Nov. 12, 1957 G. S. WILSON 2,812,522

TOILET SEAT LIFTER

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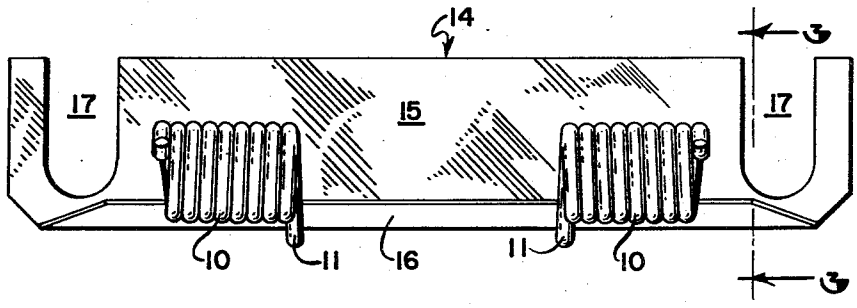


FIG. 1

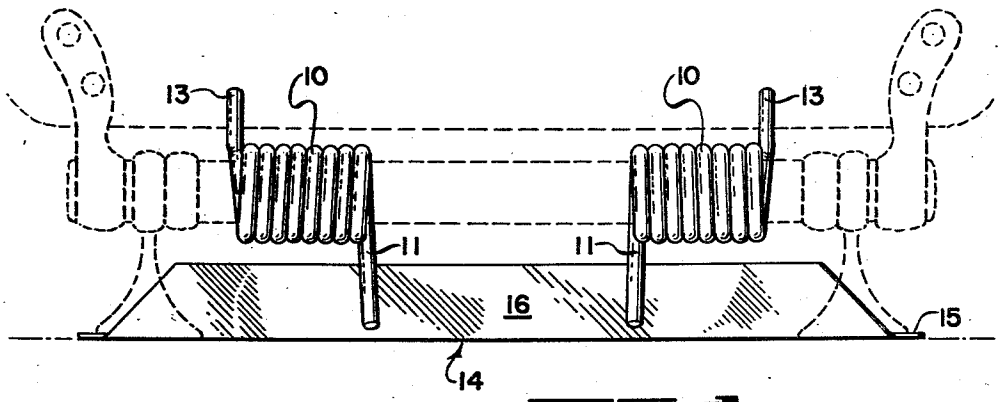


FIG. 2

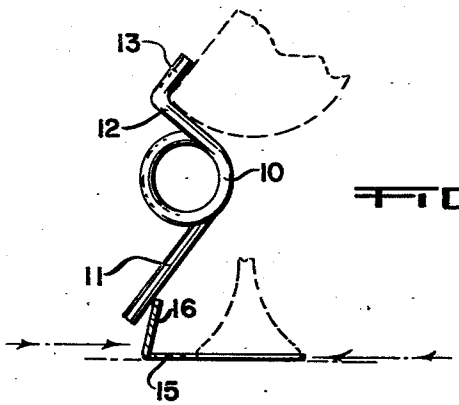


FIG. 3

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TOILET SEAT LIFTER

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4 Claims. (Cl. 4—241)

This invention relates to a toilet seat lifter and more particularly to such a device which acts to automatically lift the seat of the toilet whenever the seat is not in use and the cover is in raised position or no cover is provided.

Many cities and other governing bodies have enacted legislation requiring that the toilet seats of public restrooms be kept in a raised position whenever the toilet is not in use. Such laws and regulations are often not enforced because there has been no inexpensive automatically operating toilet construction of such kind available.

It is an object of my invention to provide a device which is adapted to accomplish exactly what such laws and regulations require for the health and sanitation of the public. With my device, the toilet seat is automatically raised whenever it is not in use if either the cover is in raised position or no cover is provided.

It is a further object of my invention to provide such a device which is so economical that it can be purchased by the owner of every public place and which is so simple to install that virtually anyone can easily place it in use.

Another object of my invention is to provide such a device which is universal in two senses. First, it will fit any size or style of toilet seat construction now in use, regardless of the height of the toilet seat hinge pin from the top of the toilet bowl. Second, it can be adjusted to provide different degrees of spring tension to lift a toilet seat of any weight now in use. This universality is achieved without any change in the construction of the device, only one model of which is made and sold to the public.

My invention also comprises such other objects, advantages and capabilities as will later more fully appear and which are inherently possessed by my invention.

While I have shown in the accompanying drawings a preferred embodiment of my invention, it should be understood that the same is susceptible of modification and change without departing from the spirit of my invention.

Referring to the drawings, Fig. 1 is a top plan view of the component parts of my toilet seat lifter in the positions which they occupy in use;

Fig. 2 is a front elevational view of my toilet seat lifter in use, with the conventional toilet seat construction shown in dotted lines;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1, showing my toilet seat lifter in use, with part of the conventional toilet seat structure shown in dotted lines.

A preferred embodiment which has been selected to illustrate my invention comprises a pair of identical coil springs **10**, which are preferably formed of 12 gauge spring steel. The coils of springs **10** are closely wound to form a tube having an inside diameter slightly larger than the outside diameter of a conventional toilet seat hinge pin, so that the coil springs **10** can be slidably mounted thereon.

Each of coil springs **10** comprises approximately eight turns of wire. One end of each of coil springs **10** comprises a straight end **11**, while the other end comprises a right angle end. The right angle end is formed by a straight portion **12** which leaves coil spring **10** at an angle perpendicular to straight end **11** and which bends at a

right angle to provide a hook portion **13** which extends parallel to straight end **11**, but in the opposite direction.

Coil spring **10** is thus provided with ends which extend in opposite directions from each other. Straight end **11** extends in a line with one circumferential edge of coil spring **10**, while hook portion **13** is positioned somewhat beyond the opposite circumferential edge of coil spring **10**.

A tension plate **14**, which is preferably formed of steel or other suitable material, comprises a flat base **15** and an upright portion **16** which is integral therewith and which extends upwardly along the front edge of tension plate **14**. Upright portion **16** is bent to form an angle with base **15** which is somewhat less than a right angle. Upright portion **16** thus extends upwardly and slightly rearwardly along the front of tension plate **14**. Base **15** is provided adjacent its opposite ends with a pair of U-shaped slots **17**, which extend from the rear of base **15** almost to upright portion **16**.

My device may be installed by first loosening the nuts on the ends of the bolts which hold the toilet seat hinge to the toilet. Tension plate **14** is then slid beneath the hingle bolt flanges so that the U-shaped slots **17** fit around the hinge bolts.

The screws holding one of the hinges to the bottom of the toilet seat are then removed, permitting the hinge pin to be partially removed. The coil springs **10** are placed on the hinge pin in such a manner that their straight ends **11** extend downwardly, while their hook portions **13** extend upwardly. The straight ends **11** are positioned in front of upright portion **16**. Coil springs **10** are positioned adjacent the opposite ends of the hinge pin.

Straight ends **11** and upright portion **16** will engage over a considerable range of variations in the distance between the hinge pin and the top of the toilet bowl. These parts can easily be made of such dimensions that my device can be used on substantially all toilet seats which are now in use.

The straight portions **12** of coil springs **10** fit behind the rear edge of the toilet seat, while the hook portions **13** extend along the bottom surface of the toilet seat. These ends of coil springs **10** thus form a right angled hook which engages the bottom corner of the toilet seat.

The amount of tension in coil springs **10** can be controlled by the positioning of tension plate **14**. If tension plate **14** is moved forwardly, upright portion **16** will tend to act against the coil springs. If tension plate is moved rearwardly, there will be less tension in coil springs **10**. It is thus possible to adjust the amount of tension so that my device will operate properly with any weight of toilet seat.

The hinge bolts may be temporarily tightened until the tension is properly adjusted. After this has been done, the hinge bolts are completely tightened and the screws replaced to fasten the hinge to the bottom of the toilet seat.

After installation, my device through coil springs **10** provides a tension which normally tends to move the toilet seat upwardly from the top of the toilet. The seat may be held down only by use or by the weight of the toilet seat cover, which counteracts the force of coil springs **10**.

In use, my device converts a conventional covered or coverless toilet seat into one which is automatically raised when not used or covered.

I claim:

1. A toilet seat lifter adapted to be used with a toilet having an elongated horizontally extending hinge pin mounted on a toilet bowl, a pair of vertically extending flanged hinge bolts disposed adjacent the opposite ends of said hinge pin, and a toilet seat pivotally mounted on

said hinge pin, said lifter comprising a pair of coil springs adapted to be mounted on said hinge pin adjacent the opposite ends thereof, each of said coil springs comprising a plurality of circular coils surrounding said hinge pin, one end of each of said coil springs extending tangentially outwardly from said coils, the other end of each of said coil springs having a portion extending tangentially outwardly from said coils at a right angle to said first named end, said second named end having an adjacent right angular portion adjacent the outer end thereof extending substantially parallel to said first named end, the two portions of said second named end being adapted to engage and fit around the edge of said toilet seat, and an elongated tension plate having a flat base adapted to be mounted upon and lie flat against the top of the toilet bowl directly beneath said hinge pin, said tension plate having an upstanding integral portion extending along substantially the entire length of the front edge of said tension plate, said integral portion being directed upwardly from said base and slightly rearwardly toward said hinge pin, said base being greater in length than the distance between said hinge bolts, said base having a pair of elongated U-shaped openings extending from the rear edge of said tension plate to adjacent the front edge thereof, said U-shaped openings being adapted to removably and slidably fit around said hinge bolts, the flanges of said hinge bolts being adapted to hold the base of said tension plate against the top of the toilet bowl to prevent undesirable movement of said base with respect to said hinge bolts, the first named ends of said coil springs bearing against the upstanding integral portion of said tension plate so that said springs normally urge said toilet seat upwardly with respect to the toilet bowl, said tension plate adapted to be slidably moved toward or away from said hinge pins to adjust the tension of said springs, the upstanding integral portion of said tension plate and the ends of said springs engaged therewith normally overlapping each other in a vertical direction to provide vertical adjustment for variations in the height of said hinge pin from the toilet bowl.

2. A toilet seat lifter adapted to be used with a toilet having an elongated horizontally extending hinge pin mounted on a toilet bowl, a pair of vertically extending flanged hinge bolts disposed adjacent the opposite ends of said hinge pin, and a toilet seat pivotally mounted on said hinge pin, said lifter comprising a pair of coil springs adapted to be mounted on said hinge pin adjacent the opposite ends thereof, each of said coil springs comprising a plurality of circular coils surrounding said hinge pin, the ends of each of said coil springs extending tangentially outwardly from said coils, one end of each of said springs being adapted to engage and fit around the edge of said toilet seat, and an elongated tension plate having a flat base adapted to be mounted upon and lie flat against the top of the toilet bowl directly beneath said hinge pin, said tension plate having an upstanding integral portion extending along substantially the entire length of the front edge of said tension plate, said integral portion being directed upwardly from said base and slightly rearwardly toward said hinge pin, said base being greater in length than the distance between said hinge bolts, said base having a pair of elongated U-shaped openings extending from the rear edge of said tension plate to adjacent the front edge thereof, said U-shaped openings being adapted to removably and slidably fit around said hinge bolts, the flanges of said hinge bolts being adapted to hold the base of said tension plate against the top of the toilet bowl to prevent undesirable movement of said base with respect to said hinge bolts, the opposite ends of said coil springs bearing against the upstanding integral portion of said tension plate so that said springs normally urge said toilet seat upwardly with respect to the toilet bowl, said tension plate adapted to be slidably moved toward or away from said hinge pins to adjust the tension of said springs, the upstanding integral portion of said tension plate and the ends of said springs engaged therewith normally overlapping each other in a vertical direction to provide vertical adjustment for variations in the height of said hinge pin from the toilet bowl.

3. A toilet seat lifter adapted to be used with a toilet having an elongated horizontally extending hinge pin mounted on a toilet bowl, a pair of vertically extending flanged hinge bolts disposed adjacent the opposite ends of said hinge pin, and a toilet seat pivotally mounted on said hinge pin, said lifter comprising a pair of coil springs adapted to be mounted on said hinge pin adjacent the opposite ends thereof, each of said coil springs comprising a plurality of circular coils surrounding said hinge pin, one end of each of said coil springs being adapted to engage and fit around the edge of said toilet seat, an elongated tension plate having a flat base adapted to be mounted upon and lie flat against the top of the toilet bowl directly beneath said hinge pin, said tension plate having a portion directed upwardly from said base toward said hinge pin, said base being greater in length than the distance between said hinge bolts, said base having a pair of elongated openings adapted to slidably fit around said hinge bolts, the flanges of said hinge bolts being adapted to hold the base of said tension plate against the top of the toilet bowl to prevent undesirable movement of said base with respect to said hinge bolts, the opposite ends of said coil springs bearing against the upwardly directed portion of said tension plate so that said springs normally urge said toilet seat upwardly with respect to the toilet bowl, said tension plate adapted to be slidably moved toward or away from said hinge pins to adjust the tension of said springs, the upwardly directed portion of said tension plate and the ends of said springs engaged therewith normally overlapping each other in a vertical direction to provide vertical adjustment for variations in the height of said hinge pin from the toilet bowl.

4. A toilet seat lifter adapted to be used with a toilet having an elongated horizontally extending hinge pin mounted on a toilet bowl, a pair of vertically extending flanged hinge bolts disposed adjacent the opposite ends of said hinge pin, and a toilet seat pivotally mounted on said hinge pin, said lifter comprising a pair of coil springs adapted to be mounted on said hinge pin adjacent the opposite ends thereof, each of said coil springs comprising a plurality of circular coils surrounding said hinge pin, one end of each of said coil springs being adapted to engage the edge of said toilet seat, and an elongated tension plate having a flat base adapted to be mounted upon and lie flat against the top of the toilet bowl directly beneath said hinge pin, said tension plate having a portion directed upwardly from said base toward said hinge pin, said base being greater in length than the distance between said hinge bolts, said base having a pair of elongated openings adapted to removably and slidably fit around said hinge bolts, the flanges of said hinge bolts being adapted to hold the base of said tension plate against the top of the toilet bowl to prevent undersirable movement of said base with respect to said hinge bolts, the opposite ends of said coil springs bearing against the upwardly directed portion of said tension plate so that said springs normally urge said toilet seat upwardly with respect to the toilet bowl, said tension plate adapted to be slidably moved toward or away from said hinge pins to adjust the tension of said springs.

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