

March 17, 1959

W. M. JOHNSON  
TOILET SEAT RAISING DEVICE

2,877,469

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2 Sheets-Sheet 1

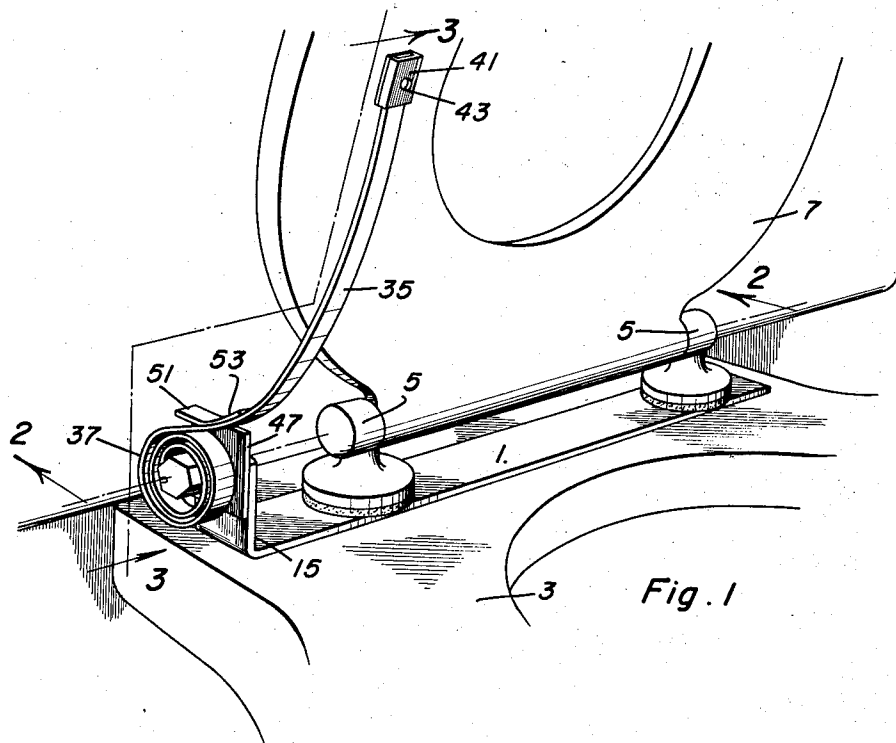


Fig. 1

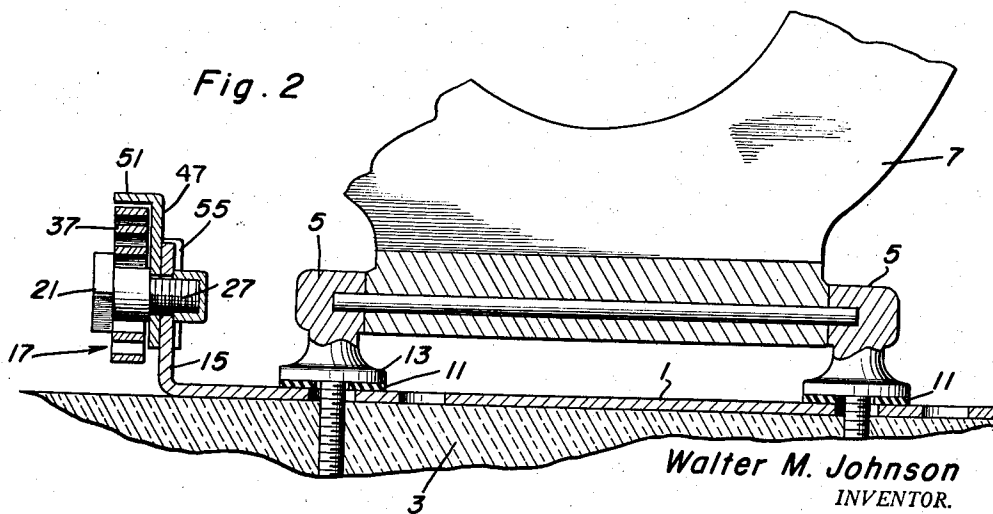


Fig. 2

Walter M. Johnson  
INVENTOR.

BY *Charles A. O'Brien*  
*and Harry B. Jackson*  
Attorneys

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Fig. 3

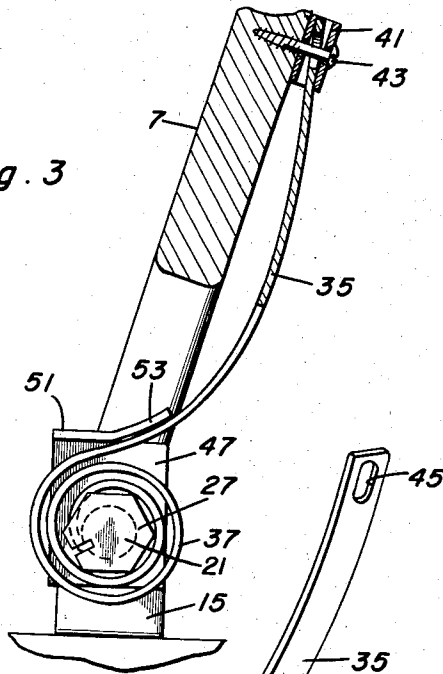
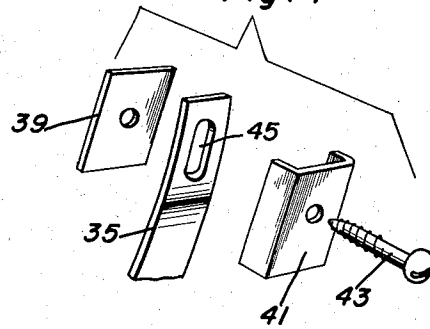
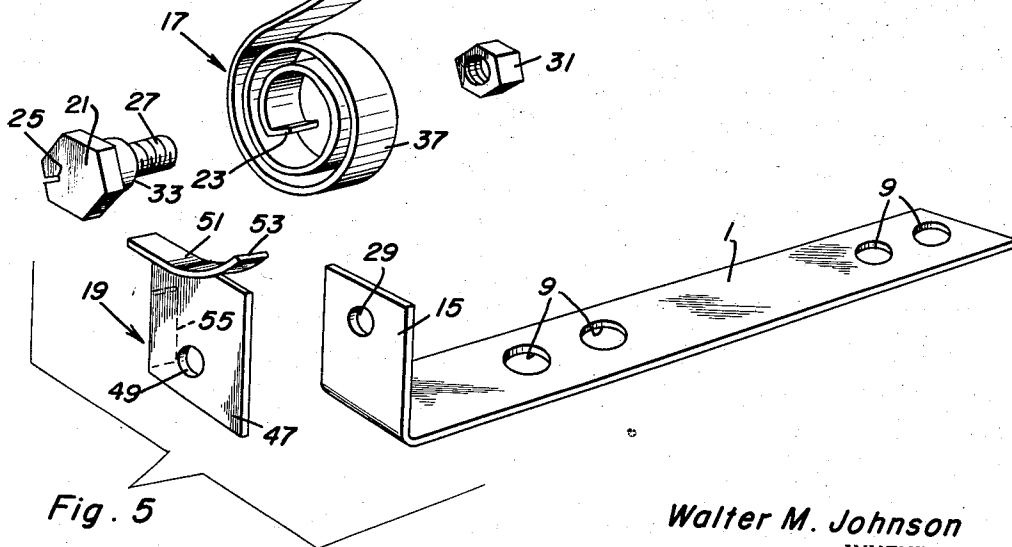


Fig. 4



Walter M. Johnson  
INVENTOR.

BY *Almonce A. O'Brien*  
*and Harvey E. Jackson*  
Attorneys

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2,877,469

## TOILET SEAT RAISING DEVICE

Walter M. Johnson, Bahama, N. C.

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1 Claim. (Cl. 4—241)

My invention relates to toilet seat raising devices of the coil spring type.

The primary object of my invention is to provide for raising the conventional toilet seat when not in use by uncoiling of a clock spring and to provide stop means for restricting uncoiling of the clock spring to limit raising of the toilet seat by said spring.

Another object is to provide means for attaching a free end portion of a clock spring to a toilet seat for raising of the seat without marring of the seat by the free end portion of said spring.

Still another object is to provide a device for the above purposes which is attachable to the toilet bowl by the usual hinge pins of the toilet seat and which is durable, safe and comparatively inexpensive to manufacture and install.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view illustrating my improved seat raising device in a preferred embodiment thereof applied and with the toilet seat raised;

Figure 2 is an enlarged fragmentary view in vertical section taken on the line 2—2 of Figure 1;

Figure 3 is an enlarged fragmentary view in vertical section taken on the line 3—3 of Figure 1;

Figure 4 is an enlarged exploded view in perspective of the parts of the means for attaching the free end portion of the clock spring to the toilet seat; and

Figure 5 is an enlarged exploded view in perspective of the clock spring, stop means, and a mounting bar therefor.

Referring to the drawings by numerals, the seat lifting device of my invention comprises a mounting bar 1 fixed on the toilet bowl 3 at the back and crosswise thereof by means of the usual hinge pins 5 of the toilet seat 7. The bar 1 is provided with longitudinally spaced holes 9 therein for receiving differently spaced hinge pins. Washers 11 are provided on the hinge pins 5 between the usual flanges 13 thereon and said bar 1. The bar 1 is formed with an upstanding terminal arm 15 for supporting the clock spring 17 and the stop means which is designated generally by the numeral 19.

The clock spring 17 is coiled around a horizontal lateral stud 21 on the arm 15 and by means of which said spring is attached to said arm 15. For this purpose, the inner end of the clock spring 17 is provided with a lateral lip 23 suitably fixed in a longitudinal slot 25 in the stud 21 and the stud is provided with a reduced threaded end 27 extending through an opening 29 in said arm 15 and provided with a cap nut 31. The reduced end 27 provides a circumferential shoulder 33 on the stud 21 forming a purpose presently apparent. The free end portion 35 of the clock spring 17 is extended forwardly over the coil 37 and is terminally attached, by means presently

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described, to the bottom of the seat 7 to react and bear upwardly thereagainst and swing the seat upwardly and rearwardly in response to uncoiling of the coil 35.

The attaching means for the free end portion 35 of the clock spring 17 comprises an apertured wear plate 39 opposed to the toilet seat 7 and an apertured channelled member 41 opposed to the wear plate 39 and between which said free end portion 35 is slidable, and a screw 43 extending through said wear plate and channel member 41 and through a longitudinal terminal slot 45 in said free end portion 35. The slot 45 provides for limited endwise sliding of the free end portion 35 relative to the seat 7 for a purpose presently set forth, the wear plate 39 prevents said free end portion 35 from marring the bottom of the seat 7 during such sliding of said end portion 35, and a channel member 41 guides said free end portion 35 in its sliding movement and prevents said free end portion from turning edgewise on the screw 43.

The stop means 19 comprises a rectangular stop plate 47 interposed vertically between the coil 37 and the arm 15 and provided with an opening 49 therein through which the reduced end 27 of the stud 21 extends and which is smaller than the shoulder 33 so that when the cap nut 31 is tightened on said stud 21 the stop plate 47 is clamped in vertical position between said shoulder 33 and the arm 15 and is laterally spaced relative to the coil 37 by the shoulder 33. A lateral flange 51 on the top edge of the stop plate 47 is provided with an upturned front end 53 and overlies the coil 37 at its juncture with the free end portion 35 to limit uncoiling and expansion of the coil 37. A rear edge lateral flange 55 on the stop plate 47 fits against the rear edge of the arm 15 for vertically aligning said plate to center the flange 51 over the coil 47 and to prevent turning of the stop plate 47 on the stud 33.

My invention operates as follows: When the seat 7 is down, the free end portion 35 of the clock spring 17 is substantially horizontal and below the flange 51 and the coil 37 is contracted so that it is also spaced below the flange 51. As the seat 7 is relieved of weight thereon, the coil 37 uncoils and expands and thereby swings the free end portion 35 upwardly and rearwardly to swing the seat 7 upwardly and rearwardly until said free end portion 35 engages the flange 51, whereupon uncoiling and expanding of the coil 37 is frictionally checked and then stopped to limit upward swinging of said free end portion 35 and the seat 7. When the free end portion 35 and seat 7 are swung into their upward limit of movement, as best shown in Figure 3, the free end portion 35 will be bowed forwardly by a thrust against the same in response to uncoiling of the coil 37, and also by engagement of the inner end of the slot 45 with the screw 43. Obviously, when the seat 7 and free end portion 35 are swung downwardly, the coil 37 will be coiled tighter and contracted. The slot 45 provides for sliding of said free end portion 35 relative to the seat 7 to compensate for difference in throw between said free end portion 35 and the seat 7 when said seat is lowered and the coil 37 thereby contracted and also compensates for coiling or contraction of the coil 37 when the seat 7 is lowered. By adjusting the stud 27, the tension exerted by the coil 37 may be varied as desired.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

Means for swinging a hinged toilet seat upwardly of a

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toilet bowl comprising a horizontal bar attachable to said bowl beneath the hinge of said seat and having an upstanding integral arm on one end thereof provided with an aperture therein, a stud bolt having a head and a reduced end extended through said aperture for rotary adjustment of said bolt and forming a shoulder on said bolt, a longitudinal slot in said bolt extending to said shoulder, a clock spring having a coil surrounding said bolt between said head and said shoulder and having a free end bearing upwardly against said seat, said coil having a terminal lip fixed in said slot for winding up said coil in response to rotary adjustment of said bolt for uncoiling of the coil to swing said free end of the spring upwardly, an apertured stop plate on the reduced end of the stud between said shoulder and said upstanding arm and having a lateral flange overlying the coil to limit uncoiling thereof,

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and a nut on the reduced end of the stud for clamping the stop plate between said shoulder and upstanding arm and thereby retaining said stud in rotatably adjusted position, said stop plate having a second lateral flange thereon engaging and overlying said arm to prevent said stop plate from being turned by said coil when the stud is being adjusted.

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