed into the toilet seat. Conversely, the magnet may be installed into the toilet seat, and the ferromagnetic piece attached to the device. The magnet or ferromagnetic piece may be attached to the handle directly, or via an extension arm, either of which extend from the pivoting point out to the “ON” position overlying the magnet or ferromagnetic piece inside the toilet seat. As such, the ferromagnetic piece or magnet is installed into the toilet seat at a depth at which there is enough proximity to the device for magnetic attraction strong enough to lift the toilet seat.

[0023] In a further embodiment, the engagement mechanism can consist of an arm that is attached to the handle through a slit in the coverlid, and will slide via grooves or rails located on the coverlid. The arm slides under the toilet seat into the “ON” position, or slides back out from underneath the toilet seat into the “OFF” position. These grooves or rails may be positioned such that the engagement apparatus engages with the front or either side of the toilet seat.

[0024] All of the engagement mechanisms may include a stopping system (i.e. bumpers, pins, etc) to limit the range of motion of the device, so that engagement with the toilet seat is easily and reproducibly maintained at the optimal position.

1. A device that is installed on a toilet coverlid that engages and elevates the toilet seat.

2. A device as claimed in claim 1, which consists of a handle attached to an engagement apparatus, where said apparatus consists of a magnet that when in close proximity to a ferromagnetic piece, represents the engaged “ON” position, allowing for lifting of the toilet seat.

3. A device as claimed in claim 1, which consists of a handle attached to an engagement apparatus, where said apparatus consists of a lever with bilateral arms that swing underneath the toilet seat, representing the engaged “ON” position, allowing for lifting of the toilet seat.

4. A device as claimed in claim 1, which consists of a handle attached to an engagement apparatus, where said apparatus consists of an arm that slides through grooves or rails to engage the underside of the toilet seat, representing “ON” position, allowing for lifting the toilet seat.

5. A device as claimed in claim 1 in which the handle can be substituted by a lever, knob, or any other such device that functions to rotate the engagement apparatus for engagement and disengagement of the toilet seat.

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