Aug. 21, 1928. 1,681,277

B. C. BOOTH

SPRING HINGE FOR TOILET SEATS

Filed Sept. 19, 1927

Fig. 2.

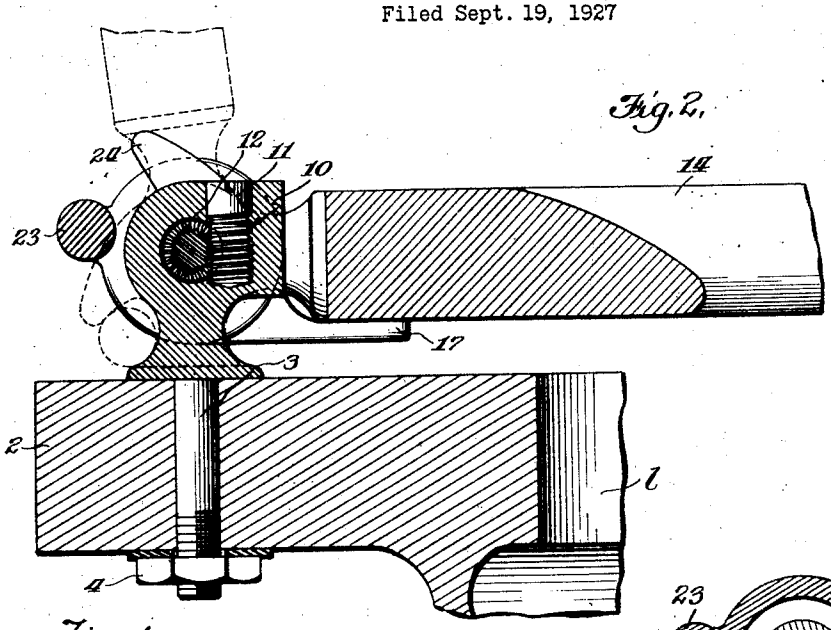


Fig. 1.

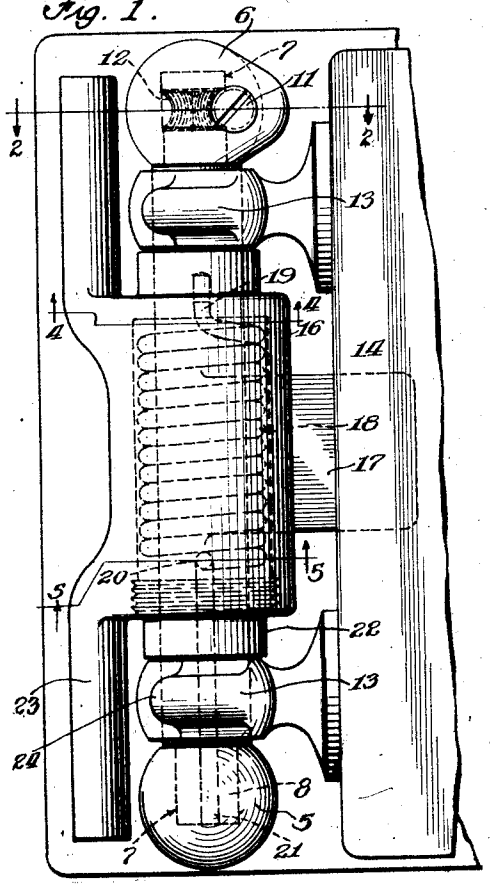
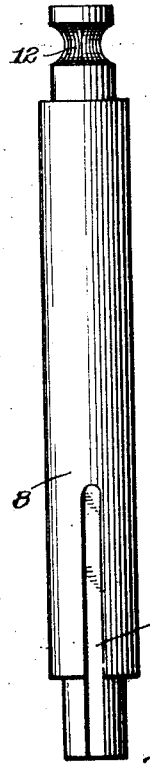


Fig. 3.



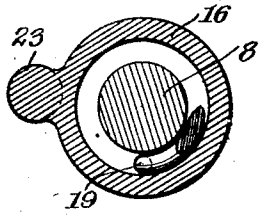


Fig. 4.

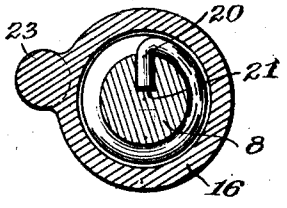


Fig. 5.

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UNITED STATES PATENT OFFICE.

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SPRING HINGE FOR TOILET SEATS.

Application filed September 19, 1927. Serial No. 220,413.

My invention relates to spring hinges, and more particularly to spring hinges for toilet seats.

One of the objects of my invention is to provide a spring hinge, especially adapted for toilet seats, which will tend to maintain said seat in a raised position when not in use, and in which the strain caused by the lifting action of the spring is borne by a supporting member forming a part of the hinge, rather than by the lugs connecting the seat to the hinge. This structure greatly reduces the possibility of the lugs being torn loose from the seat as a result of the continued strain upon them, thus eliminating a common difficulty in seats of this type.

Another object of the invention is to provide a spring hinge of this type which will be simple, strong and readily assembled.

Other objects of the invention will appear as the dscription proceeds.

In the accompanying drawings forming a part of this specification,

Fig. 1 is a plan view of a closet bowl and seat with a spring hinge embodying the invention attached thereto the seat and bowl being broken away,

Fig. 2 is a partial sectional view of the same, taken along the line 2—2 of Fig. 1, the seat and bowl being broken away and the raised position of the seat being shown in dotted line,

Fig. 3 is a detail view of the hinge pintle,

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1, and

Fig. 5 is a sectional view taken on line 5—5 of Fig. 1.

The bowl 1 is provided with a rearwardly extending flange 2, through which a pair of standards 3 extend. The lower ends of the standards have nuts 4 thereon and the upper ends are provided with heads 5 and 6 having recesses 7 therein for receiving the ends of a pintle 8. The head 6 of one of the standards may be provided with a screw threaded opening 10 for receiving a screw 11, which engages teeth 12 on the pintle 8.

A pair of eyes 13, rotatably mounted on the pintle 8, is secured in a suitable manner to a toilet seat 14, thus permitting the seat to swing pivotally about the pintle.

A casing 16 is rotatably mounted on pintle 8 between the eyes 13 and is open at one end and closed at the other, except for an opening for the passage of the pintle 8. The casing is provided with a support 17, adapted for contact with the bottom of the seat.

A coil spring 18 surrounds the pintle 8 and is disposed within the casing 16, which may contain a suitable lubricant. One end 19 of the spring may be held in a cavity provided therefor on the inside of the closed end of the casing, and the other end 20 may extend inwardly and be held in a groove 21 provided therefor in the pintle.

A cap 22 having an opening for the passage of the pintle 8 may be threaded into the open end of the barrel or casing 16.

Arms 23 extend from the casing 16, and are engageable with the standards 3 to limit the rotation of the casing. The eyes 13 are provided with stops 24, which are engageable with the arms 23 as will presently be described.

When the seat is pressed down it will engage the support 17 on the casing 16 and by turning the casing, place the spring 18 under tension. Upon release of pressure upon the seat, the tension of the spring will cause the casing 16 to turn and the support 17 will thus raise the seat. The movement of the casing will be limited by the arms 23 engaging the standards 3, and if the seat 14 is raised upwardly to such an extent that its center of gravity causes it to fall rearwardly, it will be limited in such movement by the stops 24 abutting against the arms 23.

It will thus be seen that the strain caused by the lifting action of the spring is borne by the support 17, rather than by the lugs connecting the seat to the hinge, thus greatly diminishing, if not entirely eliminating, the possibility of the lugs being torn from the seat due to such continued strain.

The tension of spring 18 may be readily varied as desired by merely turning the screw 11 and thus turning the pintle 8.

It will be apparent that the described hinge is strong, durable and simple and that its parts are few and easy to assemble. The exposed portions of the hinge are readily accessible for cleaning and offer but slight opportunity for the lodgment of dirt.

While I have described a preferred form of my invention in detail, I do not wish to be limited to the exact form shown, for many

changes may be made within the scope of the invention as defined in the appended claims.

Having described my invention, what I claim and desire to secure by Letters Patent of the United States is:

1. The combination with a toilet seat and a closet bowl, of means supporting said seat for pivotal movement, a pivoted member engageable with said seat, resilient means for moving said member upwardly, and means for limiting the upward movement of said member, said member and said resilient means being operative to raise said seat until the limit of movement of said member is reached, and said seat being capable of disengaging from said member and continuing its movement.

2. The combination with a toilet seat and a closet bowl, of means supporting said seat for pivotal movement, a pivoted member engagable with said seat, resilient means for moving said member upwardly, and means for limiting the upward movement of said member, said member and said resilient means being operative to raise said seat until the limit of movement of said member is reached and said seat being capable of disengaging from said member and continuing its movement, and additional means for stopping said seat after it has reached a rearwardly inclined position.

3. The combination with a closet bowl and a seat therefor, of a hinge comprising standards mounted on said bowl, a pintle supported by said standards having a longitudinal groove extending from an end thereof, lugs secured to said seat and pivotally mounted on said pintle, a casing rotatable on said pintle and having thereon an extension for lifting said seat, and a spring disposed within said casing having one end engaged with said casing and the other disposed in the longitudinal groove of said pintle, for rotating said casing and raising said seat.

4. The combination with a closet bowl and a seat therefor, of a hinge comprising standards mounted on said bowl, a pintle supported by said standards, lugs secured to said seat and pivotally mounted on said pintle, a casing rotatable on said pintle and having an extension thereon loosely engaging the bottom of said seat, a spring in said casing having one end engaged therewith and the other with said pintle for rotating said casing and thereby lifting said seat, and an arm on said casing engageable with one of said supports for limiting the movement of said casing so that said extension may support said seat in an inclined position.

5. The combination with a toilet seat and a closet bowl of a hinge comprising a pintle having a longitudinal groove extending from the end thereof, a pair of supports for the ends of said pintle, a pair of lugs secured to said seat and supporting the same for pivotal movement on said pintle, a spring coiled about said pintle, a casing for said spring rotatably mounted on said pintle and having an extension engageable with the bottom of said seat and an open end for permitting the assembly of said spring in said casing and a small cavity receiving one end of said spring, the other end of said spring being directed inwardly into said groove, said spring being maintained under tension to enable it to move said casing and lift said seat by means of said extension, and a cap closing the end of said casing.

6. The combination with a toilet seat and a closet bowl of a hinge comprising a pintle having longitudinal groove extending from the end thereof, a pair of supports for the ends of said pintle, a pair of lugs secured to said seat and supporting the same for pivotal movement on said pintle, a spring coiled about said pintle, a casing for said spring rotatably mounted on said pintle and having an extension engageable with the bottom of said seat and an open end for permitting the assembly of said spring in said casing and a small cavity receiving one end of said spring, the other end of said spring being directed inwardly into said groove, said spring being maintained under tension to enable it to move said casing and lift said seat by means of said extension, a cap closing the end of said casing, and an arm extending from said casing for engaging one of said supports to limit the rotation of said casing.

BYRON C. BOOTH.